

BUILDING SMART CITIES TOGETHER

SHARINGCITIES

Smart Energy as a Path to Smart Cities

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Smart Energy World Summit 2017, Lisboa, 25 Oct 2017



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Lisboa E-Nova – Lisbon's Energy & Environmental Agency



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Energia e
Estratégia EA
para Lisboa

Eficiência
Energética e
Energias
Renováveis

Água

Mobilidade
Sustentável

Smart Cities

Planeamento
Urbano

Biodiversidade

Sensibilização
Ambiental

Comunicação





DISCOVERING SHARING CITIES first steps into the wild...

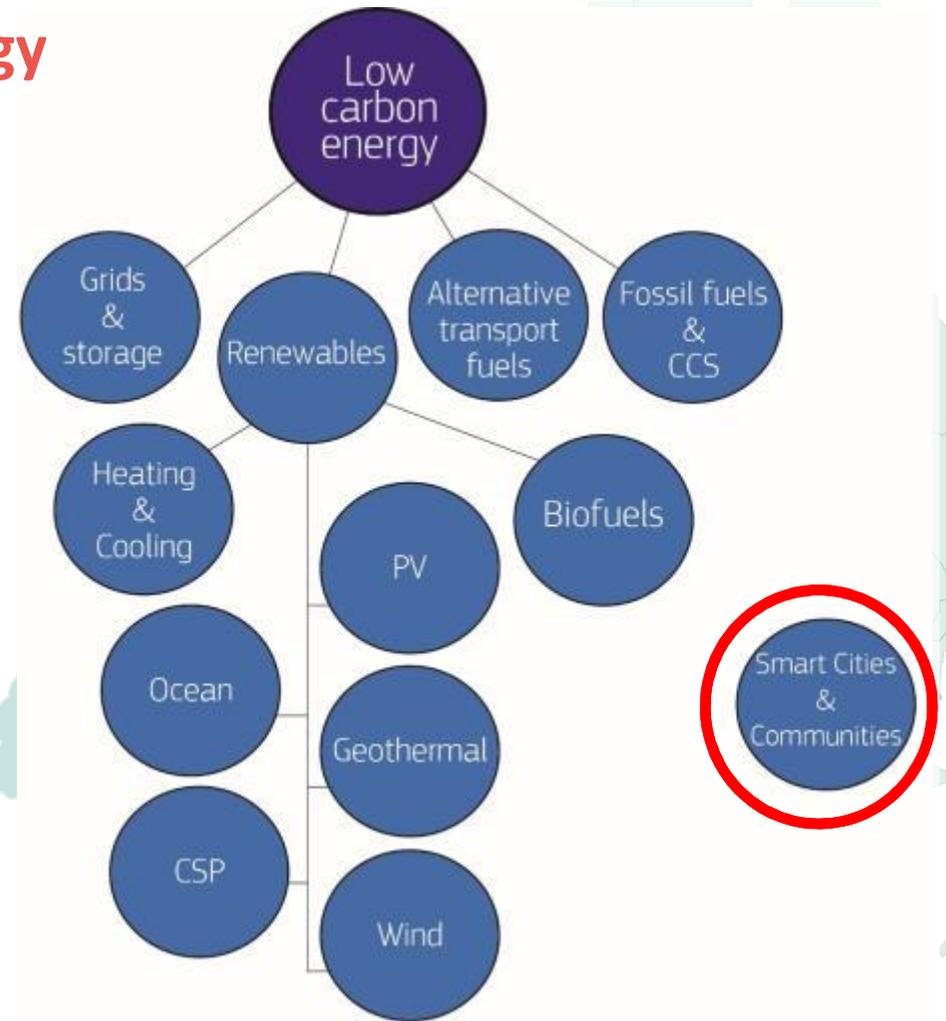
INEA - Innovation and Networks Executive Agency Secure, clean and efficient energy

SCEE has 20 topics

20% of budget goes to SCC

(2nd come GRIDS)

SCC awards ~ 3 proj/year – 75M€





LIGHTHOUSE PROJECTS AND SMART CITIES SUPPORT ACTIONS

2014



2015



2016



2017



LEGEND: ★ Leader ● Follower * EUROCITIES member

- 2014 -

GROWSMARTER

*Barcelona, ES
*Köln, DE
*Stockholm, SE
Cork, IE
*Graz, AT
*Porto, PT
Seceava, RO
Valetta, MT

REMOURBAN

Nottingham, UK
Tebebası, TR
Valladolid, ES
Miskolc, HU
Seraing, BE

TRIANGULUM

*Eindhoven, NL
*Manchester, UK
*Stavanger, NO
*Leipzig, DE
*Prague, CZ
*Sabadell, ES

- 2015 -

REPLICATE

*Bristol, UK
*Donostia/San Sebastian, ES
*Florence, IT
*Essen, DE
*Lausanne, CH
*Nişlifer, TR

SHARING CITIES

*Lisbon, PT
*London, UK
*Milan, IT
*Bordeaux, FR
*Burgas, BG
*Warsaw, PL

SMARTEN CITY

Sonderborg, DK
Tartu, EE
Victoria-Gasteiz, ES
Asenovgrad, BG
Lecco, IT

SMARTER TOGETHER

*Lyon, FR
*Munich, DE
*Vienna, AT
Kiev, UA
Santiago de Compostela, ES
*Soňa, BG
*Venice, IT
Yokohama, JP

- 2016 -

MY SMART LIFE

*Hamburg, DE
*Helsinki, FI
*Nantes, FR
*Bydgoszcz, PL
Palencia, ES
*Rijeka, HR
*Varna, BG

RUGGEDISED

*Glasgow, UK
*Rotterdam, NL
*Umeå, SE
*Brno, CZ
*Gdanek, PL
Parma, IT

- 2017 -

IRIS

*Gothenburg, SE
*Nice, FR
*Utrecht, NL
Alexandroupolis, GR
Focsani, RO
Santa Cruz de Tenerife, ES
Vaasa, FI

