



## D5.1 Action Launchpad

**30/08/2024**

*UrbanDNA*

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### 3. About SMCNetZero

SMCNetZero brings together six successful urban innovation initiatives in Europe with seven (7) regional and Pan European networks and their partners to create a **Satellite Network of innovation actors** to support public sector representatives from Small and Medium-sized cities (SMCs), SMEs, academia, NGOs, and investors across Europe to **facilitate decarbonisation in SMCs**.

The SMCNetZero consortium is composed of:

- BABLE Smart Cities**, Germany (BAB)
- ODRAZ - Održivi razvoj zajednice**, Croatia (ODZ)
- Smart City Cluster**, Spain (SCC)
- Southern Regional Assembly**, Ireland (SRA)
- BLOXHUB**, Denmark (BXH)
- WE BUILD DENMARK**, Denmark (WBD)
- UrbanDNA**, United Kingdom (UDNA)

This project is unique in that its diverse consortium partners and broad commitment from target stakeholders in the Satellite Network ensure **focus in regions with less innovation capacity**, with written confirmed commitment from nearly 100 innovation actors at the proposal stage, to participate in the activities- including an emphasis on largely underrepresented regions and stakeholders.

The project will leverage its diverse Satellite Network to:

- Gain an in-depth understanding of SMC needs and barriers towards achieving Net Zero emissions.
- Raise awareness and simplify access to existing successful initiatives supporting decarbonisation.
- Support matchmaking between supply and demand sides by linking SMEs, researchers, and investors with SMCs.
- Help identify and open access to funding for enabling innovation deployment in SMCs currently underrepresented in the European innovation ecosystem.

SMCNetZero's vision is to **create and strengthen local innovation ecosystems' interrelations in SMCNetZero regions** through brokerage and knowledge-building activities as well as digital resources to increase capacity **for planning, deploying, and scaling up of decarbonisation solutions**, overall focusing on increasing the inclusivity of these innovation ecosystems and minimizing existing innovation divides.

To achieve this vision, SMCNetZero has the following primary strategic objectives:

- Open up opportunities and stimulate the dissemination of information and exchange of knowledge on best practices on decarbonization for SMCs (and as a result, SMEs).
- Increase implementation prospects between providers of zero-emission solutions and public authorities from SMCs by designing, developing and providing a digital space and accompanying toolkit for collaborating, learning and networking.
- Identify and engage innovation leaders from the public and private sectors from “strong” innovator regions and “moderate” to “modest” innovator regions within the project’s focus countries.
- Design and deploy engagement and knowledge-building activities for ensuring wide participation for SMCNetZero and maximum impact.
- Facilitate the understanding and implications of the implementation and scale-up of innovation projects in SMCs.

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## 4. Introduction

### Orientation within the SMCNetZero Project

Over the past 18 months, the SMCNetZero project has brought together Small and Medium-sized cities (SMCs) and their Small to Medium Sized Enterprises (SME) partners to improve their innovation potential and capabilities to successfully address their challenges on their journey towards achieving NetZero emissions.

The project includes 7 partners from a variety of regions right across Europe and has addressed 5 objectives:

1. Encourage the **dissemination of information and knowledge** on decarbonising solutions, funding opportunities, and market participants to help SMCs and SMEs adopt innovative zero-emission solutions for transport and energy.
2. Increase **collaboration** and networking opportunities between providers of zero-emission solutions and public authorities from SMCs by creating a digital space and toolkit.
3. Identify and **engage innovation leaders** from public and private sectors in different regions to ensure high-value content and participation in the project’s activities.
4. Ensure wide participation and maximum impact through engagement and **knowledge-building** activities, with a focus on underrepresented groups and organisations.
5. Facilitate the **implementation and scale-up of innovation projects** in SMCs, by developing core common solutions and promoting demand aggregation to increase market attractiveness for SMEs and offer better value for SMCs.

SMCNetZero is thus about working with market actors (SMCs in particular, being the generators of demand) through a facilitative, networking and supportive approach. The project is not about explicitly addressing the implementation of specific solutions, as the project has no funds for the delivery of such measures.

However, SMCNetZero’s focus, and intent has always been on practical actions, and, consequently, this report, and its sister report, D5.2 Mobility Island Proof Point, picks up that thread of in-city action to address their NetZero challenges and, in turn, addresses all of the SMCNetZero objectives. This practical mindset is fully consistent with the mindset of smaller cities in that they are typically very pragmatic, focused and capacity constrained.

Figure 1 shows the background logic for the project, connecting the various activities and deliverables whilst highlighting the fact that these two reports build on and complement many of the other activities within the project; a relationship that we bring out herein.

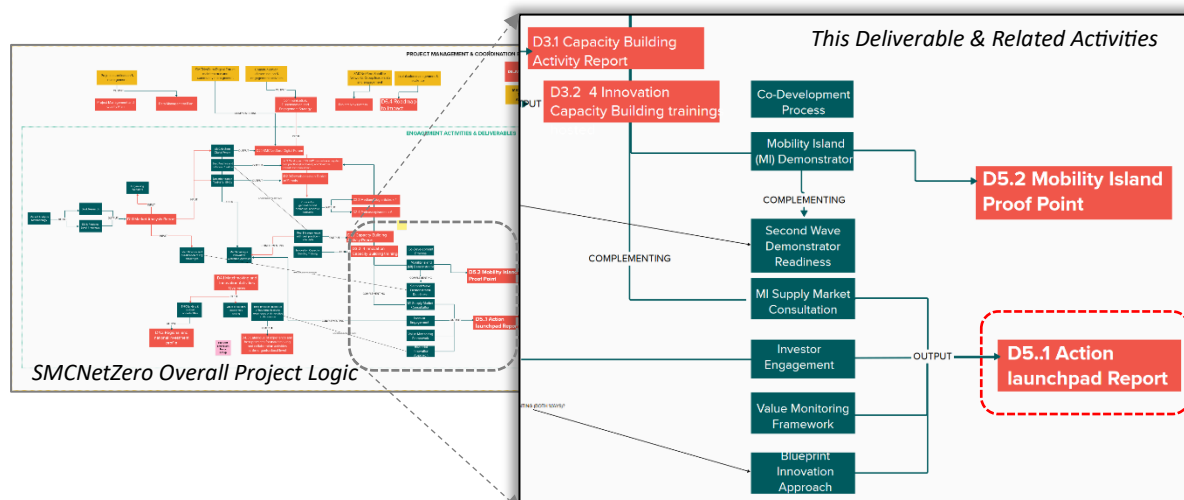


Figure 1: Orientation of this deliverable and related activities within the overall project

## About this document

This **Action Launchpad Report D5.1** “A report focusing on the **practice and learning of action taken for Mobility Islands**, serving as a **blueprint for application to other topics**”:

- i. Describes the **context of smaller cities** (building on the detailed insights of D1.1 Market Analysis), highlighting their key challenges and strengths, including recognising regional variances
- ii. Discusses the **involvement of smaller cities in European Commission city initiatives**, specifically considering the actions of the Smart City Marketplace and Climate-Neutral Smart Cities Mission
- iii. Summarises the **state-of-the-art concerning the development of the Mobility Island** concept within a varied group of SMCs around Europe, highlighting the key learning from these activities. Further detail is provided in D5.2 ‘Mobility Island Proof Point’.
- iv. Introduces a **‘Roadmap to NetZero for SMCs’** as a pragmatic basis to support their transition across a breadth of topics and measures through building capacity, collaboration, and the use of practical free-at-point-of-use methods and tools. In that respect, the report is a key component of the SMCNetZero capacity building programme

Finally, the D5.1 deliverable makes **recommendations** to speed and scale the transition of SMCs to NetZero.

## Intended Readership & Purpose

The intention is that this report, or excerpts from it, will be read and used by SMCs particularly; notably the ‘Roadmap to NetZero’. In order for that to be so, the actions to sustain the content and network relationships of SMCNetZero, through the likes of the Small Giants initiative, now a formal Focus Group, of the EU Smart Cities Marketplace, and the Digital Forum become important assets to support the ongoing and future use of this content.



The document's purpose is to highlight the specific needs and opportunities of the smaller cities community and support that community in continued collaborative improvement activities focused specifically on NetZero interventions.

Clearly, as a project deliverable, this is also intended to support project partners in their ongoing developments as well as the European Commission itself in considering how best to support this large yet fragmented community through policy or programme actions.

#### 4.1 List of Acronyms & Abbreviations

- CCC – City Climate Contract (deliverable the EU Climate-Neutral Smart Cities Mission)
- CoM – Covenant of Mayors
- CoR – Committee of Regions
- CPED - Climate Positive Energy District
- DG Regio/ENER/ENV/MOVE/CNECT – European Commission Directorate Generals for: the Regions, Energy, Environment, Transport, Digitalisation (respectively)
- E.EU / W.EU – Eastern and Western Europe
- GHG - Greenhouse Gas
- NBM – New Business Models
- PPP - Public Private Partnership
- SISEC / CIRIS / BEI – noted misc. tools for NetZero analysis
- SCM – European Smart Cities Marketplace
- SMC - Small Medium City
- SUMP - Sustainable Urban Mobility Plan

## 5. Context of smaller cities

*This section describes the context of smaller cities (building on the detailed insights of D1.1 Market Analysis), highlighting their key challenges and strengths, including recognising regional variances*

Smaller cities think, behave, act and are perceived very differently to larger cities. This has substantial ramifications in how NetZero is tackled and delivered. NetZero solutions for larger cities may not map appropriately to smaller ones. For example, Low Emission Zones (LEZ), which are a current fashion in large cities. Although many of the fundamental drivers, characteristics, and principles of solutions may well be similar, the contexts differ markedly, and different approaches and results emerge. In many instances, down-sizing large city solutions to fit the SMC contexts are likely to be inefficient with impacts compromised.

These differences have been explored by SMCNetZero in two deliverables. *Firstly*, **D1.1 Market Analysis Report** which captured detailed feedback from market research of 48 SMCs across 12 EU Member States, together with the view of European level organisations and EU SMEs. *Secondly*, in **D4.2 Regional and National Investment Profile**, reviewing SMCs through a more financially focused lens. Both deliverables also explored the different nature and characteristics of SMCs in the various regions of Europe.

Perhaps the most striking fact that must be retained in the foreground is that smaller cities house most of the population of Europe, *not* their larger siblings. We thus cannot neglect this community if NetZero goals are to be secured lest we create a “two-speed” European cities landscape. SMCs have distinct strengths that make them ideal testbeds and demonstrators for NetZero initiatives. They also, alas, have several severe constraints that must be addressed.

