BUILDING SMART CITIES TOGETHER

SHARINGCITIES

Deliverable D7.12
Scale-Up Report

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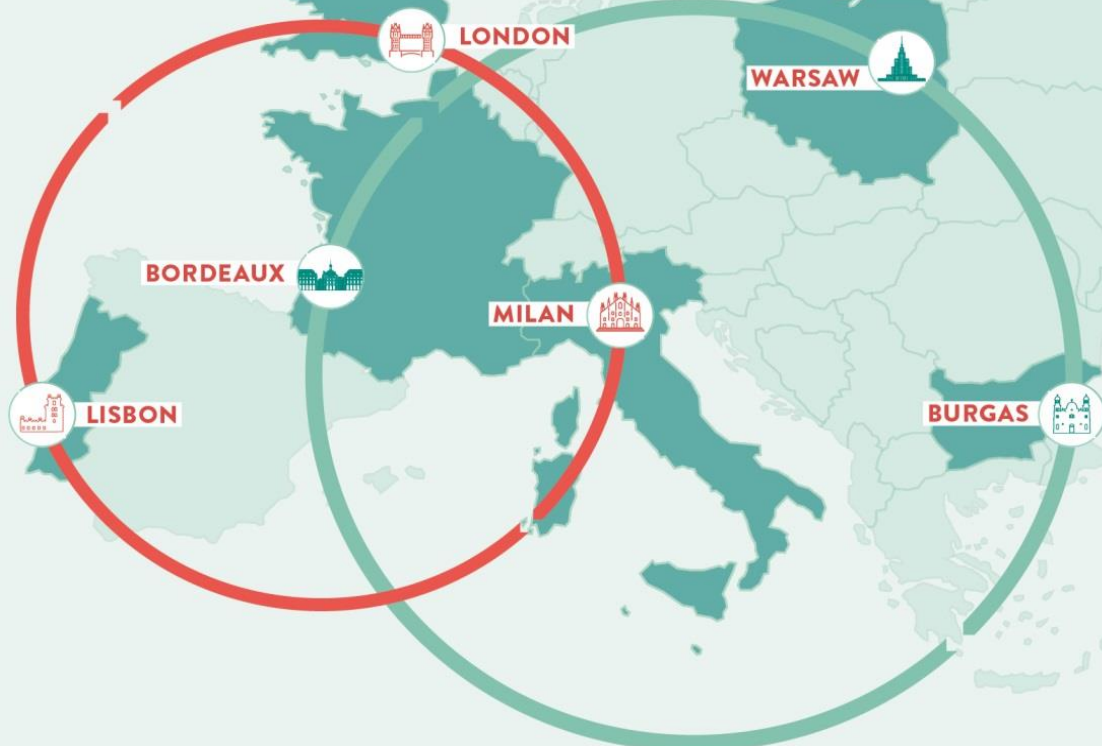
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List of Specific Acronyms & Abbreviations:

- AC   Action Cluster (of the EIP-SCC)
- BM&F   Business Models & Financing
- DST   Decision Support Tool
- EIB   European Investment Bank
- EIP-SCC   European Innovation Partnership for Smart Cities & Communities
- GAB   Global Advisory Board
- GHG   Green House Gas
- SCC01   Smart Cities & Communities 'Lighthouse' programme
- SCIS   Smart Cities Information System
- SDG   (United Nations) Sustainable Development Goal
- SDO   Standards Development Organisation
- 5G   5th Generation (communications)

CONTENTS

EXECUTIVE SUMMARY

This deliverable D7.12 "*Scale-Up Report*" provides an update on one of the core goals of the Sharing Cities programme – to 'trigger €500m investment in smart city solutions'. This is highly consistent with the stated goal of the portfolio of SCC01 lighthouse programmes and EIP-SCC: to accelerate wide-scale market adoption of smart city solutions through implementing common solutions, taking an integrated approach, and fostering collaboration.

This report and the key messages contained within it are intended for Sharing Cities stakeholders; EC staff; members of the cross-SCC01 Business Model & Finance Task Group; EIP-SCC Marketplace; and investor community.

Section 2 reinforces the need for scale-up, highlighting the principal programmes at an EU level that are instrumental in delivering scale adoption of smart city solutions in the market, and the benefits that delivers for cities and society, investors, industry and the European Commission. More specifically it reiterates a number of goals that could be adopted by the investment community in establishing smart city funds that would provide the much needed investment to support scale-up.

Section 3 discusses the process that has been developed for the programme as it transitions from implementation to scale-up. This will be supported by a **Scale-Up Forum** with representation from the appropriate work packages and the programme office. It also provides status updates based on the framework of eight interdependent actions, discussed in D7.11, that the Sharing Cities programme and its partners are applying to achieve scale-up – the summary points of which are:

1. **Investor Summit** – following the successful October 2018 Investor Summit, Sharing cities will work with other SCC01 programmes and market stakeholders to bring bankable projects to the investor community, which includes: (i) a Sharing Cities Trade-Show event in Sept 2019; supporting the Smarter Together sponsored cross-SCC01 October 2019 event (discussing business models and financing, scale-up of specific measures, and investor engagement); and ongoing funder engagement. We are conscious of the need to bring credible and scale projects to investors, and the challenges of doing so; and continue to drive cross-city/SCC01 collaboration on some lead collaborative examples of demand aggregation.

2. **Packaging** – this approach to bring together a portfolio of documents and tools that enable the various actors throughout a project's lifecycle to exploit structured content and move forward faster and with greater confidence and certainty is a core underpinning mechanism for scale market adoption. Considerable investment (beyond the Sharing Cities budget) has been made in moving this forward on the 4 agreed cross-SCC01 measures; working in collaboration with other SCC01 programmes and the SCIS support contractor; and developing a beta version of an IT-enabled platform to provide consistency, efficiency and transparency to the process.

3. **Sharing Cities Network** – Sharing Cities has, as a priority throughout the programme, engaged more than 100 cities / municipalities to provide the platform for scale adoption. These include from municipalities that surround the lead demonstration areas, to significant international cities like Sao Paolo. A pragmatic content-rich communication and engagement process will continue to be employed to develop a pipeline of projects that can feed the scale-up process.