MATCH-UP

Antalya, TR
*Dresden, DE
Valencia, ES
Herzliya, IL
Kerava, FI
*Ostend, BE

STARDUST

Pamplona, ES
*Tampere, FI
Trento, IT
*Derry, UK
Kozani, GR
Litomerice, CZ





What is Sharing Cities ? [Key facts](#) Who we are ? Contact Discover



01 01 2016

Start date



60

Month



28045835

Total cost



24753944

EC funding



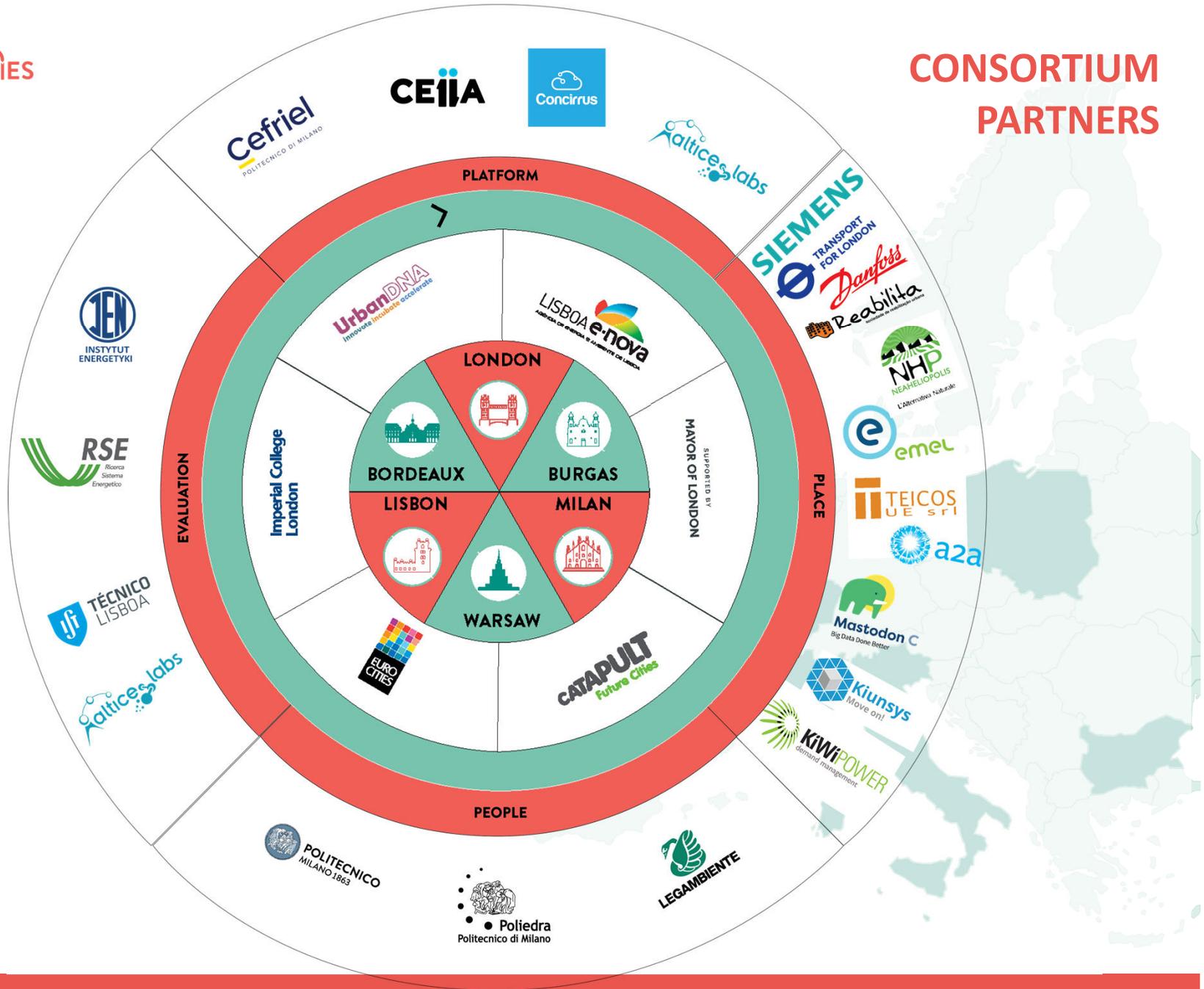
500

million
Expected private capital



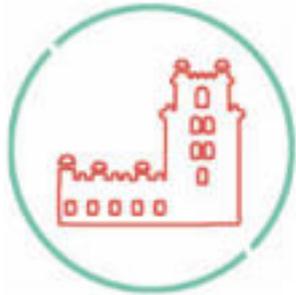
100

cities
Scale-up





The 'Lighthouse' and 'Fellow' Cities



LISBON

BORDEAUX



LONDON

BURGAS

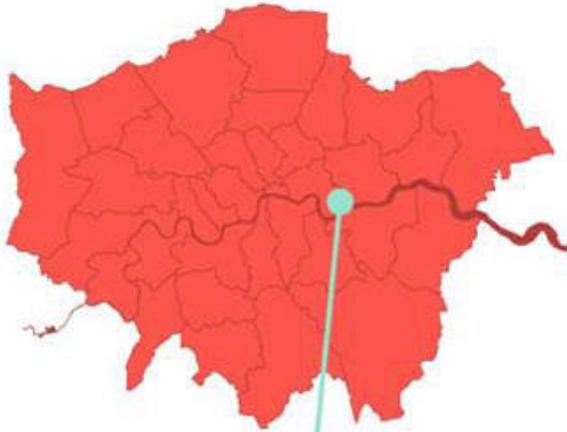


MILAN

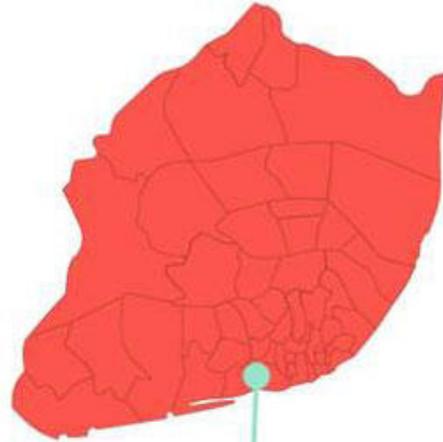
VARSAW



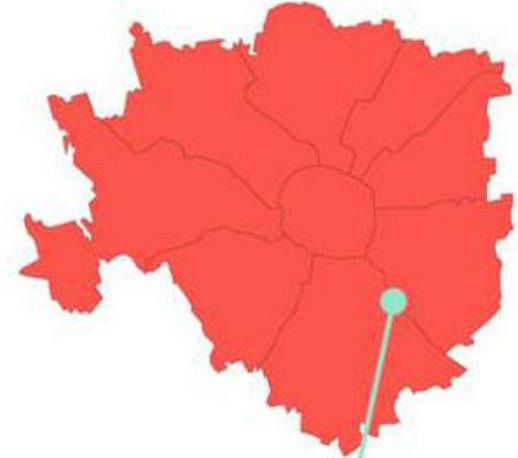
LONDON
Greenwich



LISBON
Downtown

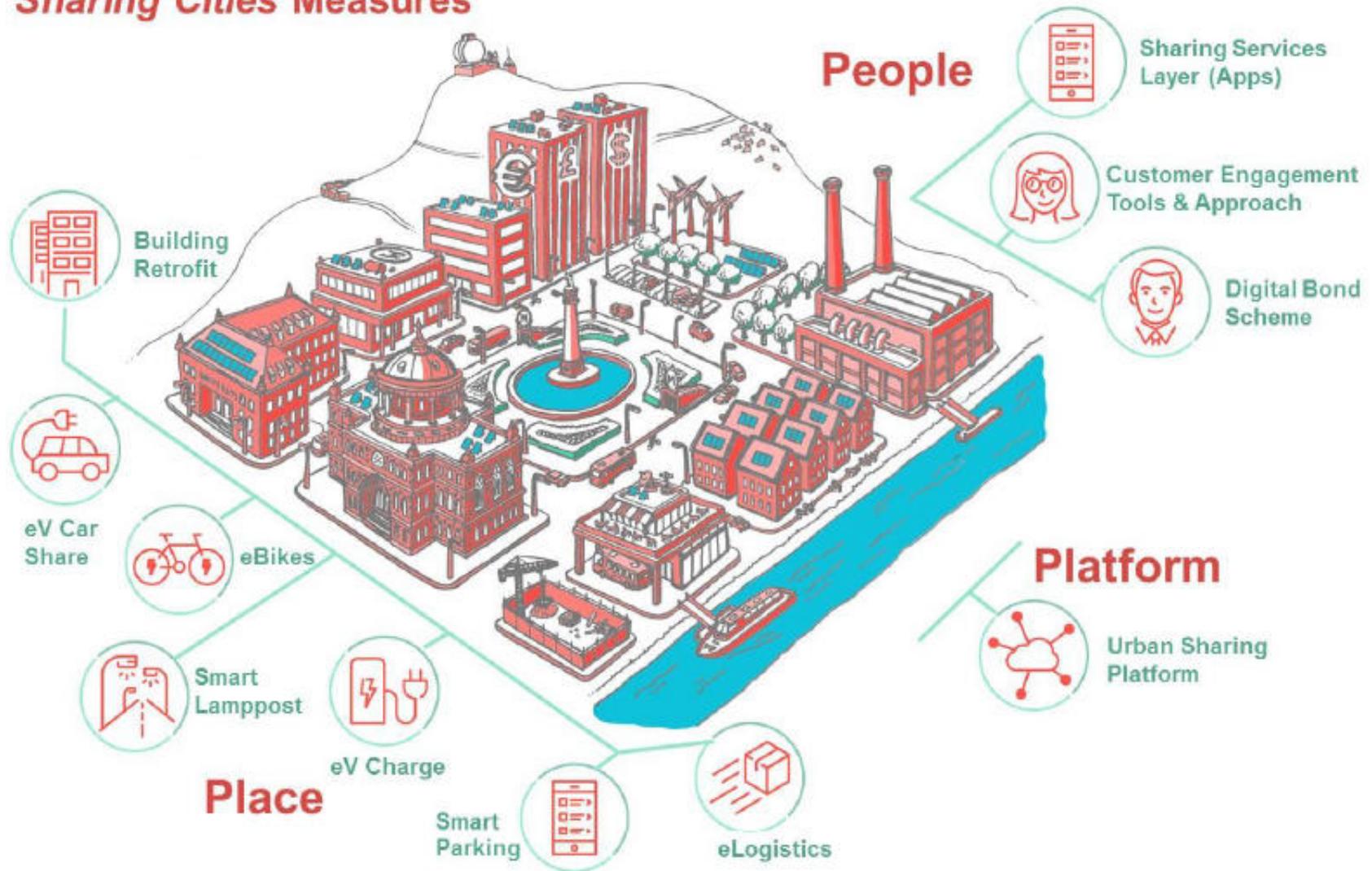


MILAN
Porta Romana





Sharing Cities Measures





10 Measures - 'Building Block' Repeatable Solutions



Citizen Engagement



eV Charging



Building Retrofit



Smart Parking



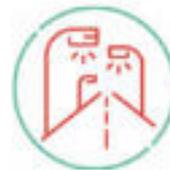
Sustainable energy management systems



eLogistics



eV Car Sharing



Smart Lamp Posts



eBike Sharing



Urban Sharing Platform

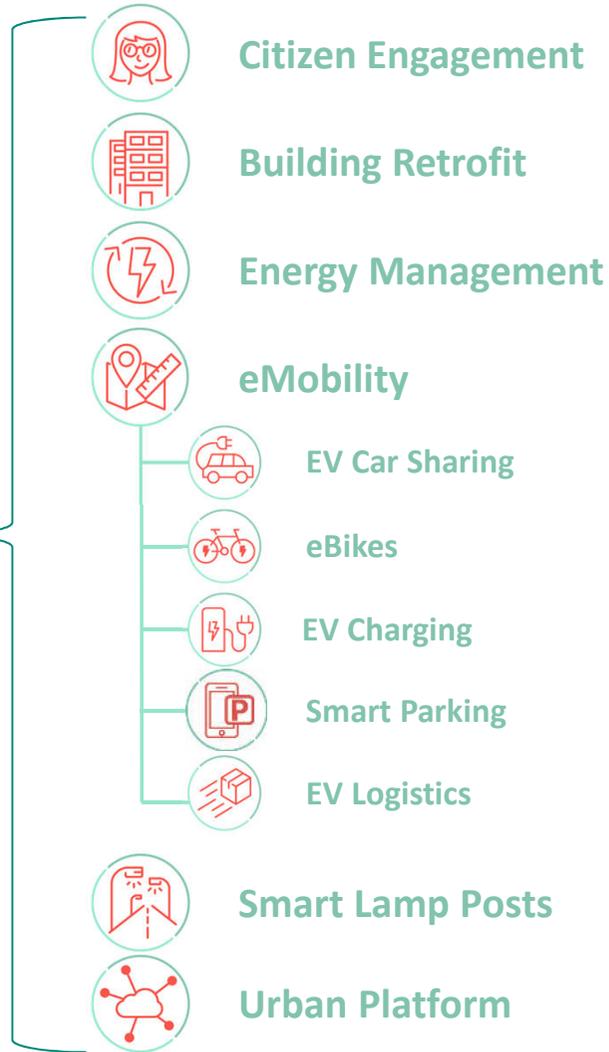


CITIES IMPLEMENTATION

Lisbon	London	Milan
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will implement all measures

