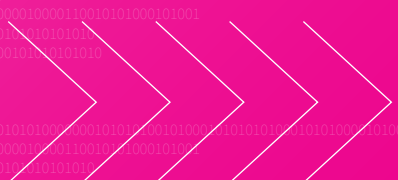


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# CIBERNÀRIUM 20 YEARS OF TECHNOLOGICAL SKILLS ACQUISITION AND OUTREACH



**Cibernàrium**  
Technological training for everyone



Ajuntament de  
**Barcelona**





Title: Cibernàrium, 20 years of technological skills acquisition and outreach.

Development and future challenges

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This report was compiled by the Cibernàrium team, translated by Linguaserve and revised by Joan Roqueta Bona and Barcelona Activa's Marketing and Communication Department.

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**CIBERNÀRIUM**

**20 YEARS**

**OF TECHNOLOGICAL  
SKILLS ACQUISITION  
AND OUTREACH**



**DEVELOPMENT  
AND FUTURE  
CHALLENGES**



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1.

# WHY CIBERNÀRIUM



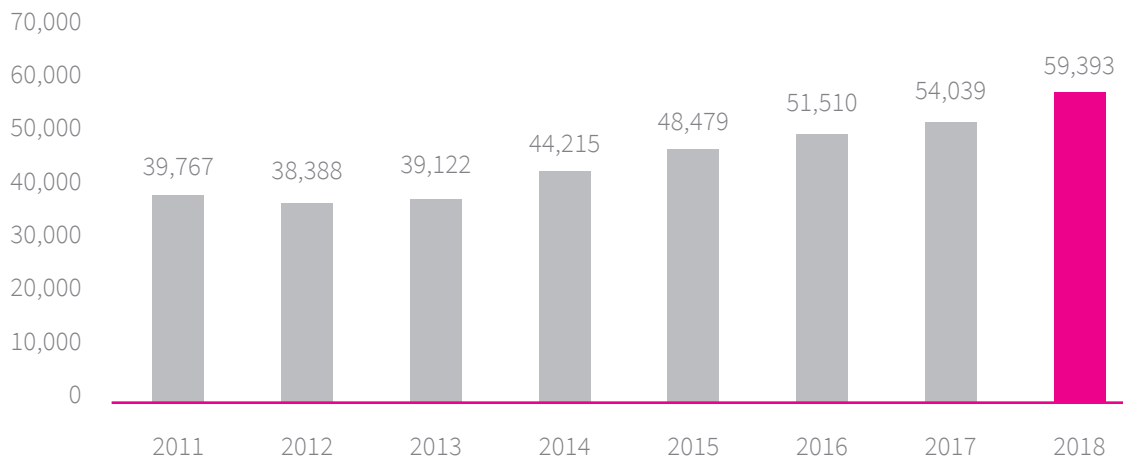


2019 was very significant for Cibernàrium, Barcelona Activa's technological skills acquisition and outreach service, as the year in which it celebrated its 20th anniversary. It was a milestone which, in the current context of the digital revolution, encourages reflection on the development, state and influence of the service. This report is much more than a mere assessment: it sets out the direction of Cibernàrium's future.

Barcelona is currently a leading city in the digital world: it was Europe's fourth most innovative city in 2019 and the third favourite for start-ups, according to the prestigious StartUp Heatmap Europe. The ICT sector brings some 60,000 jobs to the city, which indicates an increase that has been consolidated over the last 6 years, and represents 5.5% of jobs and close to 4% of Barcelona's business network.

ICT is one of the fastest-growing sectors in terms of jobs, having employed 20,000 more people between 2012 and 2018, representing an increase of close to 55%. That is a much faster development than that of the city's overall economy (+16.5%). Meanwhile, this trend has also been observed in the business network, where ICT companies have grown by almost 49%, whereas Barcelona's entire set of companies with employees has only grown by 8.6%. Overall, the ICT-related economy represents 8% of the city's GDP.

### Jobs\* in ICT activities in Barcelona

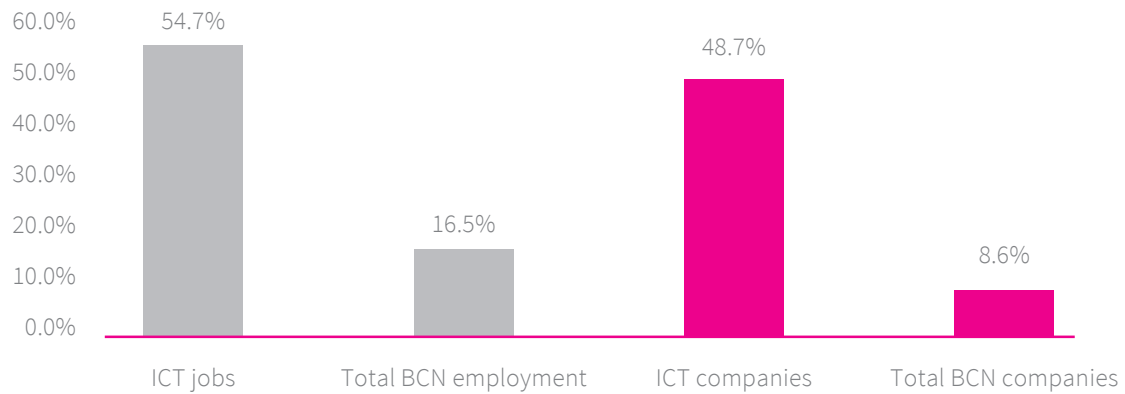


\*Registration with general and self-employed Social Security systems.  
Source: Compiled by the Department of Studies at the Manager's Office for the Economy, Resources and Economic Promotion at Barcelona City Council, based on data from the Municipal Statistics Department.

The goal is to improve technological skills and promote residents' digital talent, both in their professional activity and in their use of technology for everyday life.



### 2012-2018 development of jobs\* and companies with employees in Barcelona (%)



Source: Compiled by the Department of Studies at the Manager's Office for the Economy, Resources and Economic Promotion at Barcelona City Council, based on data from the Municipal Statistics Department.

The aim is to provide a large proportion of Barcelona's citizens with sufficient digital skills for taking on the challenge of the city's rapid social, economic and technological changes.

It is clear from the context shown by the data that the city needs to opt for a digitally educated population, not just to ensure employability and business competitiveness but also for the purposes of exercising full citizenship. Hence the implementation of public policies for equality that ensure everyone's technological skills acquisition and fight against the digital divide in all its guises. Cibernàrium is a promoter of this policy in the city, and does so from a strategic perspective and by collaborating with the city's digital ecosystem.

**Barcelona Activa's** contribution to taking on the challenges posed by the digital revolution is key. Based on the municipal organisation's values, Cibernàrium works on the digital economy through its social impact to bring about an **inclusive digital transformation and improve business competitiveness**. This transformation, from the perspective of technological training, is expressed in the services and programmes led by the Training and Innovation Department, the aim of which is to **improve technological skills** and **foster digital talent** among the city's residents, both in their professional approach and in their use of technology for everyday life.

Here an immediate and long-term, large-scale economic outreach effort is being made to provide a significant part of Barcelona's residents with **sufficient digital skills** to take on the challenge of the city's rapid social, economic and technological transformation, to **improve their quality of life**, and to actively contribute to the construction of a more prosperous and competitive society and to **the narrowing of the digital divide**.

Meanwhile, work is being carried out to fill the **digital talent void** (lack of people sufficiently trained in ICT to cover companies' needs) and to contribute towards consolidating Cibernàrium as a talent hub.

At the same time, **scientific and technological vocations are being promoted**, with special emphasis put on the **gender perspective**. We are looking for an initiative with the greatest possible capillarity, and it is crucial for women's participation to be promoted in the construction of a digital society with equality criteria. This vision permeates our entire activity cycle: training initiatives, educational methodologies and management of the service.

The entire **range of technological training on offer** is designed under the strategic lines of both Barcelona Activa and the city itself:



**TERRITORY:** promotion of the **city's territorial cohesion**, with a fair distribution of resources and services. Reaching every point of the city and strengthening care for the most digitally vulnerable groups or territories.



**INNOVATION:** **collaboration with public, private and civil-society stakeholders**, facilitating third-party processes, for joint work in the face of challenges posed by the digital world that drives the city's economy.



**ECONOMY AND EMPLOYMENT:** attending to the needs, expectations and challenges of the various **sectors of demand**, the ICT sector and any other sector that incorporates digitisation in a cross-cutting way into its growth and competitiveness. We support the development and diversification of the city's social and economic network, by helping with social impact and the creation of quality jobs.

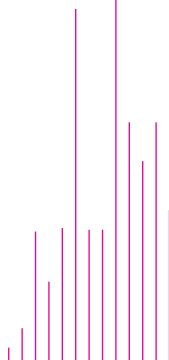
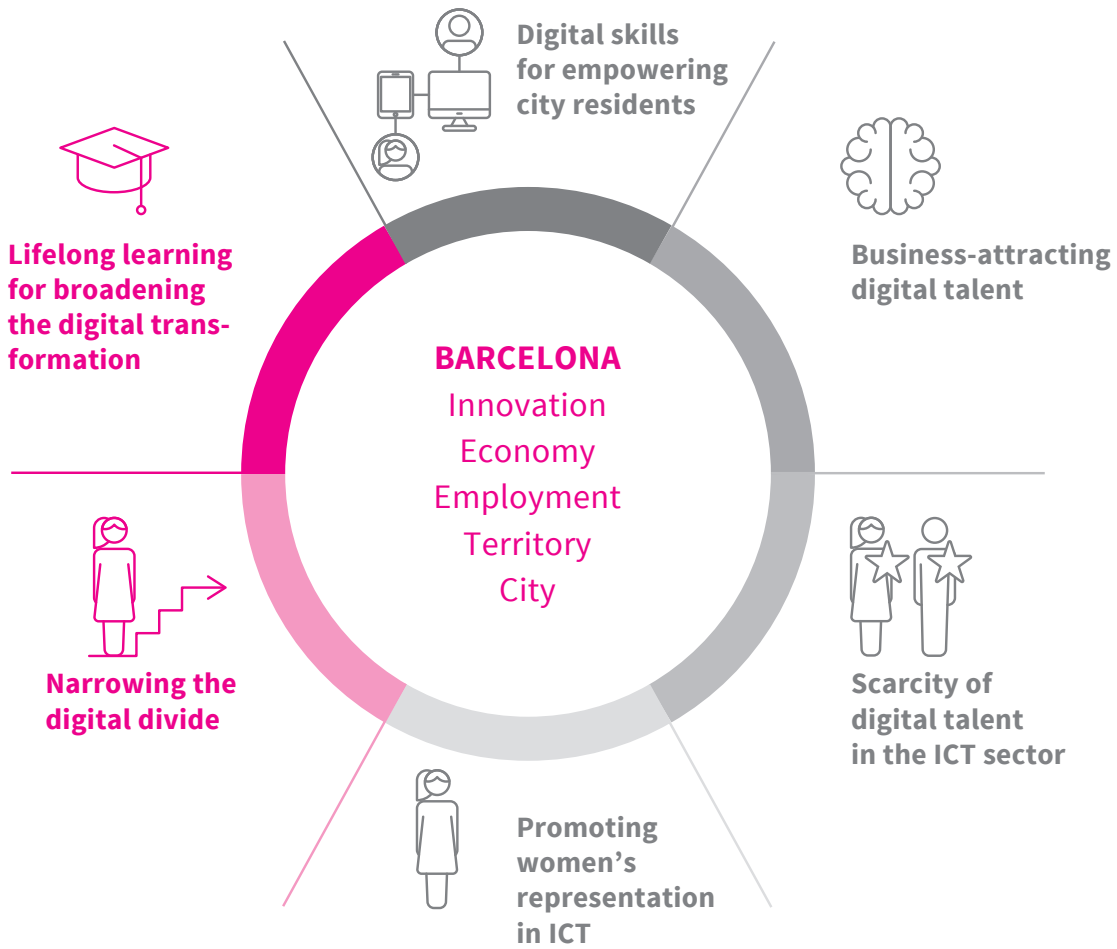