4. **Cross-SCC01 BM&F TaskGroup** – Sharing Cities leads the cross-SCC01 Business Model & Finance task group. This seeks to develop a more consistent approach to the development of compelling business models for the various measures being implemented across the now 17 programmes, and foster a more collaborative means of bringing investable measures to market funders. The work of this task group provides an essential complement to the technical activities that permeate the various SCC01 programmes.

5. **Trans-EU HLppost Initiative** – the smart lamppost is one of the 4 priority measures that SCC01 coordinators agreed to collaborate on. It represents the easiest and most logical measure to test and prove the packaging concept and demonstrate the ability to implement a more-common solution. An initiative to bring together 6 city-clusters, involving 2 SCC01 programmes and other EU cities is underway. It is making progress, not however without challenges.

6. **Investment Trigger Tracker** – this is a very practical approach to pick up the project opportunities that emerge from city engagement activities to develop an investment pipeline. The trigger tracker then monitors the opportunities through a staged process to 'captured' status (in relation to the €500m goal). More than a dozen opportunities have been included in the inventory representing more than €100m investment (for the few that have been quantified) which suggests that the goal is achievable with coordinated action. A Scale-Up Forum has been formed within Sharing Cities involving representatives from the relevant work packages to facilitate the process. One important scale-up initiative has already been implemented through to capture which is the scale-up of eMobility solutions on a pan-city basis in Lisbon. The hope is that the basics underpinning the trigger tracker may be used by others SCC01s; this would all help practical adoption in the broader EU market.

7. **EIP-SCC Marketplace Collaboration** – the EIP-SCC Marketplace also has a scale-up target, however focused on engaging cities beyond the SCC01 community. This provides a complementary avenue to scale-up (and would benefit from finding a common 'trigger tracker' mechanism for scale-up monitoring). With the new EIP-SSC Marketplace support contract in place from October 2019, collaboration opportunities will ramp up.

8. **Ongoing Investor Engagement** – many investors are cautious about engaging in the cities market, and many see cities as "too small to slow and too risky". Changing this mindset and perception will take persistence, and some very practical examples of scale demand aggregation (the likes of the humble lamppost city-clusters) to demonstrate change on the demand side to create an investment market. The programme has a number of forward plans to continue to engage the investor community – in collaboration with other market-making stakeholders.

Section 4 identifies 10 action points that will help stimulate and sustain progress moving forward, for which the Sharing Cities programme remain committed to act on, also in collaboration with other market actors.

1 INTRODUCTION – ABOUT SHARING CITIES, WP7 & THIS DELIVERABLE

This section identifies the intended audience and purpose; and provides a grounding on this deliverable.

1.1 INTENDED READERSHIP & PURPOSE

The **intended readership** for this open publication D7.12 "Scale-Up" Report includes:

i. Sharing Cities stakeholders, notably the Scale-Up Forum, related partners, and city leaders
ii. European Commission staff (e.g. policy officers), and INEA (as programme evaluator)
iii. Business Models and Financing WP Leads in other SCC01 programmes
iv. Colleagues in the EIP-SCC Marketplace leadership, and…
v. The Investor community (at least for the key messages the report contains).

The **purpose** is to capture the process by which we achieve of our programme goal to "***trigger €500 million smart city investment***". The resulting learning and insights can support ongoing Sharing Cities activities and the broader adoption by the wider community (notably SCC01 programmes and EIP marketplace). The ultimate goal of such an exercise being to help stimulate and accelerate broader scale adoption of smart city solutions in the market. This is consistent with Horizon Europe ambitions (notably the emerging intentions of the new Cities "Mission"), and longer term 2050 goals. The result: better outcomes for all Europeans.

1.2 THIS DELIVERABLE: D7.12 – "SCALE-UP" REPORT

D7.12 captures the activities of the Sharing Cities "**Scale-Up Forum**", which is a collaboration of partners to pull together the work of a number of work packages to achieve the programme goal to "***trigger €500 million smart city investment***". It is entirely consistent with the Year4-5 Plan.

More specifically, the Scale-Up Forum involves a number of work packages (see also figure 1):

- WP3 Place Measures, which is the work package that owns the majority of infrastructure investment measures
- WP7 Business Models & Financing, that draws together a sequence of tasks and deliverables addressing the two themes (Annex 1) of 'Business Models and Financing', and 'Fund Creation'
- WP5&6 Replication & Communications, that supports outbound contact with potential replication and scale-up cities; and manages the programme communications activities
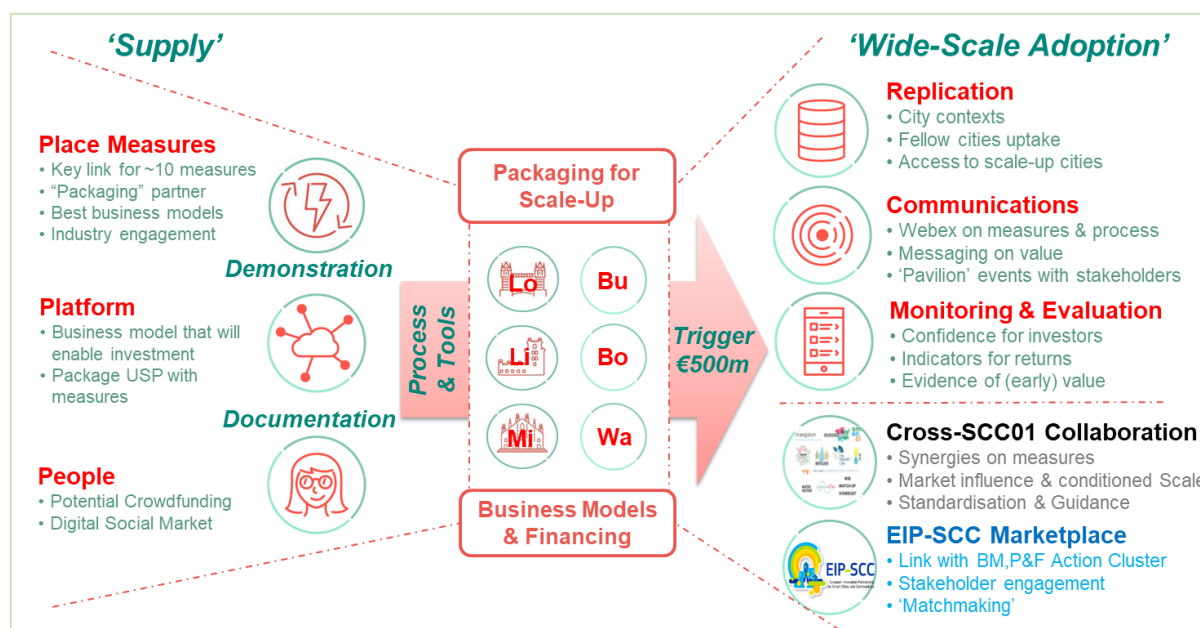- PMO, that choreographs the activities of the programme to deliver the €500m scale-up goal

Figure 1 Sharing Cities Scale-Up Process

2 POLICY LANDSCAPE & MARKET CONTEXT

This section summarises the important market backdrop within which Sharing Cities sits.

