

Smart Cities in Spain



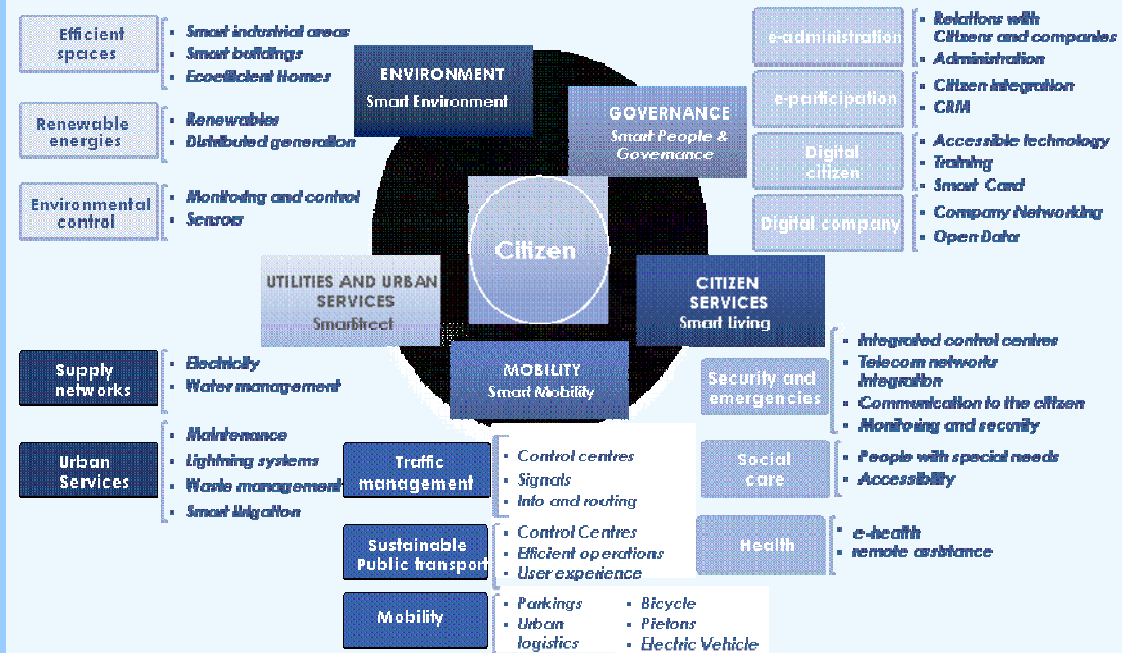
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Smart Cities - a broad concept

- Smart cities is a broad concept, offering a wide variety of services to different clients, including the citizens but also the business and government sectors.
- **Main research fields and technologies:**