**CITY:** incorporating the **values of the Barcelona brand**, such as talent and connection. We encourage local digital talent production, which can act as a magnet to attract foreign talent, and we promote business competitiveness through technological skills acquisition for professionals prepared for managing companies' digital transformation.



**SUSTAINABLE DEVELOPMENT GOALS (SDGs):** aligning municipal policies with the 2030 Agenda and the metropolitan commitment based on the principles of **UN's SDGs**, especially points 4 (Quality Education), 5 (Gender Equality) and 8 (Decent Work and Economic Growth).

The entire range of technological training on offer is designed under the strategic lines of both Barcelona Activa and the city itself.





# 2.

## THE HISTORY AND DEVELOPMENT OF CIBERNÀRIUM



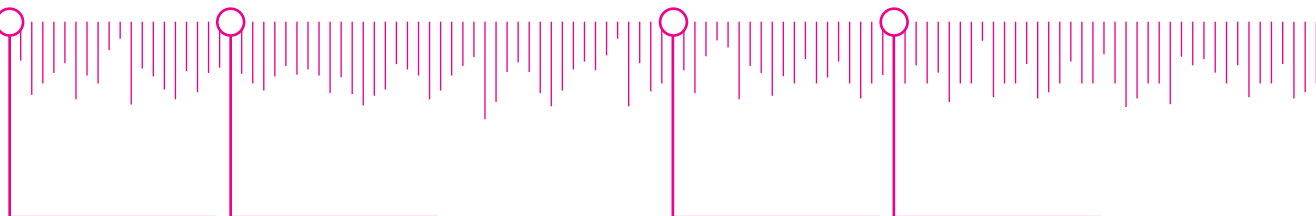
## 2.1 Cibernàrium's beginnings (1999-2004)

Cibernàrium was launched on 14 April 1999 in collaboration with the *Cité des Sciences et de l'Industrie La Vilette* (Paris) and the Universitat Politècnica de Catalunya, and with Compaq, Epson and Menta as technological partners. Its goal was to narrow the digital divide, as well as bringing citizens and companies together and getting them to share technological advances, with a focus on improving digital talent and business competitiveness.

Barcelona Activa has adopted digital literacy as a public policy for equality and set itself a mission statement: no one gets left behind.

During its early years, Cibernàrium bore witness to phenomena such as the creation of Napster (1999), the first music file downloading service, and the bursting of the 'dotcom bubble' (2000) which, while causing a shock to the first wave of online business experiences and resulting in fleeting scepticism regarding the future of the internet, also gave rise to companies that survived and later defined the development of today's digital society, such as Amazon (1994), eBay (1995), Yahoo! (1995) and Google (1998).

1999    2000    2001    2002    2003    2004    2005    2006    2007    2008    2009



It is in this context that Cibernàrium has been working, since its creation, in two complementary directions which remain the focus of its strategy to this day. On the one hand, **to provide practical knowledge of the internet and digital tools** as they started to crop up. And, on the other, **to provide guidance for responsible, safe and critical use** of these tools, not just by educating users in internet use but also by helping to digitally empower citizens.

Barcelona Activa has therefore adopted digital literacy as a public policy for equality and set itself a mission statement: no one gets left behind. That is why, ever since the very beginning, Cibernàrium has been located at the Technology Park, in the Nou Barris district, to contribute towards territorial rebalancing, following the strategy for deploying infrastructures and knowledge in areas outside the city's usual centres, thus helping with the economic and social development of neighbourhoods with a traditional lack of facilities.

Cibernàrium's first training programme, back in 1999, consisted of nine three-hour-long activities, a number that would steadily and constantly grow until it reached over 150, which is the number of activities now regularly taught. Its focus is public, open, free and accessible. Its range of training is based on short activities that are repeated over several days and at different times, so that anyone, irrespective of their profile (whether unemployed, working, an entrepreneur, a student or retired) and their preparation, can sign up for them.

2010    2011    2012    2013    2014    2015    2016    2017    2018    2019

up to the present day



**COVERS FROM THE CIBERNÀRIUM'S VARIOUS PROGRAMMES**

## 2.2 Consolidation and growth (2005-2010)

The expression 'web 2.0' was used for the first time by the publishers O'Reilly Media in 2004, referring to a significant change of role played by internet users, who had moved on from being passive consumers of information that companies and media published on the internet to being 'prosumers', or active content creators. The volume of material circulating on the internet grew over those years in proportion to the availability of tools that enabled their publication (such as blogs and content managers) and to the increase in interactions created through new social networks.

Demand for technological training shot up as numerous people were made redundant in traditional sectors and had to re-invent themselves professionally and update their technological knowledge.

During this time, the internet ended up becoming an integral part of everyday life. Companies' computerisation accelerated and people's technological skills stopped being just a plus and became an essential requirement in almost every professional sector, even when job-hunting. As a result, the demand for technological training shot up, especially from 2008 onwards, with the outbreak of the financial crisis, which forced many people left without work in traditional sectors to reinvent themselves professionally and update their technological expertise.

By then, Cibernàrium was already emerging as an international leader in public policy for outreach and technological skills acquisition. Between 2004 and 2007, Barcelona Activa ran '@lis Cibernàrium: educational environments for digital skills acquisition', a European cooperation project between Europe and Latin America in the realm of the information society, with cities from Brazil, Chile, Panama, Ecuador, Belgium, Finland and Spain taking part.





In 2009, Cibernàrium celebrated its first 10 years of service at full steam with a consolidated annual offering of more than 2,200 training sessions and around 53,000 participants, more than 55% of whom were women.

During that time, Cibernàrium was already starting to reach the limit of its physical capacities as a facility for meeting the city’s demand for technological training. As a result, new channels for growth needed to be explored, hence the creation in 2009 of the **Antenes Cibernàrium**, a project for localising the training on offer to bring digital literacy closer to city residents, in collaboration with strategic partners, such as Barcelona libraries and community centres. Throughout 2010, the deployment was extended to reach ten Antenes Cibernàrium which covered the entire city, one for each district, a network that continues to operate to this day and which is constantly being strengthened with new content.

### 2.3 Expansion and diversification (2011-2019)

The last few years have seen the **digital revolution** become a knowledge- and innovation-based reality which has been irreversibly transforming the labour market and the way we relate to one another and the environment. This context, which is characterised by its volatility, uncertainty, complexity and ambiguity (known as VUCA), is having a cross-cutting impact on every sector and sketching a new horizon in the world of employment and in the exercise of citizenship with a host of challenges, both global and local. During this period, the increased number of connectivity possibilities (physical and wireless) has solved the problem of internet accessibility in Barcelona. The challenges of the digital revolution on Cibernàrium’s roadmap are as follows:

Need to acquire digital skills



**6/10** adults lack sufficient knowledge for using technology effectively at work (OECD).

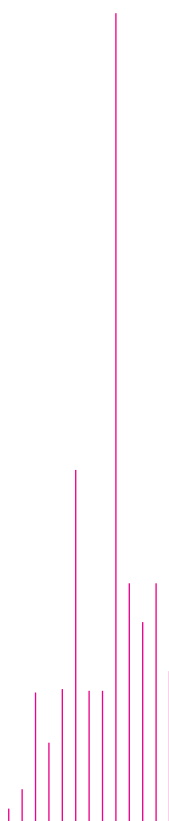


**54%** of workers will have to significantly update their digital skills in 2022 (World Economic Forum).

Need for ongoing, lifelong learning

**5 years** is the average life span of a skill (A new culture of learning).

Updating knowledge is becoming increasingly important with the rise of virtual collaborative work spaces, intense use of clouds, new organisation styles based on mobility (remote working, virtual companies).



Promoting digital talent



**65%** of primary school students will be working in jobs not yet known, but which will be linked to digital talent (Microsoft). These are not exclusive ICT sector positions: an increasing number of companies from every sector have been seeking professionals capable of working in technological and changing environments and who can integrate technology into their professional development, thereby meeting the environment's new needs.

The acceleration and omnipresence of technology have been creating new challenges, requiring effort from people in training to make critical and safe use of digital tools.

Need for ongoing, lifelong learning

**60%** of North American companies assert that they have not implemented the technologies that they would have liked, owing to a lack of staff capacity. (Future of jobs report)

**40%** increased demand for digital profiles in Barcelona.

(Digital Talent Overview, 2019)

**7.6%** increased in digital professionals in Barcelona.

**75.8%** of people studying computer engineering and **90%** of students of telematics engineering get permanent, stable and well paid jobs within the first three years after they finish their university studies.

(Agency for University System Quality)

The digital economy creates quality jobs:

**56%** of recruitment is permanent (compared to

**14.4%** across the entire economy).

The wage level was close to €8,000 above the city's average in 2017.

**+25.9%**

(Dept. of Studies at the Manager's Office for the Economy, Resources and Economic Promotion at Barcelona City Council)

The average wage among women in the ICT sector is **22.1%** higher than in all the other sectors.

