

Horizon 2020

Smart Cities & Communities

Call for proposals
Info Day & Brokerage Event
12 February 2015

Sergio Sanz (sersan@cartif.es)
REMOURBAN Project Coordinator
Fundación CARTIF

#H2020SCC



European
Commission





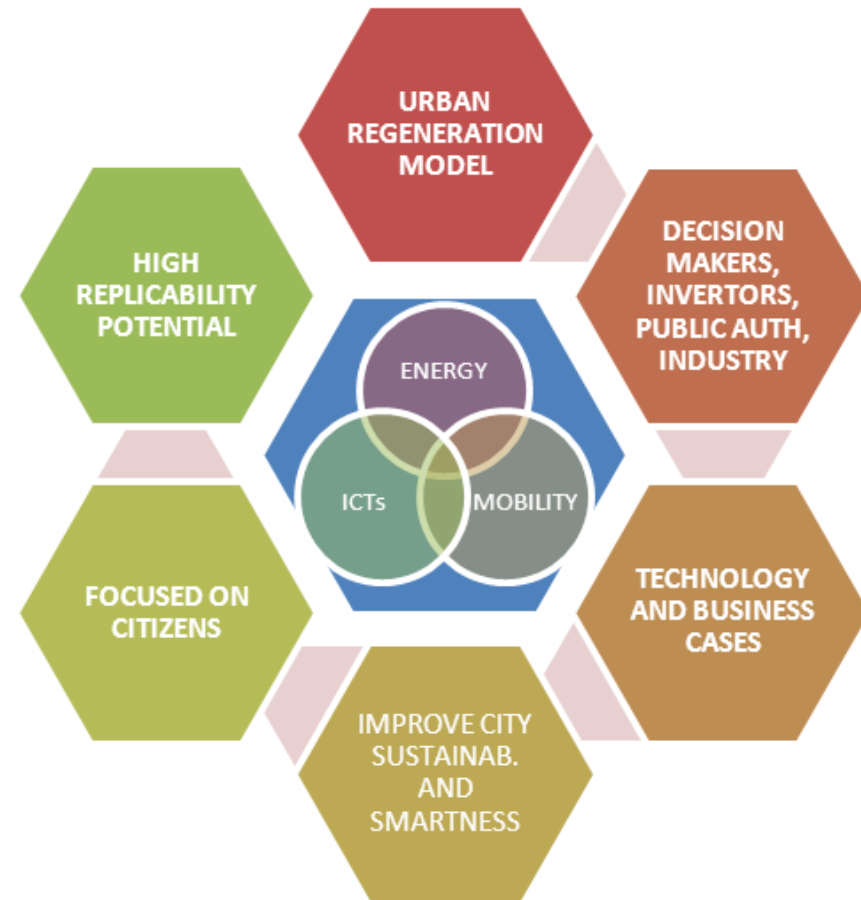
Objective: Development and validation of a sustainable urban regeneration model that leverages the convergence area of the energy, mobility and ICT sectors

Key concepts:

- **Holistic and highly replicable**
- **Focused on citizens**
- **Joint transformation:**
buildings/districts, energy
mobility
city infrastructures

Four main developments:

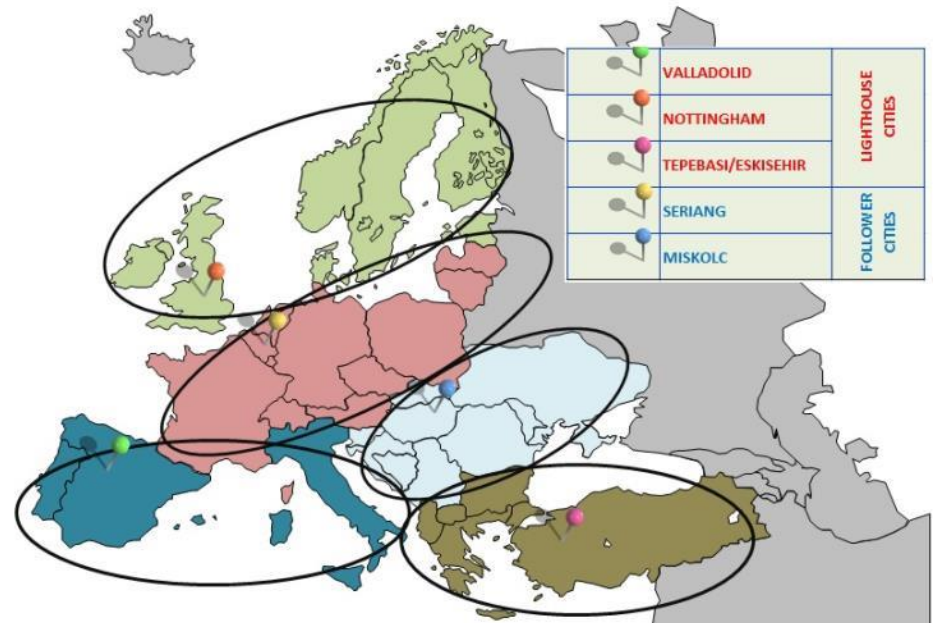
- Innovation in applicable solutions/concepts
- Identification of barriers (focusing non-technical/legal)
- Strategies for citizens engagement
- Innovative business models