2.1 WHY SCALE-UP IS SO IMPORTANT

Society faces an increasingly long list of issues that affect us globally and locally like resource depletion, climate change, aging infrastructure, aging people, heightened societal expectations, economic sustainability, and degrading air quality. Given the scale of urbanization, cities can play a central role in addressing these. And we must do so rapidly to deliver livable cities at a local level, and achieve the sustainable development goals (SDGs) at a worldwide level.

Given constrained public budgets (yet liberal availability of funds in general in the market); given the fragmentation and individualistic habits within the cities market (yet the scale advantage that is available from standardisation and demand aggregation); and given the need for skills and capacity within cities, & indeed the broader market, to capture the opportunities that smart cities offer – there is a palpable need for speed of response and collaboration in the market. This could engender far greater confidence amongst cities, investors, and suppliers and create a virtuous cycle of improvements in our cities.

The resulting benefits will be substantial:

- **Cities** – will gain access to more affordable solutions, that can be trusted, acquired more swiftly, with more confidence, with more consistent and better guidance and tools, such that life-time operations is more productive affording bench-learning between cities; and notably through collaboration and demand aggregation the smaller cities are better served. Overall a market where cities collectively have greater influence on the market to deliver public good
- **Investors** – will see larger deals and these will bring a broader range of investors to the table – thus more and better money, they will be able to advise cities on developing better business models
- **Industry** – will have greater certainty on functional requirements, and thus can focus their RD&I budgets with greater certainty, they can also tailor their solutions for cities; the net result should be shorter sales cycles, better profitability (and potentially lower price for cities), greater access to market, and better quality solutions
- **European Commission** – will be able to demonstrate an inclusive and greater impact from their ongoing investment in the pan-EU market, through a more consistent common language for solutions, with better resulting insights to inform policy and programmes

What is needed is a trusted process by which experiences can be captured, codified, and repeated by many. This would support scale-up of good solutions in the market. That is inclusive and good for society, attractive for investors, better value for cities, and fairly rewarding for industry.

Sharing Cities seeks to stimulate the process of scale-up – and our €500m trigger goal provides an excellent driver for this.

*[Note: we make a distinction between **replication** and **scale-up**. The former (replication) involves taking a solution from one location and introducing it at a different location. The latter (scale-up) involves expanding projects to a wider scale: city-wide, metro, city-city, nationally or across Europe, and involves aggregating demand (often with double digit price/cost advantages). Clearly there are different levels of adoption/adaption that will take place given the diversity of solution complexities].*

2.2 POLICY & PRACTICE

There are a number of big initiatives in play that are well known, however worth briefly reflecting on to set the scene:

- ***Cities Mission*** – the new Horizon Europe programming period includes currently 5 'Missions'; one of which is on "Low-Carbon and Smart Cities". This will take a pan-Commission view of cities (i.e. systemic) and also very much focused on societal needs. The recent appointment of a Cities Mission Board chair, and impending Mission Board will provide the additional top-level cross-sectoral support that is presently lacking, which can only help put priority to policies and programmes that lead to city transformation, to help liberate resource, and to steer initiatives more swiftly through to impact. This Cities Mission is new and the nature of how it will emerge and what funds and programmes that will fall into place as a result is presently unknown, however the existence of the Mission provides a clear sign that cities matter.

- ***EIP-SCC Marketplace*** – the marketplace is now in its 8th year. A 2018 white paper titled "*Towards a Joint Investment Programme for European Smart Cities*" highlighted the need for cross-sector collaboration and mobilization of the investor community to support scale adoption of smart city solutions. The paper proposed a 21-point Action Plan: 11 of which are very relevant to the investment and scale agenda addressed herein. Increasing collaboration and alignment between the Marketplace and the Covenant of Mayors is also observed and considered helpful to engage politically.

- ***Lighthouse Programmes: the "EU 100"*** – there are now more than 100 cities that are involved in demonstrating and replicating smart city solutions addressing a common scope. This represents a significant EC H2020 programme period budget of €500 million. These cities collectively can create a powerful potential force of change in the market, and given the observed and progressively increasing collaboration between the now 17 programmes this can lead to speeding scale adoption of smart city solutions.

The above were elaborated in more depth in D7.11. In addition, D7.11 provided an overview of the dozen or so parties that make up the Investor Community, and what motivates (and blocks) them to invest in the cities market. It also provided a summary of some of the investor activities in launching smart city funds. This was complemented by an update on the state-of-play of and ambitions for (smart city) funds within our principal cities.

We reiterate below 7 points that were made in D7.11 in connection with what would be a sensible set of **potential goals for national / trans-EU funds**, as these could underpin much of the desired scale-up activity; being to:

i. ***Address the public sector funding gap***, by attracting market funds to support the betterment and scale transformation of European cities

ii. ***Open-up access to funds*** for what is in general and real terms a fragmented cities market, particularly for smaller cities that attract minimal investor attention

iii. ***Accelerate city decision making***, by providing trusted guidance for city leaders and finance managers on business models and financial instruments

iv. ***Influence the attraction of scale market funds by 'blending' public and market funds,*** through the riskier early stages of 'smart city' pilots and proof of concepts

v. ***Incentivise demand aggregation***, that will enable the cities market collectively to access real economy of scale advantages

vi. ***Stimulate impact investment,*** that responds to the very-evident sustainability needs of mankind that are increasingly being recognised and acted upon – bar a few notable exceptions

vii. ***Retain Europe's economic influence and relevance worldwide***, which in turn supports ongoing economic (business) prosperity and social wellbeing (in cities).

3 SCALE-UP ACTIONS

This section addresses 8 specific Sharing Cities actions.

