



SMART CITY EXPO WORLD CONGRESS 2019

Introduction

Barcelona has a model for how technology should be applied in the city. How technology is put at the service of people to preserve their fundamental social rights and respond to the main challenges facing the city today, while continuing to drive the digital economy and helping make Barcelona a stimulating, dynamic and demanding city for the new economy and positioning itself as an international benchmark in the development and promotion of technological humanism. We explain this model through three main axes: **participation**, which encompasses local governance and citizen participation, both social and economic **interaction**, and **urban planning**, which also includes housing and mobility.

City strategy

The empowerment of citizens and the analysis of the data generated are determining factors since they reveal new challenges, improve diagnosis and make it possible to capture and measure the impact of public policies.

The responsible and ethical use of data is an essential element, and through the Municipal Data Office we aim to promote and coordinate its efficient management within the City Council.

Barcelona wants to express its commitment to the objectives defined in the 2030 Agenda to face the great challenges of our time, such as **the fight for equality and the preservation of the environment** through the sustainable development goals (SDGs).

At present, the Municipal Action Plan (2020-2023) is being designed with tools that make it possible to work on the city management model together with the citizenry, either through the satisfaction survey on municipal services, or by presenting and discussing initiatives through the Decidim Barcelona platform.

SDG Schema

To respond to the urgency of major global challenges, the UN has approved the **17 sustainable development goals** it considers essential to preserve the planet and make a dignified life possible for everyone. Together they make up the so-called **2030 Agenda**, which points towards a more inclusive, prosperous, just and sustainable future. The SDGs offer a global vision of the problems, **a framework for reaching great agreements on the solutions and a long-term perspective**, which allows truly transforming projects to be proposed and developed.

The City Council has adopted the 2030 Agenda as its framework for action, in accordance with four major objectives:



- The **political commitment** to tackle the challenges—such as employment, housing, energy or mobility—which Barcelona has to solve in order to continue generating opportunities, cohesion and well-being, in harmony with the environment and without compromising the future.
- **Social involvement** in all areas (business, culture, school, sport, districts, neighbourhoods, etc.) to make the SDGs part of the Barcelona agenda.
- The **modernisation** of municipal **management** and services, also reflected in the assessment of compliance with the SDGs.
- **Leadership and international projection:** Together with other cities, Barcelona promotes the changes that the world needs.

The five pillars of sustainable development:



An architecture oriented towards service for citizens

ICTs in Barcelona City Council are designed and built following a model of transversal layers that have specific functions and allow the solutions to be decoupled from the technologies used. Above them are municipal information systems (IS) and citizen services.

The municipal data are structured following the basic information model (BIM), which transversally unifies all the ISs and guarantees the uniqueness of the data. The BIM includes the person and territory entities, and the administrative relations they maintain with the council.

The decoupling of the ISs from technological or functional resources is achieved through transversal technological platforms which offer and manage services through unified functional policies, and also facilitate cooperation between ISs.