The paragraphs which follow summarise the key insights from the SMCNetZero project.

As regards SMC progress towards NetZero, most cities are taking action and generally see this as a priority topic. Actions may well be in areas of energy systems (e.g. renewables, energy efficiency and district heating), sustainable construction, sustainable mobility or seeking to overcome the silos that inhibit and slow progress.

5 principal **INTERNAL BARRIERS** emerge from the Project's engagement with SMCs:

- *Perceptions*: city staff are busy and sometimes perceive CO<sub>2</sub> reducing tasks as add-ons to the real task of addressing more traditional and more local city challenges
- *Decision Making* complexity resulting from decisions that need to be made, and align, in various teams within the organisation
- *Skills*: Lack of training of staff leading to a lack of knowledge and skills relating to the complexity and scale of the NetZero challenge and the corresponding interventions and responses required across all city services
- *Resources* Lack of staff focused on NetZero projects, with priority being given to the more traditional, short term and local challenges
- *Structure and Mindset*: silo thinking pervades making the pan-departmental, cross-city alignment required particularly challenging

These internal barriers are exacerbated by 3 **EXTERNAL BARRIERS**:

- *Market Engagement*: challenges in getting the attention of companies, which often default to the larger counterparts
- *Societal Insight & Engagement*: inadequate insight and a reliance on traditional methods to change behaviours
- *Evidence of Value*: demonstrating benefits to society to initiate and drive behaviour change, combined with uncertainty and lack of confidence (and/or method) surrounding value calculations

**CRITICAL FACTORS** to overcome these internal and external barriers include:

1. **Political commitment** – securing, and making visible, credible and trusted politicians to champion the NetZero cause
2. **Skilled resource** – finding and mobilising the right people, committed to delivering tangible impact where it matters most
3. **Collaboration** – with key value chain partners across the city and a commitment to multi-city collaboration
4. **Leadership** – aligning key players around a single vision and plan to individually and collectively champion NetZero improvements
5. **Financing & Funding** – making the case to access appropriate funds and recognising the enforced shift from public to private funding sources which requires a shift in thinking and innovation
6. **Legislation** – ensuring any legislative barriers are identified and challenged and that changes are made where feasible (e.g. testbeds)
7. **Value** – being able to pragmatically evidence societal, environmental and economic benefits

Regional variances in SMCs occur across a variety of contextual factors and a summary of these is also explored in D4.2 considering E.EU; W.EU; South, & North. These address 9 key characteristics: (i) Political; (ii) Legal & Regulatory; (iii) Climate, Geography, Topology; (iv) City

Scale & Demography; (v) Social, Cultural, Behavioural; (vi) Technological; (vii) Physical; (viii) Fiscal & Financial; (ix) Market Engagement.

Of the critical factors: **above, political commitment, skilled resource, collaboration, leadership, and value management**, are things that need to be addressed in principle from inside the organisation. They are non-trivial to tackle, and ‘city hall’ must take conscious action to address these matters to accelerate net zero progress.

With regard to **Financing & Funding**, funding is now a well-recognised shortfall. The funding required to transition to NetZero has been estimated to be of the order of €1 billion to 2030 for every 100,000 residents in a city and considerably more beyond<sup>1</sup>. New business models (NBM) and new sources of financing and funding will be required to achieve scale adoption of NetZero solutions, particularly in SMCs.

Research indicates that SMCs still rely heavily on *government* assigned budgets, their own generated income and *EU* funds. The latter includes structural funds and, to an extent, project funds. There is an over-reliance on public funds, and a paradigm that it is always “the best way”. *Private* funds are a distant 4<sup>th</sup> category according to research findings (D1.1). This is particularly the case in some of the newer EU Member States.

Public funds do play an important role, however they can be better used by leveraging them better, particularly in bridging the risk gap and demonstrating the (financial) value of solutions in order to attract scale market funds. D4.2 explores some of the financial instruments that can assist such as Expanded Core Local Funding, Local Government Borrowing, Public Private Partnerships (PPPs), and Underused Financial Instruments.

Alas, the perception amongst the investor community is that cities, generally, are “*too slow, too small, and too risky*”<sup>2</sup>. SMCs are perhaps even more tarred with that brush. In reality, and in comparison, with industry, there is more than a grain of truth in this statement. However, rather than use it as an excuse for non-engagement, we must take it as a challenge that must be solved to achieve climate goals.

**Legislation, regulation, procurement, and policy** are often *perceived* to be critical blockers and often used as a ‘go-to’ excuse for inaction and to retain the status quo. Often, with open minds and critical thought, there are different ways to interpret such texts. There are also means to test and ‘safely’ demonstrate new approaches to legislation through such vehicles as “sandboxes”.

SMCs also show a number of **IMPORTANT STRENGTHS**, compared to larger cities, and should build on these to achieve success:

- (i) **Agility** and ability to **act faster** than larger cities
- (ii) **Closeness to society** (to support adoption of new solutions). SMCs are better able to identify the “movers and shakers” relating to any particular theme or challenge
- (iii) **Less complex systems** landscape, with a clearer ‘golden thread’ between action and results that makes it easier to evidence improvements
- (iv) **Significantly greater pre-disposition to collaborate** with peers (rather than start their thinking from first principles).

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<sup>1</sup> UKRI “Accelerating Net Zero Delivery: Unlocking benefits of climate action in UK city-regions” [report](#), Mar’22

<sup>2</sup> Shared view from a senior member of institutional investor

**(v) Relatively small funds can result in transformational impact rather than funding a small-scale pilot in a larger counterpart.**

So, exploiting these strengths whilst also fixing challenges is the contemporary agenda.

Much could be improved if we could:

- Eradicate individualistic, fragmented and bespoke initiatives that lead to small scale ‘salami sliced’ actions (often due to a paucity of funds) which inhibit scale-up at city or market level
- Support SMCs to technically develop replicable and scalable NetZero solutions
- Convince investors to help incentivise scaling.

The roadmap included in Section 4 seeks to play its part and help in this regard.

## 6. Involvement of SMCs in European Commission City Initiatives

*This section discusses the **involvement of smaller cities in European Commission city initiatives**, specifically considering the actions of the Smart City Marketplace and Climate-Neutral Smart Cities Mission*

From the experience of the SMCNetZero partners and project desk research, it is evident that the involvement of SMCs in pan-EU initiatives remains low despite efforts by many organisations and initiatives to the contrary. Cities of *any* size that are successful in accessing EU projects and funds are limited in number and typically represent a consistent, well-known group of high profile, often larger cities that have “learned the ropes” and have the internal capacity and capability to repeat their success.

As further evidence of this, only 20% of Mission cities are SMCs even though, as mentioned previously, over 50% of the EU’s population actually live in SMCs leading to an obvious representational gap. This is compounded by anecdotal evidence that some of the SMCs in the Mission community feel somewhat reserved in sharing their views. However, a few Mission SMCs do exhibit and capitalise on the strengths and advantages of being a smaller place and, as a result, are demonstrating their ability to be nimble and move forward with confidence.

Involvement in EU projects necessitate a portfolio approach, alongside commitment and persistence, as success rates are generally modest, largely reflecting the number of proposals submitted for limited funding pots. For any budget-constrained city, such circumstances present specific and significant challenges. For smaller cities, this is often simply too big a hurdle to engage in the first instance, making it unlikely for them to leave the starting blocks. Where they do participate, more often than not, they do so as ‘followers’ or ‘observers’. This is particularly the case in the east south-east of the EU.

The EU Smart Cities Marketplace (SCM) provides a knowledge and a city and SME network and, more recently, a matchmaking, platform that aims to provide an “on-ramp” for SMCs. However, the SMC community in the SCM is currently small despite the recent establishment of a Focus Group specifically targeted at that community. This reinforces the observation that SMC mobilisation remains a chronic challenge.

Tactically-specific EU grant funded projects do, at times, provide a means by which SMCs can ‘hitch their wagon to the train’, although this is rare and generally the result of the commitment of an individual rather than a systemic approach to the theme of focus.

Regional and Inter-Regional funds also offer potential from time to time; and the regional offices in Brussels can and do support smaller cities in accessing good practices from around Europe

Member States national innovation programmes are, all too often, a microcosm of the EU picture, with, again, smaller cities being under-represented in innovation and demonstration activities and relying, instead, on national ‘formula-budgets’ for their improvement activities

As mentioned previously, more than 50% of the population live in SMCs yet best practice is often more relevant to their larger counterparts than providing insights and replicable solutions in this underrepresented city community. This clearly needs to change as ignoring SMCs in the essential journey to global NetZero will almost inevitably lead to failure.

## 7. Roadmap to NetZero for SMCs

*This section introduces the theory and practice of a 'Roadmap to NetZero for SMCs', as a pragmatic basis to support their transition across a breadth of topics and sectors; through building capacity, collaboration, and use of practical free-at-point-of-use methods and tools; used as part of the SMCNetZero capacity building programme*

### The Why & What of a Roadmap?

The NetZero challenge is not something that the average person deals with more than once in their lifetime and it is common to all cities. Consequently, the idea of providing a common roadmap or guide to provide city confidence in the journey has many advantages.

In developing the SMCNetZero Roadmap, we have held to **10 guiding principles**. These are particularly important given the SMC context and can be summarised as follows:

1. Address a transformational agenda
2. Focus on crisp and simple – all on “1-side-of-A4’
3. Keep things practical, pragmatic, and realistic; down to earth, yet with stretch
4. Support agility and speed of action
5. Take an ‘80/20’ (pareto) approach to solving problems
6. Provide a clear, ‘red thread’ to support coordinated actions
7. Provide a basis for contextual comparison, sharing and knowledge building
8. Support pan-city collaboration (help movers and shakers know each other and network)
9. Ensure replicability, and scale-up potential (including to larger cities)
10. Provide an enduring approach

**What is a Roadmap?** A Roadmap, in the context of cities, can be regarded as a basic, thematic structure or framework that is truly integrated and focussed on a clear end point. In effect, it provides a logical and accessible storyboard, based on a compelling visual logic to enable cities to find their own starting point. This helps to ensure that both drivers and targets (the “why”) are clear and provides a basis for developing blueprint solutions which effectively capture the ‘what’ and the ‘how’.