(Women in the digital economy in Spain 2018)

Promoting women's representation in the ICT sector



**2%** of employed women work in the ICT sector.

**3%** of women with higher education qualifications are in areas regarded as 'technological'.

(Women in the digital economy in Spain 2018)

**9 million** euros more in the European GDP if women's participation in the labour market were at the same level as men's.

(European Commission)

Narrowing the territorial digital divide in Barcelona



**9/10** Barcelonians are connected to the internet every day



**25%** of Barcelona's city residents make only sporadic or basic use of the internet



**9.5%** of Barcelonians have no internet connection

Territorial and socio-economic differences:

Households with an internet connection



**96%** Les Corts



**62%** Torre Baró

The divide appears strongly in low-income neighbourhoods for women aged between 65 and 74, with a low educational level, who devote their time to household work or are unemployed. (2016, MWC)

Narrowing the digital divide in the business network

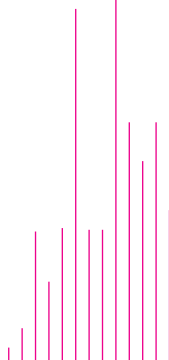


**25%** of SMEs in the country sell through the internet



**60%** have a presence on the main social networks

(2019, Idescat)



The acceleration and omnipresence of technology have been creating new challenges requiring an effort from people to train so they can make a critical and safe use of digital tools: personal data privacy and management, cyber crime prevention, digital reputation management, fake news, etc. The response to these new realities led Cibernàrium to undergo a profound transformation, marked by the expansion and diversification of its services.

In 2010, its experience in technological outreach, as well as the good results from the launching of the Antenes Cibernàrium, enabled Cibernàrium to head the drafting of the Barcelona Digital Literacy Plan for 2010-2015, a Government Measure for defining the five-year comprehensive digital literacy and skills acquisition strategy for the whole of Barcelona.

February 2011 saw Cibernàrium take a big qualitative leap with its relocation to the new MediaTIC building, enabling it to undergo a decisive expansion that tripled its space from 3 to 9 classrooms. It also tripled its range of training, from a quarterly programme of 50 different activities to one of over 150. The new Cibernàrium-MediaTIC also has an auditorium with capacity for 180 people and a free Wi-Fi space.

**In 2011, Cibernàrium tripled its range of training, from a quarterly programme of 50 different activities to one of over 150.**

The Cibernàrium programme at the time was coordinated around **Activities by Subject Area**, on cross-cutting technological tools in any professional sector (Internet and Business, Marketing and Communication, Technological Solutions, Digital Images, Web Design and Multimedia Tools), and **Activities by Sector**, vertical tracks on ICT applied to professional areas (Health, Mobility, Commerce, Education, Design, Tourism, Safety and Legislation), which would subsequently be gradually analysed and amended.

In addition, its regular training offering would be complemented with other formats such as masterclasses (regular lectures and talks on topical technological trends), summer courses (Estiu TIC), day events, papers, conferences, and made-to-measure activities for associations or groups on Barcelona Activa's goals. Cibernàrium therefore moved on to become not just an outreach venue but also a meeting and networking point between ICT-related professionals and companies. This development was complemented in 2012 with the launch of a new website with an online Resources Centre at its disposal to replace the old off-line room at the former location.

At the same time, for the purposes of revitalising the city's technological ecosystem, Cibernàrium promoted collaboration with other stakeholders linked to the digital economy sector. In 2012, an agreement was signed between Barcelona Activa and the Catalan government to promote and disseminate the accreditation of skills in information and communication technologies (ACTIC). Cibernàrium became an **ACTIC Partner Centre**, where tests could be taken to obtain accreditation and preparatory training could be received.

**Collaboration with Google** was established between 2011 and 2012 in the framework of the 'Connect your Business' plan, an initiative under which small businesses that were still without a web page could create one in an easy and cost-free way. There was a similar collaboration in 2014 between the Mobile World Capital, GSMA and the Catalan government within the framework of the mTalent programme. This agreement was implemented with Cibernàrium's participation as the content manager in the **20x2000 project**, a training initiative for trainers in the field of mobile technologies that was provided for telecentre managers throughout Catalonia.

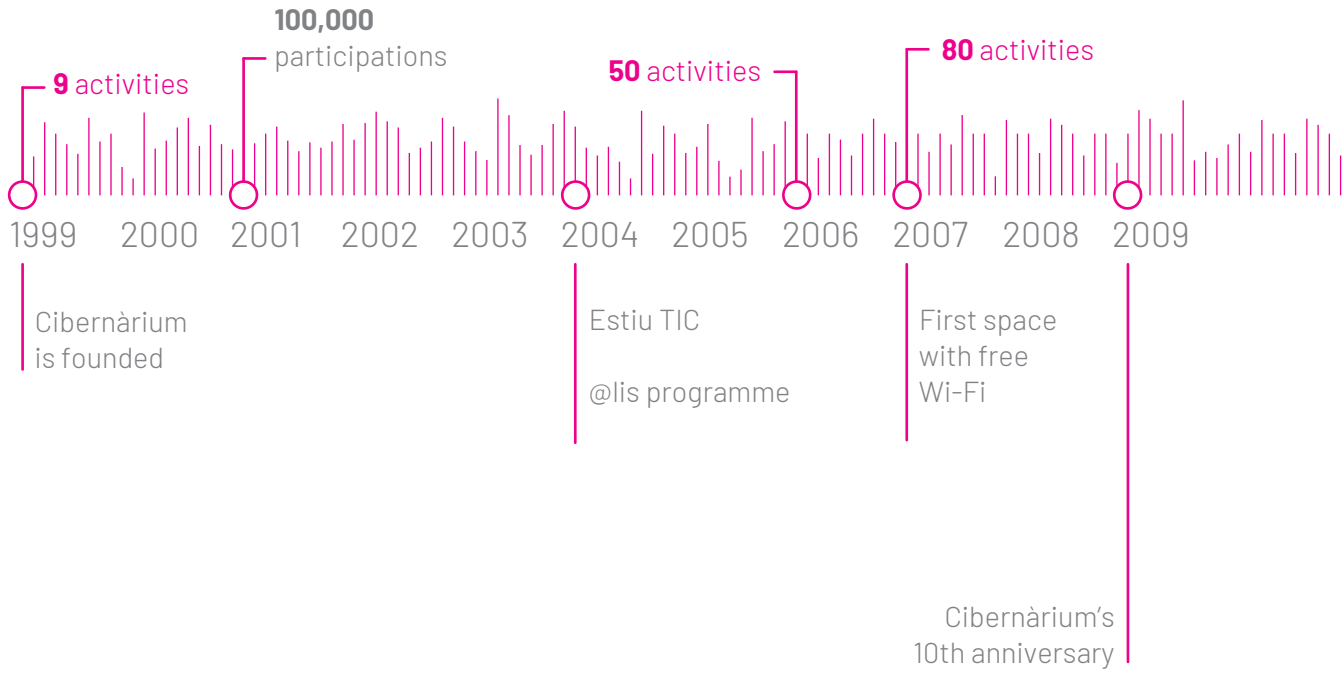
Technologies relating to digital fabrication (3D printing, laser cutting) and free hardware (Arduino and others) are just some of the new features that were beginning to appear over these years, making way for the emergence of the **maker movement**: a new leap forward in people's technological empowerment. During the previous stage, web 2.0 had caused internet users to evolve from information consumers into information producers; digital fabrication was now changing them from product consumers to creators of their own tools. In the business environment, these technologies opened up great possibilities for small companies in terms of prototyping and limited productions, which had not been profitable with traditional industrial logistics.

The maker movement emerged as a new leap forward  
in people's technological empowerment.

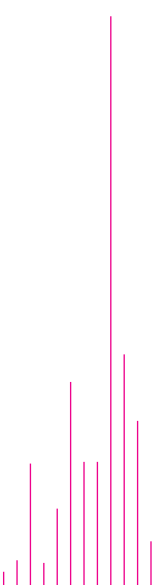
So, from 2014 on, Cibernàrium began to include regular digital fabrication activities in its programme. In 2018, a steady training track was consolidated on this subject and is still in operation today, linked to the Digital Fab Lab Network.

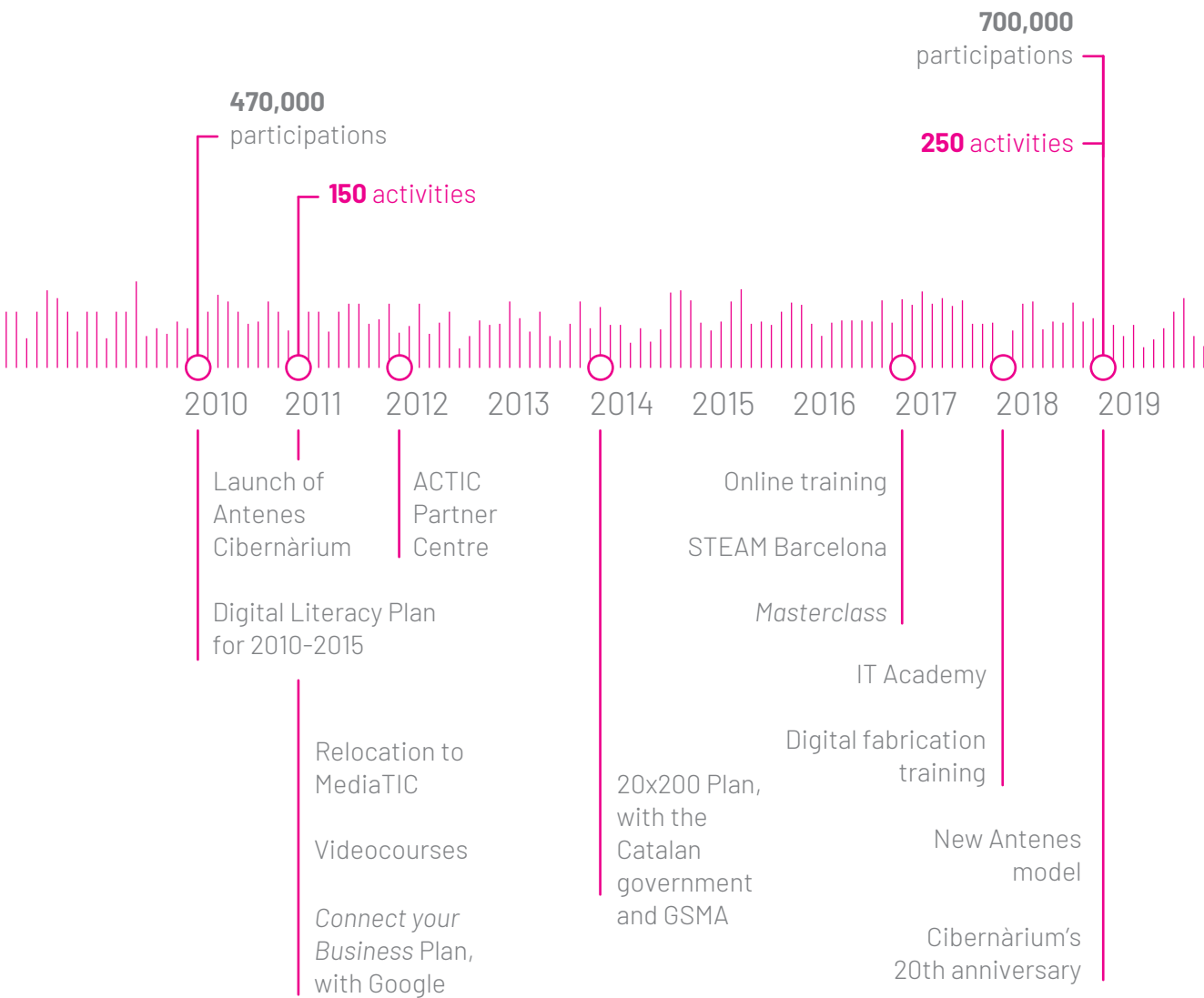
The evolution of training needs, changes in internet content consumption habits among new native digital generations, and the diversification of free training sources on the internet compelled Cibernàrium to consider new formats and methodologies to complement the range of face-to-face activities on offer, so as to maintain its leadership as a public technological outreach service and open itself up to new audiences.

