



Tech Hubs Overview 2024



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Contents

	Executive summary	4
1	Introduction and methodology	6
	Context	
	Study objectives	
	Scope of the report	
	Analysis techniques	
	Methodology	
2	The impact of tech hubs in Catalonia	11
	Change in the number of hubs	
	The major economic impact of hubs in Catalonia	
	Exponential growth in talent	
3	2023 in figures	17
	Jobs created in 2023	
	Description of the new hubs set up in 2023	
	Details of the 14 new hubs in 2023	
	The hubs' impact in 2023	
	Growth of hubs already established in the territory	
4	Context of tech hubs in Catalonia	29
	Country of origin of the hub parent company	
	Sectors of the hubs' parent companies	
	Locations competing with Catalonia - Barcelona	
	Hub locations in Catalonia	
5	Talent	39
	The sectors contributing most to employment in the hubs	
	The current situation of talent in the hubs	
	Hub employee profile	
	Multinational hubs	
	New ways of working	
6	Technologies	49
	The technologies developed by Catalonia's hubs	
7	The operation of the hubs in Catalonia	54
	Who Catalonia's tech hubs deliver services to	
	The hubs' scope	
	The role of Catalonia's hubs and their evolution	
8	Growth and achievements of the hubs in Catalonia	60
	The key role of the Catalan ecosystem	
	Growth of Catalonia's hubs in roles and scope of activities	
	Key growth drivers for the hubs	
	Expected growth of the hubs in staff numbers	
9	Success stories	65



Executive summary

The hub ecosystem is gaining momentum: over €2.5 billion generated by 140 hubs that are forecasting significant growth in the coming years.

The economic value generated by the total of 140 digital hubs established in Catalonia has topped €2.5 billion in 2023. In terms of talent, the tech hub ecosystem now employs more than 26,000 people.

The heads of the tech hubs based in Catalonia plan to continue to grow significantly over the next three years. They expect to increase their turnover by 43% and create 10,000 new jobs by the end of 2026. The financial services (+76%) and mobility (+64%) sectors have the highest growth expectations.

2023 ends with strong figures driven by the growth of established hubs and the emergence of 14 new projects.

Both the economic impact and the talent of the hubs have increased by 25% in 2023. This translates into the creation of more than 5,200 new jobs during the last fiscal year and an increase in global turnover of more than €500 million.

Almost half of this growth is in three sectors: healthcare, business services and ICT.

The average workforce of the hubs established in 2022 was 168 employees, a figure that has climbed to 203 by the end of 2023. Added to this growth are the more than 800 jobs generated by the 14 new projects that have been acquired.

In terms of employment, new foreign investment projects include AstraZeneca's hub, specialized in research and development for all the company's therapeutic areas; Lufthansa's digital hub, which crafts technological solutions for the user experience; and Oracle Health's hub, which delivers digital support for upgrading the healthcare system. Together they expect to generate around 2,000 jobs by the end of 2026.

Europe is the continent of origin of most of the projects and three out of four hubs are set up in the city of Barcelona.

United States at 28% of the hubs is still the main country of origin of foreign investment in tech hubs, although Europe led by Germany and France is the source of six out of every 10 hubs.

In terms of locations, three out of four hubs have been set up in Barcelona and only eight are outside the metropolitan area.

Barcelona competes with southern Europe as well as with cities across Europe in attracting investment

Barcelona's main competitors in the race to establish new tech hubs are on the Iberian Peninsula (Madrid and Lisbon compete with Barcelona in 22% and 18% of investment projects, respectively) and across Europe where London (15%), Berlin (12%) and Paris (11%) stand out.

The gaming industry is the most numerous sector while the industrial sector generates the most jobs

The gaming industry, at 26 hubs, is the sector that has set up the most projects in Catalonia. Meanwhile, the industrial systems sector generates the most jobs and has the largest hubs. The 12 technology hubs in this sector have an average workforce of 488 and employ over 5,800 professionals.



International talent and more women than ever before

Although the hubs have more women than ever before on their staffs (7,800), the gender gap persists: women account for 30% of employees, a figure that is very similar to 2022.

The global scope of the services delivered by these hubs also translates into multicultural workforces: on average, they employ people of 16 different nationalities, and in 8% of cases they have workforces made up of over 40 nationalities.

Most hubs develop deep tech

68% of the hubs say they develop deep tech. The most popular technologies they work on are artificial intelligence (87%), blockchain (19%), robotics (14%), semiconductors (6%) and quantum (6%).