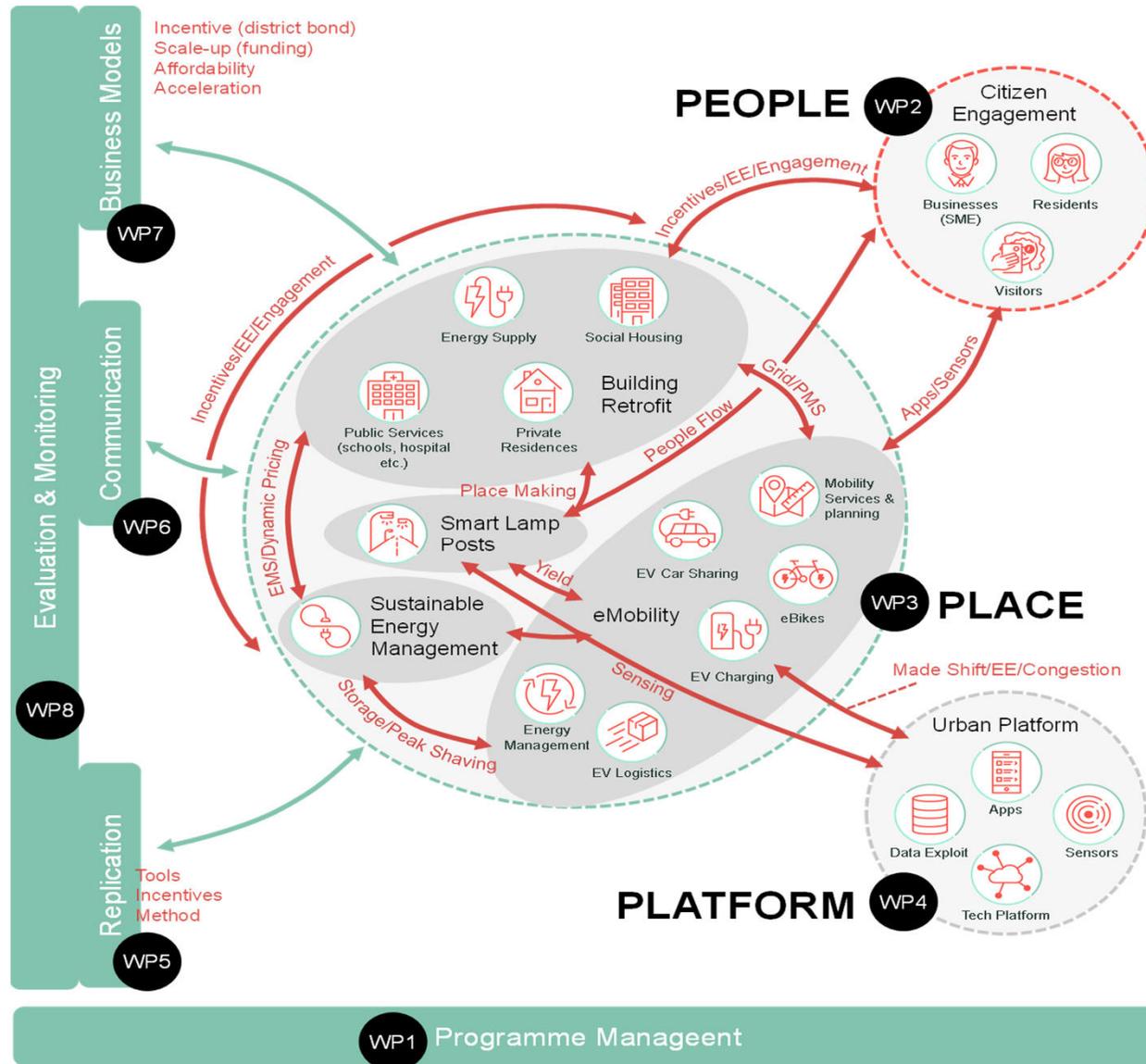
- Implement
- Co-design
- Validate



	Bordeaux	Burgas	Warsaw
Citizen Engagement			
Building Retrofit			
Energy Management			
eMobility			
EV Car Sharing			
eBikes			
EV Charging			
Smart Parking			
EV Logistics			
Smart Lamp Posts			
Urban Platform			



8 INTEGRATED WORK PACKAGES





WP1 – PROGRAMME MANAGEMENT

Lead: Greater London Authority



WP2: PEOPLE

Lead: Future Cities Catapult



Run a qualitative **user research** (diary studies and in-home interviews) to understand behaviours and attitudes around Sharing Cities measures



Build a collection of **engagement activities** and methods to use to speak and connect with citizens



Establish **community hubs** in each city



Co-design services and digital interfaces: organise workshops with citizens, local businesses and city representatives



Test prototypes for validation: test ideas and developments for digital interfaces interacting with representative users in each city to validate their helpfulness and attractiveness



WP3 – PLACE
Lead: Lisbon



Apply deep-retrofit measures

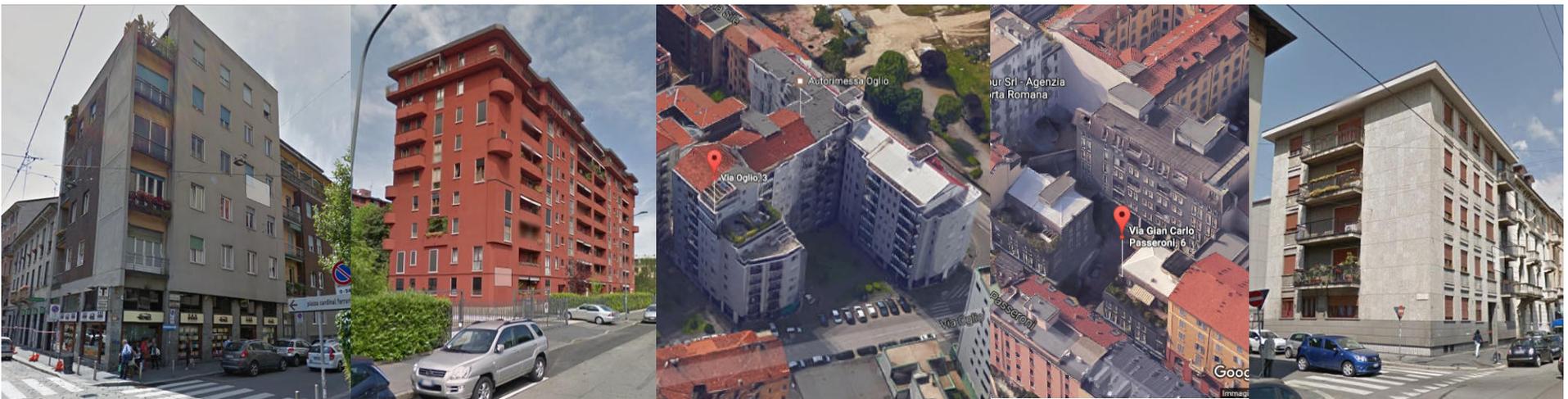
- to **public and private** residential properties with **low carbon energy sources** (solar PV, water source heat pump) and **electric vehicle charging**
- all wrapped together by a digital first digitally driven **sustainable energy management systems**