Tasked with that goal, Cibernàrium launched its first **online training** experience in 2011, producing 41 accessible training content videos through a specific microsite. From 2017 onwards, it has offered the public 101 online courses based on the MOOC (Massive Online Open Course) method and self-training units lasting up to 6 hours combining considerable audiovisual content with downloadable materials and self-assessment tests.

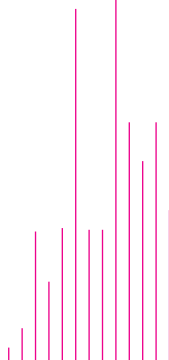


1999	2000	2002	2004	2005	2006	2007	2008	2009
First ADSL flat rate	Dotcom bubble bursts	LSSI	Web 2.0 appears	YouTube is founded	Twitter is founded	First iPhone	WhatsApp is founded	Bitcoin is founded
Napster is founded	First UMTS licences		MySpace becomes popular		Sales of notebook PCs exceed those of desktop PCs	Google presents Android	Mobile phone sales in the Spanish State grow by over 108%	Spotify is founded
			Facebook is founded					





2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
First iPad	Steve Jobs dies	Tablets boom Microsoft launches Surface	The first smartwatches appear	First trials with 5G	Google only accepts responsive websites	96% of Barcelonians have an internet connection at home	Blockchain takes off	More than 2 million applications on Google Play	USB 3.2 arrives



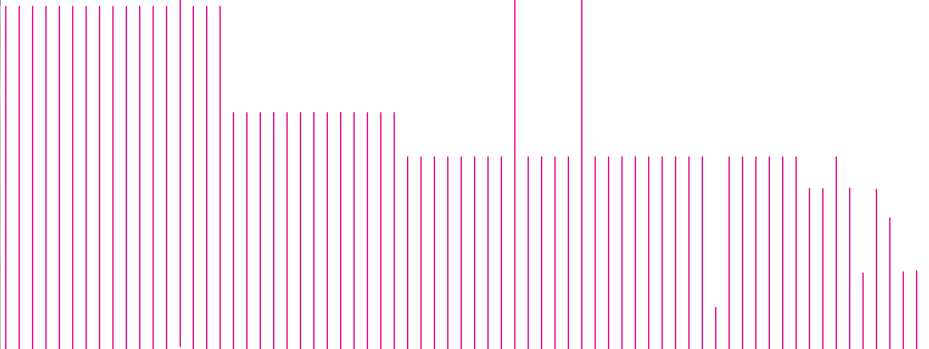




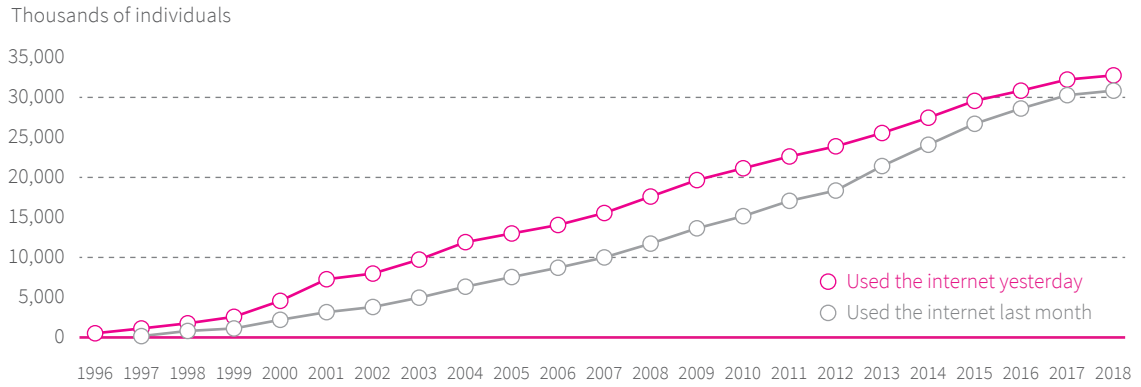
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# **CIBERNÀRIUM TODAY: TECHNOLOGICAL TRAINING FOR EVERYONE**

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Cibernàrium has been seeing growth in its activities ever since it was launched, in proportion to the increase in public access to the internet and the demand for technological training. The percentage of the population who regularly used the internet in Spain jumped up from 12.6% to 82.4% between 1999 and 2018.



Source: Report entitled 'Marco general de los medios en España', compiled by the 'Asociación para la Investigación de los Medios de Comunicación' (AIMC).

More specifically, Catalonia is one of the areas where digitisation is at its most intense. From 2001 to 2010, use of the internet among the population jumped from 43% to practically 94%. Note the convergence of the various age groups during this period: back in 2001, it was the youngest generation who used technology the most by far, whereas today, more than 90% of all age groups (with the exception of people over the age of 65) use it.

This development was helped along by digital training policies like the ones deployed by Cibernàrium and, in particular, by digital literacy initiatives, such as Antenes Cibernàrium, aimed at the oldest and most vulnerable people in the digital divide. The transformation in this field is spectacular, from a residual or practically non-existent use of technology at the start of the millennium to percentages in excess of 70% at present.

**Information and communication technologies, 2001. Computer and internet.**

**Frequency and place of use, by age group:**

	15 - 24 years old	25 - 39 years old	40 - 54 years old	55 and over	Total
<b>Use of internet</b>	<b>90.7%</b>	<b>61.3%</b>	<b>34.6%</b>	<b>5.1%</b>	<b>42.9%</b>
Frequency:					
Daily, at least 5 days a week	28.1%	23.2%	9.4%	2.4%	14.4%
Every week but not every day	36.7%	21.1%	11.2%	1.0%	15.4%
At least once a month, but not every week	15.2%	5.0%	4.7%	1.3%	5.6%
Not every month	10.7%	12.0%	9.3%	0.4%	7.5%

Source: Catalan Institute of Statistics. Use of computer and internet, by frequency and age group.

Use of internet, 2019. By frequency and age group:

	16 – 24 years old	25 – 34 years old	35 – 44 years old	45 – 54 years old	55 – 64 years old	65 – 74 years old	Total
<b>Use of internet</b>	98.0%	99.0%	99.3%	96.9%	90.1%	73.5%	<b>93.7%</b>
Frequency:							
Daily, at least 5 days a week	95.6%	96.5%	93.1%	83.9%	76.6%	65.3%	<b>86.5%</b>
Every week but not every day	3.6%	3.5%	5.3%	13.1%	17.2%	27.9%	<b>10.7%</b>
Less than once a week	0.9%	0.0%	1.6%	3.0%	6.2%	6.8%	<b>2.8%</b>

Source: Catalan Institute of Statistics. Use of computer and internet. By frequency and age group.

In Barcelona, Cibernàrium has been one of the factors that have helped to spread the use of the internet among the city’s residents and position the city among the top 10 places in Europe’s digital city ranking.

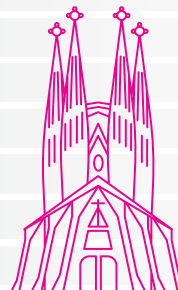
Use of internet, 2019. By frequency and age group:

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Population aged 16 to 74</b>	1,151,949	1,156,500	1,142,566	1,111,816	1,136,824	1,131,846	1,140,725	1,146,312	1,162,797	1,190,713	1,189,206	1,197,273
<b>Internet, % of population aged 16 to 74</b>												
Use of internet	67.1	73.0	75.5	82.5	84.1	84.6	84.6	85.3	89.0	87.0	91.0	93.0
Use of internet over last 3 months	64.1	70.3	71.1	78.3	82.1	82.8	79.3	82.2	88.2	85.0	90.5	92.6

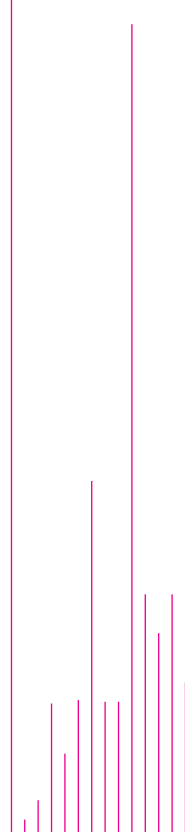
Source: National Statistical Institute (INE). Survey on equipment and use of information and communication technologies in households. Microdata.

