

Smart Cities in Catalonia

May 2018

Sector Snapshot

Smart Cities in Catalonia: sector snapshot

Catalonia Trade & Investment
Government of Catalonia



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1. Smart cities



Smart city definition

○ Sector **companies** are the ones offering **smart solutions** for cities. All of **the world's cities** are **potential clients**, although a **sophisticated local demand** should be **key factor**.

○ What makes a city a **Smart City** is the use of **ICT**, which is used to **optimise** the **efficiency** and **effectiveness** of **useful and necessary city processes, activities and services**. This optimisation is typically achieved by connecting diverse elements and actors into a more or less seamlessly interactive **intelligent system**.

Smart solution's segments



E-Health



Lighting

Facility
Management

E-Government

Natural
Environment

Mobility



Waste



Security



Smart Tourism



Source: ACCIÓ. European Parliament Commission.

2. Smart cities in Catalonia



Smart cities in Catalonia (I)

In Catalonia there is a large amount of companies that **offer intelligent solutions** for cities, supported by **technological centres, institutions** and **important international congresses**. **Barcelona** is positioned as a **technological hub** with a broad range of companies in the ICT sector that work in different segments of the smart city sector.



270
COMPANIES
(2015)

- **74%** of companies were set up more than ten years ago.
- **82%** of companies are **SMEs**.
- **84%** of smart companies in Catalonia are located in **Barcelona**.



€6,969.3 M
SMARTTURNOVER
(2015)

- It represents **19%** of total smart companies' turnover.
- It represents **3%** of Catalan **GDP**.
- **57%** of whole sector turnover comes from provision of services.



116,163
EMPLOYEES
(2015)

- **61%** of employees work in services oriented companies.

Source: ACCIÓ.

Smart cities in Catalonia (II)

Main smart solution segments



MOBILITY



51 companies



€641 M turnover



LIGHTING



26 companies



€259 M turnover



WASTE



18 companies



€1,934 M turnover



Source: ACCIÓ.

Competitiveness of the smart city sector in Catalonia



“Barcelona is the 2nd Smart City in the world.”

(Juniper Research, 2016)

CONNECTED TO THE WORLD

(2015)

- **51%** of Catalan smart city companies **export**.
- The **companies with greater international presence** are those **producing equipment and products**, those working in **big data services** and those **manufacturing IoT elements**.
- **17%** have branch **offices abroad**.

ATTRACTIVE FOR FOREIGN INVESTORS

(2011-2016)

- **41** FDI projects.
- **€1,371 M** of capital investment
- **3,284** jobs created
- Smart city FDI projects accounted for **7.4%** of the projects recorded in Catalonia.
- **Barcelona** concentrates 1/3 of the total investment and **25 projects**.

INNOVATIVE AND ENTREPRENEURIAL

- **1.46%** of its GDP dedicated to R&D.
- **9,282** innovative companies representing **22.2%** of the Spanish total.
- **Smart city programmes:**
Horizon 2020
RIS3CAT
Catalonia Smart Strategy
- **Barcelona, 5th** city in Europe in terms of **innovation** (Innovation Cities Index, 2016/2017)

Source: ACCIÓ.

Catalonia, the best place for the smart city sector



INNOVATION AND ENTREPRENEURSHIP

- Catalonia has a **strategic geographic location** and a **large number of cities** that are beginning to demand intelligent solutions in their management.
- With the **Eurecat Technology Centre** or the **Barcelona Supercomputing Centre**, Catalonia is extremely well positioned to foster technology transfer and collaboration between academia, industry and public administration.
- **Catalonia is the leading Startup region in Europe**. It concentrates more than **1,200 startups** and is home to first class incubators and accelerators.



CATALONIA SMART PROGRAM

- **Catalonia Smart Strategy** is a program that integrates, fosters and coordinates the local and regional initiatives that take advantage of the use of technology and digital information to innovate in public services, generate economic growth and promotes a more intelligent and sustainable society.
- **64 municipalities** in Catalonia have over 20,000 inhabitants, **creating a testing ground for the new technologies developed by sector companies**.



SMART CITY EXPO WORLD CONGRESS AND OTHER RENOWNED TRADE FAIRS

- Barcelona ranks **1st in the world** for International Congresses (ICCA, 2018).
- Catalonia hosts some of the most important international tech events, including the **Smart City Expo World Congress (SCEWC)** which is the international summit of discussion about the link between urban reality and technological revolution. Since its first edition in 2011, it has succeeded to become a referential global event to support the development of our cities.
- Catalonia also hosts other tech events such as **Mobile World Congress**, the world's main event on mobile phone-related industries.