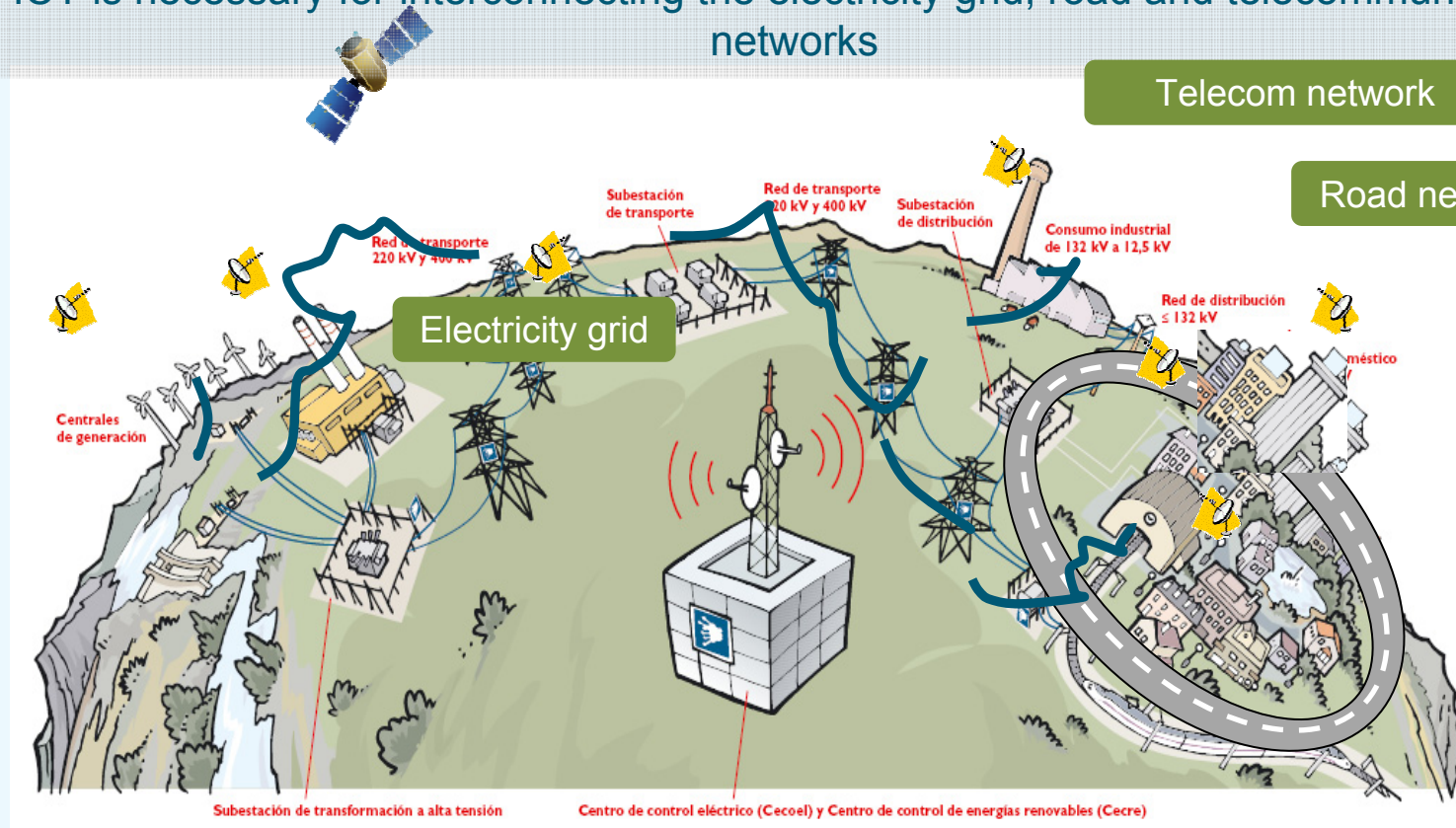
- ✓ energy-efficient buildings and neighbourhoods,
- ✓ (real-time) intelligent energy supply/demand management,
- ✓ smart metering,
- ✓ smart grids, communications grids,
- ✓ integration of renewable energy production in the grid,
- ✓ water management,
- ✓ smart and sustainable mobility,
- ✓ integration of the electric vehicle in the cooperative transport infrastructure and
- ✓ smart city logistics.



ICT and Energy

Smart Grids a relevant example

ICT is necessary for interconnecting the electricity grid, road and telecommunication networks



ICT is necessary for information management, processes, automation, population education and awareness, etc.

Spain: a great bet in a new energy model

- Spain has invested heavily in the **development of renewable energies**, in **energy efficiency** and in greenhouse gases reduction. Both through R&D, Infrastructures and market development (feed-in tariffs).
- Develop a **thriving industry founded on technological innovation**.
- The roll-out of renewable energies, transformation of energy grids, and basically our new energy model, has become an interesting model, taken in many cases as a **good example of cooperation between the public administration, business and social institutions**.
- At the end of 2009, renewable energies covered approximately 11% of our final energy consumption, and forecasts for 2020 indicate that we are going to achieve 20% target in 2010.
- There are numerous and successful smart actions carried out in Spanish cities that combined the previous work for promotion of renewable energy and energy efficiency.