Digital city ranking in Europe

Ranking 2016	Global index
1	London
2	Stockholm
3	Amsterdam
4	Helsinki
5	Paris
6	Berlin
7	Copenhagen
8	Dublin
<b>9</b>	<b>Barcelona</b>
10	Vienna

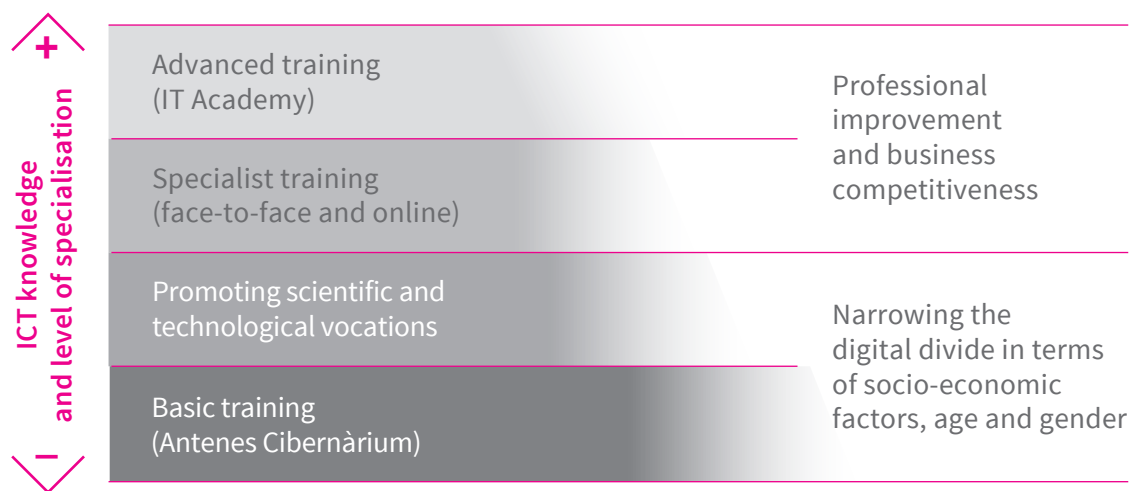


Source: 2016 Barcelona Observatory, prepared by the Barcelona Chamber of Commerce and Barcelona City Council.



### 3.1 Training modalities

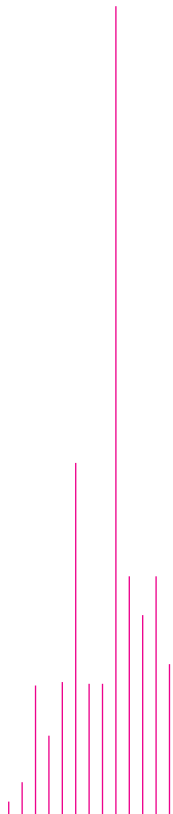
Today, Cibernàrium is a leading facility in the city, a consolidated technological training and outreach service and a recognised brand in the city’s training and ICT ecosystem. Its growth, in parallel to the development of technology itself and its adoption by city residents and companies over the last 20 years, has been the driving force behind a new transformation. Today’s Cibernàrium is an umbrella that covers varied training services and programmes, defined according to the needs and level of the various specific audiences and provided in several areas of the city. It is coordinated around four levels, depending on degree of ICT knowledge and level of training specialisation.



Today, Cibernàrium is a leading facility in the city, a consolidated technological training and outreach service and a recognised brand in the city’s training and ICT ecosystem.



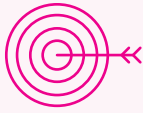
Digital divide (gender and socio-economic level)		Professional improvement and business competitiveness	
Basic training (Antenes Cibernàrium)	Promoting scientific and technological vocations	Specialist training (face-to-face and online)	Advanced training (IT Academy)
Computers and office software			
Introduction to mobile phones			
Introduction to the internet			
Digital fabrication	Digital fabrication	Digital and 3D fabrication	
		Education and ICT	
		Creating a website	
		Digital images, design and creating websites	
		Marketing and communication (social networks, digital marketing strategies)	
		Business and enterprise (productivity and management tools, data processing and visualisation)	
	Introduction to programming and robotics	Programming (environments, languages and development)	Programming (Developer program)
			Business intelligence
		Digital trends	Emerging technologies



## Basic training

### ANTENES CIBERNÀRIUM

#### GOALS



To combat the **digital divide** and provide **digital skills** for everyday life



**Library Network (10)** and other facilities in the city

#### NEW MODEL SINCE 2019

**BASIC ANTENA** (9): Digital literacy. Personalised classes and projects.

**MAKER ANTENA** (2): Digital fabrication based on challenges and projects.

Territorial communication strategy for raising awareness of the importance of technology in everyday life.

#### PROFILE

##### SEX



**67%**  
women



**33%**  
men

##### EMPLOYMENT SITUATION

**64%**  
over the age of 55

**41%**  
pensioners

**33%**  
unemployed

#### RESULTS

##### OFFERING 2010 - 2019

+ **25,000**  
training sessions

**4** activities  
on average

+ **110,000**  
participations

Activities  
evaluated  
with a score of  
**9** out of 10

+ **26,000**  
users

##### ANNUAL IMPACT

**2,100**  
people in 2019

## Promoting scientific and technological vocations

### STEAM BARCELONA

#### GOALS



To contribute towards increasing medium- and short-term employment in the STEAM disciplines, from a gender perspective



Schools, universities, companies, etc.

Awareness-raising and training initiatives for promoting scientific and technological vocations and debunking beliefs and stereotypes regarding these disciplines.

Activities for:

Primary-and secondary-school **students**

**Families**

**Teachers:** acquisition of digital skills and maker culture.

#### RESULTS

##### SEX



**53%** women  
**79%** teachers and families



**47%** men  
**21%** teachers and families

#### PROFILE

##### ANNUAL IMPACT

**9,000** primary- and secondary-school students

**130** families

**100** teachers

#### PUBLIC-PRIVATE COLLABORATION



## Specialist training

### TRAINING (FACE-TO-FACE AND ONLINE) FOR PROFESSIONALS AND COMPANIES

#### GOALS



To promote **technological outreach** and provide digital skills for **professional improvement**



MediaTIC and Technology Park

Over 400 different activities during the year:

#### Face-to-face:

**Regular programme:** 150 short, practical activities (3-6 hours). Offering updated quarterly.

Face-to-face **masterclass** on digital and technological trends.

#### Summer courses

**Activities for boosting digital fabrication**

**Online format:** more than 100 courses

#### PROFILE

##### SEX



**62%**  
women



**38%**  
men

##### CHARACTERISTICS

**54%** employed

**43%** aged 25 to 40

**71%** university studies

#### RESULTS

##### OFFERING 2010 - 2019

+ **400**  
(face-to-face and online)

**2.5**  
activities per person on average

+ **1,200**  
face-to-face sessions

Activities evaluated with a score of

+ **25,000**  
participations

**8.6**  
out of 10

##### ANNUAL IMPACT

more than  
**9,500**  
people in 2019



## ONLINE TRAINING FOR PROFESSIONALS AND COMPANIES

### GOALS



To bring about balance and access for people who, owing to distance or working hours, are unable to travel to classes



[www.cibernarium.barcelonactiva.cat](http://www.cibernarium.barcelonactiva.cat)

### Three types of course:

**Bits de TIC:** brief courses for keeping up to date with the latest digital trends.

**Online courses (MOOC):** activities lasting up to 6 hours for learning and delving into technological tools and solutions.

**Masterclass online:** lectures and talks on topical issues from the world of technology, previously given in face-to-face format.

### PROFILE

#### SEX



**65%**  
women



**35%**  
men

#### CHARACTERISTICS

**56%** employed

**44%** aged 25 to 40

**37%** outside Barcelona

### RESULTS

#### OFFERING 2017-2019

+ **100**  
online activities

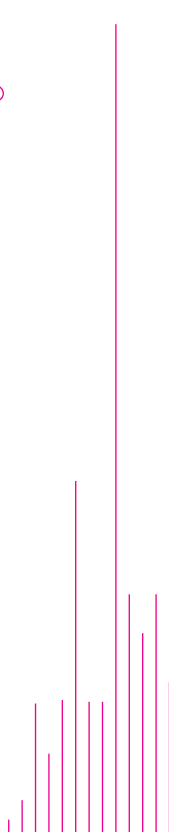
+ **27,000**  
registrations

+ **8,400**  
completions

Activities evaluated with a score of **7.9** out of 10

#### ANNUAL IMPACT

**4,000**  
people in 2019



## Advanced training

### IT ACADEMY

#### GOALS



Promoting digital talent.  
Reskilling non-ICT profiles



MediaTIC

#### Intensive specialist training

Mentoring format (inspired by the École 42 model)  
Long duration (between 250 and 350 hours)  
Profiles: programming and data

#### Training for professional specialisations and improvement

Short duration (up to 25 hours)  
Very specialist and current areas (blockchain, GDPR, Open Data, etc.)

#### Initiatives for publicising and promoting the ICT sector

Meetups (specialist meetings) on real cases of applying emerging technologies in business environments.

### PROFILE

#### SEX



**46%**  
women



**54%**  
men

#### CHARACTERISTICS

**54%** between 25 and 40

**32%** unemployed

**58%** employed

### RESULTS

#### IMPACT 2018-2019

+ **1,800**  
participants

**65%**  
Job placement ratio

Close to **250**  
trained people

Activities evaluated with a score of **8.3** out of 10

#### REGISTRATIONS 2018-2019

**162**  
people placed

### 3.2 A service with an innovative approach

Here at Cibernàrium, we aim to promote digital talent and to excel in training and providing city residents with skills, by offering **high-quality and innovative services**. The services are thought up with users at the heart of public policy and are framed by creativity, innovation and accessibility vectors:

**We adapt to contemporary digital content consumption formats.**

We promote **online learning**. Cibernàrium's specialist training offers more than **100 online activities**, which facilitate access to training for people who, owing to distance, working hours or personal situation, are unable to travel to classes. The courses use **video** as their main element. That way, the service reaches the most digital generations, for whom audiovisuals are the king of content.

Cibernàrium's **website** was recently renovated to improve its usability, offer clearer information and speed up all its consultation and registration procedures.

**We are adopting innovative methods for increasing our effectiveness.**

Advanced IT Academy training is based on a **mentoring** system: participants create their own training itinerary, by working with online resources, accompanied by experts who provide them with support and deal with their queries. That way, each person's learning pace is respected and independent learning is promoted. Simulating **real projects** is also an effective and innovative formula for putting knowledge into practice.

Work through **projects** in basic training: this is a formula for winning over the public and gaining its loyalty.

Promoting scientific and technological vocations is coordinated around **hands-on workshops** for 'learning by doing', which also has psycho-social effects (debunking stereotypes, beliefs, etc.)

**We adopt innovative formats to reach new audiences.**

**Masterclass:** these are short outreach activities with specialist content, given by prestigious professionals. The possibility of gaining access to these figures is attracting a large number of members of the public at all training levels (basic, specialist and advanced).

**Meetups:** specialist professional meetings for creating and consolidating work networks, in the framework of advanced IT Academy training.