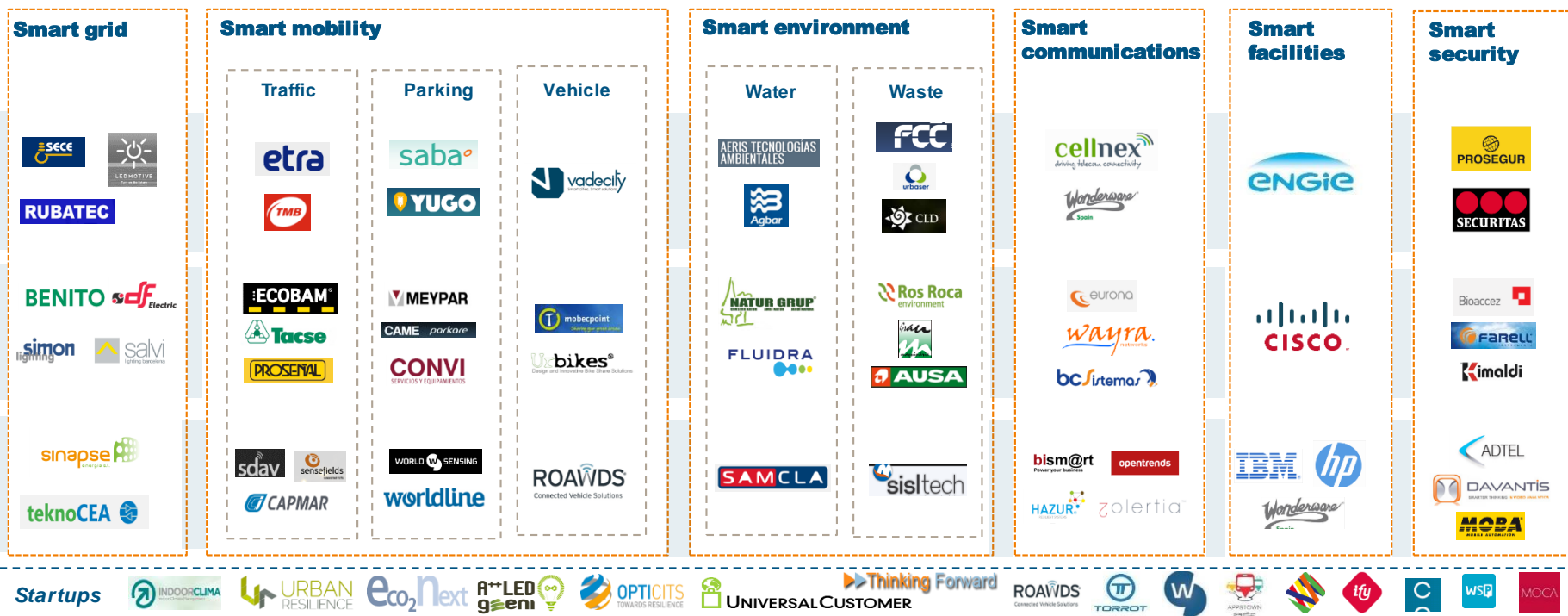


POOL OF LOCAL AND INTERNATIONAL TALENT

- **Talent from all over the world** and availability of qualified multi-lingual personnel thanks to its high quality of life, cosmopolitan atmosphere and trading history.
- An **outstanding academic support system** with thousands of students in ICT and smart cities related studies at universities such as URL, UPC, BAU Design Center, UOC o UDG, with UB's Chair in Smart Cities being especially noteworthy.

Source: ACCIÓ.

The Catalan smart city ecosystem



Initiatives and entities related to cities in Catalonia

Public administrations stimulating projects and initiatives



Universities, technological centres and other agents



International networks located in Catalonia



Organised Clusters



Trade Fairs



Note: The use of these trademarks is for informative purposes only. Trademarks mentioned in this document are the registered trademarks of the companies to which they belong and are not owned by ACCIÓ. This is a partial and illustrative representation of companies that form part of smart cities ecosystem in Catalonia; however, there may exist other companies that have not been included in the study.

Source: ACCIÓ.

Innovation opportunities



DRONES

Catalonia offers the best testing environment for civilian drones. The **BCN Drones Center** is 1 of the only 10 drone centers in the world, the first civilian drone company in Europe, and one of the first movers in the world. Legislation forbids flying drones in cities, but there is a lot of demand for mapping of mountains and natural parks or for telemetry to obtain vineyard data. Drones are also required to evaluate the state of landfills, heat emissions to see if they are dangerous or to measure air and noise pollution. In addition, **Catalonia Smart Drones**, the **cluster** of the drone industry, promoted by the Government of Catalonia, includes the **leading companies, technology centers, universities and other institutions** boosting the drone sector.



CONNECTED VEHICLE

Connected vehicles give more real-time information about the state of the vehicle and any possible damage. They also generate a large amount of data about the natural environment or traffic as well as many other situations. **Catalonia Living Lab** provides all scenarios required for the **development, testing and validation of connected and automated vehicles** in controlled environments as well as in open road conditions.

CATALONIA LIVING LAB



INTELLIGENT MOBILITY

The **Cooperative Automotive Research Network**, initiated by SEAT, Volkswagen Group Research and the Universitat Politècnica de Catalunya (UPC), is an open hub for industrial and academic partners from the areas of automotive and mobility research & innovation. **CARNET** is located in Barcelona, and works through project-based collaboration. It focuses on **innovation and solutions that close the gap between academic research and industrial innovation in urban mobility**.



ENERGY

The **European GrowSmarter project** is one of the European Commission's firmest commitments to the **common development of urban areas**, with the ultimate goal of promoting research and implementing innovative processes and solutions for developing sustainable and environmentally smart cities. **Barcelona** is one out of the three lighthouse cities of the GrowSmarter project, which is committed to reduce both energy consumption and transport emissions by 60%.



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International market opportunities



Source: ACCIÓ.

Investment Opportunities



COMPANY TYPOLOGY

- Companies without a 'smart' presence in Catalonia
- Companies with high technological development
- International projects during the last 4 years
- Products for cities and presence in rankings of international prestige



SMART SOLUTION SEGMENTS

- Natural Environment
- Lighting
- Mobility
- Facility Management
- Telecommunications
- Data integration platform
- Big data analysis
- City's Operating System

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Take a look at the full report:

http://catalonia.com/export/sites/catalonia/.content/documents/SMA_RTCITY2016_EIC_ENG_COMUNICACIO.pdf

More information about the sector and related news:

<http://catalonia.com/trade-with-catalonia/smart-city.jsp>