The consortium: 22 Partners

Nationalities: 7

3 Lighthouse Cities
2 Follower Cities



**5 European Areas for REMOURBAN
replication Strategy**

Lighthouse Cities

Nottingham
United Kingdom



Valladolid
Spain



Tepebasi / Eskisehir
Turkey



Follower Cities

Seraing
Belgium



Miskolc
Hungary



TOTAL IMPACT REMOURBAN

Energy savings: 40%

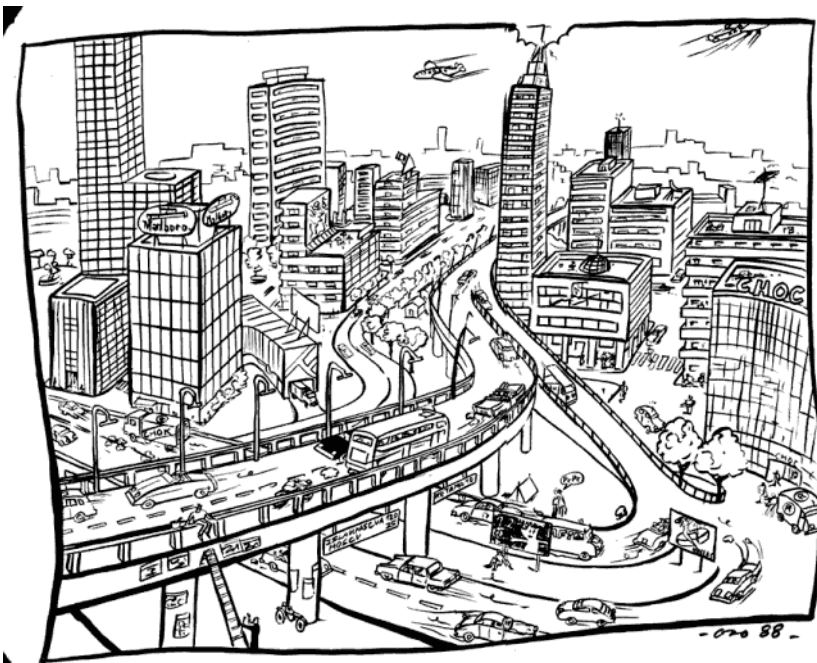
CO₂ emissions avoided: 50%

Citizens directly involved in demos: 14,620

Direct job creation: 187



European
Commission



REMOURBAN Demo Sites

- Population: 309,714 inhabitants
- **FASA District:**
 - Conditioned Area: **24,700 m²**
 - N° Residents: **1181 inhabitants**
 - N° Dwellings: **398+40 business premises**
- **Mobility action:** 50 EV and 63 recharging points
- More than **4,000 citizens involved** actively (district inhabitants + mobility & ICT users)
- Savings:
 - **50 %** reduction on energy consumption
 - **86 %** reduction on CO₂ emissions



- Population: 305,750 inhabitants
- **Sneinton District:**
 - Conditioned Area: **28,318 m²**
 - N^o Residents: **1,600 inhabitants**
 - Number of dwellings: **411**
- **Mobility:** 52 EBuses, 5 EV last mile delivery
- More than **8,000 citizens involved** actively
(district inhabitants + mobility & ICT users)
- The demonstration aims:
 - **50%** Reduction on the energy consumption
 - **26%** reduction on the CO₂ emissions



- Population: 314,599 inhabitants
- **Yasamköyü District:**
 - Conditioned Area: **9,110 m²**
 - N° Residents: **300 inhabitants**
 - Number of dwellings: **57**
- **Mobility:** 4 EBuses, 7 HEV and 50 EBikes
- More than **2,000 citizens involved** actively
(district inhabitants + mobility & ICT users)
- Expected results:
 - **52%** reduction in building energy consumption
 - **63%** reduction on the CO₂ emissions



Expected Results

- **Substantially increase local energy resources use and energy efficiency**
- **Accelerate the deployment of innovative technologies** (ICT-energy-mobility conv. area)
- **Improve the sustainability of urban transport**
- Drastically **reduce greenhouse gas emissions**
- Guarantee the **replicability** of the model at European level (development of replication plans)
- Drive sustainable change through **citizen engagement**

1.-**Cities as a H2020 partner** -> requirements

- Planning: holistic integration of different planning departments in municipalities
- Great commitment of the municipalities
- Institutional support
- Technical support
- Financial support

2.-**Integration** is the key of the project

3.-Project impact: **from demos sites to big impact** -> monitoring, evaluation, dissemination and exploitation