As for consolidated technologies, application development (68%), API/backend (56%), systems architecture (56%) and web development (48%) are the most common areas developed by the hubs.

Global scale hubs and impact on business-critical operations

More than 70% of the hubs deliver their services outside Europe. Of them, 86% work in North America and 76% in Asia.

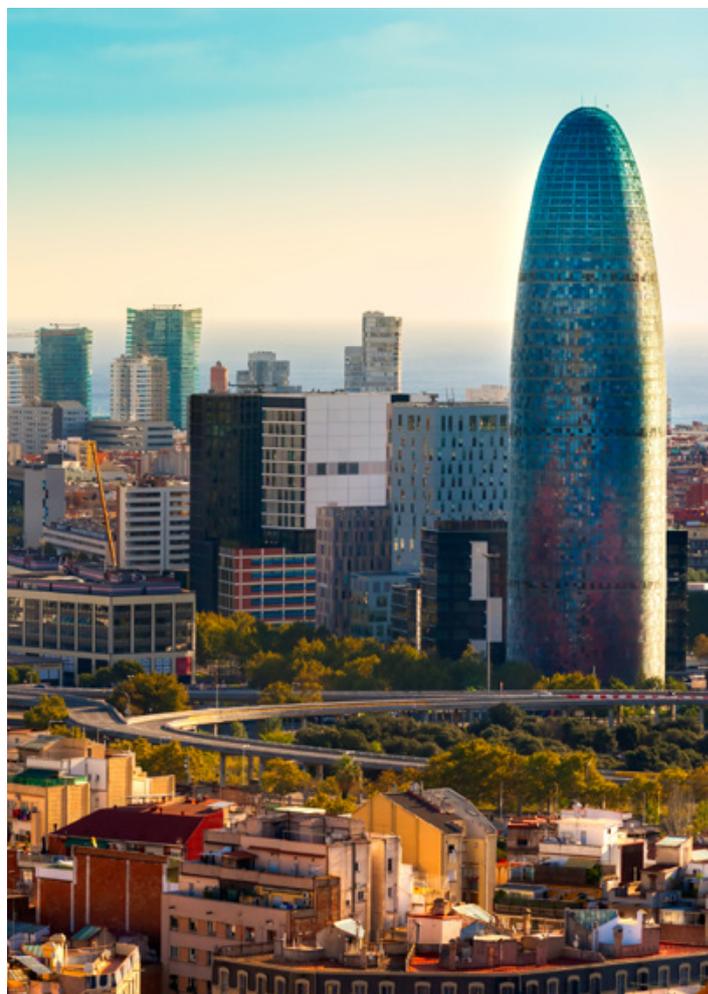
In terms of the areas they support, three out of four hubs develop technologies with a direct impact on key business operations while a quarter only work on solutions for support functions such as marketing, customer service, finance and human resources.

Furthermore, a large majority of hub managers (79%) say that their hubs have decision-making abilities reaching beyond implementing orders from head offices.

Forecasts point to growth through specialization, especially leveraging talent

The future evolution of the hubs involves attracting new projects: 70% of hubs expect to grow by providing technological services to new business areas and developing new technologies (63%). By contrast, only 25% foresee growing by expanding their geographical scope.

Hub managers point to the availability of talent in the market (7.5/10) and sponsorship by the parent company (7.2/10) as the most important drivers in achieving their growth targets.



1. Introduction and methodology



Introduction and methodology

Context

The first edition of **Tech Hubs Overview**, published in February 2023, underscored the importance of tech hubs and their impact on the territory and most of all their potential and ability to attract skilled talent in Catalonia. This second edition of the report updates the figures and additionally broadens its scope in two ways: (1) the first is by including all types of foreign investments and not just in the greenfield category as was the case in the last edition; and (2) the second is by encompassing technology developments and also research, investigation and/or proof-of-concept activities. Hence the scope is expanded to gain completeness and a global outlook.

Tech hubs have emerged as drivers of innovation and economic growth playing a key role in the digital transformation of Catalonia. Featuring an ecosystem of cutting-edge businesses, innovative startups, internationally renowned research centers, universities and prestigious training centers coupled with a proactive public sector committed to the digital economy, the hubs have become catalysts for creativity and collaboration in the Catalan ecosystem. Evolution over recent years has been striking with a significant increase in investment and government support to foster this technological framework. Attracting skilled talent and forging synergies between key local stakeholders have consolidated these hubs as innovation hotspots, driving the development of areas such as artificial intelligence and cybersecurity. This shift has helped bolster the competitiveness of Catalan companies globally and also the region's international reputation as a leading innovation and technology destination.