3.1 OUTLINE SCALE UP PROCESS

An indication of the process that is followed to support scale up is shown in figure 2. This will be executed in an agile and flexible manner to ensure bureaucracy doesn't come to bear.

The process highlights how an opportunity is developed between Sharing Cities and an adopting city; identifies the key statements that are sought from a city to qualify their inclusion; shows the various Investment Trigger Tracker stages; and indicates how we attribute 'level of influence' that Sharing Cities has on the investment that is being triggered.
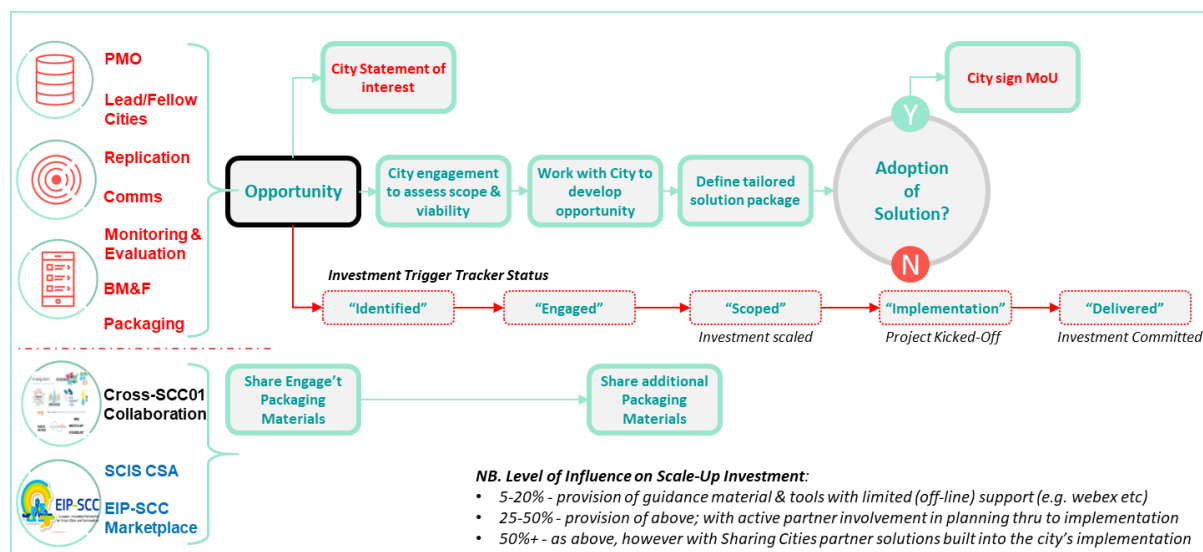

Figure 2: Scale Up Process outline

This process is already underway with a dozen or so opportunities. It involves a mix of Sharing Cities parties as is appropriate for each opportunity that is uncovered. We envisage an increased degree of collaboration with the other SCC01 programmes and with the EIP-SCC Marketplace. This ensures clear and consistent messaging to the market.

3.2 CURRENT SCALE-UP RESULTS

The Sharing Cities Year 4-5 Implementation Plan provides a clear statement of the inflection point in the programme as it pivots from end of implementation to scale-up activities. This extensive document provides clarity of role for all partners across the programme. It also identifies the '10 tools' that the programme committed to deliver alongside the 10 measures that we are seeking to scale-up.

A Scale-Up Forum has been constituted involving a sub-set of work package leads to work as one unit towards the overall goal of triggering €500million investment in smart city solutions.

A dozen opportunities have been captured in the Investment Trigger Tracker. Around half have been quantified by way of an indicative range of investment. The total of which is above €300million. The estimated influence has been indicated ranging from 20% for those beyond 'identified' stage.

The process will be monitored and reported on a regular basis, and actions taken to maximise the impact of scale-up activities as is deemed appropriate, and as resource is available.

3.3 Framework of Actions that underpins the Sharing Cities Scale-Up Process

The modest €24 million EC-investment in Sharing Cities, even contrasted with the investments noted above, can and are making an impact. The significance of our three principal cities is substantial (three are capital cities, and the remainder are top tier in their countries).

Figure 3 shows the 8-point framework of actions that was discussed in D7.11. We have provided a brief summary of the essence of these here (rather than reiterate all text); and provided an update on plans and developments to support scale-up.

Figure 3 Eight Specific Sharing Cities Actions to Stimulate Scale-Up

Table 1 shows the main work package contributors to these from the Sharing Cities programme; and captures relevant other collaboration groups.

Table 1: Stakeholders that can support delivery of the 8 interdependent action areas

#	Initiative	Sharing Cities	SCC01s	Marketplace	Comments
1	Investor Summit	WP7; PMO; Cities	SmarterTogether engaged	'Deal' matchmaking	*Coordinated engagement of investors is key to success*
2	Packaging	WP3, 5, 7, PMO	Growing SCC01 engagement	Selective contributions	*This is a key mechanism to develop familiarity and trust and underpin scale-up actions*
3	Sharing Cities Network	WP5, Cities, WP7	-	-	*Potential for collaboration across SCC01s for (international) city engage't*
4	Cross-SCC01 BM&F TaskGroup	WP7	All SCC01s engaged	Link to BM&F Action Cluster	*Strengthen alignment with Replication Task Group*
5	Trans-EU HLppost Initiative	WP7, PMO, Cities	Ruggedised	Humble L'post launched in Dec 2014	*This is an important measure demonstrator to highlight how collaboration and demand aggregation can add value*
6	Investment Trigger Tracker	WP7, PMO	Potential similar application	Link to €500m M'place goal	*Potential to adopt/adapt for use by other SCC01s?*
7	EIP-SCC Marketplace Collaboration	WP7, PMO	Board of Coordinators		*Increased collaboration with M'Place and SCIS will support market trust building*
8	Ongoing Investor Engagement	WP7	Potential	Potential	*As point 1 – collaboration is vital*

Each of the framework themes is addressed by way of a synthesis of core purpose and goals; and an update of the latest status and forward plans.