Initiatives and actions in Spanish Cities

Santander

182,700 inh

Important Port on the N coast.

Tourist city.

FIRE initiative (ICT)

OUTSMART Project (ICT)

Burgos

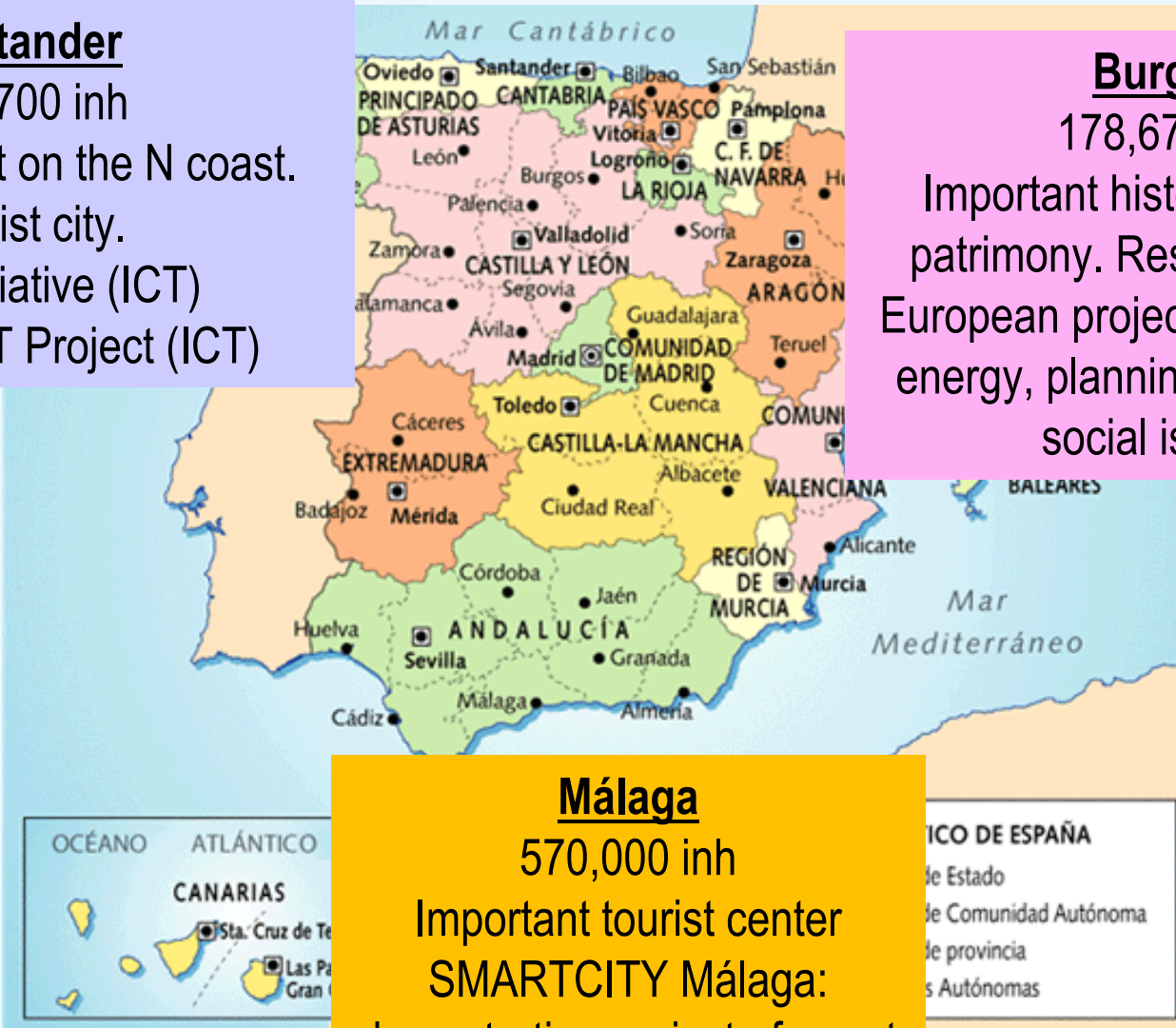
178,674 inh

Important historical-artistic patrimony. Research centre
European projects: sustainable energy, planning, energy and social issues.

