

Time Out

Barcelona

ENGLISH EDITION!
↑

TECHIE TOWN

Barcelona is a hub for innovators, scientists and entrepreneurs looking to the future



**Barcelona
Turisme**

OFFICIAL GUIDE OF BCN

Who?

What?

Where?

Creating tomorrow's Barcelona

PLUS!

**PICASSO/DALÍ, FUN
FOR KIDS, CATALAN
CUISINE, TOP SHOPS...**

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BCN Tech

Innovation and research are forging Barcelona's future. We look at the key projects, people and places.



BCN SMART
ALWAYS

By Eulàlia Iglesias

► 1BC

BARCINO, A ROMAN CITY

On top of what was called Mount Taber, the Romans built Barcino. Two large perpendicular streets, *decumanus maximus* and *cardo maximus*, converged in a huge forum. Today's Gòtic neighbourhood has echoes of the grid layout of the time.

► 11TH CENTURY

LET THEM HAVE WATER

Just outside the city, you can still see a section of the Rec Comtal, one of BCN's first hydraulic projects, built to replace the abandoned Roman aqueduct. Its glory days began in the 11th century, when it carried water to crops, businesses and fountains.

What?

Technology is booming in Barcelona and Catalonia. **Lluís Rovira**, director of the Institute of Catalonia Research Centres (CERCA), details some of the main projects currently underway.

01. CLOSING THE CARBON CYCLE

Global warming, greenhouse gas emissions and increasing energy demand are some of the most pressing challenges our society is currently facing. Amongst the various solutions scientists are exploring is the chemical recycling of carbon dioxide into fuels such as methanol (a valuable raw material that can be used for a wide range of chemicals), thereby closing the carbon cycle. At the Institute of Chemical Research of Catalonia (ICIQ), a group led by Dr Atsushi Urakawa has developed a continuous-flow process that allows for the conversion of CO₂ into methanol with record results. www.iciq.org

02. BRAIN WATCHING

A team at the Institute of Photonic Sciences (ICFO) has developed a non-invasive (i.e. it doesn't enter the body), portable optical monitor that can measure and monitor blood flow in the brain of premature or full-term babies as well as adults. A team at Barcelona's Hospital of Santa Creu and Sant Pau is collaborating on the project to help develop the most efficient monitor, suitable for the most vulnerable patients. www.icfo.eu

03. SCRUBS UP WELL

The issue of cleanliness in hospitals for a long time went something like this – when 19th-century Hungarian doctor Ignaz

Semmelweis suggested colleagues disinfect their hands, they ignored him, despite evidence it reduced mortality rates from puerperal fever. Such an attitude seems incredible to us now, but the problem of keeping medical centres as spotless as possible is still a hot topic. The Catalan Institute of Nanotechnology (ICN2) has developed an advanced generation of disinfectants for hospitals that have both immediate and lasting antimicrobial effects. Non-irritant and non-toxic, cost effective, easy-to-use and invisible once applied to a surface, the products have unsurprisingly been welcomed by international companies working in the sector. www.icn.cat

04. HELPING MEN BECOME PAPAS

Since the first test-tube baby was born in England nearly 40 years ago, treating infertility has become a global \$3 billion business. It is estimated that infertility affects around 80 million people across the world, and that up to 15 percent of couples who try to have a baby over a period of two years are unsuccessful. As such, the demand for assisted conception is growing year on year, and as part of the team at IDIBELL (Institut d'Investigació Biomèdica de Bellvitge), Dr Sara Larriba is researching how to recognise fertile sperm using four genetic markers. Testing sperm in this way is an effective, non-invasive way of identifying infertility – and much easier to do than the initial tests on women. www.idibell.cat

05. LET THEM EAT OYSTERS

Dr Dolores Furrone and her team at IRTA in Sant Carles de la Ràpita, in the south of Catalonia, have state-of-the-art facilities for

producing a range of shellfish – including clams and oysters – from seeds to full size. In the face of concerns about viral disease in oyster farms around the world, the IRTA team are working on ways to harvest disease-resistant bivalves. www.irta.cat