**Marketplaces:** meetings between the city's staff-seeking technological companies and job seekers to promote employability among the people who have just completed their advanced training.

**Ideatons** (idea competitions) and **challenges**, such as the Barcelona Open Data challenge, promote student involvement and participation under the Barcelona STEAM Plan.

IT Academy is the first training project with **blockchain accreditation**.

Activities are planned on **various days and with different time slots** to ensure greater flexibility and provide access to the service for a larger number of people.

### 3.3 Catalysing the promotion of digital talent in the city

Cibernàrium is a service launched and coordinated by Barcelona Activa's Operational Department of Training and Innovation, with a team with a humanistic technological profile, made up of cross-cutting professionals from the social, training, technology and public policy areas. At present, 80% of the team are women. It is also fuelled by contributions from Barcelona Activa's other departments, relating to the world of Employment, Entrepreneurship and Enterprise. The training sessions are given by some 50 people, all of whom are specialist professionals who, thanks to their expertise, keep the activities up to date at all times.

Cibernàrium, as a stakeholder in the city's technological ecosystem, promotes an umbrella policy: it encourages public-private collaboration through agreements with other institutions from the world of economics, business, innovation and education for promoting third-party projects. Among others, we collaborate with:

- Barcelona Provincial Council's Library Network, where basic training is given.
- Universities and research centres, which collaborate in promoting scientific and technological vocations and in medium-term strategic definitions: UPF and UOC.
- Education Consortium and Catalan Government (Directorate General of Digital Policies).
- PuntTIC Network and Fab Lab Network.
- Mobile World Capital (Barcelona Digital Talent and Digital Future Society).
- CTecno, 22@Network, ICT Cluster, OpenData Barcelona Foundation, Consortium for Ongoing Training, BSM and Harbor Space.

In the city context, Cibernàrium also heads the **Digital Awareness-Raising and Skills Acquisition Board**, made up of members from leading municipal bodies in digital training and whose mission is to see to the coherence and non-duplication of digital training offers throughout the territory, as a skills acquisition tool for empowering city residents and creating opportunities.

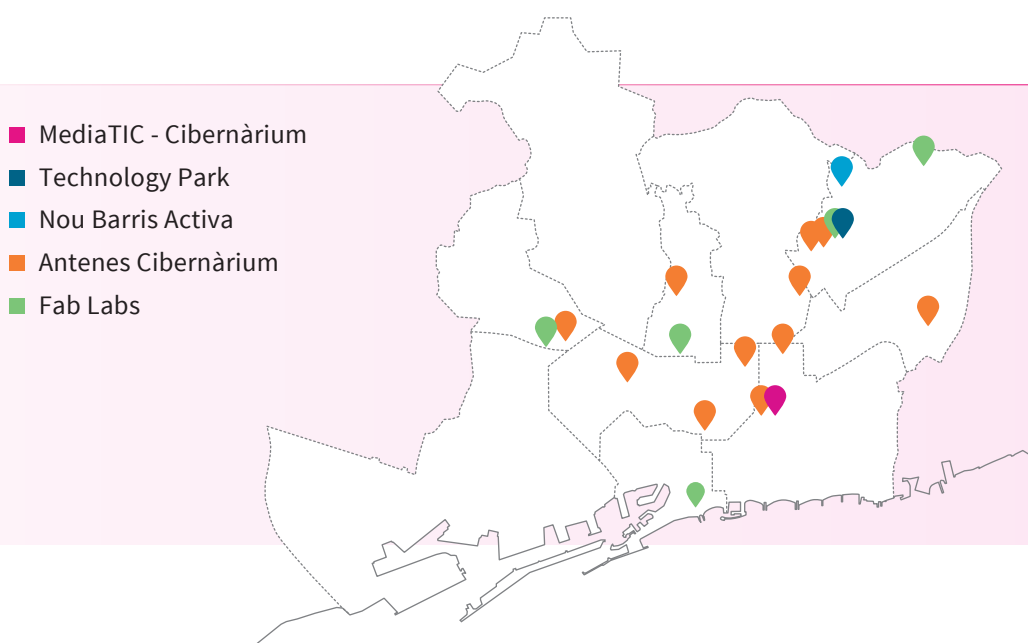
The Board and the ecosystem's various players, as well as the Cibernàrium Advisory Board, which brings together representatives from public authorities, the academic world and the business world, enable Cibernàrium to plan its future action. Cibernàrium takes part in **fairs and events** which help to raise the profile of and spread the task of technological outreach and training:

- Saló de l'Ensenyament, Saló de l'Ocupació Juvenil, BizBarcelona, Smart City Week, Mobile Week, YOMO, Maker Faire Barcelona, Girls Hack Day, Sónar+D, Weplay, JavaConf and WeCode.
- First Digital Skills conference.
- Other events where Cibernàrium is invited to present Barcelona Activa's digital inclusion strategy.

### 3.4 Innovation spread across the region

To make technological training effective for everyone, Cibernàrium is present throughout the region of Barcelona through several facilities. It also has a virtual training space offering online activities. The city's facilities where Cibernàrium is deployed are:

- **MediaTIC**: an iconic building with pioneering architecture which has become one of the symbols of Barcelona's 22@ innovation district. The first floor hosts most of the specialist and advance programme, as well as day events, conferences and other activities. It also offers a free Wi-Fi space.
- **Ten libraries** from the Barcelona Provincial Council Library Network, spread out over every one of the city's districts, are Antenes Cibernàrium with basic activities on technology.
- The **Barcelona Activa Technology Park**, in Nou Barris, which plays host to specialist digital fabrication activities and is a leading centre in supporting scientific and technological vocations, not just in the district, but in the whole city.
- **Nou Barris Activa**, a municipal space for promoting the economy and employment for Nou Barris' resident population, offering basic technological activities, among other things.
- **Fab Labs**, leading spaces in Barcelona in terms of outreach and training linked to digital fabrication. They also play host to some basic technological activities and to the promotion of scientific and technological vocations.
- The **PuntTIC Network**, from the Catalan government's Department of Digital Policies, where we have a monthly virtual presence.
- **Other physical venues** at partner institutions: universities, research centres, schools, etc.
- And, on the internet, **the virtual space**: online specialist training crosses the borders of time and space and provides access to training to people who, owing to time, distance or balance of personal and professional life, are unable to access specialist face-to-face activities.



### 3.5 A catalogue for all the city's residents

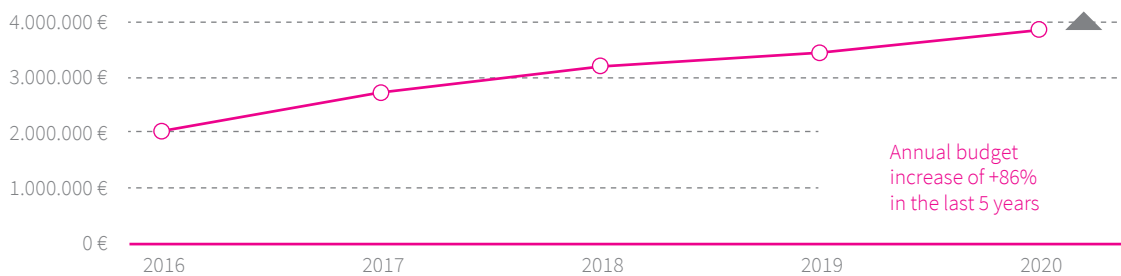
Cibernàrium, as part of Barcelona's public policy for digital inclusion, intends to remind everyone of the slogan **'Technology training for everyone'**, through activities aimed at all city residents and at several levels:

	AUDIENCE	TYPE OF ACTIVITIES	LEVEL
<b>CHILDREN AND TEENAGERS</b>	Primary- and secondary-school students	Experiential workshops for promoting science and technology.	Promoting scientific and technological vocations
<b>ADULTS</b>	Professionals, companies and job seekers	Digital skills acquisition for professional improvement and contributing to business competitiveness.	Specialist training
		Upskilling and reskilling: people who wish to improve their skills or retrain and find work in the ICT sector.	Advanced training IT Academy
	Teachers	Activities on Education and ICT, recognised by the Catalan government's Department of Education.	Specialist training
		Digital and maker culture skills acquisition for teachers so they can be an opinion influencer, content conveyor and promoter of change in perceptions of science and technology.	Promoting scientific and technological vocations
	Families	Activities based on real experiments and experience in digital technologies from a recreational and community approach, so they can accompany children in their discovery of science and technology, thereby promoting digital talent and debunking stereotypes.	Promoting scientific and technological vocations
	Without basic digital skills	Digital literacy and basic training activities so they can exercise full digital sovereignty.	Basic training

The Cibernàrium's programme focuses **on providing women with special attention** in the world of technology. Specific, positive initiatives are launched, such as making it a priority for girls and young women to sign up to activities for promoting scientific and technological vocations and accessing the IT Academy. In addition, projects are designed from the gender perspective and aimed at fighting against gender inequality in the labour market.

### 3.6 Budget

The commitment that has been made and which continues to be made to this day on a municipal level to Cibernàrium, the technological outreach and skills acquisition service, is also reflected from a budgetary point of view. Its budget has been increasing over the last 5 years, from 4% of the total of the municipal corporation’s budget in 2016, to 7% planned for 2020. The total budget expected to apply at the close of 2019 will be over €3.5 million, of which, as in 2018 when €3.2 million were allocated to it, more than 90% comes from municipal funding and the rest is co-funded mainly by the European Regional Development Fund (ERDF). This municipal commitment will continue for 2020, keeping up the resources allocated for this initiative.



### 3.7 Cibernàrium: an example of good practice

A fundamental aspect of public policy is the evaluation of its impact and knowledge transfer, so that it can be a benchmark for other initiatives. Cibernàrium has shared its experience and enjoyed recognition for its work.

#### RECOGNITION AND AWARDS

Second prize at the **Lifelong Learning Awards 2018** for Barcelona Activa’s strategy for digital inclusion among the city’s residents.

Advanced training IT Academy is a project selected at OECD’s **2019 Local Development Forum**, with inclusion in the OECD’s dossier of good practices and a presentation at the Forum.

Runner-up at the **2019 DonaTIC Awards** in the Organisation, Training Centre or Educational Centre Initiative category.

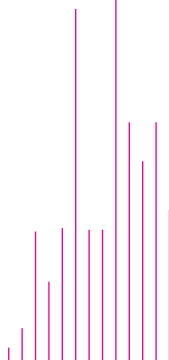
#### KNOWLEDGE TRANSFER

European international cooperation project entitled ‘@lis Cibernàrium: educational environments for digital skills acquisition’ (2003-2007), selected by the European Commission. Bringing digital literacy to Brazil, Ecuador, Chile and Panama.