Study objectives

The main goals of this edition of Tech Hubs Overview are to:

- 1 Size and describe the hubs in Catalonia.
- 2 Unpack their impact and evolution in the region while highlighting the results attained in 2023.
- 3 Identify, understand and promote the key drivers for the hubs' growth over the medium-long term.

Scope of the report

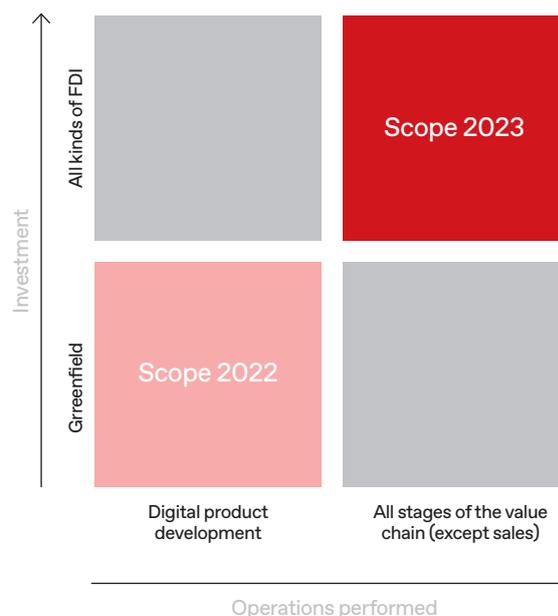
Within the diversity of global technology service hubs established in Catalonia, this report focuses on the ones meeting the following conditions:

- 1 Creation through investment by a foreign parent company or corporate group.
- 2 Technology lead department or team within a larger parent company.
- 3 Involvement in the development of technology in any of the stages of the value chain with the exception of marketing, thus excluding hubs exclusively engaged in sales.
- 4 International scope, both European and global.
- 5 Location of the tech hub in Catalonia.

This study analyzes the hubs in Catalonia set up by a foreign company or corporate group which develop technology to deliver services internationally, either for third parties or for the company itself. In terms of methodology, the report includes analysis of a substantial number of companies that meet these conditions, thus yielding significantly more accurate results than studies carried out by means of sampling techniques.



However, due to various reasons such as the lack of a public directory of hubs with these features and the very vibrancy of the tech hub market, it may be that a small number of hubs meeting the above characteristics have been left out of the analysis. Hence just like its predecessor, this report should be viewed as a living document that will have to be updated on a regular basis to reflect as closely as possible the actual situation in the global tech hub market.



*In the case of acquisitions, acquisitions of more than 51% of the acquired company are considered within the scope of the report.

This study's universe is thus made up of 140 tech hubs of foreign companies or corporate:

- Accenture
- Acuity Trading
- Adesso
- Adevinta
- AkzoNobel
- Alkimia Interactive
- Allianz Technology
- Alstom
- Amazon
- Arxada
- ABB
- AstraZeneca
- Avanade
- Bacardi
- Bandai Namco Mobile
- Bayer
- Bitpanda
- Bizerba
- Boehringer Ingelheim
- Boston Consulting Group (BCG)
- Bumble
- Bunge
- Centiro Solutions
- Checkout.com
- Checkpoint Systems
- CI Games
- Cien.ai
- Cimpres
- Cisco
- Cofidis
- Contentsquare
- Danone
- Deloitte
- Dolby
- Domo Chemicals
- Dynatrace
- Enel
- Entravision
- Essity
- Festo
- Flight Centre Travel Group
- Freenow
- Fujitsu
- FunPlus
- GameHouse
- Gameloft
- Gartner
- Getronics
- GFT
- Giesecke+Devrient (G+D)
- HCL Technologies
- HP
- IBM
- IGG
- Infor
- Ingram Micro
- Intel i Barcelona Supercomputing Center
- IO Interactive
- IRP Systems
- iVascular
- King
- KPMG
- Hartmann
- Larian Studios
- LIDL SCRM
- LGT Private Banking*
- Lufthansa Group
- ManoMano
- MediaMarkt
- MeetDeal
- Microsoft
- Mobile Industrial Robots (MiR)
- Monolithic Power Systems (MPS)
- Moodle
- N26
- Nestlé
- Netease
- Nimble Giant Entertainment
- Novartis
- NTT DATA
- Nutanix
- Ocado Technology
- Omron
- Oracle Health
- Oracle NetSuite
- Papernest
- Paradox Interactive
- PayFit
- PepsiCo
- Popcore
- Porsche Digital
- Riot Games
- Roche
- Rovio
- Sage
- Salesforce
- Sandsoft Games
- Sanofi
- Santévet
- SAP
- Satellogic
- Schneider Electric
- Scopely
- Seat:Code
- Service Point (Paragon)