The Roadmap also offers a frame for tools suited to different levels of complexity (“101, 201, 301”) and offering guidance on options, choices, priorities and targets. It supports an assessment of the current state through a replicable methodology and suggests helpful monitoring approaches to assess progress. Furthermore, it addresses the interconnectedness of city systems to achieve NetZero objectives and targets and, where necessary, enables scenario exploration to support evidence-based decision-making. This approach, in turn, supports the exploration of financing options and business models thereby improving the bankability of selected solutions.

Finally, the Roadmap approach addresses knowledge and capacity gaps, particularly prevalent in SMCs due to scale, by suggesting a list of the ‘Top 10 things to do’; essentially a collection of common, ‘no regrets’ actions.

Although “analogue” at present, it is hoped that digitalisation and AI will augment and expand the functionality and use of Roadmap by the cities themselves.

In developing the SMCNetZero Roadmap, we have accessed multiple sources of materials and experience. These include the suite of other SMCNetZero project deliverables, the EU Smart City Marketplace (SCM) Small Giants' Focus Group and wider SMC community and a range of existing EU Platforms. The latter includes the EU SCM, C-NSC Mission, Scalable; ECA H2020 and SC Lighthouse Audit Report.

The SCC01 Lighthouse and similar, EU/Other regional project experience and the 'Packaging' Approach (DG Research 2018 Innovation award) were also useful sources of information and learning. The EU Climaborough project provided meaningful insights into NetZero innovation, monitoring, potential digital solutions and feedback from the participating city network views. SMC specific published plans were reviewed and supplemented with views and reflections on shared project activities.

Finally, key information was gleaned from market solution providers that are currently developing frameworks and component-based solutions that model the transition to NetZero goals. "City Performance Management – Made Simpler" paper.

This breadth of sources offers scope for developing a legitimate usable asset.

## SMCNetZero Roadmap

**The SMCNetZero Capacity Building Activity Report** (Deliverable D3.1) documents the process that has been developed by, and applied in, the project to support progress. The resultant SMC engagement essentially comprised of 3 core components:

1. **Planning** – managed as an on-line process with prior communications, engagement and preparations; and targeting senior cross-sectoral officers and political portfolio holders
2. (a). **Enabling** and (b). **Deep Dives** – held, in person in Copenhagen, as a 2-day event involving SME and SMC representatives
3. **Local Contextualisation** – managed as an on-line workshop, facilitating learning from the enabling and deep dive sessions to be translated into city specific contexts and parameters.

One key observation was that most, if not all, SMCs had some programme in place to tackle the global climate change challenge, usually arising from a combination of community pressure, local political ambitions, national policy and/or EU visibility and aspirations. However, the approaches that were being applied were often somewhat organic and not consistently captured in a manner that fully recognises the cross-cutting, systemic nature of these complex local interventions. This landscape is, almost inevitably, challenging for SMCs to tackle.

In instances where national requirements and targets were in place, the local policies and processes required to achieve national goals were often left to each city to develop. This may be an activity led by existing officer or role, or a new, cross-cutting role and requires, the development of, seeking approval for, implementing and managing these interventions. Although this has a positive impact in terms of local capacity building, it does raise the question of whether the necessary facilitation, support, and connections between national and local are in place. In addition, it challenges whether there are greater synergies to be delivered through more proactive collaboration between these city-level activities,



particularly as they are addressing the complex systemic priority changes that are required to be delivered in a tight timeframe, in the context of increasingly constrained public funds.

A further observation from the SMCNetZero work is that the policy, strategy and plan to deliver any thematic priority requires considerable time to translate from idea into impact via extensive research, the drafting of multiple reports and essential internal political briefings and negotiations. The latter is particularly difficult as the well-rehearsed impacts of the climate emergency are medium to long term in nature, despite evidence that short term impacts are being felt now. This, in turn, means that the impacts span multiple political terms of office, both nationally and locally. As some of the required interventions are costly, radical and unlikely to garner mass support and, therefore, votes, getting NetZero solutions across the political finishing line are difficult to secure at pace.

This is exacerbated by the very real fact that the cross-cutting text on climate change must compete with a range of traditional budget-focused sector plans, often with more short term benefits and impacts. The decision-making context is, therefore, far from ideal.

In response, the SMCNetZero project used its city-based experience to take a very pragmatic approach and capture a suggested set of responses in a consistent and easy-to-consume manner, effectively ‘all on one side of A4’. This is illustrated in Figure 2 and includes 15 activities, addressing:

- i. ongoing alignment activities (in yellow);
- ii. integrated planning activities (in green);
- iii. managed delivery activities (in red).

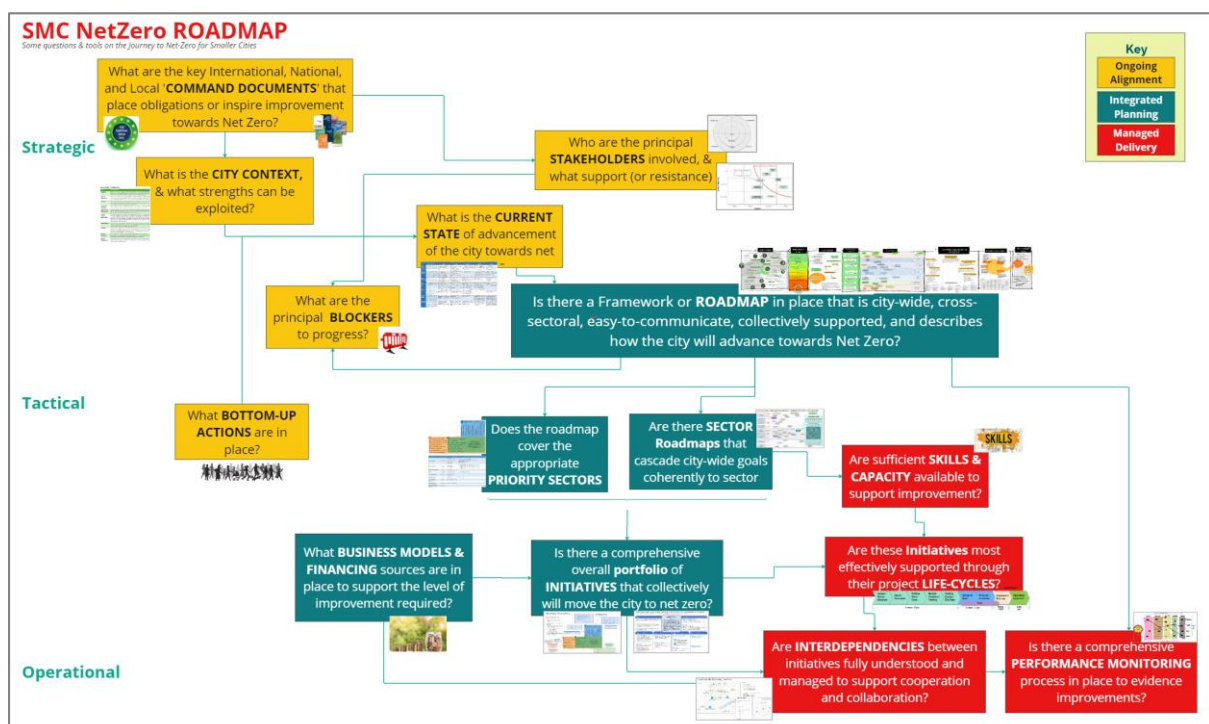


Figure 2: Roadmap to NetZero for SMCs

Most SMCs will most likely have tackled a variety of these activities already and be at different stages on their own NetZero journey. However, some elements are cyclical, perhaps stimulated by new political or leadership appointments or changed circumstances. Consequently, although the activity may have been completed, there is scope to revisit it.



Perhaps the best example of this is stakeholder management which is traditionally undertaken either intuitively or hierarchically in cities. Neither approach guarantees optimal results.

The various activities and suggested methods and tools which comprise the Roadmap are summarised in Table 1.

Table 1: SMC Roadmap Activities & Supporting Methods / Tools / Guidance

#	Title	Description / Driving Question	Methods / Tools / Guidance
1	<b>Command Documents</b>	What are the key International, National, and Local 'command documents' that place obligations or inspire improvement towards NetZero?	Capture and synthesis of key policy/strategy/plans. Coverage and coherence of NetZero conversation.
2	<b>City Context</b>	What is the city context, & what strengths can be exploited?	Template (D4.2, Table 1) to align locally on key points and facilitate comparison with other cities.
3	<b>Stakeholder Management</b>	Who are the principal stakeholders involved and what support (or resistance) can they offer?	Mapping and management tools to support this vital, ongoing need.
4	<b>Current State Assessment</b>	What is the current state of advancement of the city towards NetZero?	Draft 7-theme, 5 level, 'A4-sheet' - a pragmatic NetZero Assessment
5	<b>Blockers</b>	What are the principal blockers to progress?	Informed by D1.1; developed and validated thru local workshop(s)
6	<b>Community-led Actions</b>	What bottom-up, or community-led actions are in place?	Captured through pragmatic, local cross-sector surveys to identify a 'top 10'.
7	<b>Roadmap / Strategic Framework</b>	Is there a Framework or Roadmap in place that is city-wide, cross-sectoral, easy-to-communicate, collectively supported and describes how the city will advance towards NetZero?	A tested strategic framework and city example shared with SMCs.
8	<b>Priority Sectors</b>	Does the Framework or Roadmap cover the appropriate priority sectors of the city?	'City Model' and sector GHG contributors (captured on Miro), with typical early actions captured.
9	<b>Sector Roadmap</b>	Are there sector Roadmaps that cascade city-wide goals coherently to sector operations?	Example: Mobility Sector Transition Roadmap (D5.2)
10	<b>Initiatives Portfolio</b>	Is there a comprehensive overall portfolio of initiatives that will collectively and reliably move the city to NetZero?	Example mapping to city model and tested Initiative Template.
11	<b>Business Model and Financing</b>	What business models and financing sources are in place to support the level of investment improvement required?	D4.2 'Investment Profile'; D2.2 'Mobility Island Buyers Guide' and UDNA BXH Workshop Presentation.
12	<b>Skills and Capacity</b>	Are sufficient skills and capacity available to support improvement?	Assessment and management not addressed in a methodological fashion.
13	<b>Initiative Lifecycle Management</b>	Are these Initiatives most effectively supported through their project lifecycles?	Pragmatic lifecycle model tabled

14	<b>Inter-dependencies</b>	Are interdependencies between initiatives fully understood and managed to support cooperation and collaboration?	Novel tested portfolio management (freemium) tool provided as an example.
15	<b>Performance Monitoring</b>	Is there a comprehensive performance monitoring process in place to evidence improvements?	“City Performance Measurement (made simpler)” publication, & theory of change method profiled

Inculcating the use of the overall approach and supporting tools in an SMC requires sustained commitment over a significant timeframe as NetZero solutions are rarely, if ever, quick. The SMCNetZero project can suggest and promote Roadmap stages and solutions but the cities, themselves, must ultimately test, tailor, and consume them.