06. I AM (DR) ROBOT

While images of robot armies taking over the world can be the stuff of scary science fiction, robotic systems unquestionably have a place in our world. Rob Surgical Systems, a spin-off from the Institute for Bioengineering of Catalonia (IBEC) and the Universitat Pompeu Fabra (UPF), is currently developing its first product, a robotic station for minimally invasive surgery called BITRACK. It is designed for chest surgery and includes enhanced design, size and ergonomics compared to other surgery robots currently in use. Prestigious hospitals around the world, such as the Mayo Clinic in the US, have already shown their interest in the station. www.ibecbarcelona.eu

07. AIR BRIDGES OVER TROUBLED WATERS

When a natural disaster strikes, the destruction of local infrastructure can make rescue and restoration efforts extremely difficult. At CIMNE (the International Centre for Numerical Methods in Engineering), Professor Eugenio Onate is leading work on a new system of emergency air bridges that use computer-controlled, low-pressurised air-filled beams connected by an upper deck. The beams are lightweight, inflate rapidly and can be folded after deflation, easing transportation and storage. In tests to date, the bridge has carried weights up to 8 tonnes. www.cimne.com

► 1599

LET THERE BE LIGHT

As the 16th century came to a close, the city got its first public lighting system, albeit one that used precarious open flames. It wasn't until the 18th century that oil lamps were introduced. And in 1842, Barcelona became the first Spanish city to have gas lights.

► 1775

CITY OF THE DEAD

Bishop Josep Climent ordered the construction of the Poblenou cemetery, the first to be situated outside the city walls bringing to an end burials in parish grounds, which had become the source of all manner of illnesses and epidemics.

► 1835

FEWER CONVENTS, MORE SQUARES

Riots, such as those in the city in 1835, and various property seizures put an end to the proliferation of convents in Ciutat Vella. On the former church lands, the Boqueria and Santa Caterina markets, the Liceu opera house and Plaça Reial were built.

Who?

José Luis de Vicente

Journalist, writer, curator and researcher specialised in digital culture, art, design, technology and social innovation. Amongst other roles, he is currently the curator of *Sónar+D*, the innovation section of the annual *Sónar* festival – creativity and technology combined. De Vicente has also curated many symposia and exhibitions, for example last year's 'Big Bang Data' show at the CCCB.

Ana Maiqués

Co-founder of Starlab, an avant-garde scientific and technological company that has its HQ in Barcelona, but prides itself on its global outlook. Last year Maiqués was one of the winners of a European Women Innovators Award. Her most recent creation: Enobio, a portable, wireless helmet capable of reading brain activity. Based on her experience, Maiqués says that it's impossible to develop a good idea if there's no teamwork involved.

Reactable

Electronic musical instrument created by Sergi Jordà, Marcos Alonso, Gunter Geiger and Martin Kaltenbrunner at Barcelona's Pompeu Fabra University. Futuristic, simple and with an intuitive design. Based on plastic objects of varying colours and sizes, Reactable enables experiments with sound, changing its structure and controlling its parameters. It invites a tremendous level of creativity

"3D PRINTING WILL BRING EQUAL ACCESS TO THINGS AND TO SOLUTIONS FOR OUR NEEDS, AND SHOW MONEY ISN'T EVERYTHING"

Tomás Diez
Fab Lab
Barcelona



amongst users (of which there are many – its table has been downloaded over a million times) and *Rolling Stone* magazine declared it the Hot Instrument of the Year in 2007. Björk and Coldplay are just two of the acts to incorporate it into their recent live performances, while it has also proved a popular tool for producing music videos.

Roc Herms

Ever since he joined the digital world in 2008, Herms has used photography to document everything that 'cyber aborigines' do. He joined this parallel universe on December 31, 2008, when he went into PlayStation Home and discovered hundreds of people there celebrating New Year's Eve by re-creating social behaviour familiar from the physical world – that was the moment he decided to capture what was happening in that virtual space. He interviews and photographs the inhabitants of the digital world, and is the only digital photojournalist who uses this tool with an anthropological vision rather than with the objective of explaining to the rest of us what's going on over there.

