SUSTAINABLE PLACES 2023

Urban planning methodologies: Lessons learned in the definition of replication plans

MATCHUP

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774477

CENTRO TECNOLÓGICO CARTIF

Ana Quijano

Background

Covenant of Mayors for Climate & Energy

2030 & 2050

New urban transformation through strategic planning documents

Smart Cities and Communities projects

CO2 NEUTRAL

Cities as responsibles of more than 60% GHG

Climate Neutral Cities & Sustainable and Smart places

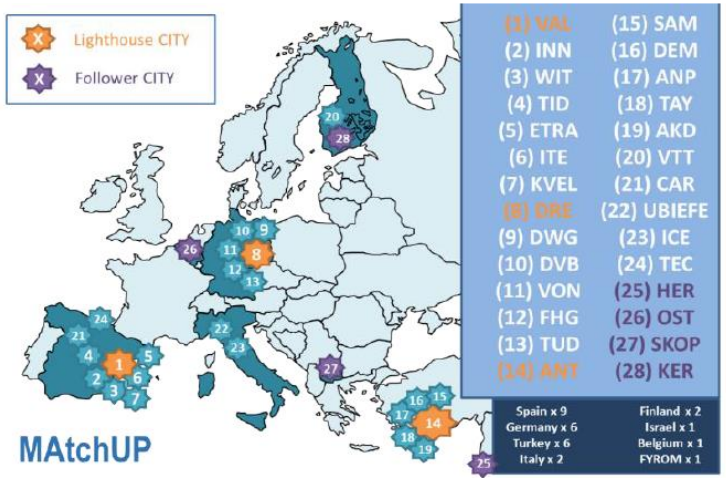
MAtchUP in a nutshell

- **Project timeline:** October 2017- September 2023
- **Budget:** 19.5 M€
- **Coordinator:** Municipality of Valencia
- **Funded**: H2020-SCC-2017

18 EU-funded Smart City Projects

MAtchUP in a nutshell

- **Partners**



AJUNTAMENT DE VALÈNCIA
LAS NAVES
WiTraC Internet of Things
UNIVERSITAT POLITÈCNICA DE VALÈNCIA
etra I+D
ITE INSTITUTO TECNOLÓGICO DE LA ENERGÍA
Kveloce I+D+i
Dresden.
DREWAG
DVB DRESDNER VERKEHRSBETRIEBE AG
VONOVIA
Fraunhofer IVI

TECHNISCHE UNIVERSITÄT DRESDEN
ANTALYA METROPOLITAN MUNICIPALITY
SAMPAS INTELLIGENT CITIES
DemirEnerji
ANTEPE ANTEPE İNŞAAT VE TİCARET AŞ
TAYSİM Proje
AKDENİZ UNIVERSITY 1982 ANTALYA
VTT
TECHNOLOGY CENTRE CARTIF
Università Bocconi IEFE Centre for Research on Energy and Environmental Economics and Policy
ICONS
tecnalia Inspiring Business
IF WE WILL IT. HERZLIYA CITY OF HERZLIYA
Oostende DE STAD AAN ZEE
CITY OF SKOPJE
kerava