PRIVATE MULTI PROPERTY BUILDINGS



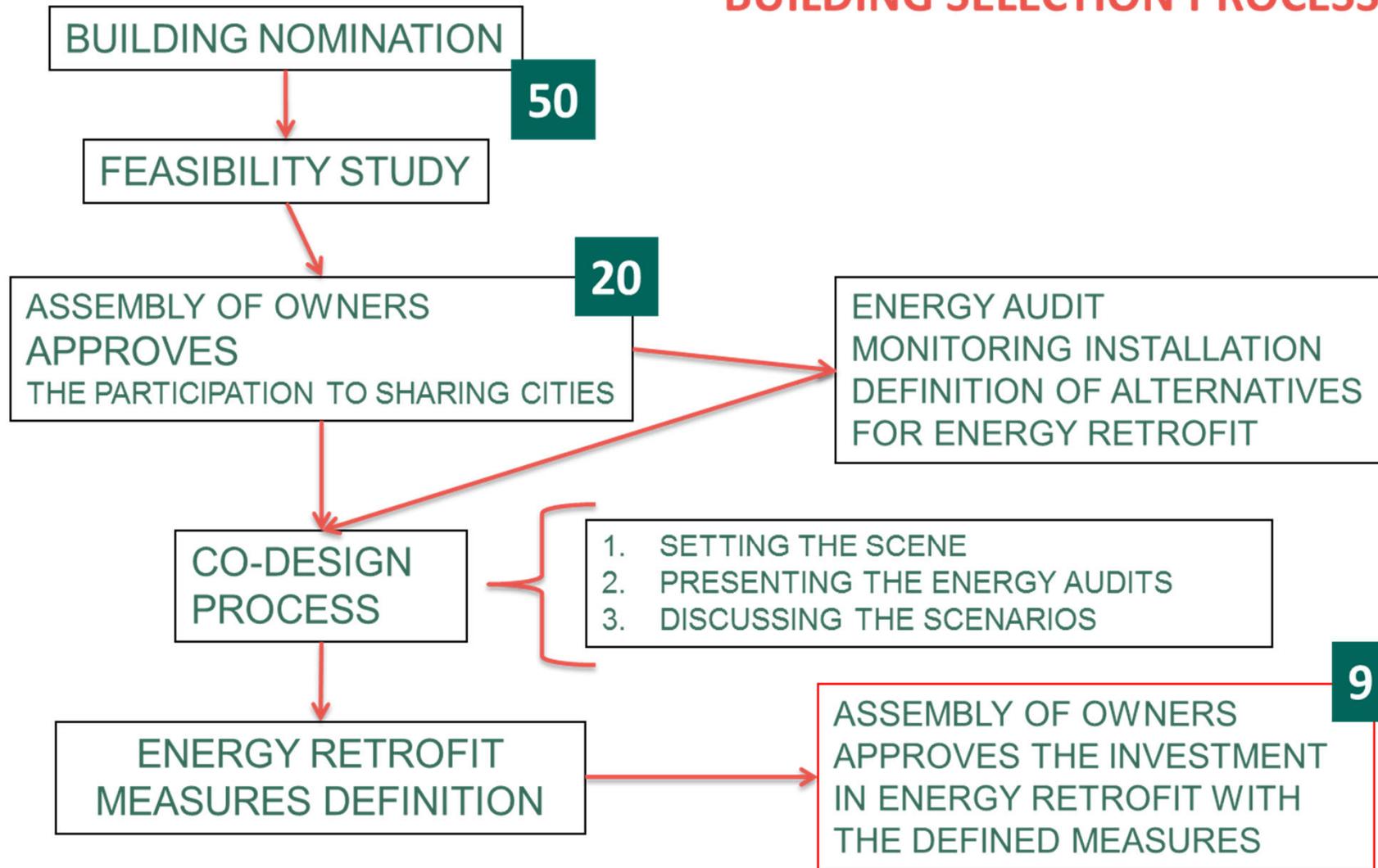
BEATRICE D'ESTE 23, VIALE ORTLES 15, PAMPURI 26, MERCALLI 7, INSUBRIA, 24 MURATORI,44

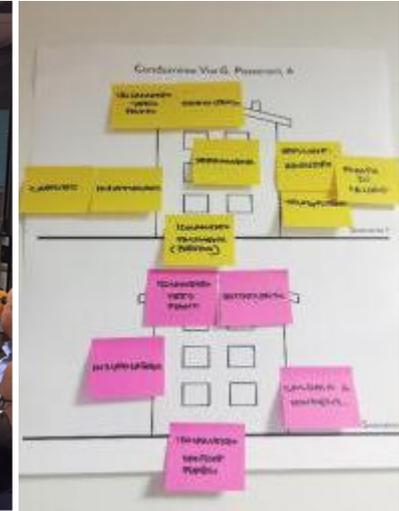
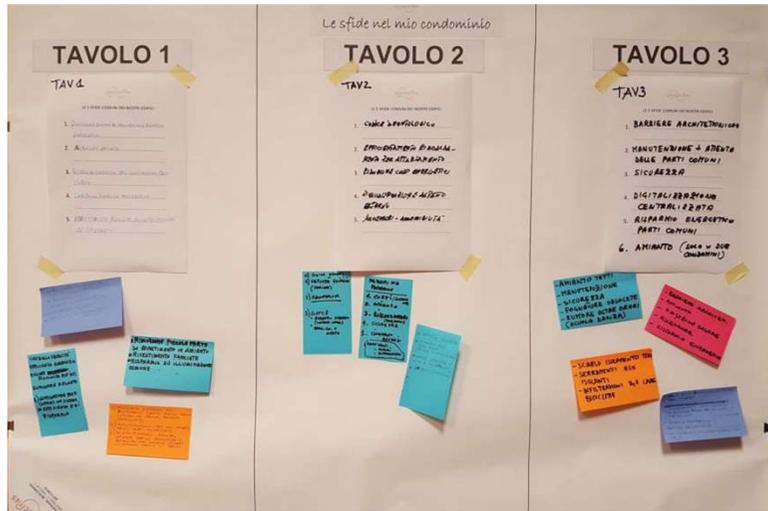


QUADRONNO 34, SCHEIWILLER 9 OGLIO 3,5 PASSERONI, 6 RIPAMONTI,142...
 ... and 9 more...

1.882.900 kWh – 21,000 m2

PRIVATE MULTI OWNER BUILDINGS. BUILDING SELECTION PROCESS





ANALISI ENERGETICA Condominio Viale Beatrice Deste, 23

Sharing Cities - Candidatura n. 6 - Approvazione diagnosi n. 01
9589 mq - 18 unità residenziali e uffici

Classe energetica: F

Riscaldamento centralizzato con caldaia tradizionale
a GAS METANO (2005) e PANNELLI RADIANTI



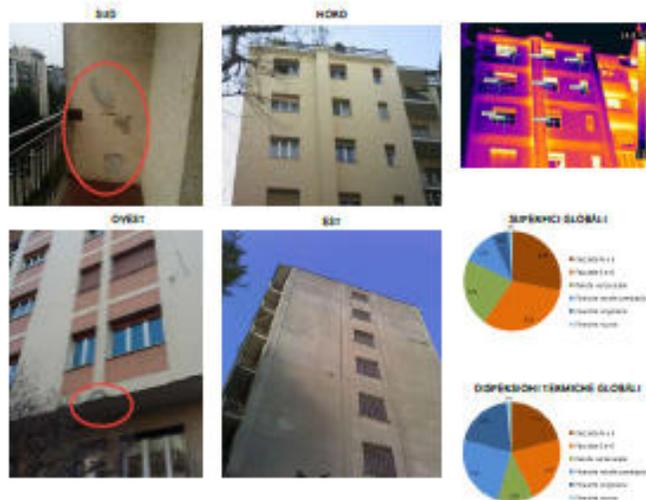
FACCIATA E VANO SCALA

Le facciate orientate a Sud e a Ovest sono rivestite in terrazo mentre le altre, con esposizione a Nord ed a Est, sono intonacate.
Le pareti a contatto con un doppio intonaco in mattoni forati con intercapedine d'aria, spessore totale circa 30 cm.

Il rivestimento in terrazo delle murature esterne presenta un data di fine degli anni '60.

Non dipanano per le facciate Nord e Est la termografia rivela in evidenza i salti e gli altri punti critici.
Alcuni condotti interni molto dispendiosi, in base unidirezionale presenza di molto all'interno degli appartamenti, vanno fatti.

I sistemi di distribuzione riscaldamento e alle dispersioni complessive dell'intero. Sono alti del livello di cui che i dati dipendono dalla presenza di elementi dalle prestazioni scarse o molto scarse.



TETTO E CANTINA

La copertura piano è occupata da locali a scala di riprese da condanni del T° piano.

La copertura del vano scala è esistente, e fa di una porzione dell'appartamento a Nord, il complesso di condanno non è isolato, il piano è non omogeneo.

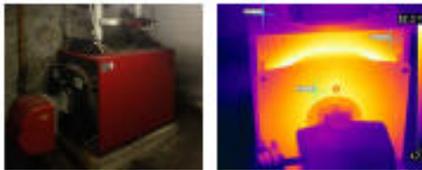
Il piano cantina non è isolato.



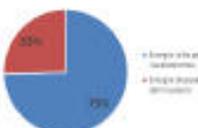
IMPIANTI

RISCALDAMENTO

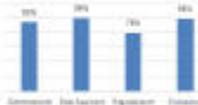
La caldaia, situata nel locale tecnico nel sottotetto, con accesso dal locale interno un vecchio modello del tipo tradizionale a gas, installata nel 2005 (12 anni) e presenta forti dispersioni dal manufatto.
Il generatore lavora ad alta temperatura, ma è associato ad un impianto di emissione a basse temperature. Componenti di emissione, a pannelli radianti, non consente la termoregolazione né nel caso specifico, la contabilizzazione dei consumi individuali.
Non è presente un sistema di integrazione dell'impianto.



ENERGIA POTENZIALE ALL'IMPIANTO



RENDIMENTI DEGLI IMPIANTI



ALTRI IMPIANTI

Cinque celle solari sono previste nel tetto di impianti autonomi prevalentemente a gas oppure elettrici.

Cinque il 70% degli appartamenti sono dotati di un impianto di raffrescamento.

CO-DESIGN OF ENERGY MEASURES PACKAGES WORKING WITH ON AN ANALYSIS OF THE BUILDING SPECIFICATIONS

ISOLAMENTO CANTINE/ANDRONE

Per il nuovo intervento di isolamento il sistema progettato è ad alta efficienza e a basso costo, realizzabile in ogni situazione con materiali di qualità, anche in situazioni particolari, grazie ad un sistema innovativo di installazione a vite, senza necessità di ponteggi e di opere di sostegno.

CONVANTI
Lunga durata dell'opera e dell'isolamento.

FOTOVOLTAICO

Il nuovo intervento di isolamento è progettato con il sistema di installazione a vite, a basso costo, realizzabile in ogni situazione con materiali di qualità, anche in situazioni particolari, grazie ad un sistema innovativo di installazione a vite, senza necessità di ponteggi e di opere di sostegno.

CONVANTI
Lunga durata dell'opera e dell'isolamento.