3.3.1 Investor Summit – "Smart Financing for Smarter Lighthouse Cities"

Synthesis: A very productive Investor Summit was held in October 2018, involving senior leaders from Institutional Investors, National Banks, Market Funds, Governments, Commission, and Lighthouse Programmes, hosted in City Hall, London, to:

1) Highlight the **scale of investment opportunities** within cities
2) Encourage **investment based on the needs of cities** and driven by demand
3) Explore the **conditions necessary to do this** and agree some actions
4) **Build a network** of willing investors and collaborative cities

The event was open collaborative, engaging with structured around theme-based discussions. Three major themes emerged from the Investor Summit:

1. The need to "close the gap" between investors and cities
2. Smart City opportunities are real, and can scale
3. The potential from 'tooling for success' (common processes and tools)

An event report was published as an additional ShC deliverable, identifying a range of practical actions.

Update: A follow-up Investor Summit was notionally intended for Q1'19 to move the actions forward, and demonstrate scale intent from Sharing Cities and other Lighthouse programmes. Although collaboration does continue amongst the SCC01s, and endeavours to bring a practical scale measure to market (the Trans-EU Lamppost Initiative), insufficient progress has been made to credibly pull the investors together and show action on the demand side. A further Summit is still intended; and this may be a collaborative initiative hosted by the SmarterTogether programme (in Lyon in October) or a separate Sharing Cities event. The key need is to have demonstrable scale investment potential to put to the investment community.

3.3.2 Packaging of Smart City Solutions (Measures)

Synthesis: The concept of packaging has been discussed considerably within Sharing Cities and across the SCC01 community. This provides a vital pillar to build familiarity, engender confidence, incentivise scale and increase certainly (thus reduce risk).

It captures the 'what' and the 'how' for a particular measure. The simple analogy is that of Lego – recognised, component-based, interoperable, purposeful, trusted, affordable; and can be swiftly put together as per the instructions, or tailored to specific needs and innovations as desired.

A **"3+1" packaging framework** (Figure 4) documents the basic elements of (i) capturing societal needs (ii) identifying technical options (iii) selecting appropriate business models and financing instruments. These three more
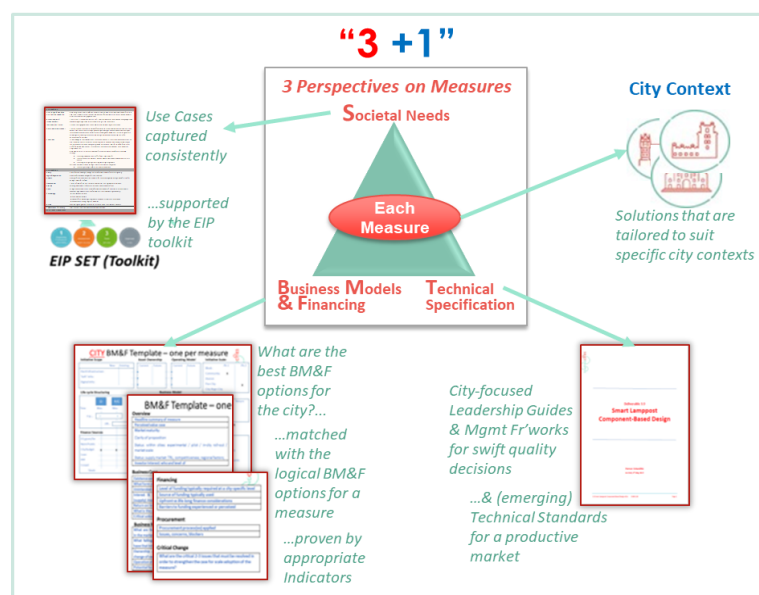

Figure 4 Simple "3+1" Packaging Framework

standards-based approaches are complemented by the structured capture of a city's context which enables a measure to be tailored to the unique circumstances of each city. Packaging thus provides the basic starting point from which a city can elect to 'adopt' or 'adapt' a solution.

Packaging offers:

- The ability to **access economy of scale (i.e. save money),** through collaboration and common design or indeed joint acquisition
- The opportunity to **reduce the time it takes for cities' to ready for action**
- Easier **access to investment** funds – through greater confidence in the market
- A **better target for industry** to aim their resources at – better revenue and profitability
- Ease of ownership and **reduced maintenance** burden – through greater consistency

There is an important potential role for Standards Development Organisations (SDOs) to play as the packaging process evolves.

Packaging supports cities (& other actors) throughout the project lifecycle, by offering documents that are built by cities for cities. Four major life-cycle stages are considered, and in total 16 documents are envisaged to be potentially beneficial through that process, as shown in figure 5.
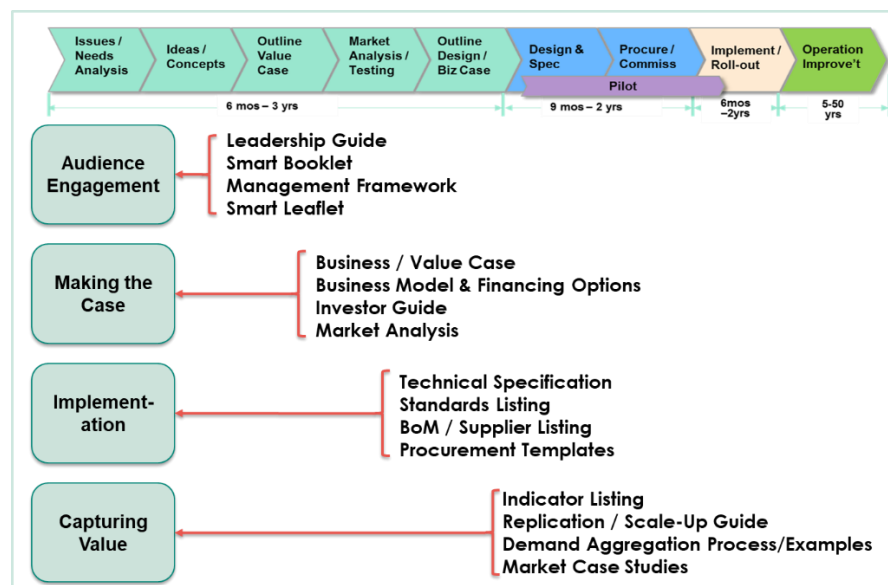

Figure 5: Packaging Portfolio

Update: Packaging activities continue within the Sharing Cities programme. This is somewhat hampered by the original stated deliverables not matching the proposed packaging concept – a natural result of the latter being developed after the contracted deliverables were set. However, that said, Sharing Cities partners seek to deliver a portfolio of packaged measures as needs and resources allow. The specifics of which are included in the year 4-5 implementation plan.