Málaga

570,000 inh

Important tourist center
SMARTCITY Málaga:
demostration project of smart energy in cities



Initiatives and actions in Spanish Cities

Valladolid-Palencia

V: around 400,000 inh.
Administrative centre
P:82,169 inh. Industrial activity.

VyP closest capitals in Spain:
enables interurban mobility actions

Smart City VyP: smart technological and innovative actions.



Barcelona

2nd largest city in Spain:
1,600,000 inh. Urban area:5,012,961.

One of the World's major global cities.

Urban Innovation lab&dev (BUILD): enhance private initiative participation in smart actions and urban management.

Vitoria-Gasteiz

238,247 inh

2012 European Green Capital.

Smart actions in sustainable mobility, public lighting, energy efficiency, waste and water management.



Initiatives and actions in Spanish Cities

San Sebastián

183,090 inh. 400,000 inh. in metropolitan area.

Main activities are trade and tourism.

Smart projects in energy efficiency, urban lighting, sustainable mobility and ICT applications.

Bilbao

Largest metropolitan areas.
Fifth most populated area in Spain.
Second industrialized region in Spain.
Smart actions related to water management.

Cáceres

94,179 inh
World Heritage City by UNESCO
Smart CityZens Project (smart actions in energy efficiency, mobility and citizen participation) to be launched.



City's example: Malaga

PROJECTS

Energy

- Smartcity Málaga.
- Energy Management System.
- Public Lighting Improvement
- Municipal PV network.



Structural Funds

City's own investment



Mobility

- Green eMotion.
- Zem2aLL.
- eMob.



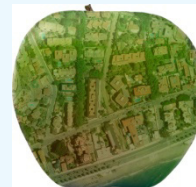
ZEM2ALL

Spain + Japan



ICT

- Multimedia and internet apps.
- Municipal ICT network.



City's own investment



Env

- Green Apple.

Trans

- Malaga Living Lab.
- Sustainable schools.

Regional's Example: PRICE: "Smart Grid Project in Henares Region"

Goals

- ✓ Monitor and automate the MV/LV power network, improving its operation and maintenance
- ✓ New power management system
- ✓ Improve the integration of already existing distributed generation ,(73300 kW)
- ✓ New options and services to integrate demand
- ✓ Facilitate the integration of electric vehicles
- ✓ Contribution to interoperability and common open standards ,(using previous results coming from European projects with the same open philosophy such as Open Meter, Open Node, etc)



Key figures

500,000 inhabitants involved

200,000 customers

1,500 MV/LV substations

Rural, Urban and Semi-urban network topologies

Budget:34 M€ (excluding meters cost)

Large collaboration: 22 partners

Execution period: 2011-2014



Spanish cities in European related Initiatives and Programmes

Covenant of Mayors:

- Spain, with 836 Town Cities is the second country after Italy in representation.
- Among the Spanish cities members of this Initiative are: Madrid, Barcelona, Bilbao, Valencia, Málaga, Palencia, Valladolid and Vitoria (one of the 5 cities with the Strategic Energy Action Plan approved).



CONCERTO Initiative:

- Vitoria Gasteiz (PIMES project)
- Cerdanyola del Vallés (part of the project POLYCITY)
- Tudela (part of the project ECO-CITY), Vitoria
- Zaragoza (part of the project RENAISSANCE)
- Viladecans (part of the project CRRESCENDO)



CIVITAS:

- San Sebastián (CIVITAS ARCHIMEDES) and Vitoria (CIVITAS MODERN) have participated in CIVITAS PLUS.
- In CIVITAS II Burgos has participated (CIVITAS CARAVEL) In CIVITAS I Barcelona has participated in the project CIVITAS MIRACLE.