## Planning Workshop

The 2.5hr SMCNetZero online planning workshop was held on 5<sup>th</sup> March 2024 with 20 participants from 17 EU SMCs. During the Workshop:

- the SMCNZ Roadmap was introduced and explained in some detail,
- this was supported through the experiences of an implementing city, namely Izmir, (TK)
- breakout discussions enabled the testing and validation of the approach with further sharing of SMC experiences
- The approach to the project’s subsequent Enabling/Deep Dive and Contextualisation phases was outlined

The workshop participants were engaged by project partners collectively, through their various extensive networks (as briefing) and then briefed individually in advance of the workshop (to detail matters and resolve any questions). This was supported by a request for the SMC participants to undertake some “homework” to prepare for the session and maximise the value obtained from the workshop. This was supported by:

- A Workshop Briefing paper
- A City Profile Template
- A Draft SMC NetZero “maturity” assessment aligned to the Roadmap
- A Stakeholder Listing template
- A ‘Top 10’ Local initiatives template

The workshop provided an open forum for active discussion.

The discussion and feedback on the Roadmap were overwhelmingly positive, with the following three prompt questions addressed through interactive discussions:

1. *what was their overall impressions?*
2. *what is missing or incorrect?*

<b>Why</b>	<ol style="list-style-type: none"> <li>1. <b>Discuss, Test, Benefit from, and Contribute to</b> an evolving visual pragmatic Roadmap to NetZero</li> <li>2. <b>Share</b> practical approaches, tools, and experiences that SMCs have used, or could use, to improve NetZero planning</li> <li>3. <b>Prepare</b> cities and participants to get the maximum out of the Copenhagen workshop, localisation session, &amp; project actions</li> </ol>
<b>What</b>	<ul style="list-style-type: none"> <li>• Plenary: 60 mins: logic of (Graham), experiences of (Koray), and Q&amp;A on (All) the Roadmap &amp; Tools</li> <li>• Breakouts: 40 mins: City Capture &amp; Discussion</li> <li>• Plenary: 20 mins: So What?</li> </ul>
<b>Who</b>	
<b>Preparation</b>	

Figure 3: Planning Workshop Intentions

### 3. what other/better roadmaps exist?

In summary, the Roadmap was considered to provide a very clear structure, is practically focused, easy-to-understand and to communicate. Participants also recognised that, although they may have been at different stages on their NetZero journeys, the Roadmap was still relevant and helpful in enabling them to challenge or confirm their progress to date and chart their future progress.

To maximise participant’s engagement, all were given “live” access to a Miro Board onto which they could compose and post virtual notelets. The Miro captured their views, suggestions and comments in real-time. Figure 4 shows a screenshot of part of the Miro board taken at the end of the workshop.

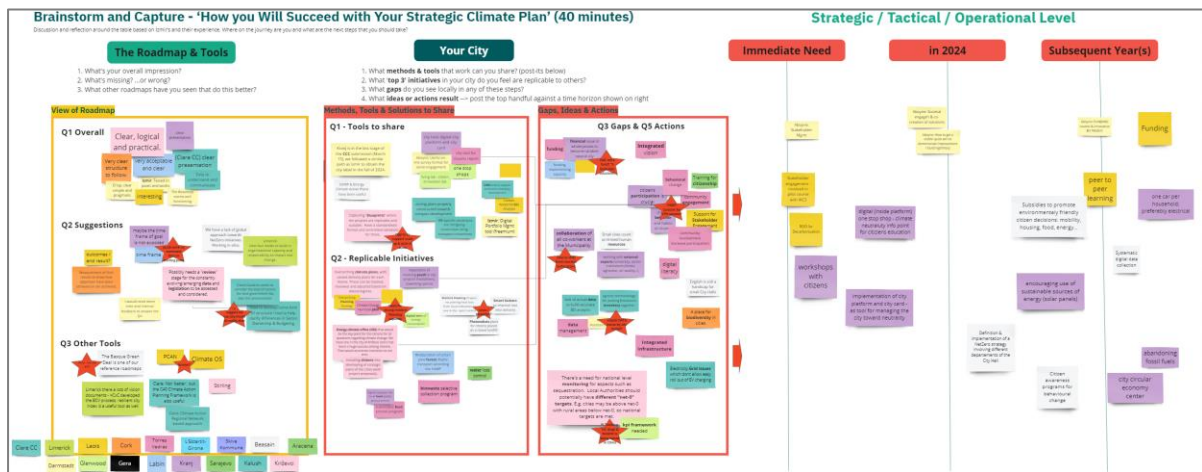


Figure 4: Planning Workshop Validation of Roadmap

Several practical suggestions for further development of the NetZero Roadmap were received. One notable one touched on the need for, and value of, some form of tool that could help clarify the governance of each service sector and clearly show the controls (or lack of) that a SMC has over their services and budget. This has been further developed as an emerging, pragmatic diagnostic of a city’s NetZero progress and maturity.

A limited number of partial roadmap and city-focused NetZero tools were identified by participants and captured. Few are regarded as being as crisp, clear, and practical as the SMCNetZero Roadmap.

The next part of the workshop used breakout sessions during which participants explored four focused questions with considerable ideas emerging, including some notable suggestions. Table 2 below lists the questions and summarises the comments and suggestions received.

Table 2: Planning Workshop Questions & Key Point Capture

#	Question	Key Points
1	What <b>Methods &amp; Tools</b> that work can you share?	<ul style="list-style-type: none"> <li>The CCC (city climate contract) in process in Kranj could offer learning for other SMCs</li> <li>‘Blueprinting’ of solar canopy (a case study from Stirling -UK) offers a structured basis for replication and scale-up/out, accessing economies of scale</li> <li>CIRIS/SISEC/BEI Analysis were noted tools</li> </ul>

2	What <b>'Top 3' initiatives</b> in your city do you feel are <b>replicable</b> to others?	<ul style="list-style-type: none"> <li>The need for stronger, modern digitally enabled planning capability and capacity was a key insight</li> <li>District Heating, Smart Lockers and PV implementation were viewed as being highly replicable solutions</li> </ul>
3	What <b>gaps</b> do you see locally in any of the 15 roadmap steps?	<ul style="list-style-type: none"> <li>Societal Insight Engagement &amp; Participation (SIE&amp;P) is vital, with much scope for modernisation</li> <li>Collaboration and shift of mindset locally were viewed as priorities</li> <li>Data management needs were highlighted, with the suggestion to analyse data using the City Model as a practical framework</li> <li>Performance monitoring is a priority for improvement, with a framework needed. The Climaborough project is presently testing a practical framework.</li> <li>The creation of a SMC Infrastructure Fund was agreed as a priority opportunity</li> </ul>
4	What ideas or <b>actions</b> result?	<ul style="list-style-type: none"> <li>A range of local ideas and actions were noted by each city and, for some, were mapped in three different time horizons: now, next year and beyond.</li> </ul>

## Enabling & Deep Dive Event

Building on the Planning Workshop, a 2-day event was held in Copenhagen on 10<sup>th</sup> and 11<sup>th</sup> April 2024 with the aim of developing a holistic understanding of the enablers deemed essential for driving citizen engagement and supporting innovation in NetZero and city contexts. In all, the sessions comprised 22 city representatives from 17 SMCs:

Table 3: In-Person Attendance, Copenhagen

City	Role
<b>Beasain City Hall, Spain</b>	First Deputy Mayor & President of Territory Commission
<b>Stirling, Scotland</b>	Strategic Energy Coordinator
<b>Torres Vedras, Portugal</b>	Dept of Mobility Manager
<b>Gera, Germany</b>	Adopter
<b>Labin, Croatia</b>	director and SUMP coordinator
<b>Kranj, Slovenia</b>	Head of the Office for Development & Smart Community
<b>Kranj, Slovenia</b>	Senior Advisor
<b>Laois County Council, Ireland</b>	Climate Action Coordinator
<b>Krizevci, Croatia</b>	Energy, environment & spatial planning advisor
<b>Ayuntamiento de Aracena, Spain</b>	Campeón Net Zero
<b>Ennis, Ireland</b>	Climate Action Officer
<b>Sandyford Business District, IRE</b>	CEO
<b>Ayuntamiento de Aracena, Spain</b>	Mayor of Aracena
<b>Puerto Real, Spain</b>	Climate Action Officer
<b>Cork County Council, Ireland</b>	Director Services, Environment, & Climate, Cork County
<b>Laois County Council, Ireland</b>	Senior Engineer
<b>Hørsholm Kommune, Denmark</b>	Climate Officer

<b>Clare County Council, Ireland</b>	Senior Engineer
<b>Krizevci, Croatia</b>	Senior Professional Associate
<b>Istrian Region Energy Agency, HR</b>	Expert Associate

The facilitated, interactive sessions, which took place on Day 1, explored innovative financing models, the potential for leveraging urban living labs, nurturing collaborative innovation ecosystems. Through presentations, workshop sessions and informal networking, participants gained practical insights into sustainable approaches for addressing NetZero to support them on their own journeys but with an emphasis on the power and value of city-to-city collaboration. A wide range of tools, approaches and best practice were discussed to inspire cities to implement their own, tailored approaches, build momentum and accelerate progress.

The learnings and outputs from the enabling topics covered on Day 1 were revisited as part of the deep dive sessions on Day 2. These deep dives focused on three specific themes of common city interest, namely: Energy Efficiency, Mobility and Transport and Digital Transformation.