In addition to the packaging of measures, work has been undertaken (together with the EC-funded RICE programme) to develop a **Decision Support Tool (DST)** for priority measures. This is entirely aligned with the packaging approach and provides an

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Milan Co-Designs a New Multi-Property Method

Partner Teicos has developed a new business model and financing scheme for multi-owner property energy retrofit. The scheme offers an alternative to bank credit, that was not available for these specific cases, and it is based on the handover of tax credits to a private investor.

The method is raising the interest of entities working in the energy retrofit sector, not only nationally, also abroad with partners sharing the process, experience and lessons learned at several events. At national level the method is being considered as one of the best practices within the campaign "Italia in Classe A", conducted by the Italian National Energy Agency.

This may well result in revision to the current legal framework regarding financial schemes around energy efficiency retrofits.

The municipality is also replicating the measure with the support of "BE2 Energy Efficiency" call for tenders. Through this call, the Municipality supports private investment in Energy Efficiency by financing 15% of the costs of works.

IT-enabled, thus repeatable and consistent, platform to improve the quality and speed of decision making on specific measures. The DST platform has been completed on the smart lamppost, as one of the four agreed measures that all SCC01s have agreed to collaborate on. The deliverable is a 'beta' version platform. The DST seeks to guide a city / cities through the process of developing bankable smart lamppost projects, keeping the decision power clearly within the city. It is presently built with 3 modules that:

- Takes a city through the process of selecting one or many smart lighting applications based on a set of criteria relevant to the city's own strategic ambitions
- Assesses a project through a detailed cost benefit analysis - including both cash and socio-economic/environmental items
- Scores the project's bankability through a simple algorithm, recommends optimum business models against a series of standard metrics, and computes a project's financial summary.

The DST is an end-to-end platform that enables a city to design, evaluate, and optimise a number of projects and financing scenarios. A clear value adding feature of the tool is that it can be used to compare projects which come in different shapes or forms e.g. combined smart lampposts supplier offerings, single use case internally driven experimentations, multi-use case large perimeter projects, etc., using a consistent method. And in this way, it not only accelerates decision making, but also provides an undisputable and transparent step-by-step process to reach consensus. The DST is presently being tested in London. It has the potential to help multiple cities ready themselves in a consistent fashion; and as such offers considerable opportunity to speed the scale up of smart city solutions. The intention is to prove the approach on the smart lamppost, then seek means to apply the approach to other (priority) smart city measures.

3.3.3   Developing Scale through Sharing Cities Target City Network

Synthesis: Sharing Cities signed-up a large number of cities within Europe and abroad during the proposal process – in total there are more than 100 national and EU 'Scale-Up' cities, and international 'Link' cities. These have no formal commercial arrangement with the programme, however expressed a desire to collaborate at different levels of depth with the programme as solutions and learning emerged. The Replication and Communications work packages (WP5-6) have engaged this community through webinars and the like to keep them appraised of Sharing Cities activities.

These are in addition to our Lead and Fellow cities, where there is a far greater level of commitment to implement smart city solutions. Within these cities we consider seek to expand out from the demonstration area to include additional municipalities within these cities, and their metropolitan areas and related municipalities.

The various categories of cities are shown in the Venn diagram in Figure 5 being:

1. Lead Cities – Demonstrators
2. Metropolitan Areas (surrounding the lead cities)
3. National Scale-Up cities (of the lead, and fellow) cities
4. EU Scale-Up cities (i.e. in member states beyond the principal cities)
5. International 'Link' cities (a small group of benchmark reference cities)
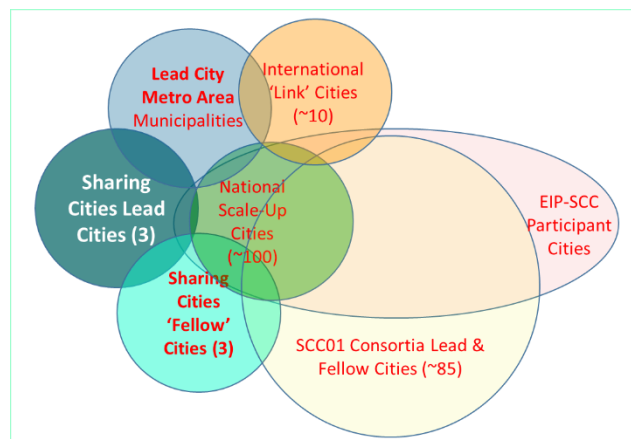6. SCC01 Consortia cities
7. EIP-SCC Participant cities

Figure 6 Sharing Cities - Target City Groupings

This community represents a very significant potential scale, which with 'packaged' solutions and strong engagement and communication activities can offer a very substantial opportunity to influence the market.

Update: To support replication and scale-up the following activities continue to be undertaken by work package 5 (replication) and 6 (communication):

- Newsletters – directly through Sharing Cities, and also using the Eurocities network, to promote smart cities solutions implementation, replication, and tools/guidance
- Promotion of measures and lighthouse/fellow cities' experiences at events (external and Eurocities forums with members)
- Recruitment of replication cities to follow on from Fellow Cities and to use the guidance and tools developed as part of Sharing Cities
- Webinars – on both capacity building (funding, etc) and measures
- Communications, highlighting the implementation of measures in lighthouse and fellow cities.

3.3.4   Cross-SCC01 Collaboration: The Business Model & Financing Task Group

Synthesis: The cross-SCC01 Collaboration Agreement involves several Task Groups to support tactical collaboration actions: Communications, Replication, Business Models & Finance; and Data. A Monitoring Task Group will now also launch (very relevant to demonstrate scale-up).

The BM&F Task Group, led by Sharing Cities, has:

- Collected basic information from the SCC01s on the various measures that they have committed to implement (volume, value, timing)
- Mapped the various measures to determine the most optimal for collaboration resulting in four measures being agreed as common across all SCC01s for collaboration: Smart Lamppost; Social Housing; eBikes; Urban Data Platforms – which are at the core of the packaging activities
- Sought to collect similar measure demand data from the Replication cities together with the Replication Task Group. This has been less than successful
- Compared the approaches that each programme is taking to 'business models and finance' to seek opportunities for synergy, and common methods and tools. A Barcelona workshop in Nov'18 identified 6 key findings

Update: A cross-SCC01 workshop was planned for June 2019, however was viewed as being insufficiently quorate to warrant the investment. This workshop will be run in October 2019 as part of the cross-SCC01 event. The purpose and agenda are already set, basically to seek greater commonality of approach and tools.