FABRICA FUTUR = #ffbcn

The platform #ffbcn is a Barcelona-based movement that explores the future. Ten young talents drive 10 projects about the future in 10 different areas: arts, cinema, architecture and urban planning, communication, education, work, food, personal relationships,

BCN SMART ALWAYS

► 1860

THE GREAT CERDÀ PLAN

The renovation and expansion plan of Ildefons Cerdà, imposed from Madrid, is the most important local urban transformation of the past few hundred years. BCN escaped its medieval prison (1854 saw the city walls demolished) to grow into the future.

► 1902

SEWER SYSTEM

The Romans had a wastewater system, but it wasn't until 1891 that the first sanitation plan for modern BCN was created, under Pere Garcia Fària. The works began in 1901 and the inauguration was on September 24, 1902, feast day of BCN's patron saint.

CATALONIA'S LEADING RESEARCHERS



MANEL ESTELLER
One of the world's top researchers in epigenetics, or the way our bodies modify their genetic make-up and impact growth.



EDUARD BATTLE
Director of the Oncology Programme at IRB Barcelona, he is at the forefront of efforts to find the cells that trigger colon tumours.



CARLES LALUEZA-FOX
Sequenced the genome of a 7,000-year-old caveman and made a surprising discovery: he had dark skin and blue eyes.

SPEAKING OUT

PABLO RODRIGUEZ
R&D Director, Telefónica

...why Telefónica chose Barcelona as its R&D base

We selected Barcelona because it's a great place to attract talent. Because the entrepreneurial ecosystem is developing. And also because it's a city that has always been eager to try new things, to evolve and to experiment. We use the city as a living lab, where we first test some of the new products and services that we're trying to bring to the market. We actually branded Catalonia as a whole as the 'market test lab' for Telefónica.

...Barcelona's place in the mobile phone industry

The Mobile World Congress is a major event where BCN becomes the place to be in the industry. It's the place where you have all the

connections you need right at your fingertips. It's just a question of what you want to do, not what is feasible, because everything is feasible with all those people.

...working with Ferran Adrià

If you're going to learn from somebody, try to learn from the best. We decided why not learn from a small company that had 10 employees and became the number one in the world? It must be doing something right. So we approached Ferran Adrià and El Bulli, and started a journey on how technology can help the world of haute cuisine, developing what we call Bullipedia, a gastronomy encyclopaedia with tools and services that will run on top and help chefs become more creative.

...whether there is too much technology in our lives

I don't think there is ever too much of

anything as long as it's providing you with something useful and it helps you achieve what you need, what you want. Certainly I see more and more technology everywhere, but it's technology with a purpose and a meaning.

...where to go in Barcelona

For technology fans: the Media-TIC building in Poblenou's @22 district. To take a break from your gadgets: the Joan Brossa gardens in Montjuïc.



community and tourism. The web fbcn.bcn.cat centralises the most relevant innovative content, and also houses a platform from where to follow both the research processes of the young creatives and a series of related conferences.

Jaume Ripoll

Editorial director and co-founder of Filmin, the first electronic platform for home cinema in Spain. It's a place to find alternative and independent films, legally and in a high-quality format. Ripoll's creative and innovative nature has seen him win prizes on various occasions, and last year, his team was nominated for three Proyecta prizes, awarded for film marketing. He sees the internet as the solution to many of the film industry's problems, based on payment and working side-by-side with traditional cinemas.

Tomás Diez

Venezuelan Tomás Diez is director of Fab Lab Barcelona, a centre specialised in 3D printing that runs workshops for amateurs and pros, and is part of a worldwide network of laboratories. Diez believes that the creation of products using computers will bring about a change in society as big as that seen when computers first arrived. 'It will change the way we interact with each other because democratising production methods basically means liberating people. It might sound a bit naive but I think it will allow equal access to things and to solutions for our needs, and show that not everything depends on money.'

► THE 1920S GOING UNDERGROUND

In the 1920s, the Sarrià railway line was taken below ground while the Gran Metro (nowadays L3) and Metro Transversal (L1) were inaugurated – big steps forward towards an underground public transport system connecting all areas of the city.

► CLOSE OF 20TH CENTURY OPEN TO THE SEA ONCE MORE

The recovery of the seafront as a public and leisure space was one of the milestones of the Olympic Games project. In recent years, the city has increasingly reconnected with its often forgotten natural spaces, from the Mediterranean to Collserola park.