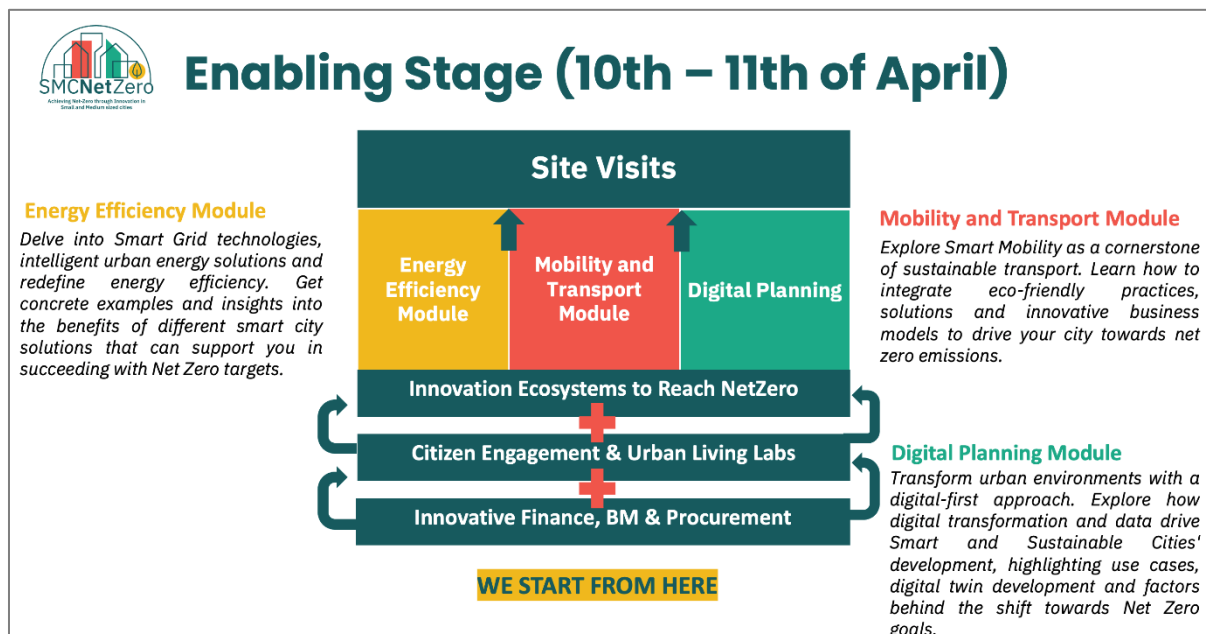


Figure 5: Enabling & Deep-Dive Copenhagen Event Outline

The sessions commenced with detailed interactive presentations from recognised experts supported by relevant, practical and current examples of city best practice. The latter included input from the cities themselves, as part of the facilitated discussions which followed.

The deep dive sessions were followed by site visits hosted by SMEs leading on innovation in their particular fields. Each visit was linked back to deep dive sessions to showcase the transition from idea into practical implementation, outline the key challenges and barriers to implementation and innovative current and future opportunities. The golden threads of city-to-city and city-to-market collaborations, citizen engagement and involvement and the leveraging of power of digital technologies were consistently explored throughout.





Figure 6: Site Visit

The two-day capacity building event enabled a comprehensive exploration of city-based strategies to foster innovation, societal engagement and collaboration as mechanisms for the ideation, development and implementation of sustainable, NetZero interventions. One particularly important and central theme was the innovation necessary in the linked activities of financing and procurement. These were discussed in the context of the inevitable transformation from traditional, but increasingly constrained, public funds to private sector- focused and mixfunding models. In this respect, the Technology Readiness Level (TRL) framework emerged as a valuable tool for guiding financial strategies in urban projects.

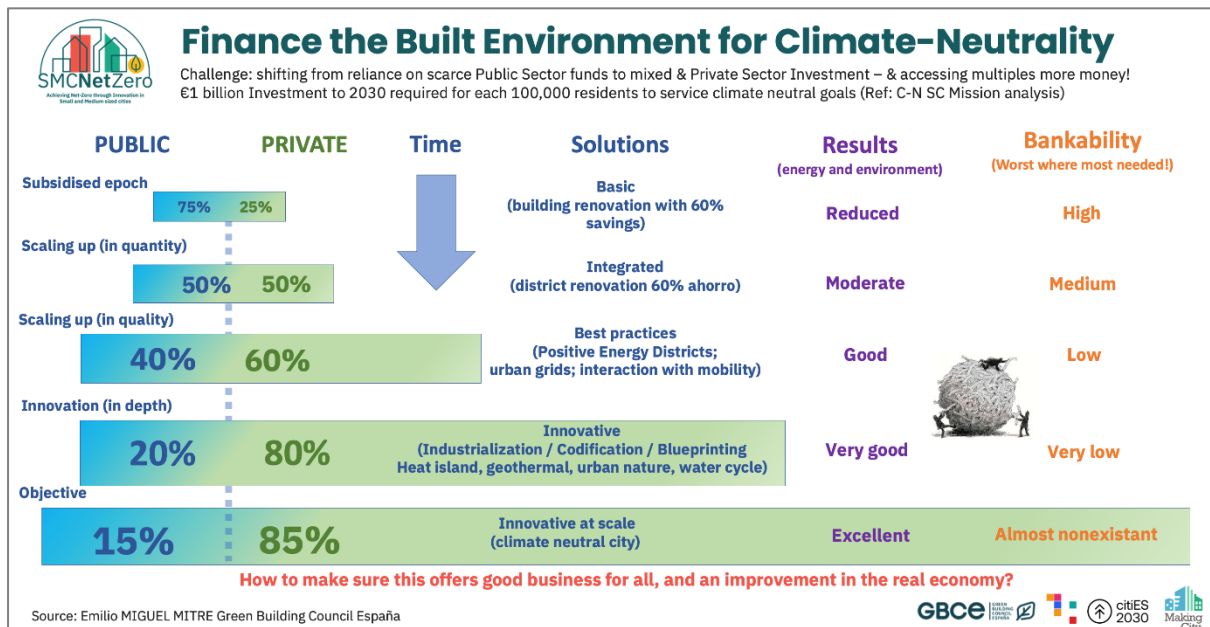


Figure 7: The Imperative & Extent of Financing Shift to Achieve NetZero

Drawing on the experience and expertise of particular SMCNetZero partners, the concept of urban living labs was showcased as being a particularly effective approach to community-driven initiatives, serving as “safe” environments where people are encouraged to interact with emerging technologies, test new solutions and consider the potential to tailor innovations to suit local contexts and needs. By involving multiple stakeholders, living labs offer a replicable framework for driving and supporting innovation within cities. The fact that the Enabling and Deep Dive event was hosted by and at the DOLL Living Lab emphasised the inherent value of such facilities and inspired participants to explore the potential for establishing their own facility to support and showcase local innovators.

The Enabling and Deep Dive sessions reinforced the importance of innovative ecosystems in driving sustainability efforts. Collaborative partnerships, exemplified by initiatives like BLOXHUB, an SMCNetZero partner, were highlighted as key to achieving city-based sustainability goals. The triple helix methodology, which promotes collaboration between academia, industry, and government, was highlighted as a practical mechanism for



supporting the bringing of innovative solutions to market. The Danish National Climate Alliance was presented as a very real and successful example of the approach as all 98 partner municipalities share the same operating framework for their Climate Strategies and related collaborations.

In summary, the Enabling and Deep Dive event took a holistic approach to reaching NetZero by incorporating innovative finance methods, citizen engagement strategies and digital innovation as key enablers to drive sustainable urban development towards the achievement of NetZero goals with a consistent focus on small to medium sized cities.



Figure 8: Copenhagen Capacity Building Event – Participant Certification

## Local Adaptation Event (Online)

A 2-hour, online workshop was held on 25<sup>th</sup> April 2024 involving 18 participants from 13 SMCs.

The purpose of the session was principally to support cities in adapting the learnings from the previous sessions to their local contexts, and to seek to strengthen local confidence and commitment to action.

Focus was placed on the *integration* and *alignment* of local adaptation strategies, plans and initiatives (both sectoral and enabling) towards achieving Net Zero goals. Having built relationships through the project with several SMCs, the session involved moderation, presentation of projects and learning by SMCs, and break-out discussions to share experiences in more depth.

The specific cities and topics covered are captured in D3.2, in summary:

- **Sandyford, Kranj & Gera:** smart traffic systems and mobility islands
- **Cork:** pathway to decarbonization
- **Krezcivi:** pathway to NetZero energy communities
- **Beasain:** district heating projects and current goal of retrofitting

Breakouts were to an extent regionally biased discussing these themes, and building (towards?) taking the discussion and experience into their own local contexts for further follow up with their local innovation ecosystems.

In plenary, some technology-enabled tools and approaches were offered (deepening elements of the Roadmap) to illustrate new approaches to shift from fragmented project management to coherent programme and portfolio management.

The Mobility Island initiative was agreed as a practical and bankable initiative that offered scope for SMCs of all maturities and size to collaborate on, and ambitions were to seek means by which a broader agenda of topics could be explored in a coordinated manner together. As ever, resource allocation, systemic complexities and other challenges were raised that need to be overcome.

## Application of Roadmap

### Seating the Roadmap within an SMC's Local Context

SMCs have limited capacity, challenges in accessing funds and difficulties in engaging the market, as they seek to tackle NetZero goals. That said, it is also likely that most SMCs will have already undertaken some of the steps articulated in the Roadmap. However, given that people and priorities change, and that the various actions may well have been done *within* a department rather than at a *pan-city* level, the Roadmap offers multiple entry points for revisiting how each element has been tackled and whether it is worthwhile (i) addressing items in more detail and/or (ii) ensuring things are more joined up.

Section 2 notes a number of internal and external barriers for SMCs in tackling NetZero and lists critical factors to overcome these. Many of the internal barriers and indeed success factors (e.g. political commitment; skilled resource; collaboration, leadership, value management; and to a lesser extent: financing & funding, & legislation) are explicitly or implicitly addressed by the Roadmap.

The Roadmap thus provides a helpful *process* to support SMCs. What then should be in focus as regards *content*?

### Tackling High GHG Emitting Sectors

The City Model offers a structured 3-part integrated view of a city. The 'Infrastructure & Services' block identifies a dozen major sectors. Within these, '**Built Environment**', and '**Mobility**' are the major contributors to GHG emissions. Combined, these two sectors represent more than 70%<sup>3</sup> of a typical city's GHG contribution. Thus, if action is not in place in these sectors, little impact will occur. '**Waste**' is also a significant sector which deserves attention. '**Energy**' cuts across all three. This '**3+1 sector focus**' was the basis for the 'Deep Dives' at the Copenhagen capacity building event.