ISOLAMENTO DELLA FACCIATA

Il sistema progettato è ad alta efficienza e a basso costo, realizzabile in ogni situazione con materiali di qualità, anche in situazioni particolari, grazie ad un sistema innovativo di installazione a vite, senza necessità di ponteggi e di opere di sostegno.

CONVANTI
Lunga durata dell'opera e dell'isolamento.

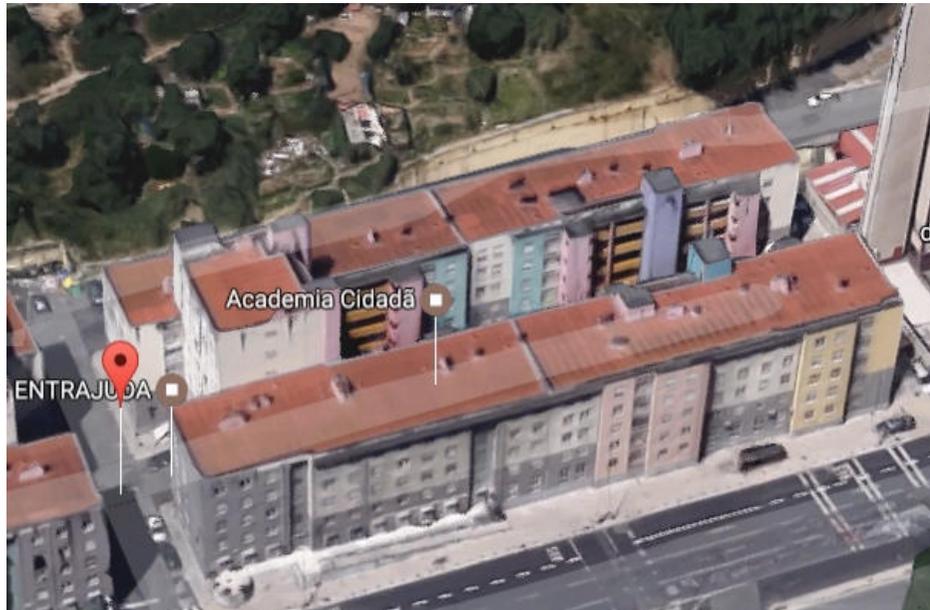


MILAN – 422,437 kWh – 4,633 m²



Greenwich – 2,487,373 kWh – 19,480 m²

SOCIAL HOUSING



LISBON– 719.304 kWh – 17,212 m²

TERTIARY BUILDINGS



LISBON 289.903 kWh – 5,080 m²



Rua de São Bento 14

142,129 kWh – 3,000 m²



Rua da Esperança do Cardal 11

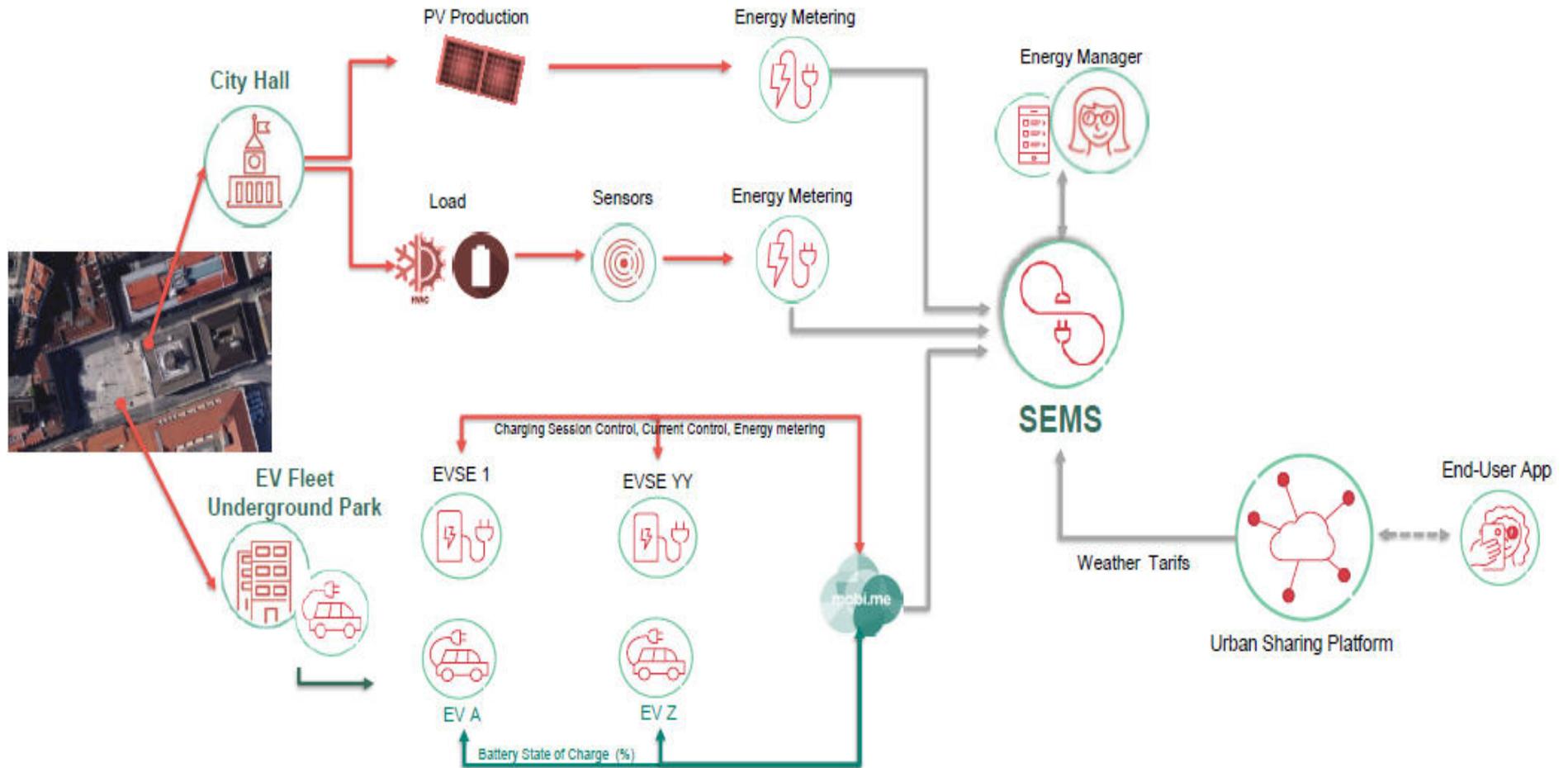


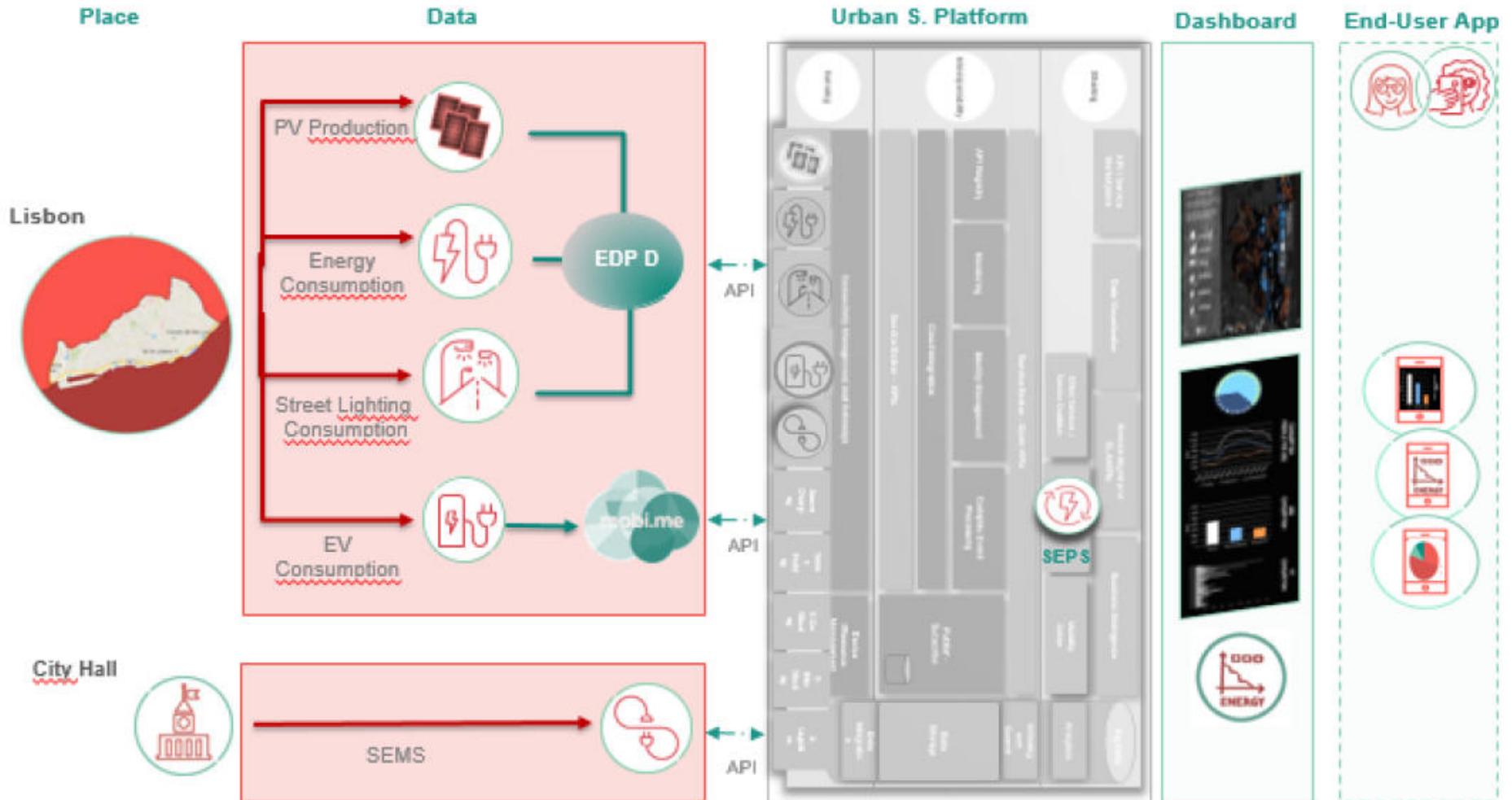