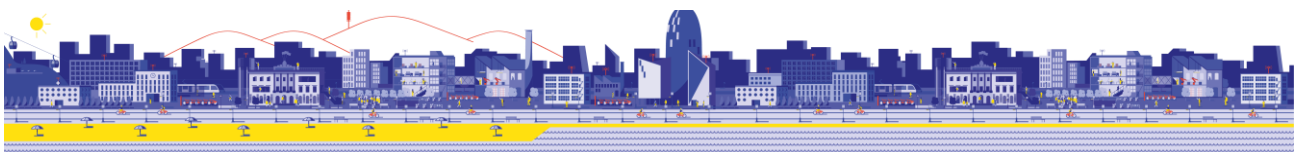
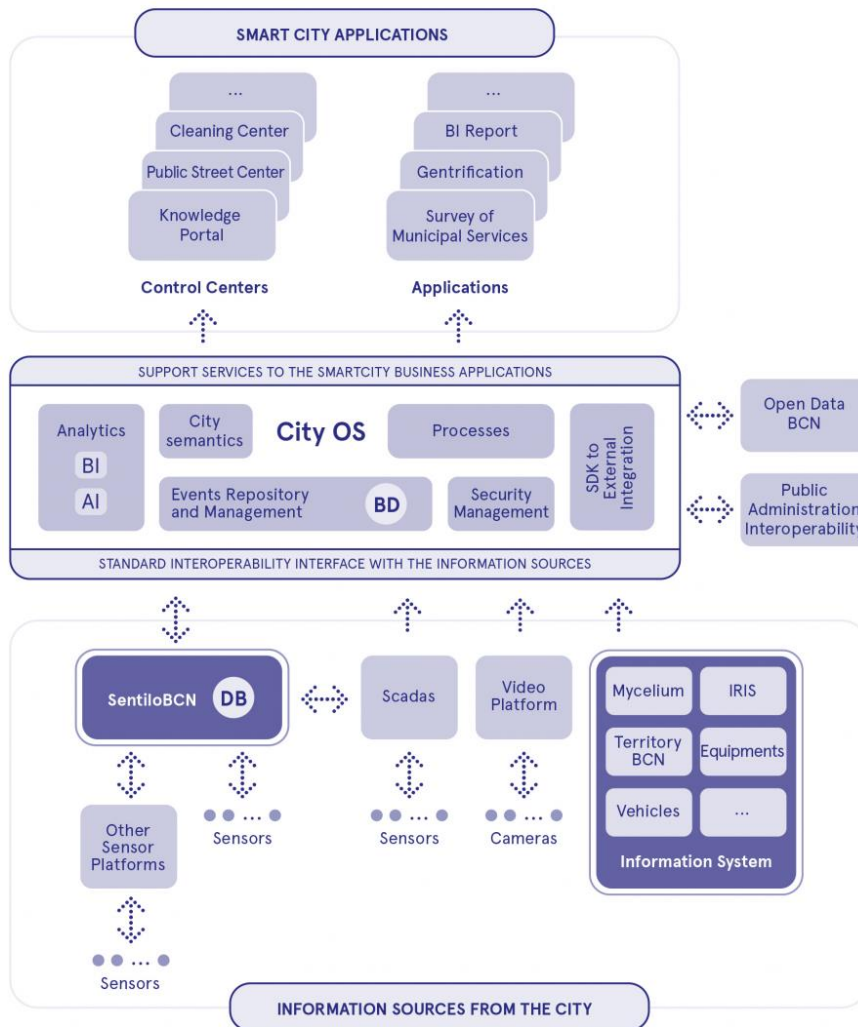
GPA e-Government

The GPA platform is the central element in the processing of administrative procedures. This platform decouples the portal, specific business processors and various applications for processing common and unified resources (registration, electronic signature, archiving, and notification).

Urban data platform

CITYOS is the urban data platform. It allows us to have a holistic view of the information of the city and to create diverse thematic *data lakes*.

ENTILO is the IoT platform. It manages municipal sensors and actuators and feeds CITYOS with data from these sources.



Humanising Tech for Participation

Local governance and citizen participation

We are committed to innovation in governance that materialises in proactive leadership for a more efficiently managed administration, with the assessment of results, accountability, transparency, effective administration of public assets, and new ways to interact, collaborate and cooperate with citizens and local and economic players.

We want to continue making an impact and working on participatory democracy to supplement representative democracy as a formula for drawing a scenario of hybrid participation between the digital and the physical worlds. This will include the use of mechanisms for deliberation and direct democracy that improve the decision-making process while promoting transparency and traceability and ensuring inclusive participation that takes the diversity and needs of Barcelona's entire population into account.

The opening of data as a common asset which is therefore available and usable by everyone while guaranteeing the digital rights of citizens is another big pillar of the municipal data management plan, which must make it possible to strengthen the local economy and civil society actions.

Barcelona, managed and heard

The current volume of information generated by the public and the City Council itself through its activities, combined with the existing technology and data science, allows us to make a leap forward and become more efficient at capturing, storing and analysing such data as well as at drawing conclusions that help make decisions regarding new public measures.

The **Survey of Municipal Services**, which is conducted on 6,000 residents of Barcelona in order to ascertain their views about the city, its neighbourhoods and municipal management, provides a triple analysis, one that is evolutionary, territorial (at both district and neighbourhood levels) and comparative (for the areas of Barcelona, Catalonia and Spain).