Synergies with other Task Groups, notably Replication, the (new) Monitoring, and the overall Board of Coordinators should be increased to support the overall collective goals. The opportunity to set an overall scale-up ambition (potentially target) and potentially adopt a common approach to progressing towards that warrants further discussion. This would seem to be consistent with the increasing percentage of budget that each SCC01 programme has been required to put to collaboration amongst the SCC01 community.

3.3.5   Trans-EU Humble Lamppost Initiative

Synthesis: A "Trans-EU Humble Lamppost Initiative" has been outlined that brings together 6 city-clusters to upgrade smart lampposts as a collaborative exercise (Figure 6). This represents real scale, at around 1 million addressable lampposts. The initiative complements the EIP-SCC commitment, launched in Dec 2014, which seeks to upgrade 10 million lampposts in EU cities; around 14% of the total of 60-90 million lampposts in Europe. By adopting common component-based ('packaged')

solutions, there is clear potential to make significant double-digit price savings, through collaboration and demand aggregation; and exploit potential additional smart services e.g. 5G, sensors, and the like.

The intention is to create scale investment within each cluster and influence the market collectively. The current 6 clusters involve two of the SCC01 programmes. The intention is that each cluster can act as a proof point for further scale up in that geography – towards the ultimate EU goal of the 10 million smart lampposts.

As regards investment; approaches have been made to institutional investors to stimulate collaboration and support readiness of the six clusters. Market investors have been engaged and are actively seeking to support the initiative. In addition, there is clearly an interest within industry in this initiative.

Update: Progress to mobilise the clusters has been fraught with challenges. However the current intentions continue to be to find an

Figure 7 Trans-EU Humble Lamppost Initiative City-Clusters

access point to grant funds that will incentivise collaboration and establish the necessary compelling business case, stakeholder commitment, business model and financing plans, and implementation plans to progress to scale implementation. This initiative offers a very practical proof point for collaboration in the market and it is thus vital that it is successful as the implications go far beyond just lampposts.
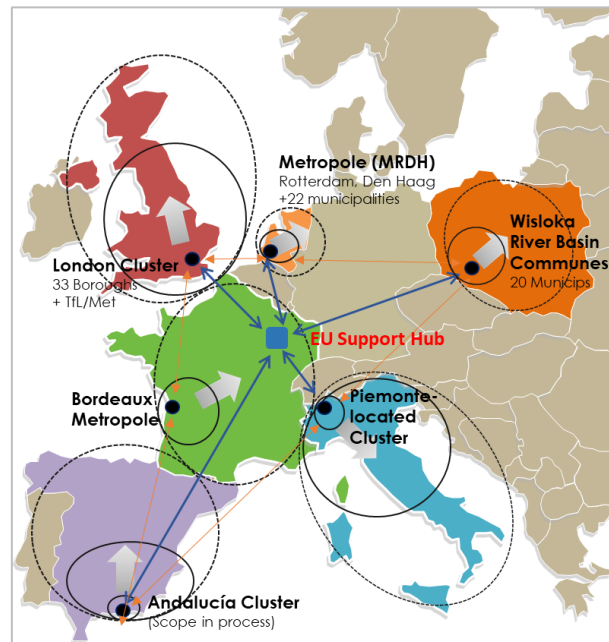
3.3.6 Monitoring the Sharing Cities €500 million 'Trigger' Investment Goal

Synthesis: Sharing Cities has developed a simple pragmatic means to monitor progress towards our €500m goal. It is intended to support replication and scale-up of 'packaged' solutions in the cities market. Initially the focus is on Sharing Cities, however it is equally applicable for other SCC01s, and beyond.

It focuses on 'triggered' investment, primarily addressing new financial investment. It also recognises the importance of non-financial benefits, like CO_2 / GHG reduction; RES uptake, health benefits and other strategic or social goals (consistent with SDG ambitions).

The purpose of the investment tracker is to:

- Demonstrate the causal relationship between SCC01 action and market investment impact
- Measure and demonstrate the Sharing Cities goal
- Stimulate market interest in smart city solutions, and offer content for communication
- Build overall market confidence, and more specifically investor confidence
- Align multiple monitoring methods in use across multiple programmes
- Motivate market actors to support demand aggregation and scale-up of smart city solutions
- Support additional causes, for instance as a basis for awards and recognition

It adopts a number of principles to steer and drive action:

- **Pragmatism**: develop an approach that is easy to understand and apply
- **Seek accuracy not precision**: recognising that multiple parties will use this, so it is best to be kept simple and 'good is good enough'
- **Resource efficiency**: keep it practical and easy-to-apply with limited resource

- **Align**: with multiple programme benefits tracking systems

The process is underpinned by a practical template for project owners to complete.

The Investment Trigger Tracker captures the stage of an opportunity as it progresses through the lifecycle; and estimates the 'influence' that Sharing Cities has had on the estimated investment. This enables the scale-up goal to be pragmatically assessed and reported.

Update: At this stage Sharing Cities has identified a dozen opportunities in the Investment Trigger Tracker; and identified (from only a few of these) the potential to trigger €120 million.

Early application of the tracker suggests that **achieving the €500 million trigger goal is achievable**, with quality scale-up city engagement plans.

This potential investment provides a practical basis by which we can inform discussions about sector or theme-specific smart city fund discussions, potentially in collaboration with other SCC01s; and supports very real and practical discussions with the investment community.