SEMS - SUSTAINABLE ENERGY MANAGEMENT SYSTEMS



Medidas Energy Management Sharing Cities: SEMS







eV car share



eV Charge



eLogistics

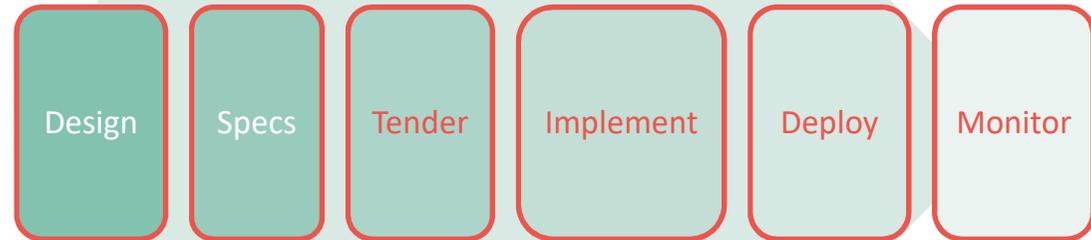


eBikes sharing

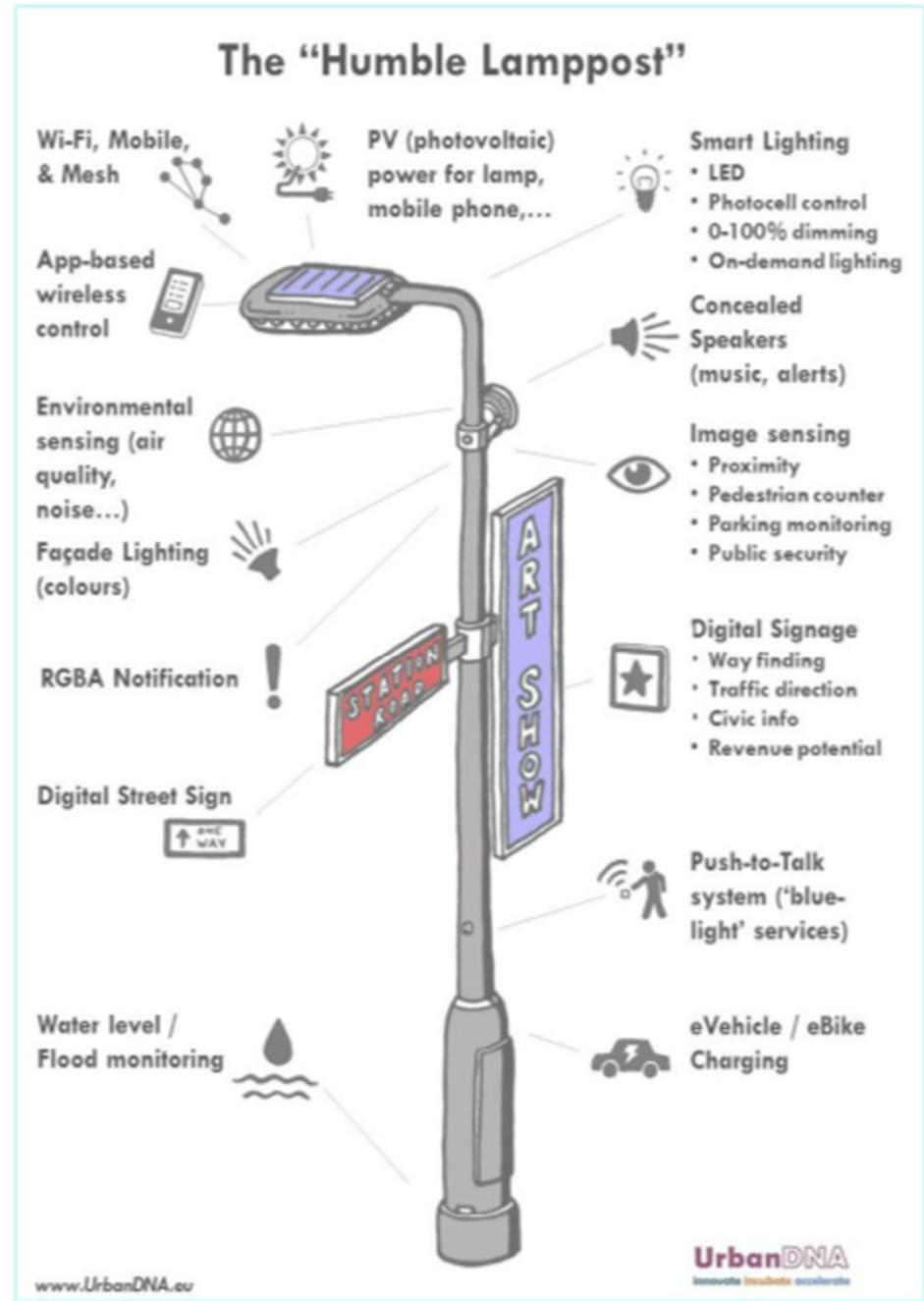


Smart parking

- Prediction of availability of mobility mode
- User-based bike reallocation with rewards
- Mobility island / Hub
- Optimization of parking space usage
- Optimization of logistics EV routing



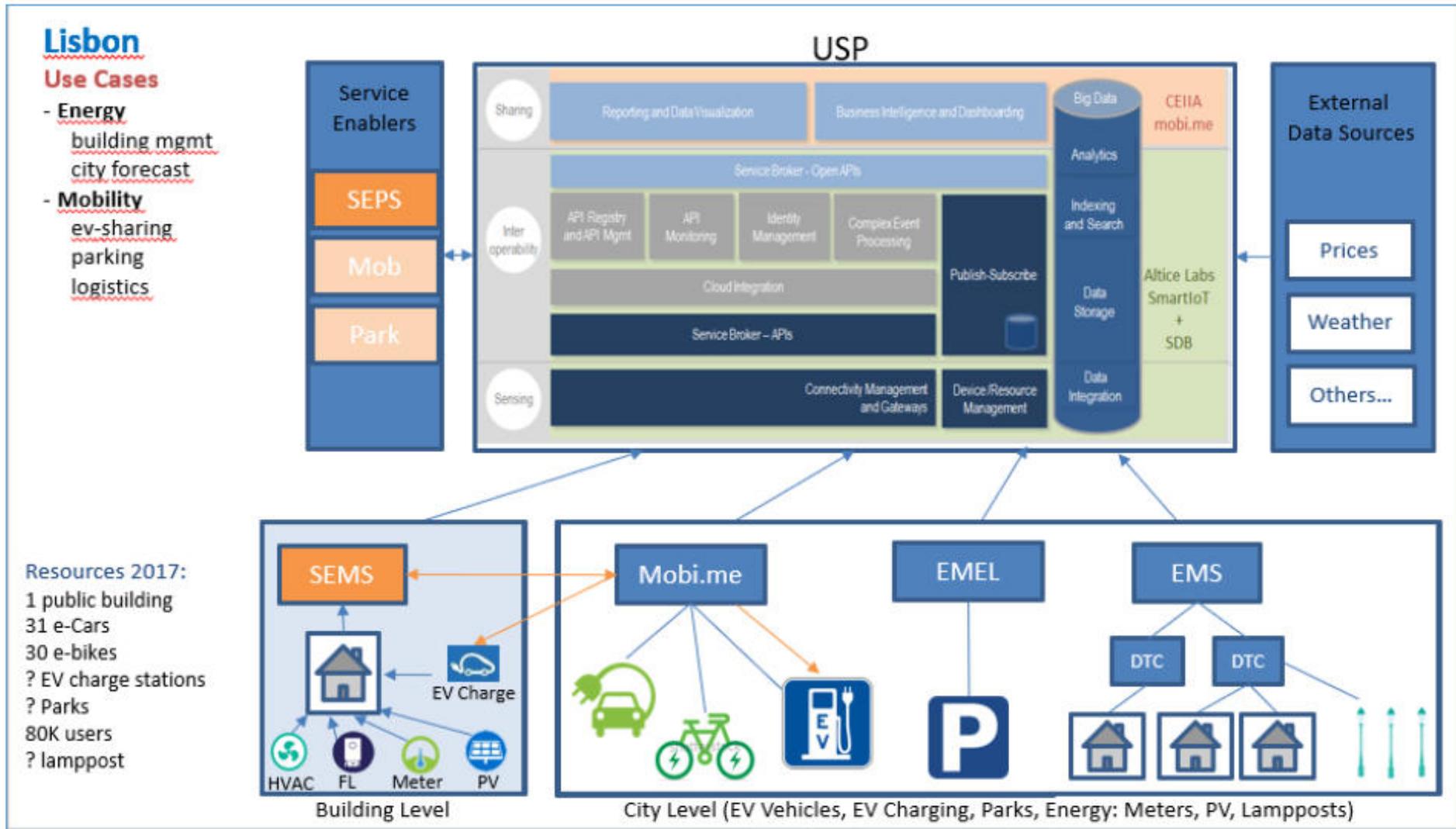






WP4 – PLATFORM
Lead: Urban DNA

SHARINGCITIES THE ROLE OF THE PLATFORM





WP5 – REPLICATION

Lead: EURO CITIES



LISBON

- e-mobility
- building retrofit
- citizen participation, participatory models
- smart city governance