► 2014 BCN SMART CITY

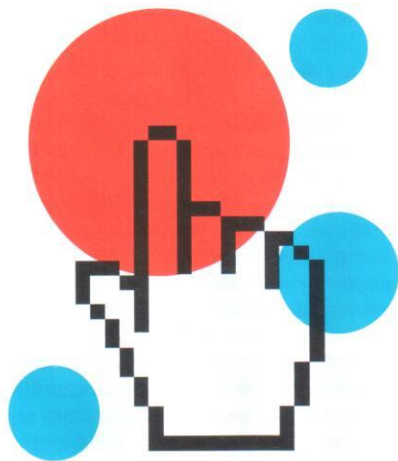
Within the Barcelona Smart City project, innovative solutions, often based on technology, began to be applied across the city for the management of services and resources to improve the quality of life of Barcelona's residents.

Where?

'We're working to make Barcelona into a self-sufficient city, with productive neighbourhoods at the heart of a hyperconnected metropolis with zero carbon emissions.' This is the mantra of Barcelona Smart City, the philosophy that summarises the objective of this complicated and ambitious project undertaken by Barcelona City Council to transform the city over the next 25 to 30 years. It is, to put it one way, the road map for the future of the Catalan capital, the strategy it has to follow if it wants to become a truly digital location. But the first comment from Josep Ramon Ferrer, who heads up the Smart City project from the council department of Urban Habitat and Municipal IT Institute, is that the programme is 'not about technology, but rather an opportunity to transform the city in the medium term'. New advances, as Ferrer explains, are 'the lever for change and are

present in or the basis for the majority of processes', even if there are also projects in which communication between people is more important than telecommunications, such as Radar, which brings together residents with elderly neighbours who live alone. It's this vision of technology as a resource and not as an end in itself that has made Barcelona into a champion of Smart City projects around the world, and was one of the factors that the European Commission took into consideration when they named it European Capital of Innovation in March last year.

Barcelona Smart City includes 22 programmes that bring together the different elements essential for the smooth running of a city: from water management to the environment, via transportation, health and telecommunication networks. It's a global vision of a city in which the actions of various municipal departments converge and they all work together for the same goal: to make the Smart City mantra become a reality. In the case of zero emissions, Ferrer explains, 'When we started to talk about this two years ago, people didn't really take it seriously, but then last year Denmark put forward a zero emission plan for various of its cities by 2026. And now people are starting to give our project more credence.' Encouraging new industries and putting them back into the neighbourhoods, joining forces with towns in the metropolitan area so as to become more efficient, increasing the participation of citizens... these are all aspects of an undertaking that is more than ambitious, but Ferrer is convinced that results will soon appear and that within five years, changes will be clearly visible. The countdown has started. -María José Gómez



A DIGITAL TOUR

Want to see a smart city in action? Here are some of the places in BCN where the revolution has begun.

INTELLIGENT TRAFFIC LIGHTS

Waiting bored at a red light is due to be a thing of the past at Travessera de Les Corts and Gran Via Carles III (close to Camp Nou), the first 'smart junction' in the city. Twenty-one sensors relay real-time data to a central station, which then determines how long traffic lights should be red or green, according to the amount of traffic – vehicular or foot – in the area.

INFORMATION EVERYWHERE

The city's free WiFi network already has 704 spots, with expansion to buses, metro and markets in the works. Touchscreens at bus stops that let users check details about services, public transport, and information about nearby points of interest, can be tried on Passeig de Gràcia (corner with Casp) and at the Gran Via venue of the Fira de Barcelona.

FEWER FUMES

Last summer saw the first 100-percent electric bus to be manufactured in Europe take to the streets of Barcelona. If you catch the number 20 (which runs to/from the cruise ship dock), you may find yourself travelling on this bus of the future.

MORE SMART CITIES

SMART CITIES TO QUADRUPLE

According to a report published by analytics company IHS in July last year, the number of global smart cities will rise four-fold between 2013 and 2025, from 21 to 88, with the majority located in the Asia-Pacific region.

GREAT MINDS THNK ALIKE

In November this year, Barcelona will host a new edition of the Smart Cities Expo World Congress, bringing together representatives from hundreds of cities and leading experts on urban technology. www.smartcityexpo.com