Replication plans: Concept

Smart City Strategic Plan

City vision 2030

City strategic objectives 2030

Replication plan

Solutions to implement 2025

Management structure

Economic design

Risk & Mitigation meassures

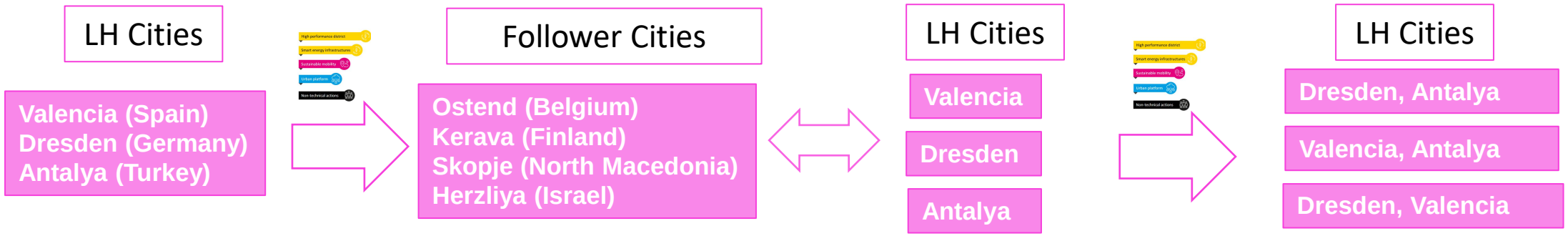
Citizen engagement strategies

Covenant of Mayors for Climate & Energy

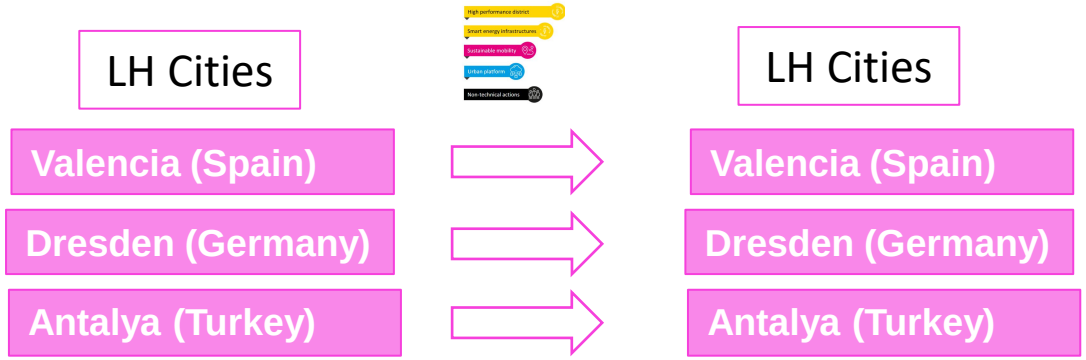
Sustainable and Climate Action Plaan (SECAP)

Replication plans: Concept

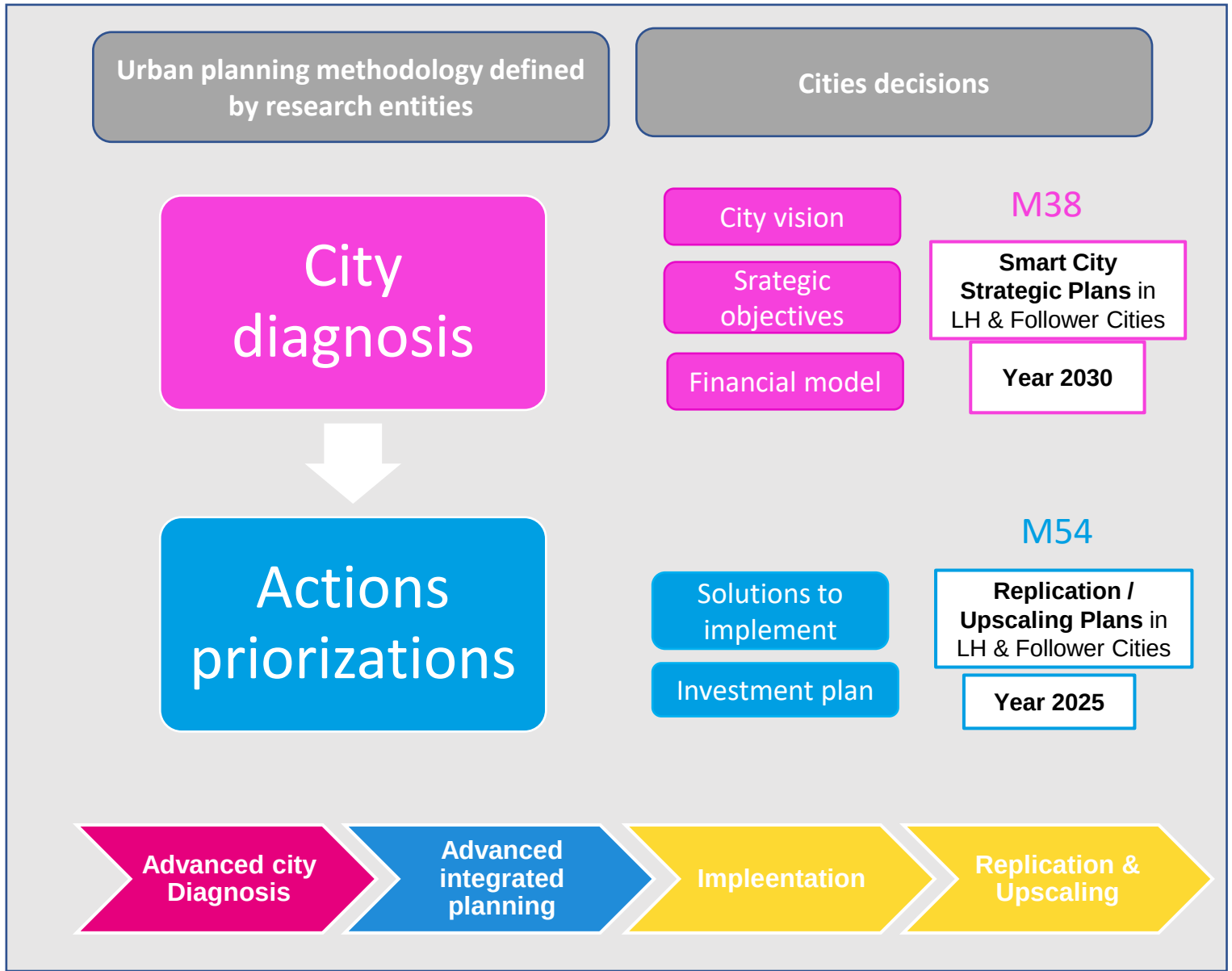
- **Replication** consists of defining specific implementation of technologies demonstrated in the lighthouse cities and adapting (exporting) them to other city(s) and consequently to other local contexts.