LONDON-GREENWICH

- USP
- SEMS
- citizen engagement
- Greenwich smart city strategy and governance
- smart lighting
- energy management
- GATEway
- autonomous vehicles
- augmented reality for mobility



MILAN

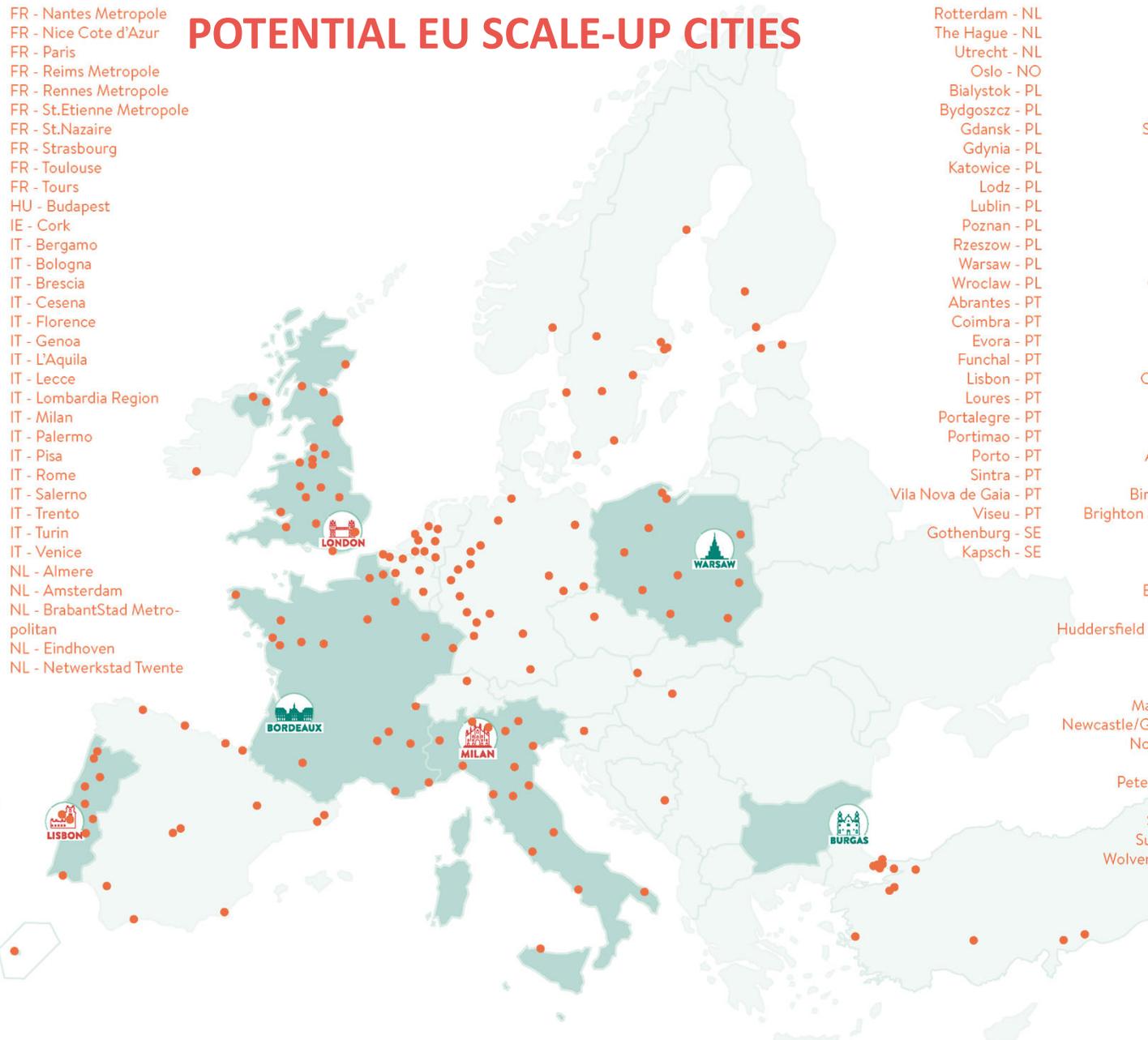
- Mobility
- SEMS
- USP
- Interoperability
- building retrofitting
- lamp posts



POTENTIAL EU SCALE-UP CITIES

- BA - Sarajevo
- BE - Antwerp
- BE - Brussels Region & City
- BE - Charleroi
- BE - Ghent
- BE - Kortrijk
- BE - Ostende
- BG - Burgas
- CH - Geneva
- CH - Zurich
- CZ - Prague
- DE - Berlin
- DE - Bonn
- DE - Bremen
- DE - Chemnitz
- DE - Cologne
- DE - Dortmund
- DE - Dresden
- DE - Dusseldorf
- DE - Essen
- DE - Frankfurt
- DE - Hagen
- DE - Hamburg
- DE - Karlsruhe
- DE - Leipzig
- DE - Mannheim
- DE - Munich
- DE - Munster
- DE - Nuremberg
- EE - Rakvere
- EE - Tallinn
- ES - Barcelona
- ES - Bilbao
- ES - Fuenlabrada
- ES - Gijon
- ES - Madrid
- ES - Malaga
- ES - Murcia
- ES - Santander
- ES - Saint Sebastian
- ES - Seville
- ES - Terrassa Metropolitan Area
- ES - Zaragoza
- FI - Espoo
- FI - Tampere
- FR - Amiens Metropole
- FR - Angers Loire Metropole
- FR - Bordeaux
- FR - Brest Metropole Oceane
- FR - Grand Nancy
- FR - Grenoble Alpes Metropole
- FR - Lille Communauté Urbaine
- FR - Lyon
- FR - Marseille

- FR - Nantes Metropole
- FR - Nice Cote d'Azur
- FR - Paris
- FR - Reims Metropole
- FR - Rennes Metropole
- FR - St.Etienne Metropole
- FR - St.Nazaire
- FR - Strasbourg
- FR - Toulouse
- FR - Tours
- HU - Budapest
- IE - Cork
- IT - Bergamo
- IT - Bologna
- IT - Brescia
- IT - Cesena
- IT - Florence
- IT - Genoa
- IT - L'Aquila
- IT - Lecce
- IT - Lombardia Region
- IT - Milan
- IT - Palermo
- IT - Pisa
- IT - Rome
- IT - Salerno
- IT - Trento
- IT - Turin
- IT - Venice
- NL - Almere
- NL - Amsterdam
- NL - BrabantStad Metropolitan
- NL - Eindhoven
- NL - Netwerkstad Twente



- Rotterdam - NL
- The Hague - NL
- Utrecht - NL
- Oslo - NO
- Bialystok - PL
- Gdansk - PL
- Gdynia - PL
- Katowice - PL
- Lodz - PL
- Lublin - PL
- Poznan - PL
- Rzeszow - PL
- Warsaw - PL
- Wroclaw - PL
- Abrantes - PT
- Coimbra - PT
- Evora - PT
- Funchal - PT
- Lisbon - PT
- Loures - PT
- Portalegre - PT
- Portimao - PT
- Porto - PT
- Sintra - PT
- Vila Nova de Gaia - PT
- Viseu - PT
- Gothenburg - SE
- Kapsch - SE
- Karlstad - SE
- Linköping - SE
- Malmö - SE
- Nacka - SE
- Ronneby - SE
- Solna - SE
- Stockholm - SE
- Umea - SE
- Bratislava - SK
- Ljubljana - SL
- Bakirkoy - TR
- Besiktas - TR
- Beyoglu - TR
- Bursa - TR
- Gaziantep - TR
- Istanbul - TR
- Izmir - TR
- Konya - TR
- Nilufer - TR
- Ozmangazi - TR
- Pendik - TR
- Sanliurfa - TR
- Serdivan - TR
- Aberdeen - UK
- Belfast - UK
- Birmingham - UK
- Brighton and Hove - UK
- Bristol - UK
- Cardiff - UK
- Derry - UK
- Edinburgh - UK
- Glasgow - UK
- Huddersfield / Kirklees - UK
- Leeds - UK
- Liverpool - UK
- London - UK
- Manchester - UK
- Newcastle/Gateshead - UK
- Nottingham - UK
- Oxford - UK
- Peterborough - UK
- Preston - UK
- Southend - UK
- Sunderland - UK
- Wolverhampton - UK