Providing online Cibernàrium courses to Barcelona Serveis Municipals for use on its internal training platform (2018).

Consultancy service for Castelldefels City Council to set up a technological outreach service (2019).

White paper on online training: Cibernàrium as a good practice of public service digitisation policies (in 2020).



DIGITAL

INTERNET

TIC  
MEDIA

TIC  
MEDIA







The changes that the digital revolution entails for the city's residents in every aspect of their social and economic life are enormous and complex. Digital technologies are changing the way we work, how we do business and how we interact with the Administration and society as a whole.

By maintaining the innovative spirit that has set Cibernàrium apart since its launch in 1999, we shall continue to develop and **meet the challenges that digitisation poses to us as a society and as a city.**

— Our aim is for **the city to be able to make the most of all innovation opportunities**, to take on real challenges and to concentrate its efforts on promoting digital talent, empowering citizens and pushing ahead with a more productive and socially and environmentally sustainable economy.

— We shall continue with our **cross-cutting promotion of digital talent**: from the world of education, in terms of students and teachers alike, to employment, in new professional digital skills that improve the competitiveness of the city's business network. We will also accompany the digital talent that Barcelona has been calling for, as an innovative city. In fact, by 2019, it was already the 5th most attractive city in the world for international digital talent, according to The Boston Consulting Group's 2019 Decoding Global Talent report.

— We will accompany **the efforts being made by the local business network to develop their business, production and internal management models**, through technological outreach and skills acquisition.

— We will be backing **citizen empowerment and social innovation by promoting maker culture** and activities at Digital Fab Labs.

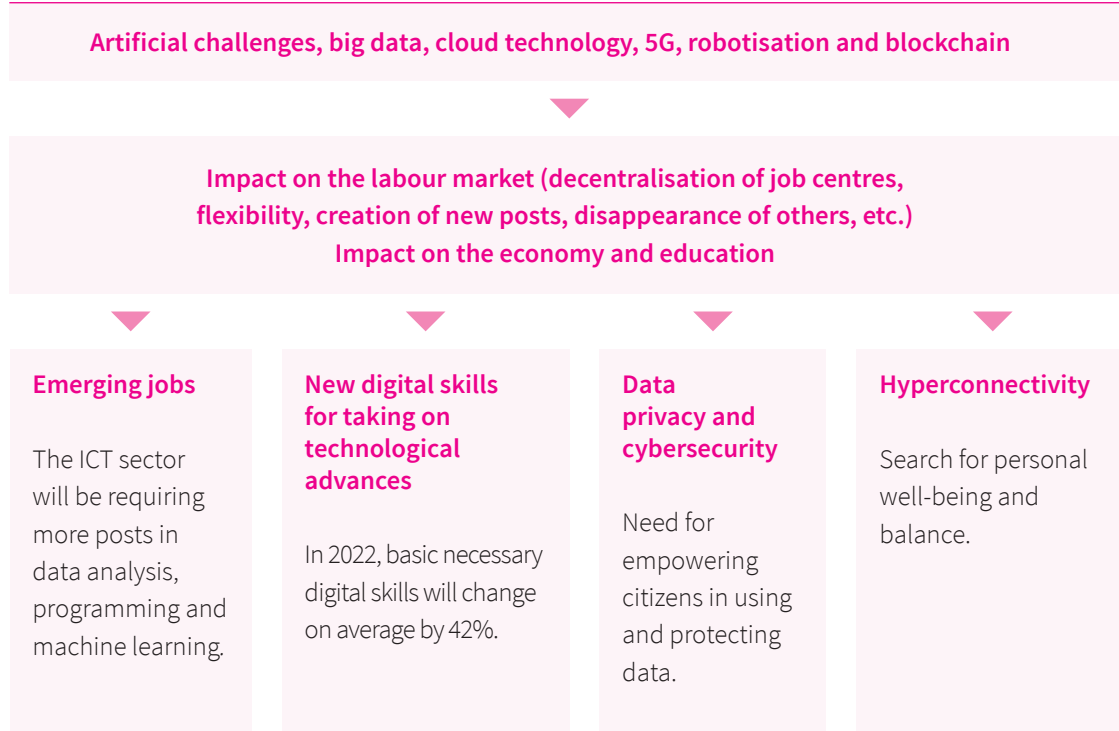
**We are working to improve skills and redefine professional profiles so as to boost the technological transformation's effects on productivity.**

— We will be making the most of city events to **provide city residents with emerging technologies** and enable knowledge of and experimentation with cutting-edge technologies. We will continue to strive to provide tools and support so that city residents can consciously and actively participate and exercise their citizenship.

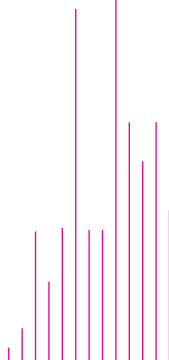
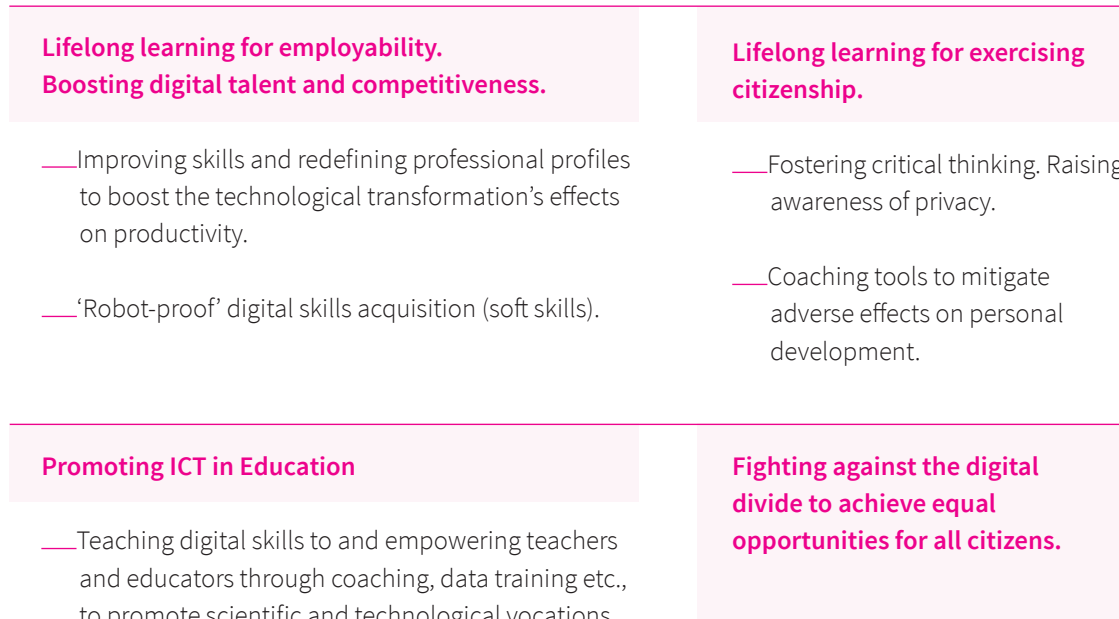
All these lines of action converge at Barcelona's commitment to responsibility for **guaranteeing access to and use of technology for all citizens**, by ensuring their digital skills acquisition. This will contribute to the construction of a more cohesive city and strengthen its value in the world as a hub for attracting talent and promoting the digital economy, thereby helping to building the Barcelona brand.

The outlines of a completely new (volatile and changing) world are becoming clear, yet the scope of challenges that are going to be posed in the coming decade remains to be seen:

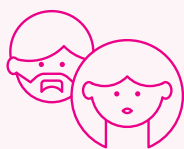
### FUTURE CHALLENGES



### AREAS OF ACTION



WORKING LINES



**Experience and people-centred training:**

interacting with wearables and robots, boosting maker culture, etc.



**Training offering in the European Digital Competence Framework for Citizens (Digcomp).**

Following European standards will enable the activities to adapt better to the needs of society and the labour market, and will encourage the use of **personalised training activities**. Commitment to personalised training for each group.



**Accessing services more and more remotely, with innovative formats and tools**

which enable all citizens to be trained at any place and any time.



**Commitment to the 2030 Agenda:**

we will be helping to achieve city-level landmarks and goals.



See the video on [barcelonactiva.cat/cibernarium/futur](http://barcelonactiva.cat/cibernarium/futur)



To implement the digital inclusion policy, we at Cibernàrium will be continuing to forge alliances with other institutions and companies from the digital ecosystem and to launch other stakeholders' initiatives while seeking even more commitment from the private sector, especially with regard to the city's strategic sectors.

Finally, Cibernàrium aims to anticipate changes and innovate to continue to offer all citizens the training and knowledge tools they will need throughout their lives. For the last 20 years, we have been aiming for the 'cyber' people of 2030 to be empowered, skilled and protected digital citizens who can live and work in a world undergoing continuous transformation. We also want to contribute towards the modernisation of the traditional economy by reactivating local industries, in particular those that create quality employment.

Digitisation will be posing great technological challenges over the coming years, and we at Cibernàrium will be continuing to work together to humanise technology and build a more digital, cohesive, productive and sustainable city.



5.

# 20 YEARS OF CIBERNÀRIUM IN FIGURES: SUMMARY OF INDICATORS



## CIBERNÀRIUM, 20 YEARS' EXPERIENCE IN TECHNOLOGICAL TRAINING FOR CITY RESIDENTS

Created in 1999, it was a pioneering project in bringing technological innovations closer to all the city's residents



More than  
**52,000**  
training sessions

More than  
**175,000**  
training hours



More than  
**700,000**  
participations

More than  
**140,000**  
different people

## A PROJECT WITH SOCIAL IMPACT FOR NARROWING THE DIGITAL DIVIDE

Cibernàrium is committed to narrowing the gender divide (women's different access to technology), to socio-economic issues (initiatives in neighbourhoods with more inequalities) to promoting scientific and technological vocations among children.

**WOMEN PARTICIPANTS** **55.7%**  
of the total

**REGIONAL POINTS** **13**  
facilities

**CHILDREN AND YOUNG PARTICIPANTS** More than  
**9,000**

## ALLIANCES FOR GREATER EFFICIENCY



- Barcelona Provincial Council's Library Network
- Universities and research centres
- Education Consortium and Catalan Government (Directorate General of Digital Policies)
- PuntTIC Network and Fab Lab Network
- Mobile World Capital (Barcelona Digital Talent and Digital Future Society)
- CTecno, 22@Network, ICT Cluster, OpenData Barcelona Foundation, Consortium for Ongoing Training, BSM and Harbor Space.