- **Upscale (scale-up)** consists of the implementation of technologies demonstrated in the lighthouse cities to other areas of the city where they have been implemented and monitored, where the same boundary conditions prevail.



Process to define replication plans



M72

Action evaluation

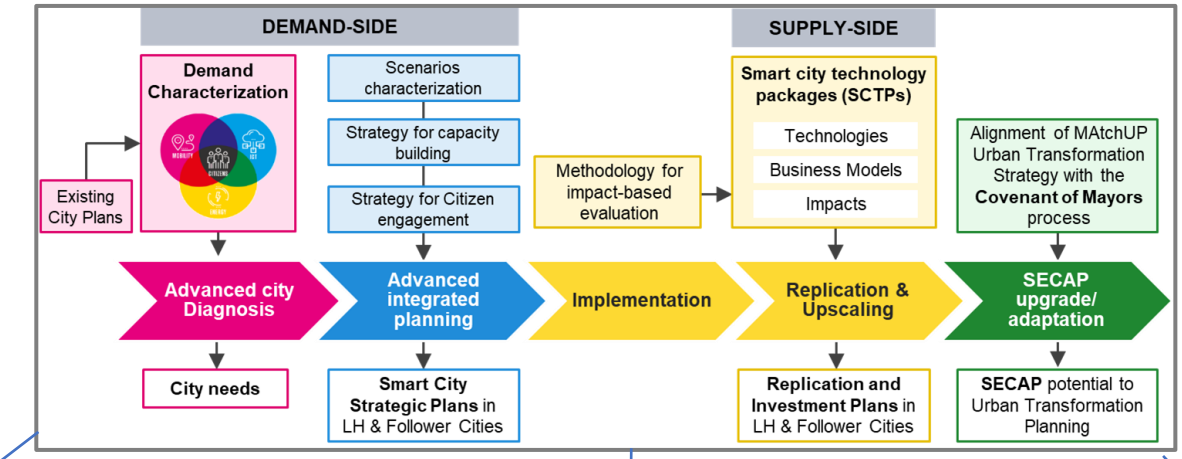
Any timeline

SECAP upgrade/adaptation

Covenant of Mayors for Climate & Energy EUROPE

Process to define replication plans

Methodological approach



Sectors

- High performance district
- Smart energy infrastructures
- Sustainable mobility
- Urban platform
- Non-technical actions

Timeline

2030

Purpose

SECAP development / SECAP upgrade

Covenant of Mayors for Climate & Energy EUROPE

2030

- Municipal buildings / equipment / facilities
- Tertiary non-buildings / equipments / facilities
- Residential buildings
- Transport

Process to define replication plans

Methodological approach

MATCHUP

Ciy diagnosis

Purpose

- Determine the city baseline: Energy demand and GHG emissions
- Identification of city needs, city objectives and CO2 targets

Methods

- City plans analysis
- Energy city models
- Indicators
- Diagnosis working group
- SWOT

Planning

Purpose

- Identification of actions to cover city needs & objectives to reach

Methods

- PESTEL
- SCTP catalogue
- Capacity building activities

OUTPUT: Smart City Strategic plans & Replication plans

Methodological approach

Covenant of Mayors for Climate & Energy EUROPE

Purpose

- Determine the city baseline: Energy demand and GHG emissions
- Identification of target to reach in terms of CO2 reduction

Methods

- City plans analysis
- Energy city models
- Indicators
- Diagnosis working group
- SWOT

Purpose

- Identification of actions to reach the target

OUTPUT:

SECAP (Sustainable and climate action plan)