GLOBAL LINK SCALE-UP CITIES

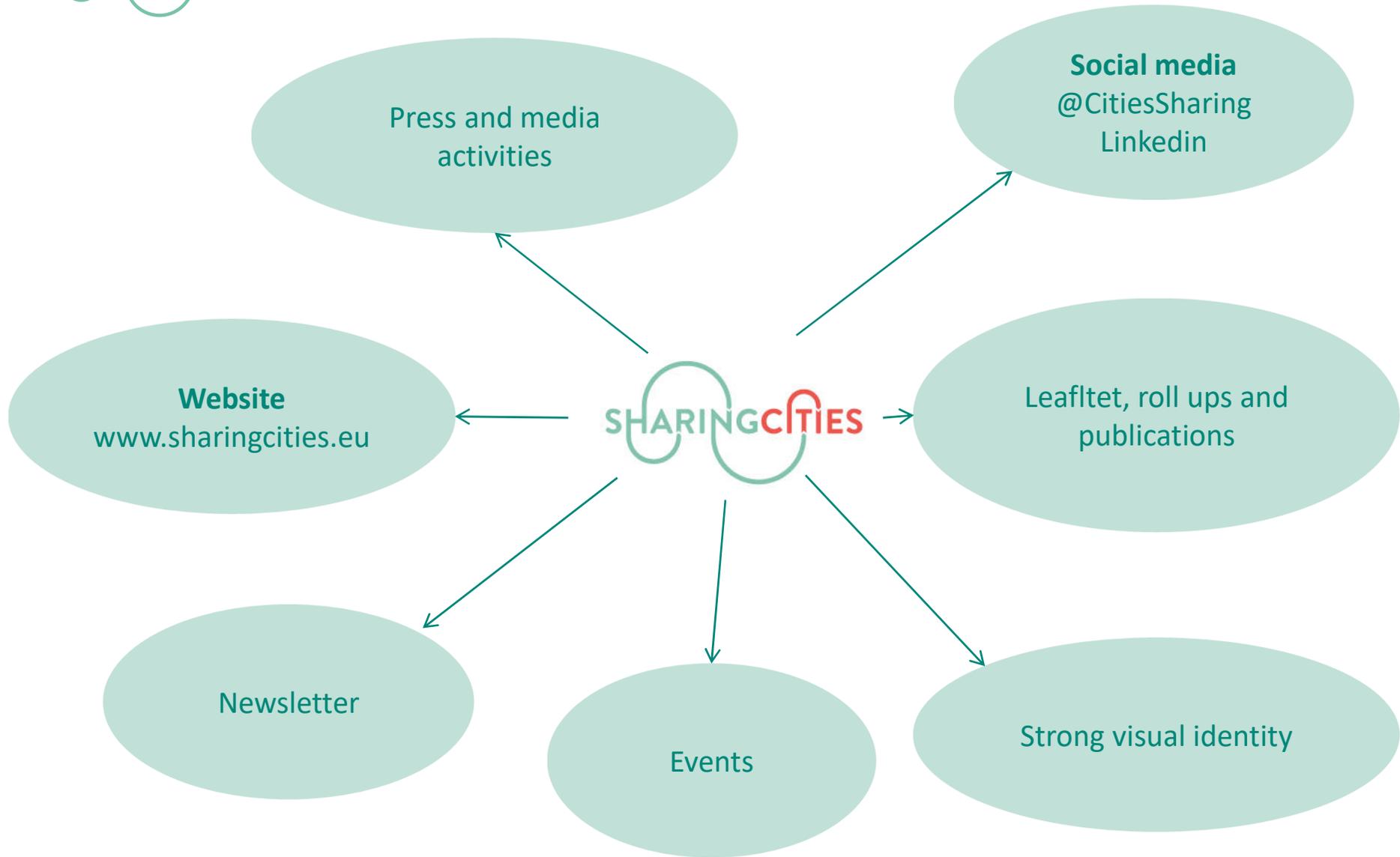




WP6 – COMMUNICATION

Lead: EUROCITIES

COMMUNICATION TOOLS





WP7 - BUSINESS MODELS AND FINANCING

Lead: Urban DNA



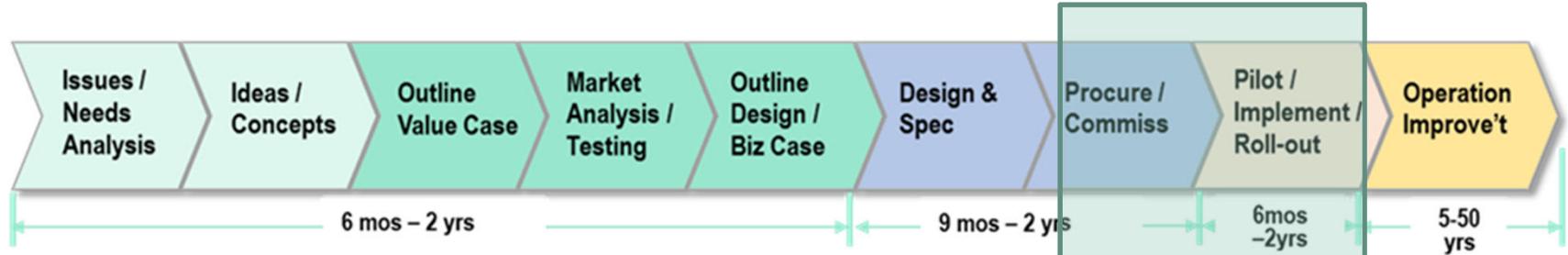
WP8 – EVALUATION AND MONITORING

Lead: Imperial College

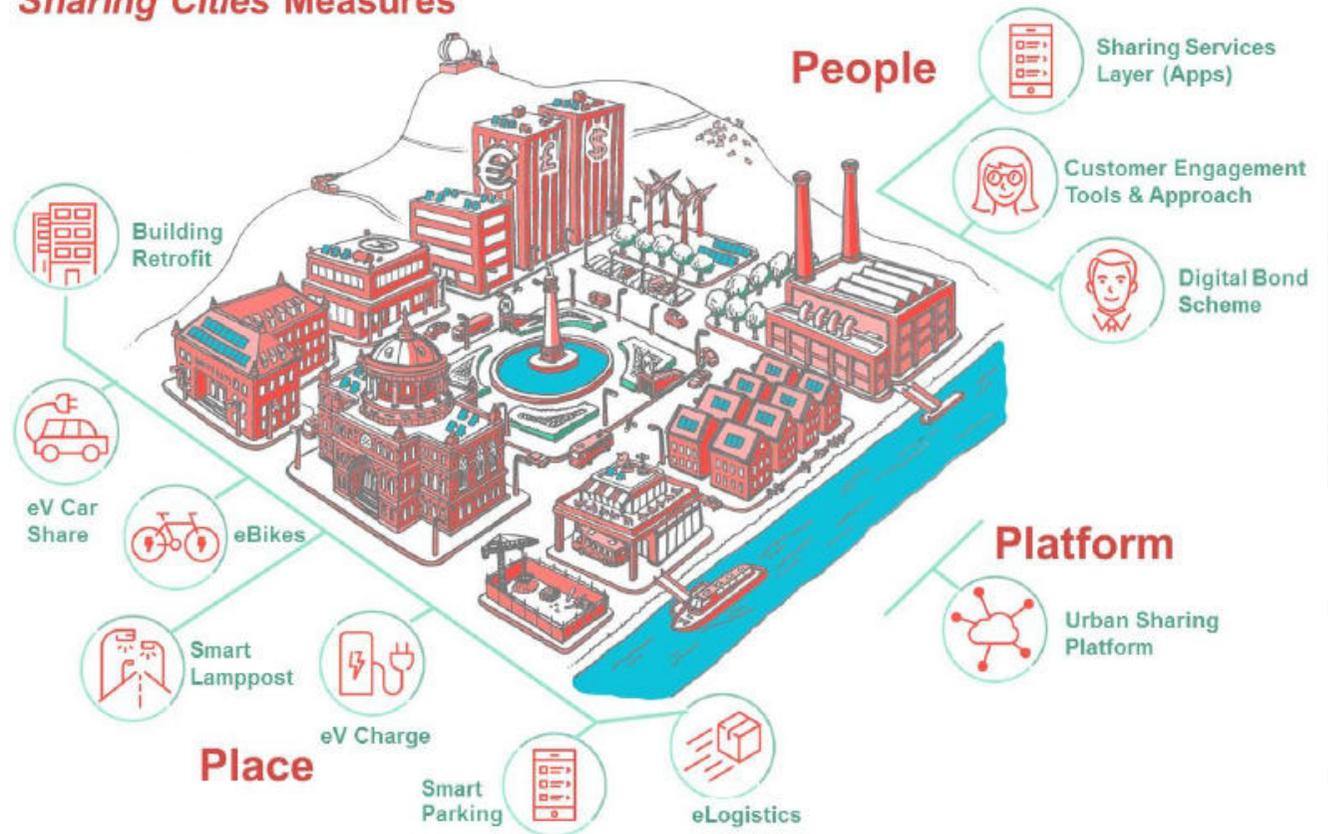
The Demonstration

	Citizen Engagement	Co-creation & co-design of digital services and interfaces by and for citizens and companies Design of incentives schemes - "District Bond"
	Building Retrofit	+600 social houses; 30 private housing blocks; 5 mixed owner blocks; 3 public buildings;
	Energy Management	Implementation and maintenance of a online interoperable Sustainable Energy Management System (SEMS) and a Building Energy Management System (BEMS)
	eMobility	+400 eVehicles; 200 new charging stations; +1100 tons of CO ₂ /year saved for e-mobility implementation in the pilot areas
	EV Car Sharing	+150 new eVehicles for public and community shared use; 7 Autonomous vehicles for public services
	eBikes	+ 200 e-bikes (+1500 expected)
	EV Charging	+180 Charging Points to be installed
	Smart Parking	+1000 parking spaces
	EV Logistics	+160 Logistics eVehicles
	Smart Lamp Posts	+3500 Smart Lamp Posts (light automation sensors; wi-fi sensors; environmental sensors; geofencing; traffic)
	Urban Platform	Open Standard reference architecture - "designed by three cities, built for many" Integration facilitator

Measures progress



Sharing Cities Measures



Thank you!