4.-**Communication** is a major issue



**Exploiting the convergence
between ICT, mobility and energy
to improve quality of life**

Sergio Sanz (sersan@cartif.es)
REMOURBAN Project Coordinator
Fundación CARTIF

ANNEX



European
Commission

Energy

Energy

Summary of the interventions



Building Envelope retrofitting

- Façade, Roof and new external windows

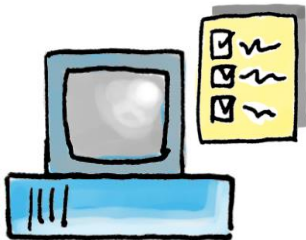
Renewable Source

- PV system and Biomass boiler



District heating and DHW systems

- District heating network: Biomass boiler, new heat exchangers, improvement of the distribution and control system
- DHW: coupling to the thermal distribution system



Advanced controlling system

- ICT platform 5

Mobility

Summary of the interventions

Electric Vehicle

2PHEV Buses & 1 FEV bus, 20 electric taxis, 5 electric freight cars "last mille", 2 electric cars (car sharing fleet), 20 private electric cars

Transport Infrastructure: 63 charging points. 29 new & 5 fast charging points

Intermodality: Ticketing system, based of RFID cards: buses, bicycles and car sharing fleets

ICT

Integrated Infrastructures through ICT measures for thermal system monitoring and control, mobility and city management

Energy



Summary of the interventions

Building Envelope retrofitting

- Solid Wall and Roof insulation, Passive House Retrofitting (EnerPHit Standards), Low energy lighting

Renewable Source

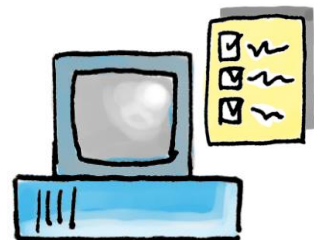
- Photovoltaic Array and Solar thermal system

District heating and DHW systems

- Connection with city scale district heating (90% renewables and waste heat)
- New Skirting Heating system

Intelligent Control

- Energy supplied from the district heating and energy consumed
- Monitoring system. Smart metering



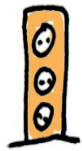
Mobility

Summary of the interventions



The tourist link Bus Line.

- Deploy 52 (50 already existing +2 new) electrical buses, free service with a smartcard, fast charging point



Last Mile delivery. Local hub collection and delivery:

- 3 electrical delivery vehicles

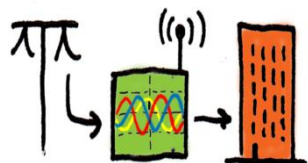


City Car Club Nottingham

ICT

ICT For integrated infrastructures

- Creating on-line simulation model
- Creating interfaces for provision of real time data
- Enabling citizens' engagement and empowerment



Energy

Summary of the interventions

Building Envelope retrofitting

- Strong insulation of exterior walls, Triple glazing in windows, Pipe and attic insulation, Led lighting

Renewable Source

- PV system, Biomass central heating, Geothermal system and solar collectors

District H&C and DHW systems

- Heating: Biomass central heating plant & Water sourced pump – 4 wells
- Cooling: 300 kW heat recovery heat pump
- DHW: Heat pump and solar collectors

Power storage

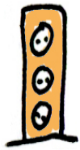
- Battery storage for critical loads

Mobility



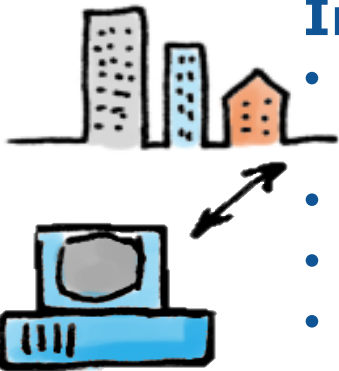
Electric Vehicle: 4 ebuses, 7 hybrid cars

Charging infrastructures



Cycling lanes 6,2 km expansion and 50 e-bikes

ICT



Integrated infrastructures through ICT measures

- Overall smart control of all heating/power production and consumption
- The bike rental operation
- Monitoring and control of e-vehicles
- "City on cloud" CoC, city management system will energy, mobility and other data on a cloud will be monitored by the Municipality.

WP8: COORDINATION

WP1: Development of a REPLICABLE MODEL OF URBAN REGENERATION

TECHNOLOGY

BUSINESS CASES

LEGAL ISSUES

REGENERATION MODEL

WP2:
SUSTAINABILITY
& SMARTNESS
EVALUATION

WP6:
DISSEMINATION
AND
COMMUNICATION
ACTIVITIES

WP7:
EXPLOITATION
AND
MARKET
DEPLOYMENT
ACTIVITIES

WP3: SPECIFICATION and DESIGN of the interventions in the demonstration sites

VALLADOLID

NOTTINGHAM

TEPEBASI/ESKIS

SUSTAINABLE MOBILITY

LOW ENERGY DISTRICTS

INTEGRATED INFRASTRUCTURES

WP4: DEMONSTRATION - Development of the interventions, commissioning and MONITORING

WP5: REPLICABILITY PLAN to the followers
SERAING – MISKOLC