

DONOSTIA / SAN SEBASTIAN SMART CITY

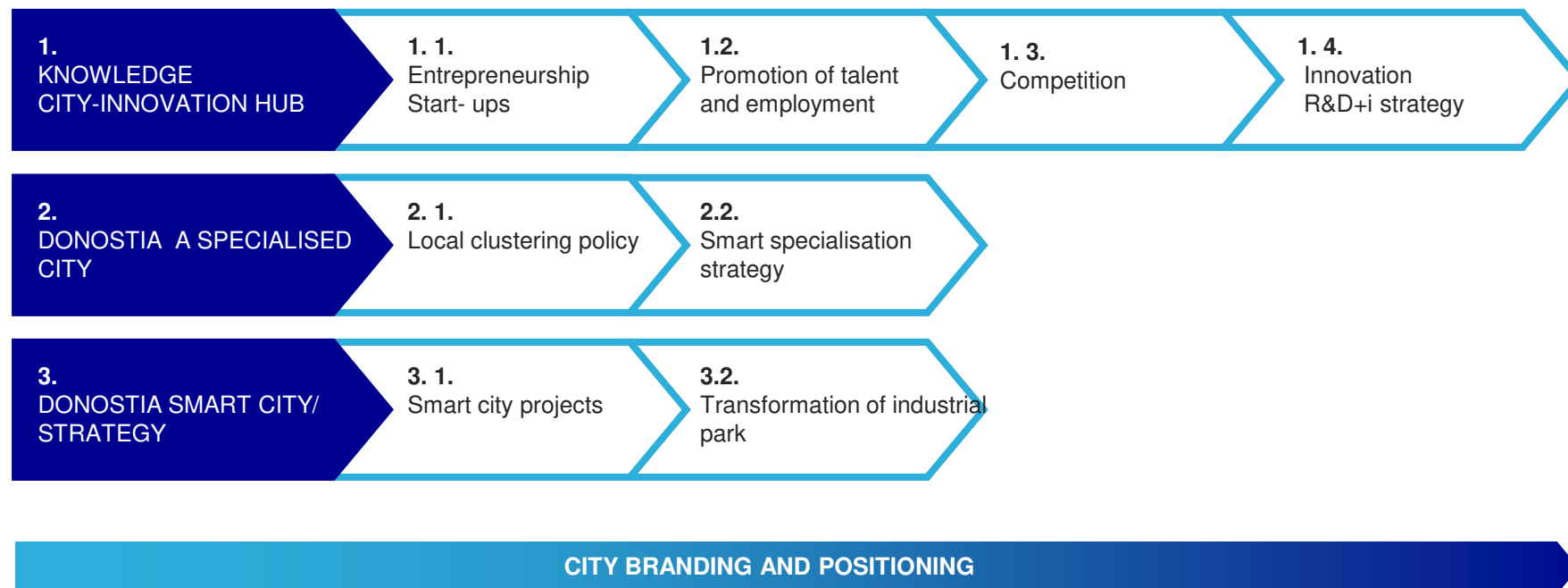
Sustainable urban regeneration model development,
demonstration of Smart City technologies in energy, transport and ICT


**SUSTAINABLE
PLACES 2020**

27th October 2020

Fomento de San Sebastián

STRATEGIC GOALS



REPLICATE Project

REPLICATE

REnaissance of **PL**aces with Innovative **C**itizenship **And** **T**echnology.

VISION

To increase the quality of life of citizens across Europe by demonstrating the impact of innovative technologies used to co-create Smart City services for citizens and to test the optimal process for replicating successes in cities and across cities

SCC1 SMART CITIES LIGHTHOUSE

CALL: SCC-01-2015 - Smart Cities and Communities solutions integrating the energy, transport and ICT sectors through “lighthouse” projects (large scale demonstration projects)



REPLICATE Project

ABSTRACT

Coordinator, Fomento de San Sebastián (39 partners)

- 3 lighthouse cities: San Sebastián, Florence, Bristol.
- 3 fellow cities: Essen, Lausanne, Nilüfer.
- 2 observer cities: Bogota, Guangzhou.