> ### Lisbon 'delivers'
>
> *The Lisbon eBike scheme in Lisbon is transforming the tradition of travel around the city. Lisbon is a city of 7 hills. And with a warm climate, the amount of bike-riding in the past around the city has been minimal. This is changing markedly, as a result of the City Hall commitment to eBikes. 30 eBikes were piloted within Sharing Cities, which has extended to (currently) 675 eBikes and 93 docking stations. A procurement is planned in the next few years to increase this to 4,000 eBikes.*
>
> *And it is not only eBikes. This City Hall shared mobility initiative has broadened from bikes to other shared travel modes (shared cars, scooters, and portable motorised scooters), and has given a clear signal to the market. Lisbon now has 15 private operators.*
>
> *And the city is in the process installing bike lanes to cater for this modal growth.*
>
> *Healthier, less congested, and better air quality – real tangible delivery.*
>
> *Complementing this, the city is expanding the 10 air quality sensors demonstrated as part of Sharing Cities to a planned 800 sensors across the city. And similarly expanding the 12 parking sensors (testing 3 different models) to all parking slots along a 1.6km avenue. Demonstrable evidence of the in-city benefits of Sharing Cities investment.*

3.3.7   Collaboration with the EIP-SCC Action Clusters, and Marketplace Matchmaking

Synthesis: Alignment and collaboration between the SCC01 Lighthouse programmes and the EIP-SCC Action Clusters was highlighted in our initial bid; it is featured heavily in the action lines within the EIP-SCC "Towards…" white paper; and is a constant agenda item in discussions. The Sharing Cities partners are active participants with the EIP Actions Clusters.

The EIP-SCC Marketplace set a goal to stimulate €1 billion investment in smart city solutions by end 2019. So, there are clearly aligned motives to cause actions in the market towards these goals.

Update: The EIP Marketplace 'Matchmaking' process is relatively new and the portfolio of promoters and viable projects in nascent, however the process is important as it supports the overall market message highlighted in the "Towards…" paper of investment planning. The new Marketplace support contract (Oct'19) offers scope to strengthen alignment on common goals and exploit synergies in market engagement. Alignment with the EIP-SCC BM&F Action Cluster also offers scope for synergy.

Meanwhile, Sharing Cities is taking steps to continue market engagement activities through a "Trade Show" that will took place in London on 25th September 2019, to which the Sharing Cities partners presented examples of what has been delivered; both as physical product (e.g. eBike; Application demo); and by way of the packaging materials, to a wider variety of cities and industry stakeholders. This event is promoted on the EIP-SCC website, through the SCC01 community, Eurocities members (tbc), and various other networks.

3.3.8   Ongoing Engagement of the Investor Community

Synthesis: Investor engagement started in 2016 – too early. A second wave of activity kicked off in 2018 evidenced by the October Investor Summit. More than 40 investor organisations have been identified, across most of the dozen or so investor types. Most of these have been contacted. And for some the relationship is strong, following several meetings, and follow-up calls. This will continue.

The action plan from the Oct'18 Investor Summit provides a practical content-based agenda for follow-up. Importantly this includes measure-specific actions, and important enabling actions (like improving cities ability to make themselves 'investment ready').

Update: Forward plans include engaging a wider portfolio of investors – geographically and by investor type. This is best done as an SCC01 community, potentially together with the EIP-SCC Matchmaking process, however Sharing Cities (given its goal) will continue to take an active role in this.

Critical to the success of this is the ability of the Sharing Cities programme, and others to **identify real and relevant opportunities** (through the Trigger Tracker process).

The European Investment Bank (EIB) is a logical policy bank to build stronger relationships with, and this could be explored further, together with principals within the Commission.

The Sharing Cities Programme Board and Sponsor Board are important vehicles to show the cities' commitment to the investment community, and ensure that opportunities (within the cities at least) are proactively progressed through the funnel. In addition, although the Sharing Cities Global Advisory Board (GAB) has come to its end of term, depending on state-of-play on scale up, resource availability and other factors the idea of re-constituting this GAB as a Global Investment Board should be re-visited.

Deliverable D5.17 reflects the process of Sharing Cities activities in meeting with funders (which includes the Investor Forum of Oct 2018).

We will also consider engagement with Phase 2 of European Commission's Sustainable Energy Investment Forums (DG ENER/EASME). Phase 1 has shown good results in many Member States which provides a solid foundation for smart city solutions, particularly using public funding as guarantee funds to bring down the cost of capital. Also, some other interesting findings about focusing on cities within individual MS due to the consistency of regulatory environment necessary for aggregation.

In addition, the upcoming launch of the City Facility might provide a good opportunity to link with their project development assistance (PDA) funding. The latter is probably more relevant for replication, although street lighting is likely to be a prominent measure, so getting the smart element included is important too (and may well qualify as 'scale up'). It could also form a precedent for ongoing PDA support, which could be broadened to include smart solutions.

In conclusion, these eight items provide a strong inter-dependent framework for action to support our goal to trigger €500m smart city investment. The separate goal to establish complementary smart city financial instruments, including national and trans-EU funds is also one that we intend to address.

4 RECOMMENDATIONS & WAY FORWARD

This section provides an outline roadmap to steer ongoing work.

Alignment, collaboration, and persistence have been noted as important terms to achieve the goals set out:

- *Alignment* across the Sharing Cities work packages
- *Collaboration* amongst the many market players, notably SCC01 lighthouse programmes, and investors
- *Persistence* as this complex relatively new agenda requires that all parties undergo some form of change – and change can be uncomfortable

These attributes require all the Sharing Cities partners to work together towards common goals, and to work outside of the programme also. Naturally, this ask will be responded to to different degrees.

The following actions are intended to increasingly build momentum on the topic of investment and stimulation of funds.

Table 2 Action Plan

#	Theme	Next Action(s)	Timing
1	Investor Summit	Run a 2nd Investor Summit hosted by Sharing Cities or ANO SCC01 programme	Q3/Q4 '19
2	"Packaging" of smart city solutions	Actively progress & build in indicators to help demonstrate investment returns	Ongoing
3	Decision Support Tool	Seek to prove the value of the DST, and access funding means to broaden application	Q4/2020
4	Stimulate Scale through Sharing Cities Network	Actively promote Sharing Cities solutions through the various city categories identified; exploiting Sharing Cities partners, events, Boards etc	Ongoing
5	Investment Trigger Tracker	Implement and roll-out the process; actively monitor and regularly report progress	Ongoing
6	Cross-SCC01 Task Group Collaboration	Ensure active and effective participation in the BM&F, Replication, Monitoring Task Groups	Ongoing
7	Trans-EU Humble Lamppost Initiative	Find a source of stimulus funds to make real the opportunity, as a model for other measures	Ongoing
8	Collaboration with the EIP-SCC Marketplace	Engage with new Marketplace team, and set a clear common plan	Oct'19
9	Ongoing Investor Engagement	Establish mechanisms by which this will work as Sharing Cities or better the broader community	Q3-4'19
10	Smart City Funds	Seek opportunities to establish city-hall sponsored smart city funds	Ongoing