Process to define replication plans

Ciy diagnosis

Planning

Development of **methodological** approach

Data **collection**

Data **analysis and interpretations**

City vision & objectives, actions to replicate

Smart City Strategic Plans & Replication Plans

Guide and support to cities

Replication plans: actions selected

Valencia

Energy efficiency	• Interventions in Public Residential Buildings • District PV – Local investment Fund • Humble Lampposts
Mobility	• EV private sector • Adapted e-bikes (public sector) • Multimodality • ITS for Parking Management
ICT	• Use of Open Data for New Business
Citizens and Society	• Prosumer Energy Cooperatives • 50/50 Programmes

Dresden

Energy efficiency	• Building control center • District future house • Smart tenant model for existing buildings • Energetic transformation of the real estate
Mobility	• Expansion of the e-vehicle fleet • Expansion of charging infrastructure • Smart charging • Intermodal mobility hub
ICT	• Urban Platform and IoT

Antalya

Energy efficiency	• Smart Energy Management in Public Buildings • District level SPP (Solar Power Plant) • PV systems with storage
Mobility	• E-vehicles for municipality fleet • E-buses (public sector) • Intelligent Traffic Management (ITS)
ICT	• Urban Data Platform

Herzliya

Energy efficiency	• Retrofitting of public tertiary buildings • Smart controls (at municipal buildings) • Tertiary Building integrated RES (PV) • Smart Public Lighting
Mobility	• Last mile logistics (public bicycles) • Expansion of charging infrastructure • Multimodality (bus lanes)

Ostend

Energy efficiency	• Retrofitting of private residential buildings • District heating and cooling
Mobility	• Expansion of charging infrastructure • ITS for Parking Management
ICT	• Inputs and Outputs of Urban Platform
Citizens and Society	• Prosumer Energy Cooperatives

Skopje

Energy efficiency	• Retrofitting of private residential buildings • Tertiary Building integrated RES • Smart Public Lighting
Mobility	• EV bus (public sector) • ITS for Parking Management
ICT	• Internet of Things (IoT) deployment

Kerava

Energy efficiency	• Construction of new energy efficient private buildings • Residential Building integrated RES
Mobility	• eVehicles for local government • Expansion of charging infrastructure
ICT	• Development of APIs, services, etc. related to Urban Platform
Citizens and Society	• Prosumer Energy Cooperatives

Replication plans: actions selected

Energy

Technology Packages in buildings

- New high performance buildings
- New high performance retrofitted buildings
- Façade/roof renovation
- PV panels & storage
- Smart controls

Type of building

- Public
- Residential buildings
- Private
- Tertiary buildings

City infraestructures solutions

- Urban PV plant & storage
- District heating and Cooling
- Efficient public lighting

Mobility

Mobility solutions

- Charging station
- E-vehicles
- Mobility hubs
- Parking management
- Intelligent Traffic Management