The City Council's Municipal Data Office has deemed it important for the first time to look at **severe material deprivation** (SMD) in Barcelona city, and it has included it in the **2018 Municipal Services Survey**. In addition to being conceptually closest to absolute material poverty, SMD is the component of the European indicator AROPE (at risk of poverty or social exclusion) that is best able to detect territorial inequalities.

With the aim of consolidating this indicator as a knowledge and management tool, from 2020 it will form part of the Barcelona Socio-Demographic Survey, which is included in the new Plan for Sociological Studies, in order to ensure a regular supply of indicators and data on material living conditions that were previously not available at city level.

The **Municipal Action Programme (MAP)**, the political document of reference for municipal actions in Barcelona, sets out the main goals and actions planned for the current political mandate. The MAP establishes the priorities that are to govern the actions of the municipal services, as well as the specific budget and investments for the mandate. The **Municipal Action Map** has been created to provide a view of the main actions carried out in recent years in order to provide an interactive view of how the actions planned for each political mandate have evolved.





Barcelona for digital rights

Digital rights are like human rights but in the field of the internet and digital technology. The increasing speed at which current technologies are adopted makes it harder and harder to ensure the protection of individuals' rights, such as privacy.

In 2018 Barcelona, New York and Amsterdam together created the **Cities Coalition for Digital Rights**, a partnership for the global protection of people's digital rights. Now, a year later, the initiative already encompasses over forty cities and international organisations that work together to propose legislative changes, tools and resources to protect the digital rights of both residents and visitors.

DECODE is an example of this. This project was founded in response to the general public's concerns regarding their loss of control over their personal data online. In order to overcome this challenge, decentralised open-source technology that respects digital rights and privacy has been created with the aim of allowing citizens to decide who they share their data with, and when and for what purpose, while promoting the use of Barcelona's residents' data, as a key infrastructure for the common good.

Barcelona participates, democratic Barcelona

A digital infrastructure that helps us build a network of more open, transparent and collaborative cities in order to empower citizens is the digital platform **Decidim.org**. This is a free and open-source citizen participation platform for cities and organisations that is intended to be easy for other institutions and organisations to use.

In the case of Barcelona City Council, the participation platform is called **decidim.barcelona**. Its aim is to provide a portal and infrastructure for both the participation processes promoted by the City Council (such as MAP, the development of rules and urban planning plans) and those put in place by associations and members of the public (such as people's initiatives, community development, etc.).

The **Laboratory for Democratic Innovation (LDI)**, an open, participatory and networked space for democratic innovation, has been created with the aim of providing a common space for research in the field of participatory processes. It is a catalyst for research, development, prototyping and action projects and communities aimed at building democratic solutions and solving possible problems in the city.

Smart City Week brings citizens closer to the notion of a city that uses its accumulated knowledge and technologies to achieve a more sustainable, fair and inclusive urban setting.



Humanising tech for Interaction

Local economy and social interaction

Barcelona wants to be a model city whose public leadership, support for economic activities and collaboration with private initiatives make it a leader of entrepreneurship, green economy, talent attraction and retention, and commitment to innovation, science and technology, a city that creates a more stable job market with less uncertainty and inequality and that guarantees a future of opportunities for young people with more opportunities for everyone.

The new local economic development strategy focuses on the needs of the population and the improvement of their quality of life, adopting a comprehensive approach to the territory and viewing local matters as an opportunity to promote economy-boosting strategies agreed by the territory's various players (public, private and community), with an intercultural and gender approach.

Entrepreneurial and inclusive Barcelona

We are laying the foundations for building an open city that is committed to the environment and that fosters and makes the most of all its people's talents.

Barcelona wants to welcome the people who come to live and work in the city, as well as facilitate their arrival, with the **Barcelona International Welcome** initiative, a service that is already running and helps people when they arrive in the city. In addition, it is important for the public to know their rights in the digital age. For this purpose, two **practical guides on the use of digital platforms** have been created to ensure that both workers and consumers know their rights.

During the international conference Sharing Cities Summit 2018, Barcelona and 49 other cities from around the world signed the Declaration of principles and commitments for collaborative cities. The agreement is composed of ten principles aimed at regulating digital platforms, ensuring that the right to the city is not impaired by this type of economic activity and promoting and sharing alternatives based on socially responsible models.