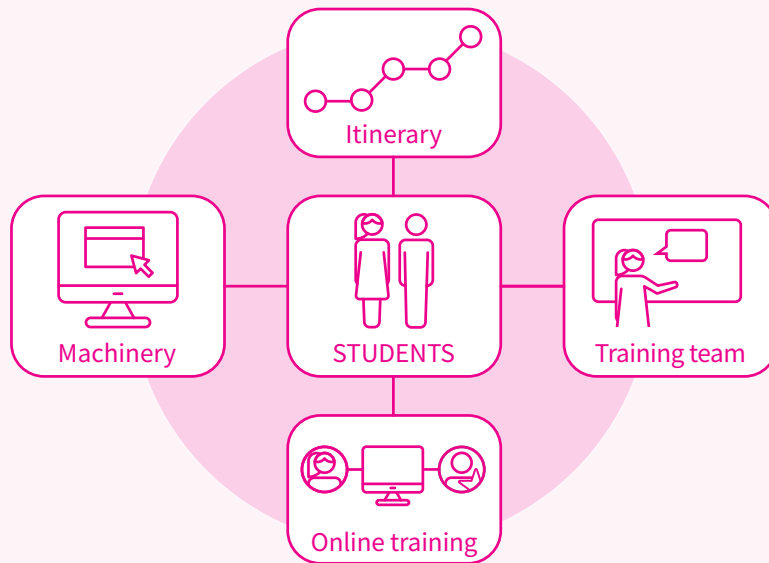
## LIFELONG LEARNING

Cibernàrium fulfils the need to update digital skills both for employed professionals and for job seekers:



## AN EXCELLENT TRAINING MODEL

Cibernàrium encourages people to learn actively, accompanied by the training team and with the support of tools and resources, at the various facilities where its activities are carried out.



More than **20** 3D printers and laser cutters

**300** computers with software

More than **25** digital fabrication machines (milling machines, sewing machines, injection-moulding machines, extruder machines, lathes, etc.)

**BACKED BY USERS (CIBERS)**

Average score for activities in 2019:

**8.6**



## RECOGNITION FROM USERS

“ I’ve been attending workshops and courses at Cibernàrium for some 3 years. It’s whetted my appetite to go back to studying and helped me to clarify where I want to continue my professional career. Thank you!

**CRISTINA ARANDA**  
30 YEARS OLD  
9 TECHNOLOGICAL  
TRAINING  
ACTIVITIES



“ Learning what I did at Cibernàrium changed my life. Literally. From being unemployed and finding no professional opportunities to setting up my own company, which I have been running for 6 years now.

**MÓNICA LORENZO**  
43 YEARS OLD  
11 ACTIVITIES



“ Cibernàrium enhanced my experience with considerable technological knowledge, and that was a great help to me when it came to deciding on orienting my professional training towards current technologies.

**ADRIANA BALMACEDA**  
46 YEARS OLD  
7 ACTIVITIES



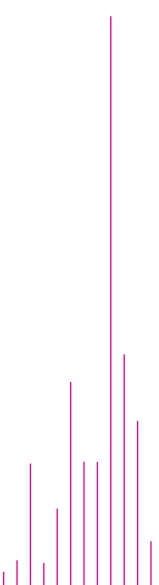
“ Cibernàrium and Barcelona Activa have changed my life: my way of learning; of knowing that, if you want to, you can; of knowing that there are no limits to learning; and that training is power. I got to know marvellous teachers who encouraged me to follow a new professional path. I’m really grateful for what I’ve learnt and I still do online training too.

**SANDRA PAVÓN**  
38 YEARS OLD.  
8 ACTIVITIES



“ Thanks to Cibernàrium I can communicate on social networks, do online shopping, pay bills, arrange direct debit payments, control my expenses, buy tickets and so on. A bunch of things that provide me with everyday convenience and that it would be hard for me do without, given that I am 69 years old. Social media helps me to be creative and stay connected to the world. Discovering Cibernàrium was a wonderful thing.

**PURIFICACIÓN TABOADA**  
69 YEARS OLD. 8 ACTIVITIES



““ In 2007, I was working as an IT support technician, having studied technical telecommunications engineering, but my passion lay in the world of websites and open-source software and cloud solutions. Cibernàrium’s courses were key to my initiation into what is now my profession: website development, online promotion and cloud computing application programming. Congratulations on your 20th anniversary and for allowing me to be part of it all.

**JOHN MATEUS**  
47 YEARS OLD. 20 ACTIVITIES

””

““ When I was unemployed, Cibernàrium’s courses helped me to redefine my professional profile. Now they are helping me to keep up with new trends. I’ve done InDesign, Photoshop, infographic, Mailchimp and Instagram courses and will soon be doing storytelling and YouTube courses.

**ANNA SADURNÍ**  
45 YEARS OLD. 14 ACTIVITIES

””

““ I’ve taken part in several courses at Cibernàrium and the one that’s had the biggest influence on my life is the Inkscape course. I learnt how to modify images, which has proved useful to me for earning a living and building up my reputation in the world of textile art, which I would never have achieved without this course. Thank you!

**JACQUELINE BAHÍ**  
55 YEARS OLD  
7 ACTIVITIES

””

““ My experience at Cibernàrium has been really worthwhile over the years. As a professional and a teacher I’ve always relied on its help to stay up to date, or even on the crest of the wave. It was a discovery that I’ll never stop recommending.

**JOAN CARRERAS**  
74 YEARS OLD  
17 ACTIVITIES

””

““ I’m 83 and it’s now nearly 20 years since I decided to enter the field of IT to make films for my grandchildren. I had no idea how to do that but Cibernàrium gave me the know-how. Today I’m leaving them memories of our family.

**ANTONI ALBALADEJO**  
83 YEARS OLD  
20 ACTIVITIES

””

## INTERNATIONALLY RECOGNISED



Second prize at the **2018 Lifelong Learning Awards**

Advanced training IT Academy is a **project selected as good practice** at the **OCDE's** 2019 Local Development Forum.

Runner-up at the **2019 DonaTIC awards**.

## A TALENT PROMOTION OFFERING CONNECTED TO THE FUTURE



### Four initiative levels:

- Basic technological training
- Promoting scientific and technological vocations
- Specialist technological training
- Advanced training – IT Academy



### Several areas of knowledge:

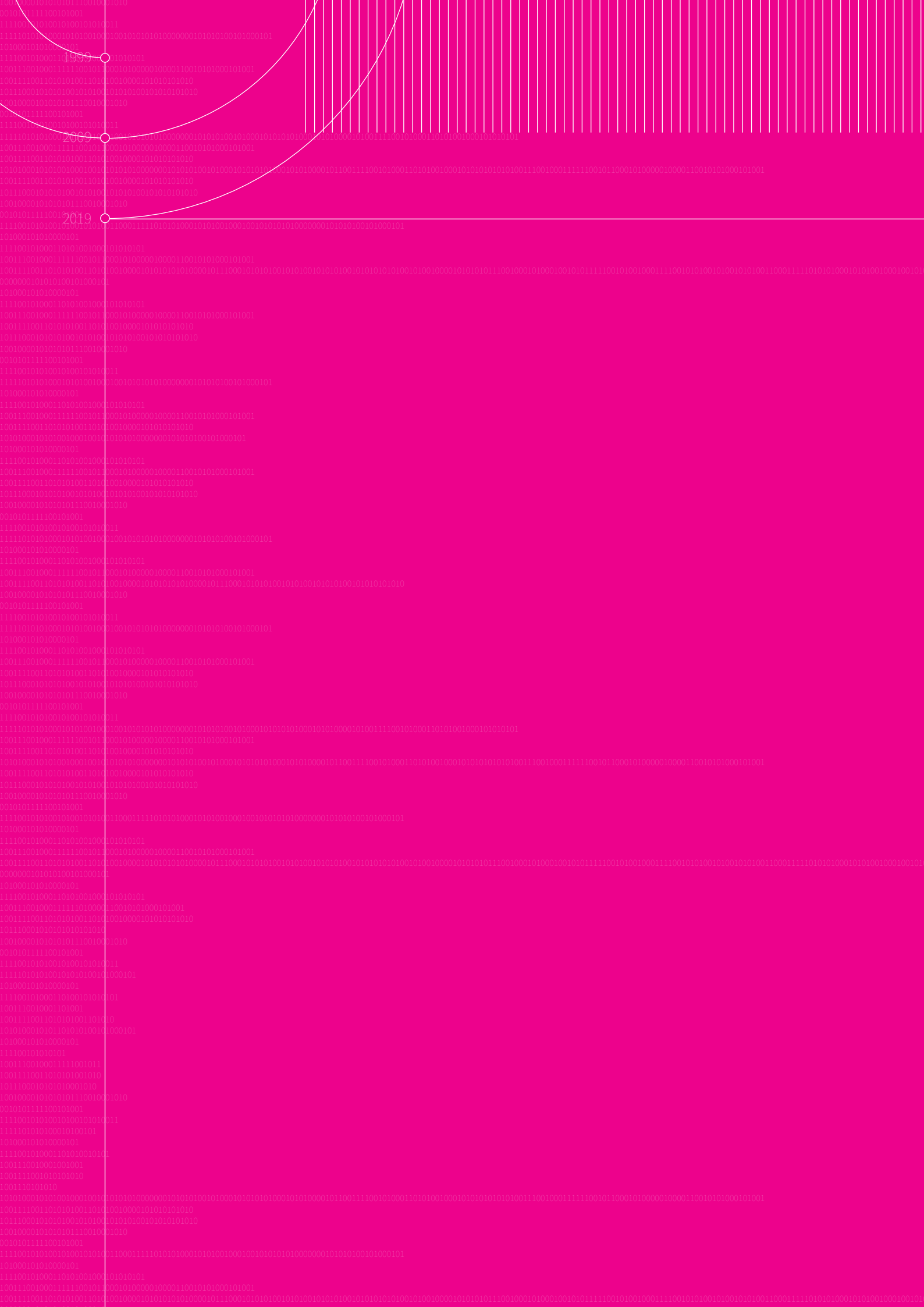
- Introduction to IT
- Marketing and communication
- Programming
- Business and enterprise
- Websites, images and design
- Education and ICT
- Digital and 3D fabrication



**Training offering updated quarterly**







1998

2000

2019



# Cibernàrium

Technological training for everyone

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