- Given that over 90% of the **built environment** that will be around in the 2050 NetZero target year is already in place, and that the majority of these assets are privately or commercially owned, direct action from the public sector is primarily confined to

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<sup>3</sup> A cocktail of well-researched sources including UN Habitat, World Bank, UNEP, Architecture 2030, US EPA - however all taking slightly different perspectives (spatially, scope, monitored emissions).



affecting the enabling conditions (policy, incentives, planning, digital twins, etc). Public Sector can still, however, led by example and demonstrate energy efficiency and renewable measures in own buildings, which are still a significant and often prominent, visible portfolio.

- The **mobility** sector is the most advanced as regards climate response and often the public sector has more direct influence on activities, as they own much of the physical infrastructure
- **Waste** – and the resulting potential to advance steps towards circularity – is a significant, though not major, GHG contributor. Often SMCs are responsible for uptake and transfer of waste rather than being able to influence the entire chain. Addressing this topic does require a clear understanding of the city’s ability to work with and influence collaborators. Circularity is a topic that holds disproportionate implementation benefits for SMCs as it plays to the strengths of the SMC (agile decision making, simpler systems, closer to communities), and as such is well worth consideration
- **Energy** systems span all the above, so are likely to be factored in any project planning. Often energy utilities (even publicly held) are serving multiple cities/customers, so again, the ability to influence is an important consideration. That said, many energy companies are looking for opportunities to showcase innovations and actively seeking supportive public bodies – and SMCs can be a good swift means for them to evidence improvement.

In summary, an impactful SMC NetZero Roadmap should feature much of the above. Indeed, the absence of specific actions in these 3+1 sectors would indicate a deficient plan.

It is viewed that the concept of Climate Positive Energy District (CPEd), which is the focus of the City Mission, is a stretch for most SMCs to tackle as a first ambition, though that aspiration may well be something that should be placed clearly on the city’s strategic roadmap.

## Identifying Specific Bankable Solutions

Considering the ‘3+1 sectors’ in more detail, figure 9 digs below the overall sector level, and provides a mapping of >30 potential initiatives that are experientially in active discussion, viewed from two perspectives:

- **Bankability** – does the initiative offer robust and preferably relatively early financial returns to convince public and/or private decision makers, as well as offering significant non-financial benefits; is it of sufficient scale; can it attract economies of scale?
- **Solution complexity** – is the solution well advanced (TRL) to de-risk and ease implementation; is it reasonably systemically discrete (vs. deeply interdependent on other systems); does the city have significant ownership and influence?

This mapping offers a coarse picture of the emerging NetZero landscape, addressing solution relative attractiveness. It can therefore provide a helpful prompt for cities in considering and selecting what to tackle in the near and mid-term. Obviously, local contextual factors and other criteria will play a role in that evaluation process, however this mapping provides a pragmatic prompt and/or starting point for recommended local cross-sectoral discussions. The analysis was undertaken after completion of the capacity building activities and is also informed by a significant pool of other experiences.

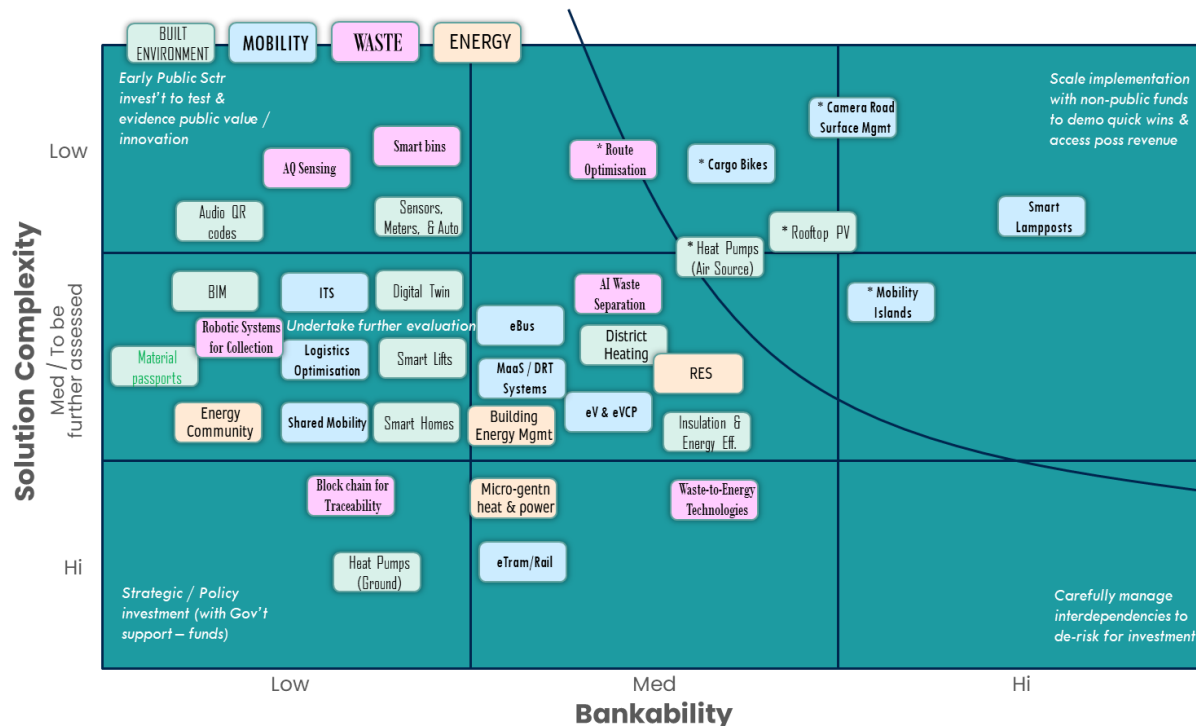


Figure 9: Relative Solution Attractiveness (indicative)

## Seven Bankable NetZero Solutions

In considering the more attractive zone (upper right) of the figure, seven solutions emerge as worthy of further investigation as very ‘bankable propositions’ that can attract beyond stretched public funds. These are outlined below and subsequently summarised in Table 4.

1. **Camera Road Surface Management** – A well-tested concept to put sensors on (fleet) vehicles to monitor potholes, augmented now by video or still pictures and AI processing to inform maintenance needs and optimise the scheduling of repairs. Financial, operational, resource efficiency and other (NetZero) benefits will arise for city and/or road infrastructure owners/operators; perception benefits (and occasional financial benefits) to vehicle users; safety benefits to cyclists (and some vehicles). With modest investment external technology; internal staff. Quick win potential.
2. **Smart Lampposts** – A large percentage of EU streetlights are still not upgraded to LED luminaires, which can offer a 50-80% saving in energy and a 50% saving in maintenance costs. Whilst upgrading, it can be advantageous to multi-purpose the column and add some of the many adjacent services that can benefit from the network scale, power and height of the infrastructure (e.g. environmental sensing, eV charging, connectivity). By doing so it can reduce the additional investment costs, indeed make uneconomic opportunities possible, and also bring in revenue. A separate blueprinted solution is available on this highly replicable and now well-tested solution. Given the financial potential this has already attracted the interest of industry and investors, and various business models have emerged.
3. **Electric cargo Bikes** – Congestion in cities, particularly city centres, is a chronic and growing issue. With increased on-line shopping, last mile deliveries have caused the ‘white van’ syndrome, even in SMCs. Electric cargo bikes offer a clean less-polluting, less noisy, safer solution. They are increasingly prevalent, however take up opportunities are still very substantial. The business case for cycling in general and

cargo bikes as a sub-set has been evaluated as part of the EU [HANDSHAKE](#) project (involving a dozen cities across EU), with notable financially-relevant benefits in safety, travel time, and air quality improvements. It also highlighted an attractive cost/benefit ratio. Further work specific to cargo bikes is warranted.

4. **Mobility Islands** – This solution has been captured in detail in multiple reference documents, within SMCNetZero and beyond (e.g. ref D5.2). Potential business models, and the business case – which includes potential revenue opportunities – has been outlined in reference literature. It has also been developed in more detail (with support of an institutional investor) for Izmir. Indications suggest a very bankable proposition, however more work is needed to assess the different options and quantum of benefits. The investment requirements are city and phasing scope dependent; however, they can start with a low-risk modest scope demonstrator.
5. **Solar PV** (photovoltaic) – Now mature proven cost-optimised solution; highly flexible as regards scale, with potential for economies of scale; can be relatively system independent or (progressively) integrated; potential for asset transfer business models; extension potential to storage; one-two way grid mgmt.; multiple RES sources; community energy systems, etc.
6. **Route Optimisation (Waste fleet)** – Waste collection in cities involves typically high-cost vehicles, typically hydrocarbon fuelled engines, and very significant distances covered. The opportunity to optimise routing of these vehicles, rather than follow traditional fixed scheduled routes, based on actual waste container fill levels (using a combination of RFID tags, and bin level sensors) offers scope to reduce vehicle distance travelled and staff time. Costs to establish such solutions are modest and savings are significant – for city hall and/or service operator. This is a bankable proposition, typically financed by the city or provider through own-source or loan agreements (e.g. as part of a system upgrade)
7. **Air Source Heat Pump** – With escalating energy costs (not foreseen to diminish) and growing concerns about energy poverty – as well as environmental impacts – alternative energy models, including renewable energy (e.g. solar, wind) are becoming more prevalent. Air Source Heat Pump technology advancement and costs are now more stable, and attractive for many (more modern, and/or well insulated) buildings. Market adoption is advancing, although in a sporadic, slower, individual level in most places. The opportunity to develop solutions at scale clearly exists, which would benefit from both new business models and investor involvement.

Success in advancing these types of measures comes from being focused on the solution, however importantly also, seeing taking a systemic view to seat the solution within its overall city system.