The increasing availability of low-cost tools and technologies, digital distribution, research, local manufacturing and a new circular economic logic, which lies at the heart of the **Maker's Faire** culture, mark a crucial change in a society that relies on linear and centralised production.

Through the '**Impulsem el que fas**' programme, we offer grants to finance projects that drive the economy of neighbourhoods. In addition, all this knowledge and best practices are shared at European level through the **DSIscale** project. This looks for projects linked to the territory that foster employment, entrepreneurship and undertakings, socio-economic innovation, responsible tourism, and social and digital innovation. This year, with a specific category for **Digital Social innovation** projects focusing on challenges or needs with the use of open technologies, we are seeking to help companies penetrate the market and rise in the global context.

We also lead **i.lab**, a laboratory for the acceleration of social, urban and sustainable innovation in an open and collaborative manner between public bodies, the academic and business worlds and We have also launched **innoBA**, Barcelona Activa's Centre for Socio-economic Innovation, which offers activities, specialised services, research, training and incubation areas, for both





entrepreneurs and organisations in the area of the Social and Solidarity Economy (SSE) and socio-economic innovation.

We want a fair city

We want a fair, cohesive city in which progress is shared without excluding anyone, and we are launching projects supporting this idea for that purpose.

One of the goals set is to secure a balance in the economy, but this economic rebalancing can only be accomplished by **improving digital talent** through literacy, ongoing improvement and specialisation, and in particular by driving the integration of science, technology, engineering, art and mathematics (STEAM). For this reason, the **economic education programme (EdEc)** has been designed in accordance with the principles of economic psychology and behavioural economics combined with the adoption of personal finance management tools.

Bringing the technology, science and design of digital manufacturing to the public as a whole and supporting entrepreneurial projects, the creation of companies, cooperatives and other initiatives that create jobs are the main goals of **Fab Labs**. Anyone can make use of their spaces, tools and public resources as well as propose projects to improve their immediate surroundings.

In the fight for gender equality, **Lidera** is the leading growth and networking environment for all female professionals, executives or entrepreneurs in Barcelona, helping them further their careers.



Humanising tech for Urban Planning

Housing, mobility and urban planning

Barcelona wants interventions in the urban setting – whether they relate to planning, building infrastructures, promoting public and social housing and environmental policies or regarding the quality of public spaces – to be a key element of social transformation and ecological transition for the economy.

We must strive to ensure that the city's management tools and the quality control mechanisms for urban transformation works and projects are based on sustainability and resilience criteria so as to prevent or minimise the impact of exceptional emergency situations or occasional incidents.

In many city centres, the rising cost of renting or the informal replacement of residential uses for activities such as illegal tourist accommodation is causing the working classes to be excluded *en masse*, to the point of jeopardising their social and functional diversity.

The mobility habits that have taken root in the last 50 years are evolving towards new, healthier transport methods that make it possible to recover public spaces for the benefit of citizens. A change of model in relation to the main milestones, such as more mobility on foot, generating safe and comfortable spaces for pedestrians, and sustainable modes of transport, has been proposed while considering reducing the use and presence of private motor vehicles.

The search for innovative solutions

BIT Habitat promotes social, economic, urban and technological urban innovation in the city in response to the new challenges that we now face.

From among its projects, **22@** is particularly worth mentioning. This project has led to a co-creation process to find a new approach based on a quadruple focus (residents', business and academic networks, and the public sector).

In addition, the European Institute of Innovation & Technology's (EIT) innovation communities promote innovative solutions throughout Europe. The EIT has appointed the **KIC Urban Mobility** consortium as the new urban mobility innovation community, and its management centre will be in **Barcelona**.

The **5GBarcelona** initiative aims to provide incentives to develop pilot projects on new 5G-related technologies and encourage the generation of innovative services in different areas of society. One of the projects from 5G is the **care robot called ARI** (short for intelligent robotic assistant), which improves the quality of life of senior citizens by interacting with them and providing support for them.

We are involved in the development of two European projects relating to 5G technologies and services: **FLAME**, which will improve the public's access to multimedia content from mobile devices and reduce data traffic on the network by means of edge computing technology; and **5GCity**, a project that will make it possible to make better use of the benefits of establishing a single multi-operator network in future deployments of the 5G infrastructure.