Budget

- € 29.3 million

5-year project (60 months)

- Y1-Y2-Y3 Implementation.
- Y4-Y5 Monitoring.
- Start date: 01/02/2016.

Donostia / San Sebastian, Florence and Bristol have collaborated before up to 2015 in the project STEEP- Systems Thinking for Comprehensive City Efficient Energy Planning.



DONOSTIA SMART CITY / Plan Smart



STEEP:

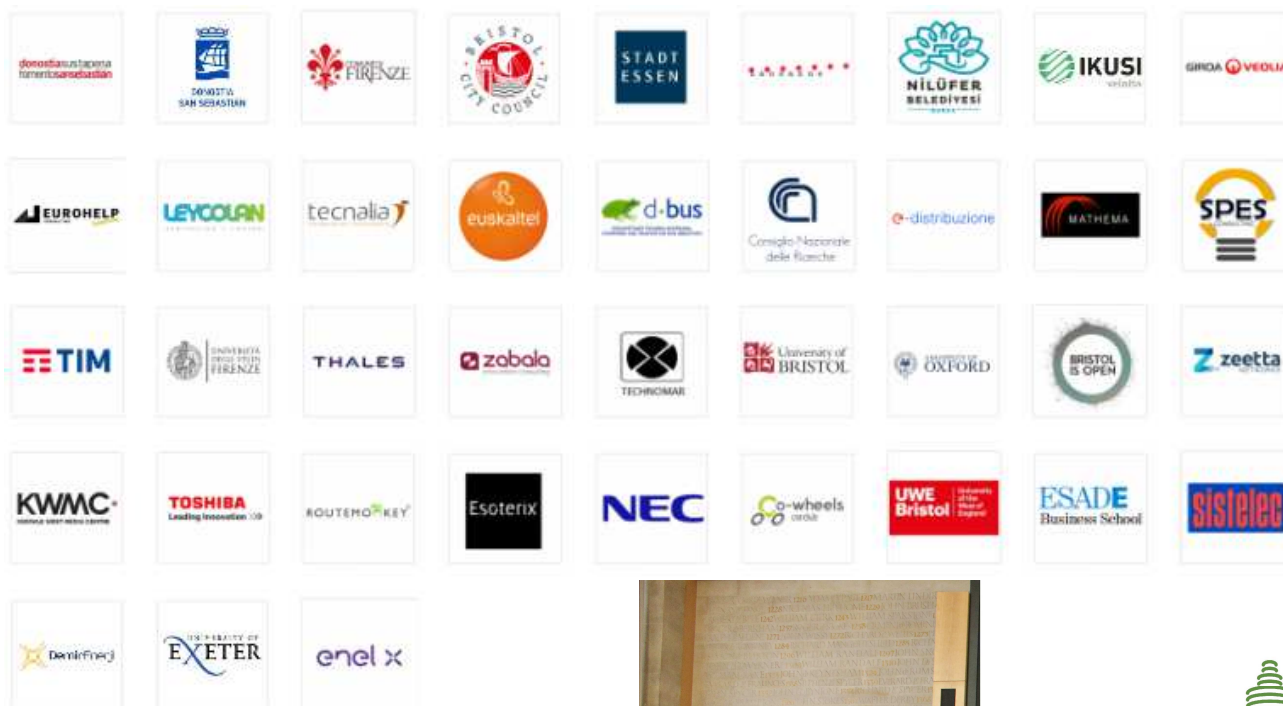
European Project: San Sebastián, Bristol, Florence.

www.smartsteep.eu



Local government departments and 187 individuals involved from companies, universities and R&D centres, as well as other government agents and citizens.





REPLICATE project Team - consorcium

10
Public organisations

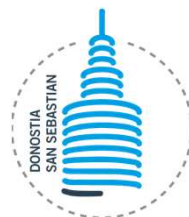
24
Multisectoral
companies

5
Universities



Donostia Lighthouse City

Urumea Riverside District



OVERVIEW

District close to zero emissions: district branding in sustainability.

- Residential area (Txomin, Antzieta, Martutene) + Industrial park (Polígono 27) + Nature park (Ametzagaina).
- Surface area: 200 hectares.
- Industrial park: 350 companies + 4500 people.
- Nature park: carbon reservoir.