- Siemens
- SITA
- Smilegate
- Social Point
- Solium
- Sony AI
- SQLI
- Starbreeze
- Transformative Digital Customer
- Experience (TDCX)
- Tech Data
- Technica Engineering
- Zurich
- Teladoc Health
- Telavox
- Thoughtworks
- Tilting Point
- Tokio Marine
- Towa
- Trainline
- Tripledot Studios
- T-Systems
- Ubisoft
- Universal Robots
- Unmanned Life
- Unnax*
- Veepee
- Veeva
- Veriff
- Viaplay (NENT)
- Volkswagen
- Vueling
- Ypsomed
- Zeptolab
- ZF Services
- Zoetis (Pfizer)

*Tech hubs announced but not yet operational

Analysis techniques

The study uses quantitative and qualitative analysis techniques, specifically:

- 1 Sending a survey to all the hubs under analysis with a predominance of closed-ended questions to enable uniform data analysis.
- 2 Interviews with an eminently strategic focus in 10 of the most important hubs in the region. Below are the details of the people interviewed:
 - **AstraZeneca** – Marta Moreno, Director of Corporate Affairs and Market Access in Spain
 - **Cisco** – Xavier Azemar, Head of Barcelona Innovation Center and Cisco Innovation Labs Spain
 - **Dynatrace** – Pol Fenollar, Lab Lead Barcelona
 - **IO Interactive** – Eduard López, Studio Head of IOI Barcelona
 - **Lufthansa** – Bea Domenech, Digital Factory Director
 - **NTT DATA** – David Pereira, Head of Data & Intelligence Europe
 - **Oracle** – Joan Planella, Barcelona Office Managing Director & Sovereign Cloud EMEA Sales for Spain (Mediterranean & North) and Portugal.
– Jose Rodríguez, Global Business Development Indirect Markets & General Manager Spain, Portugal & Latam
 - **Porsche Digital** – Scott Francis, Managing Director at Porsche Digital Barcelona
 - **Salesforce** – Jordi Ossó, Regional Sales Director at Salesforce Barcelona
 - **Social Point** – Jorge Bassols, Finance Director
- 3 Sending technical forms to the 10 companies interviewed with a view to adding to the information provided and gathering quantitative data.
- 4 Making phone calls to 11 of the hubs interviewed in the previous year to examine their evolution in 2023 and learn about some of their most recent and relevant success stories.
- 5 Analysis of data sources to contrast and complete the information captured by the means cited in the previous points, such as company register databases and press releases.

This has yielded a 77.9% representativeness ratio¹ of the hubs in the specified scope as a result of their participation in the various techniques used.

¹ The representativeness ratio takes into account the 66.4% of hubs (93 hubs) which answered the survey in this edition plus the 11.4% (16 hubs) which, although they did not participate in this edition, answered the previous one and where most of the information is available. Data from the previous edition were used to calculate the quantitative data on the number of workers in these 16 hubs and the current figure was calculated using the average year-on-year growth rate of the sector in each of them.



Methodology

assessment of size and quantification of the impact of tech hubs in Catalonia. This has been calculated from two points of view: firstly, job creation, and secondly, economic impact.

This study aims to cover the entire universe of tech hubs meeting the defined criteria. Since very high participation amounting to 77.9% was achieved, the remaining 22.1% has been calculated using the following steps:

- 1 **Segmentation of tech hubs** with the aim of minimizing margins of error and leveraging the patterns detected.
- 2 **Calculation of the average number of employees** per economic sector (excluding outliers so as not to distort the results). This calculation has been carried out using the data obtained in the surveys, interviews and forms sent.
- 3 Use of the aforementioned data to **estimate the current and future situation of the hubs** that have not taken part in the study but are nevertheless part of the universe. Specifically, this has been calculated for each sector to then obtain the aggregate data.
- 4 **Sum of the estimated data** (22.1%) with the remaining 77.9%.