Cities must now be smarter so they can rapidly adapt to emerging environmental, social, demographic and governance needs. **GrowSmarter** seeks to stimulate the adoption of innovative solutions in urban settings. The project promotes sustainability in the energy, mobility and ICT sectors through large-scale demonstration projects that serve as a reference for other European cities.

Building a greener and more sustainable Barcelona

The need to increase the amount of affordable housing available calls for new strategies to create it. With this aim in mind, we have worked on a variety of architectural and management models in order to reduce the time it takes to develop new properties and increase the quality and sustainability of new housing and accommodation. The projects being worked on include, among others, **APROP** (accommodation), the **CAH+ATRI** project (adaptable housing) and the refurbishment of **Can Fabra** to create public housing for rent.

The aim is to establish a network of streets in which residents take priority for mobility and the use of public spaces, restricting the circulation of motor vehicles and promoting shared, green and safe spaces. The model of arranging public spaces into **superblocks** seeks to diversify the characteristics of habitability, mobility and biodiversity of the streets of Barcelona.

In order to ensure the quality of the air we breathe and guarantee the right to health in the city, a **low-emissions zone** has also been implemented in Barcelona's Rondes [ring roads]. The aim is to define an area in which both people and the environment are protected from the air pollution produced by the combustion of motor vehicles **while gradually restricting the circulation of such vehicles**.

One of the City Council's main goals is to modernise the tools used by public bodies. The aim, which involves **the use of 'urban forestry management software'**, is to facilitate the work and consultation of information by gardening and pruning staff and to provide greater indirect control of teams, as well as optimising resources and saving paper, travel and fuel.

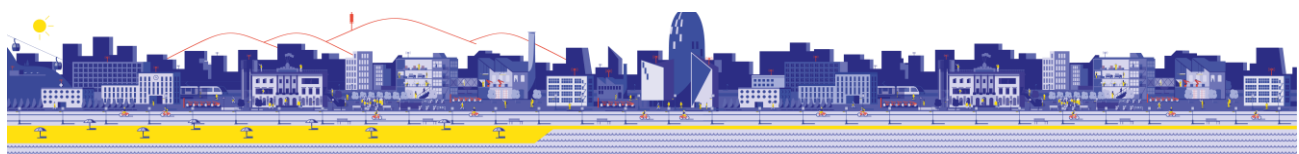
Barcelona on the move

At the City Council, we are committed to a number of initiatives to fight for a safer, more efficient and sustainable city in the sphere of urban mobility.

With the aim of providing a vision of sustainable, economically viable and congestion-free mobility, the **C-MOBILE** project helps minimise the environmental impact of road transport and road incidents by deploying cooperative smart transport systems and services designed to deal with specific mobility challenges throughout Europe.

In addition, **we must** promote a modal shift towards a more sustainable mobility, reinforcing the changes in mobility pattern behaviours in local communities in order to reduce urban traffic. Instead of focusing on infrastructure, the **MUV (Mobility Urban Value)** project focuses on citizen awareness regarding the quality of the urban environment in order to drive a change towards healthier and more sustainable mobility options.

Data are another fundamental value in city mobility. As part of the KIC Urban Mobility, work has started on the **SOUL project (Smart mOBility hUb pLatform)**, which centres on how the use of data can allow future urban mobility systems to become safer, more collaborative efficient.



The application **Smou** was created to facilitate movement in the city. It helps residents move within Barcelona by providing them with information and mobility services.

Mobility for more liveable urban spaces

EIT Urban Mobility is an initiative by the European Institute of Innovation and Technology (EIT) which aims to accelerate positive change on mobility to make urban spaces more liveable.

As the leading European innovation community for urban mobility we foster integration by bringing together the key players across the whole value chain of mobility. We facilitate collaboration between cities, industry, academia, research and innovation to solve the most pressing mobility challenges for cities, encouraging their integration on all levels to accelerate change towards a sustainable model of urban mobility.

EIT Urban Mobility puts the challenges facing cities at the centre of all its activities, with citizens at its heart. It aims to develop and deploy solutions for the mobility of people, goods and waste that solve problems and create impact for cities and citizens.

The city of Barcelona is leading the start-up phase of this initiative and will host the future EIT Urban Mobility's headquarters.