Comprehensive strategy for a smart district

To improve transition to smart city in three areas:

- Energy efficiency.
- Sustainable mobility.
- ICT & infrastructure.



“Development and validation of a business model for a sustainable city to be replicated in other towns and districts”



This project has received funding from the European Union Horizon 2020 Research and Innovation Programme under Grant Agreement 101017235



Smart Txomin / Transformation of a District / Context



PAST

- Urumea River: the backbone of the area and subject to flooding.
- Developed in the middle of the 20th century: inefficient buildings, connection problems.
- Location for industry, a prison, a sewage treatment plant, etc.

TRANSITION TO A SMART DISTRICT

- Smart City Plan
- Energy Master Plan Urumea. Pilot Action Plan (REPLICATE)
- Special urban Plan (2018)
- Implementation of Smart City Project
- One of the last great urban developments in the city.
- Space for experimentation and pilot projects.
- Smart Donostia Strategy and Projects

Implement different activities with an integrated vision in order to:



Increase resource and energy efficiency, use more renewable sources of energy to boost local resilience, reducing greenhouse gas emissions in urban areas



Foster the sustainability of the urban transport, improving the connection of the district to the city centre in terms of mobility



Develop several ICT tools and IP services to improve city management and foster citizen participation through open data and implement smart infrastructure and connectivity interventions to generate a complete smart district



Smart Txomin / Energy Efficiency

Energy renovation of established housing

156 households + 34 commercial premises in 10 doorways

ACTION

- Insulate roofs.
- Insulate façades using ETIS (External Thermal Insulation Systems) and ventilated façades system.
- Change windows for windows with thermal break and low-emissivity glass with argon gas that reduces heat loss and noise.
- Provide the necessary pipework for the heating network.



BENEFITS

- Improved comfort.
- Connection to District Heating (DH): District heating and domestic hot water.
- Saving on expenses.
- Reduction in CO2 greenhouse gas emissions.
- Reduced noise and increased efficiency.
- Improvement in the energy rating.
- Buildings with homogeneous aesthetics integrated with newly built homes.
- Revaluation of housing.





Smart Txomin / Energy Efficiency

District Heating-Heating network

Centralised thermal energy system for domestic hot water (DHW) and heating for 1,389 new homes and 156 retrofitted homes.

Technical characteristics:

- Thermal energy is generated centrally and distributed via a network of pre-insulated steel pipes with hot water to each building.
- The central unit has a power of 7,400 kWh, with 2 biomass boilers of 1,400 kWh that cover more than 90% of the needs and 2 gas boilers for peak demand.
- Each building has a second network to each consumption point that allows its use as in an individual installation, but with the advantages of centralised production.

Benefits:

- Improved comfort: Heating available 365 days a year 24 hours a day
- Lower risks as there are no combustion elements in the building.
- Closer Forest biomass.
- Monitoring platform that can be accessed by users.
- Reduction in CO2 greenhouse gas emissions (more than 2,000 tons annually).