Based on the estimate of the number of employees, the economic impact of the hubs was estimated by means of OPEX and an additional margin. Specifically, the following procedure was used:

- Considering **salaries and wages as the main expense** representing **80% of the total cost**. An average annual salary for a senior professional in the tech sector in Barcelona coming to €59,200 has been taken as the basis for the calculation. This amount has been extracted from data on a range of portals (LinkedIn, Indeed, Angelist, Glassdoor and similar) from the last 12 months. The resulting figure has been increased by the **company's social security contribution**, bearing in mind the maximum and minimum contribution bases for 2023 and the contribution rate. Taking the average salary of €59,200, the rate of 29.9% (non-occupational illnesses and accidents, unemployment, FOGASA and vocational training) has been applied to the maximum base of €4,495.50 (the potential contribution base for a salary of €59,200 is €4,495.50 and therefore the maximum base is applied).
- An **additional 20%** has then been added to the result for **other general expenses** such as renting facilities, utilities, marketing and suppliers.
- Including the margin. For hubs providing services to other units or subsidiaries of the parent company, a **margin of 3%** has been added; for hubs providing services to third parties, a **margin of 15%** has been added; and finally, for hubs providing services to both, an **average margin of 9%** has been added.

The estimation of the **future economic impact** has been made in the same way, increasing the maximum contribution base to €4,720.50 as it is the last one approved in January 2024. Likewise, the average wage has increased by 1.2% per year in line with historical inflation in the Eurozone and Spain over the last 10 years.



2.

The impact of tech hubs in Catalonia



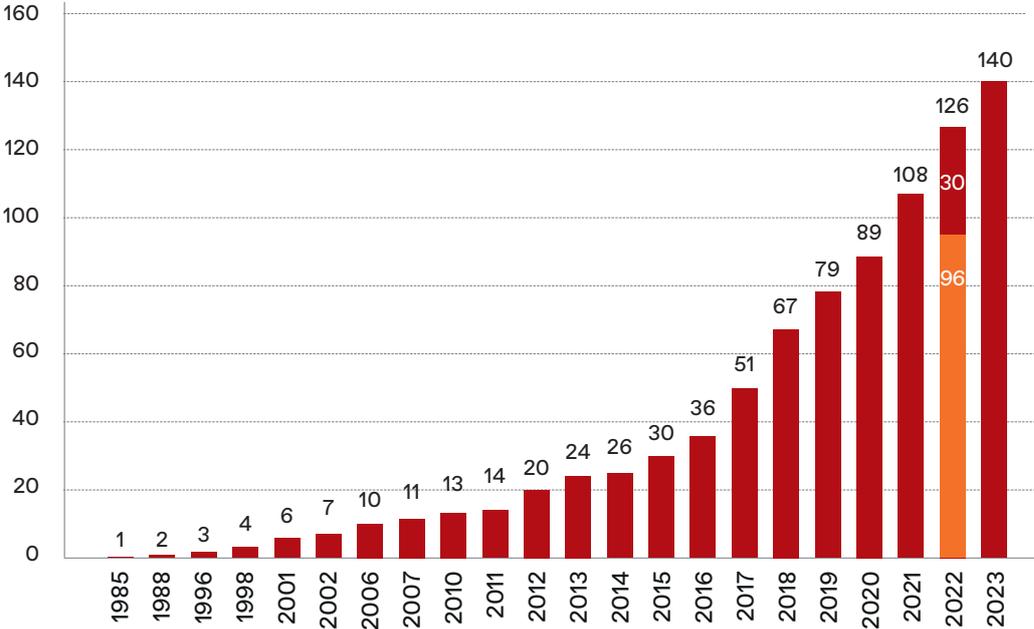
The impact of tech hubs in Catalonia

Catalonia's tradition of hosting international tech hubs is maintained

Catalonia is still a key location for hosting international tech hubs with a total of 140 hubs in its territory in 2023.

In the last seven years the number of hubs has increased almost fourfold. Catalonia's attractiveness is evident with new investment steadily arriving. Thus, in the period 2017-2023 over 100 tech hubs have been set up.