Table 4: Seven Bankable Solutions - Key Point Summary

Solution	Type	Investment	Value	Quick Win	Likely Investor	Risk	Demand Side
<b>1. Camera Road Surface Mgmt</b>	Digi	Low (€X0k) (aaS model potential)	Med Fin (city) Perception Safety	Yes (wks/mos)	City	Low	Zero

<b>2. Smart Lampposts</b>	Phys / Digi	Mod (€X00 - €X0m)	50+% Fin savings	Poss (yr/yrs)	City / Util. Telco / Investor	Lo/ Mod	Modest
<b>3. Electric cargo Bikes</b>	Phys (Digi)	Low (€X0k) (share model potential)	Med. Business (Fin) 'Place-making'	Yes	City / Businesses/ Investor	Low	Limited
<b>4. Mobility Islands</b>	Phys / Digi	Med/Hi (phased) (€X0k - €Xm)	Fin / Rev (city) Social/Env't	Poss. (mos /yr)	City, SPV, Investor, OEM, Util.	Med	Hi
<b>5. Solar PV</b>	Phys (Digi)	Med (flexible scale dependent)	3-10yr ROI (Fin/Envir't)	Yes	City DIY Investor Private	Low	Med/Hi
<b>6. Waste Route Optimisation</b>	Digi	Low (€X0k)	Mod Fin (City/Operator)	Yes (wks/ mos)	City/ Operator	Lo	Limited
<b>7. Air Source Heat Pump</b>	Phys (Digi)	Mod (€X0- X00k)	Mod Fin (owner) Social/ Env't	Yes (mos /yr)	City / Private / Investor	Lo/ Med	Med/Hi

Such mapping and pragmatic analysis, when tackled in collaboration with other local or EU-level SMCs, provides a useful stimulus for joint project activities. This may help attract potential grant funding, particularly where it may be addressing a recognised upper-level government priority innovation or demonstration need; or enables access to the economies of scale that offers price advantage for public decision makers and/or external investors. For the latter (investor) such collaboration can also result in demand aggregation, scale acquisition, and de-risking of solutions, which is a major consideration for market financiers.

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*Stirling, SCO, highlighted their current activities on 'blueprinting' of their solar canopy solution to support local replication. Through the SMCNetZero project, the opportunity to develop this solution (and others) in a manner that enables adoption or adaptation by other cities (across EU) was recognised as a particularly significant opportunity for SMCs. Of note Stirling highlighted the benefits they had already accessed from Danish cities in tackling District Heating systems, which helped reinforce the potential. It was also recognised that the resource investment to blueprint was a major blocker, particularly when addressing needs beyond the city.*

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## Resulting Experience

Developing the Roadmap proved to be a relatively straightforward and logical process. Many of the supporting tools are well proven in use, or similar models have been successfully used (e.g. stakeholder management, maturity assessment diagnostic and so on). The Roadmap and supporting methods and tools have been validated by SMC workshop participants and the resultant feedback supports their value. However, encouraging SMCs to use the Roadmap, with its inherent methods and tools remains a challenge, even in instances where SMCs recognise that they have been deficient in addressing a particular step or are seeking to tackle it.

Use of these practical, simple, and time-releasing tools appears to evade sensible reason. Stakeholder engagement and subsequent management, by way of example, is an essential and underpinning ongoing element of the Roadmap and is particularly important given that cities are dealing with a very complex stakeholder landscape, and (from received feedback) also have considerable opportunities to improve how that is managed.

From an SMC perspective, it would appear that there is always “something more urgent” to do. This factor was explored in an earlier section of this report in the context of political decision making and the influence of the relatively short terms of office between elections.

Challenges such as NetZero, where the impacts will be felt globally, are measurable over mid to long timeframes and which typically have significant price tags attached, are regarded as “vote winners” by only the most innovative of politicians. However, the tide is turning somewhat in that an increasing proportion of the electorate is concerned about climate change in the context of the future impacts on their children and grandchildren. The higher this proportion, the more likely is it that support will flow to politicians and political parties who are willing to take the brave, often unpalatable and costly, decisions to accelerate progress towards NetZero.

In the meantime, the political, decision-making emphasis continues to focus on local issues and societal pain points where the impacts are real and being felt now. This very real dilemma, perhaps somewhat illogical at first sight, can be addressed through inclusive, consistent messaging and awareness raising regarding climate change and the importance of NetZero to ensure that all citizens are equipped to make informed decisions regarding their own lifestyle and behaviours and, perhaps more importantly, when selecting their future local and national politicians.

Designing and implementing NetZero interventions for cities is a feasible option. The knowledge, experience and expertise exist, however, as most of these interventions are heavily reliant on individual and organisational behaviour change en masse and at pace, this approach is likely to develop little ownership, commitment or local capacity and, consequently, is unlikely to succeed.

It appears that the only options are to force things from top down, with its inherent lack of local ownership and support or to identify ‘free money’ (typically grant funds).

Collaboration between cities also has significant potential to accelerate progress for themselves and, more generally, by showcasing the benefits of collaboration to their peers and to private sector partners and funding organisations. However, there is little or no incentive for city staff to collaborate with other cities, and it comes with perceptions of, and concern for, the feedback that it is time spent on non-essential activities. In addition, whilst reducing risks and sharing the burden of development and implementation, the process is notoriously laborious and slow in the context of the urgency of the NetZero imperative. Individualism appears to persist as the norm.

The SMCNetZero project is building a new case for collaboration supported by increased networks, easy access to tools and best practice case studies and practical demonstrations of the benefits. It complements existing SMC focussed support activities and forums such as the Smart Cities Market Place Small Giants Focus Group, established in 2023. This seeks to identify topics, or common themes of interest, where collaborative approaches might be regarded as essential for success at pace. The themes, themselves, range from Mobility

Transition and Circularity to Energy Efficiency and Retrofitting with interested and committed cities being supported in identifying funding opportunities that will enable them to make progress together and for the experience and outputs to be captured to support scale-up and scale-out.

The combined effect of the scale of the challenge and the lack of availability of acceptable and rapid solutions does little to eradicate the issue of ‘pilotitis<sup>4</sup>’ where multiple cities persist in implementing small, ‘salami-slice’ solutions rather with very localised and often short-term impacts, rather than deliver replicability and higher value by design and well-suited to scale up.

In short, resolving this situation still requires national and governmental drive and intervention; more stimulation and support as opposed to instruction.

As we tackle long-term cross-generational challenges, like climate change, we need a completely different approach. One that liberates local power to act beyond political terms of office and influence to counter the current situation whereby short-term political motives, all too often leave long-term challenges at the wayside when it comes to capturing votes.

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<sup>4</sup> The mindset that persists that pilots are the answer to making progress. They have a role to play (where TRL levels are low, experimentation is desired, and failure is an acceptable outcome). Demonstrators of more mature solutions, and scale up of proven technologies is far more likely to reach NetZero targets than sequential pilots.



## 8. Mobility Islands: State-of-the-art

*This section summarises the state-of-the-art concerning the development of the Mobility Island concept, as an exemplar for joint activity; within a varied group of SMCs around Europe, highlighting the key learning from these activities*

**D5.2 “Mobility Island Proof Point”** is a complementary deliverable that captures the accomplishments of the network of cities that have been collaborating to advance the concept of this solution. It provides further detail on what a Mobility Island is; how it helps cities in their roadmap to Net Zero; how each city has advanced in their project lifecycle process; and what their collaborative agenda is. It also captures the benefits and learning points of this collaboration for all parties. Below we summarise the key points from D5.2.



### Mobility Islands

The mobility sector is the most advanced in terms of being in action in addressing smart climate change solutions. It is one of two major (and typically of similar scale) sectors that represent more than 70% of a typical city’s GHG contribution (the other being built environment). Being able to demonstrate practical visible progress to society is essential. Mobility Islands offer this potential.

### What is a Mobility Island

Mobility Islands are very visible, pleasant physical facilities that offer informed choice of light shared sustainable travel modes (electric bike, scooter, car), potentially (with consent) specific to people’s personal circumstances (e.g., commuters, less-able, family outing, tourists and so on).

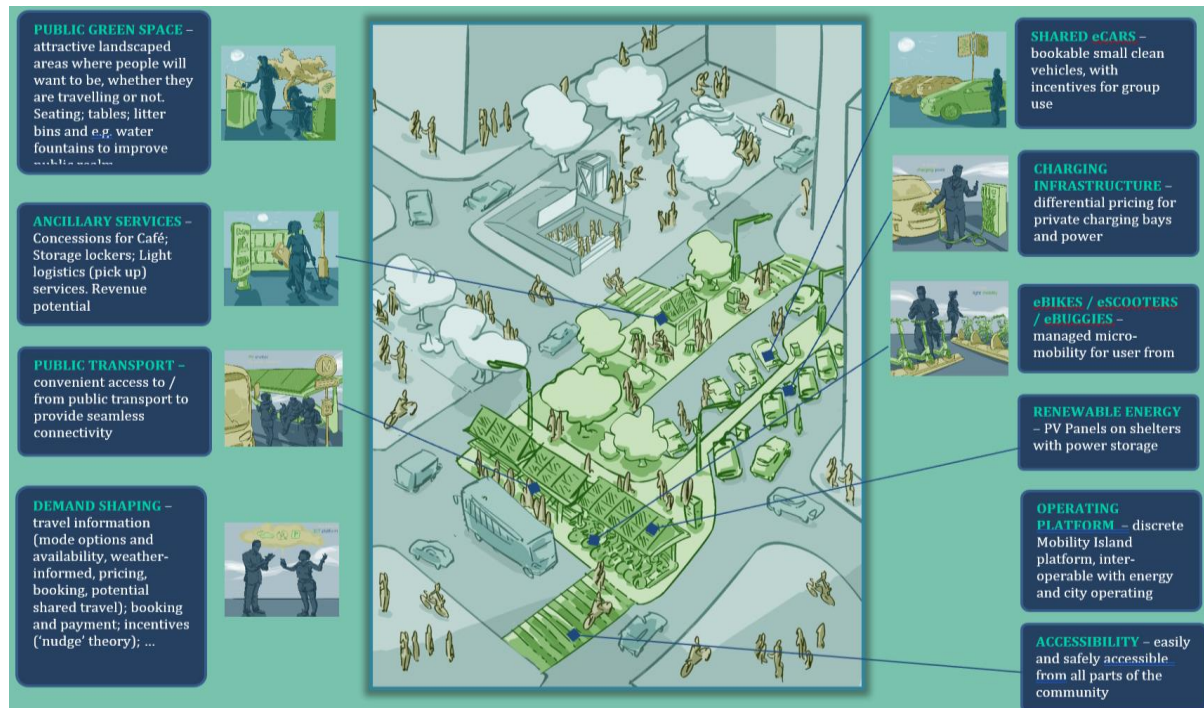


Figure 10: Mobility Island concept (ref. Sharing Cities Mobility Island Playbook)

The vision is to locate Mobility Islands within a 5-minute walk of any point in a city. By locating these facilities initially in obvious locations, a city can evidence and steer swifter transition on a pan-city basis. Importantly, Mobility Islands address a city users overall experience, considering pain points and wants and needs that extend well beyond the transport mode itself. As a consequence, they are ‘place-making’ assets. If designed well, they can also serve as a showcase for sustainability, demonstrating the impact of integrating multiple NetZero interventions.