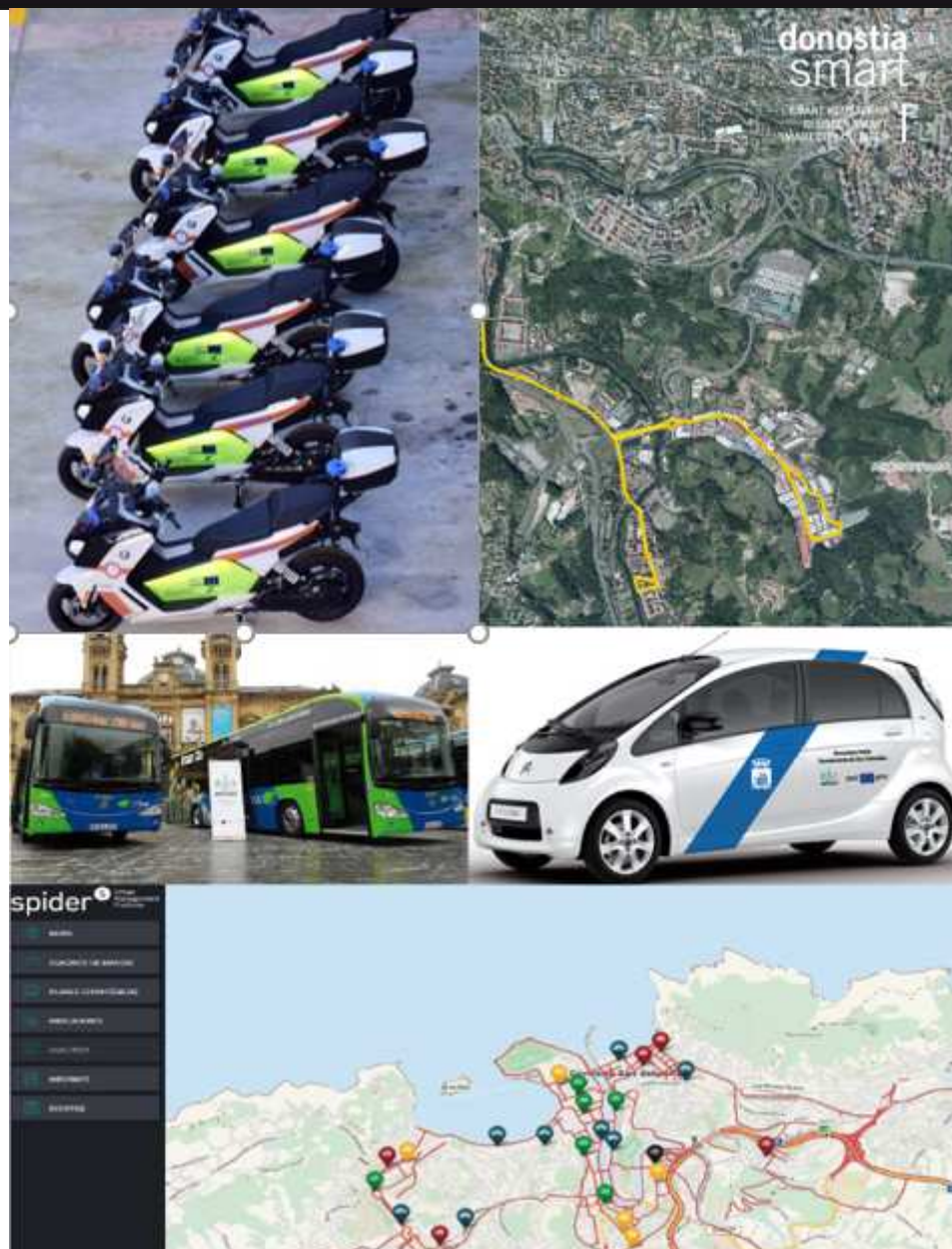




Smart Txomin / Sustainable mobility

Sustainable Mobility

- Electric buses: 2 electric (Irizar) + 3 hybrid buses for the line 26, that connects the district with the city center. No noise and less emissions.
- **Public EV:** 4 ev (3 Citroën c-zero and 1 Kia Soul) and 6 e-motos (BMW c evolution) for the municipal fleet.
- **Private EV:** 7 e-taxi.
- Deployment of **Recharging Infrastructure** in the city: gas stations, parkings
- Deployment of the **Mobility Smart City Platform** and advanced mobility services.
- Aggregate behaviour analysis in urban mobility. Analysis through 3G, 4G and wifi data.