Type of solutions

- Public fleet
- Private fleet
- E-buses
- E-cars
- E-bikes
- E-motorbikes

ICT

- Open data platform & IoT
- New data sets in open data platform

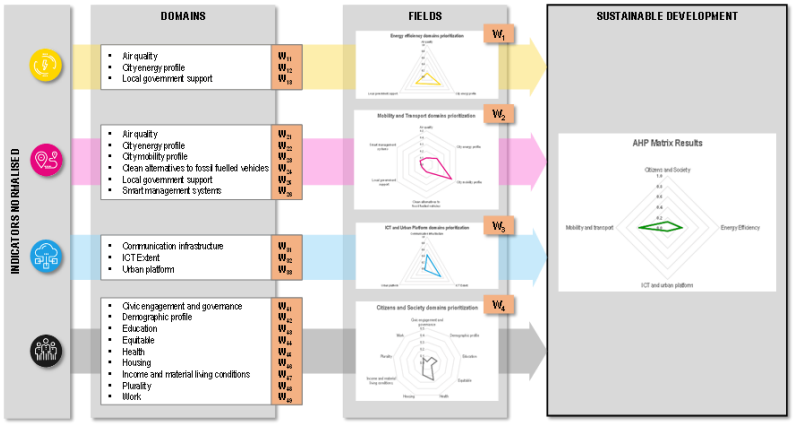
Non technicals actions

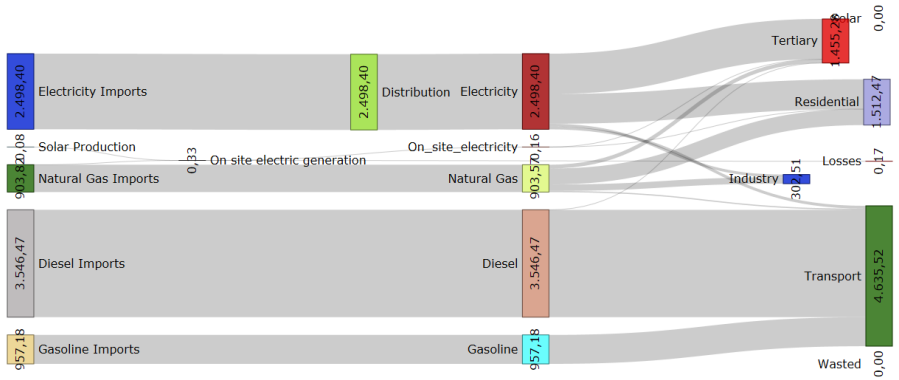
- Prosumer energy cooperatives
- Financial sheme for efficient schools

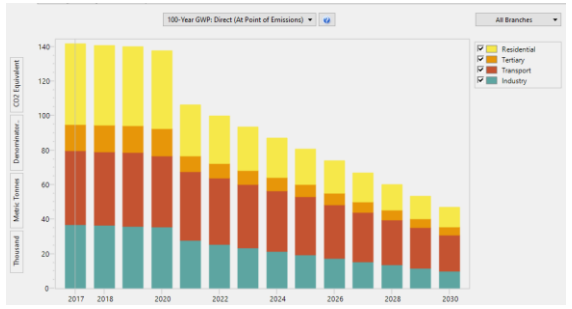
Lesssons learned: Urban planning methods

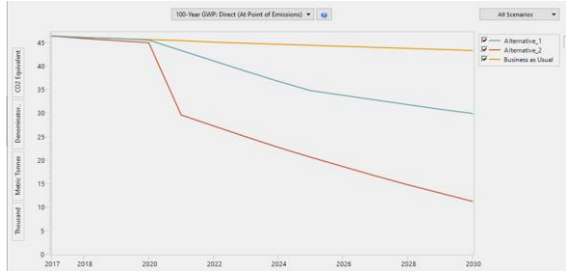
What worked

- Methodology helped cities to:
  - ✓ Priority fields and domains where to act.
  - ✓ Define the city vision, targets and objectives to reach.
  - ✓ Guide cities in the path to progress in the development of SECAP through strategic planning documents.





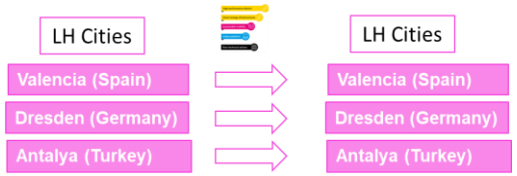




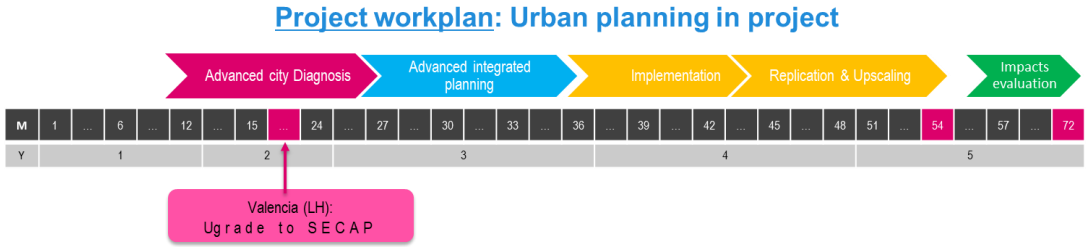
Lesssons learned: Urban planning methods

What happened

- LH cities defined upscaling plans not replication plans (i.e. actions selected were demosite actions).

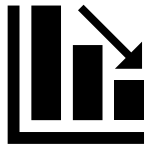


- Urban planning process in MAtchUP not always linked with urban planning timeline in cities.
- Replication plans defined before impacts evaluation.



- MAtchUP city plans defined by municipality staff from project not from key staff from urban planning process.

- Not all the requested data were available and reliable.



Conclusions

- MAtchUP methodology has been validated in the seven cities of the project (different size & urban planning progress).
- MAtchUP methodology helped to identify city needs, targets and the most suitable Smart City Solution Packages to allocate future investment in the cities.
- Replication plans can put in practice bankable solutions demonstrated in the project and face the cities challenges identified.
- MAtchUP process needs some improvements in the implementation process (i.e. coordination at city level, actions evaluation process).
- Cities need to work in enhance the data availability and data reliability.

Thank you

Ana Quijano, CARTIF

anaqui@cartif.es

www.matchup-project.eu

@matchupEU #matchupEU

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774477

CENTRO TECNOLÓGICO CARTIF