## How it helps cities in their roadmap to Net Zero

Mobility is one of the major contributors of GHGs. It is also the apex service within a city that defines many outcomes well beyond its initial core purpose. Transitioning a city from the traditional mobility model to a new paradigm is hard. Mobility islands are relatively low-risk, low-cost assets that can stimulate and speed that transition to a new mobility model.

Mobility islands are eminently implementable within most city’s landscape. They can be delivered with a variety of business models and offer scope to bring revenue. As such they can be considered bankable from an investor’s perspective. Most importantly, they are a very visible means to mobilise society and support the adoption of new habits and behaviours.

## How each SMC city has advanced in their project lifecycle process

The community involved in the development of the Mobility Island concept involves 20 cities. One of the cities, Izmir, is certainly not an SMC, however, has both (i) made considerable advancements in their Mobility Island project and (ii) committed to, and been proactive in, collaborating with the SMC community. This has brought important advantages – notably the ability to engage and influence industry, institutions and investors.

The remaining 19 SMCs are geographically spread across much of Europe (& beyond, East); they vary in size, and in development maturity. Some have developed SUMP (sustainable urban mobility plans) or equivalent and have already made advances in implementing new mobility models (active travel; eBikes, demand-responsive transport, etc.). Others exhibit the aspiration of individual car ownership; and where they have public transport, it is quite conventional (e.g. scheduled ICE buses).

All cities however, in principle, see that the concept of a Mobility Island is of interest, and there are few critical blockers to the concept.

Throughout the journey of engaging the SMCs we have experienced multiple situational challenges: (i) staff changes (ii) political thus priority changes (iii) lack of ability of staff to commit time and resource (iv) lack of skills, capacity, credibility locally (v) lack of ability to find stimulus funding for collaboration; and more. These have all contributed to the ongoing challenge of retaining group momentum and ability to collaborate. An unfortunately low number of SMCs have been successful in retaining engagement and building local momentum, as well as being able to commit to continued group collaboration. **This is seen to be a systemic problem and is of considerable concern that blocks the overall ability of the market to respond to climate challenges at the necessary pace.**

The SMCNetZero project has provided an important fillip to support ongoing collaboration – despite not actually being able to provide resource to support city implementation. **However, much more must be done to stimulate and support this collectively largest (by EU population) community of needy cities.**



The handful of SMCs that have managed to keep with the programme are the ones that are *well led, can access resource* (from private sources or opportunistically thru grants), and have *proactive committed and capable officers*. This success builds more success; however, risks leaving others behind.

D5.2 has captured the state-of-the-art for each involved SMC, which represents a summary of material generally captured on the SMC working digital whiteboard.

## What the SMCs collaborative agenda is

The commitment of SMCs has been to (i) test a common concept, (ii) collaborate on developing and testing common methods and tools, (iii) seek to focus on functional commonality of solution, and (iv) actively openly respectfully and ‘in context’ support productive experience sharing.

## 7 Key Learning Points

As mentioned previously, although interest in cross-city collaboration amongst SMCs is high, there are multiple barriers to practical developments of the approach or in the provision of support for individual cities in progressing a new concept.

SMCNetZero has considered this dilemma in some detail through its engagement with SMCs and SMEs. From its work to date, **7 key learning points** have been captured.

1. **Collaboration:** From SMCNetZero partner experience and engagement with SMCs directly through this and other projects, it is evident that **smaller cities are genuinely much more open to collaborate as equals than their larger counterparts**. This is often driven by need due to lack of human resources and specific expertise and also serves to share the risk, both financial and practical.
2. **Commonalities of need and, consequently, the potential for shared solutions are much more common than at first thought.** Changing mindsets to focus on commonalities between cities and challenges, as opposed to differences, is the first, potentially transformational, big step.
3. **Online sharing tools and virtual workshops provide low investment opportunities** for knowledge exchange and collaboration. The reduced need to travel and corresponding reductions in time commitment and costs are attractive. Given that the focus here is NetZero, such opportunities also have a positive carbon benefit when compared to more traditional approaches.
4. **Pragmatic approaches are much more important in a small city setting** and can lead to early practical action and a quicker route to tangible impacts.
5. **Digitalisation tools, including generative AI, have significant potential** for understanding challenges, identifying solutions and enhancing collaboration. The transformational impact and environmental benefit of such developments should not be underestimated particularly in the context of resource constrained SMCs. Perhaps AI tools could really help SMCs disproportionately advance.
6. **Resource constraints of SMCs is a far more significant barrier than in larger cities,** and this severely risks the outcome of a two-speed Europe, with smaller cities (collectively the largest market) being left behind.

7. **Grant funding, however, remains vital to stimulate collaborative action** amongst the European SMC community. A greater focus on SMCs jointly developing, replicable and scalable solutions to tackling climate change, perhaps exploring, for example, the opportunities that AI can offer, will significantly help to mobilise SMCs and accelerate progress.

## 9. Conclusions & Recommendations

### Conclusions

This report has explored the subject of stimulating at-scale collaborative action amongst SMCs from two perspectives. Firstly, that of a city-wide strategic planning exercise, captured as a NetZero Roadmap and, secondly, by addressing practical experience in advancing the Mobility Island solution.

Eight principal conclusions are made as a result:

- i. **STRATEGIC: We neglect this community of smaller cities at our peril.** They represent the largest population group in Europe and are therefore vital to achieving NetZero targets. There is insufficient EU-level and genuine MS-level focus and support for SMC development. Due to the collective scale of SMC populations, failure to recognise this and act accordingly risks failure in meeting NetZero targets.
- ii. **MINDSET: There is a clear desire to collaborate within the SMC community,** driven by contextual need. This differs from that of larger cities in that SMCs are humbler in their approach which, in turn, provides a solid foundation for more productive collaboration.
- iii. **ORGANISATIONAL: Blockers to collaborate within and between SMCs generally overcome the desire to do so,** and are typically a combination of:
  - frequent staff role changes, often exacerbated by poor ‘corporate memory’.
  - political, and thus, priority changes which are hampered by regular political cycles and considerable pre- and post-election loss of focus.
  - lack of ability of staff to commit time and resource due to chronically and increasingly stretched public budgets, conflicting priorities and heightened customer awareness and demand.
  - lack of skills, capacity and, at times, local credibility. Consequently, the NetZero frontline can be a lonely place.
  - lack of ability to find stimulus funding for collaboration, albeit such funding is generally very modest. In some instances, the minor cost is transcended by the perception of involvement in other things, often involving travel.
- iv. **MESSAGING: Gaining the initial attention of an SMC can be difficult.** There is much ‘system noise’, however, by exhibiting a pragmatic, listening, respectful, and delivery-focused approach, solid engagement can develop and persist.
- v. **PEOPLE: Societal commitment is crucial.** Without the understanding of societal needs, the comprehension of the proposition by society, jointly building the ambition and desire within society, and creating the willingness within people to invest time, (and potentially their own funds) limited progress can be made. This is not a one-off exercise. Rather it should be considered a choreographed continuous process towards a shared NetZero goal.
- vi. **PARADIGMS: One can ‘lead a horse to water, however, cannot force it to drink’** – too often the feedback on assets created through collaboration is positive and supportive, however cities default to doing what they have always done in the past. For example, considering simple practical tools like stakeholder management (that can make substantial improvement in quality of delivery of improvements), as well as tackling local, cross-cutting collaboration could transform the strategic ability of a city to address climate change.

- vii. **FRAMEWORK: The SMCNetZero Roadmap provides a practical framework with supporting tools.** It has been sufficiently validated to warrant more attention being applied to its wider adoption, enhancement, improvement and, in time, potential digitalisation.
- viii. **SOLUTIONS: The ‘Seven Bankable Solutions’, identified in this report, offer a portfolio of potential initiatives for continued collaborative development, testing, demonstration, capacity building, investor engagement, and scale-up.** This portfolio is still fragile and requires further nurturing.

## Recommendations

We are explicit and focused in making recommendations that for debate and action, that propose specific suggested action parties.

Table 5: Recommendations

#	What	Why	Where	Who	How	When
1	An <b>injection of programme funds</b> , that are easy for SMCs to access, are targeted explicitly to stimulate and support collaborative activities within the SMC community at both national and coordinated EU levels.	It is the only sensible way to enable scale collaboration, and embraces the observed SMC desire to do so.	EU and beyond	<ul style="list-style-type: none"> <li>EC could lead by programme design and funding, though SMC ease of access remains an issue (Involving DGs Regio/ENER/ ENV/MOVE/CNECT), CoR, Mission Sec., CoM/SCM).</li> <li>MSs can lead through coordinated national/regional programmes.</li> </ul>	<p>Enrol a MEP champion.</p> <p>Enrol a few supportive MS Governments.</p> <p>Enrol an anchor investor (EIB?)</p>	<p>Actions start now.</p> <p>A pragmatic landscape/mobilise exercise could inform and build confidence to kick-start action.</p>
2	Develop the <b>Roadmap</b> into a <b>'Rapid NZ Planning Module'</b> and demonstrated by a mixed group of SMCs to stimulate action. It would incorporate practical methods and tools, and digitalise the process for swift replication.	It provides trusted support for SMCs to pragmatically advance.	EU Sandbox	<ul style="list-style-type: none"> <li>Encourage Roadmap use in a group of SMCs (incl. those that struggle to engage at national and/or EU level). In collaboration with, though separate to, the Mission Secretariat (to afford a degree of agility and freedom of movement)</li> </ul>	<p>SCM Small Giants Focus Group.</p> <p>However, it must be sponsored, funded and coordinated to work effectively (e.g. EU/MS Grant).</p>	<p>Actions should start now.</p>
3	Validate the <b>Seven Bankable Solutions</b> , take actions to blueprint solutions for curation; and adopt / adapt at scale, attracting a range of funding sources and business models. Specifically, complete the codification of Mobility	Entropy exists. Starting from 1 <sup>st</sup> principles, individually, is slow, inefficient & ineffective. Consequently, the current approach will not deliver EU sustainability goals.	EU Wide or Sandboxes	<ul style="list-style-type: none"> <li>EC</li> <li>SMCs</li> <li>Anchor Investor / Fund Manager (non-institutional)</li> <li>Potential need for EC/Member State stimulus resource</li> </ul>	<p>Find a means to rapid action (as opposed to further research).</p> <p>Develop an agile, managed SMC solution portfolio.</p>	<p>Actions should start now.</p>

Islands as demonstrator modules for rapid deployment.				Convening investors, also to launch an SMC Infrastructure Fund.	
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