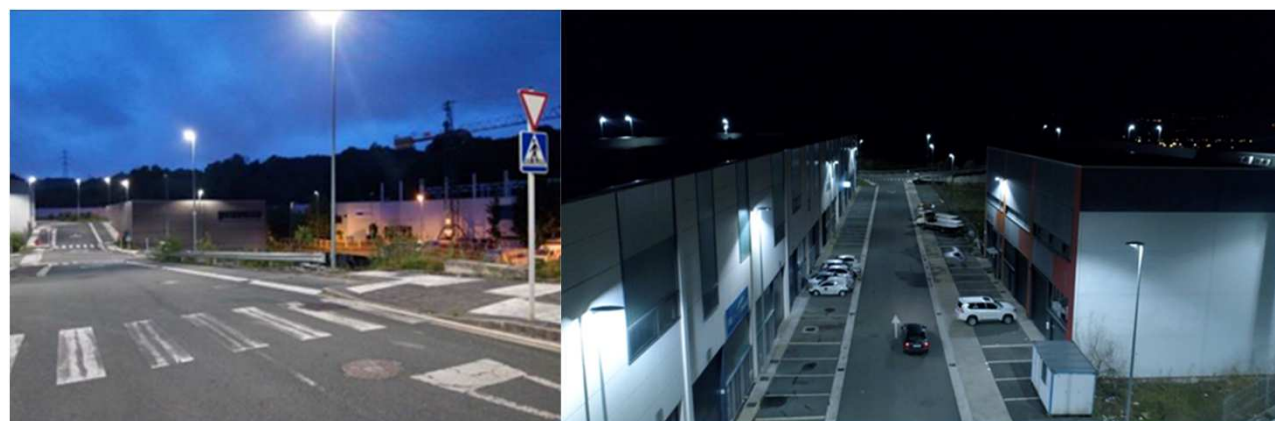
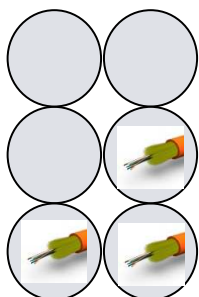




Smart Txomin / ICTs and Infrastructures



- Deployment of the **Smart City Platform** with integrated services.
- **Open Data and Citizen Participation** services.
- Deployment of the **High Speed Mobil Network** in the city. FSS is the owner of the infrastructure for service support.
- Deployment of **Smart street lighting** in Polígono 27. Deployment of **IP services** in Polígono 27.

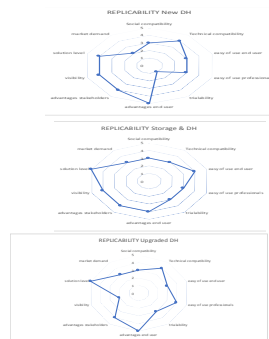


Replicate/ Scale up, replication and monitoring

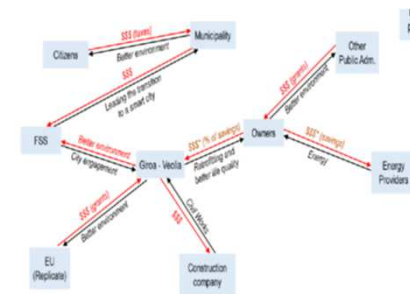
Replication plans in LCs - Scale up (2020-2030/2050)

Results analysis (technical & management), exchanges, optimal conditions for extension – benchlearning among cities:

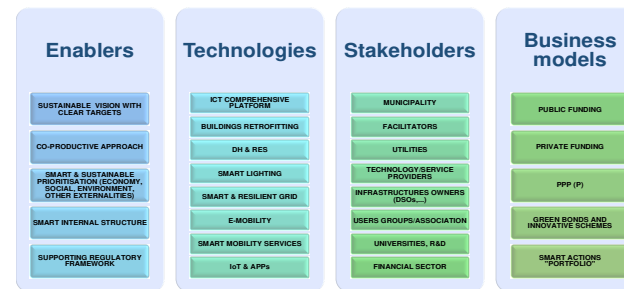
- Temporal & spacial horizon definition (link to policy and vision)
- Framework evaluation (legislation, regulation, financial instruments)
- Stakeholders engagement
- Assessment and validation of impacts (monitoring) and business models



Monitoring-Tecnalia



Value Creation Ecosystem – ESADE Business school



Smart & Sustainable City Model – SPES

Replication plans in FC



OXFORD University

Monitoring

Monitoring framework (in line with CONCERTO and SCIS), evaluation of the intervention with a wide perspective and as a reference for the fellow cities (replication potential).

Monitoring programme for the three lighthouse cities

- KPIs monitorization at city level
- KPIs monitorization at intervention level

Monitoring programmes for Donostia,
Florence an Bristol

donostia
smart

SMART KLUSTERRA
CLUSTER SMART
SMART CITY CLUSTER



Thank you · Eskerrik asko · Muchas gracias

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