Change in the number of hubs

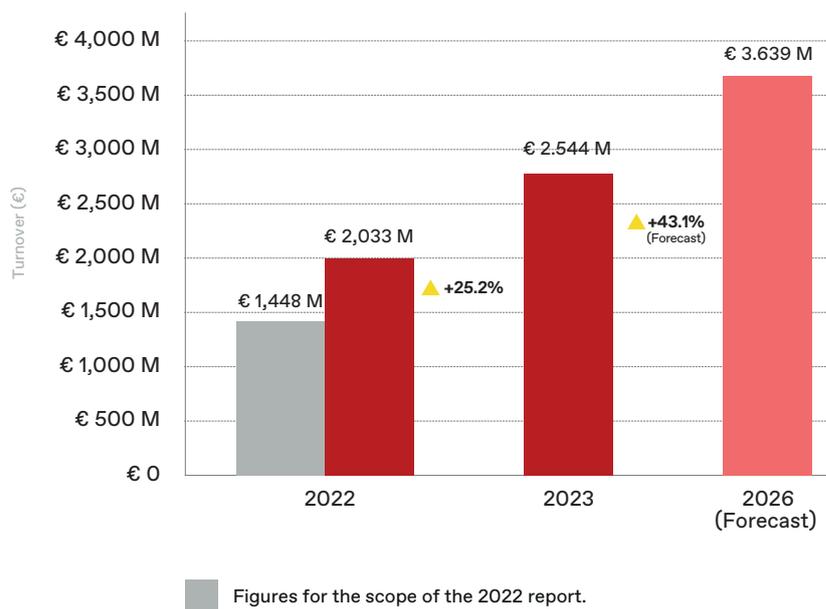


The major economic impact of hubs in Catalonia

Today tech hubs generate more than €2.5 billion in wealth for the territory, and with expected growth over the next 2-3 years standing at 43% they position Catalonia as a key location.

Catalonia is crafting a consolidated and innovative hub ecosystem which is home to highly skilled talent. The expectation is that it will continue to grow quickly and is forecast to reach more than €3.6 billion by 2026.

Expected change in turnover (period 2022-2026)

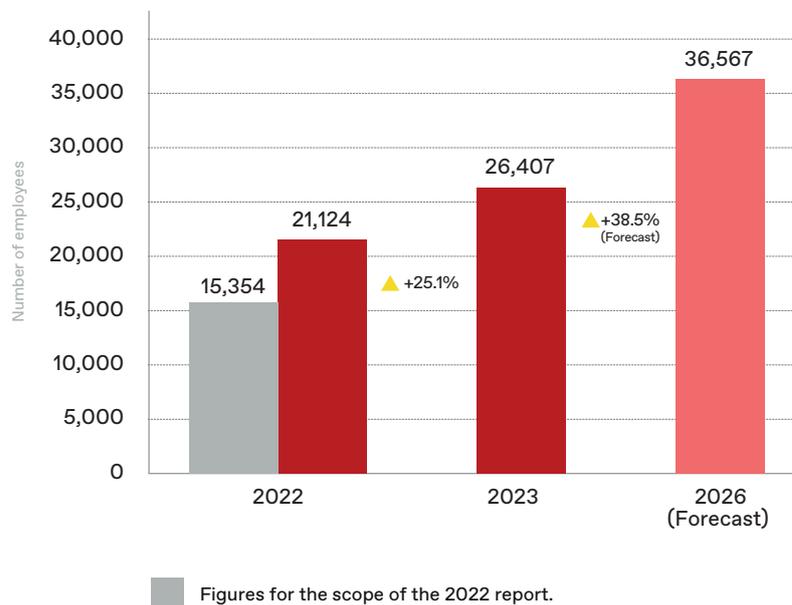


Exponential growth in talent

By 2026, the number of highly skilled workers in tech hubs is expected to rise by 38% compared to the current figure, taking into account only the hubs already established in the territory.

In just one year, the hubs have grown by 25% and their future projection is to continue expanding their workforce with an expected increase of more than 10,000 people by 2026.

Expected change in the number of employees period 2022-26



AstraZeneca

Marta Moreno

Director of Corporate Affairs
and Market Access at AstraZeneca

Key company data:

Company sector: pharmaceutical.

Core business: research, development and marketing of medicinal products and health treatments.

Key hub data:

Year hub set up: 2023

Location: Avinguda Diagonal, 615, 08028 Barcelona

Scope: Global

Number of employees (Jan. 2024): +500

Jobs created in 2023: +400

No. of nationalities in the workforce (Jan. 2024):
33 nationalities

Technologies developed:

- | | |
|---|--|
|  Artificial intelligence |  CRM/ERP |
|  Big Data |  Digital Marketing |
|  Business Intelligence |  App Development |
|  Cloud |  Frontend Web Development |

Hub description:

Multinational AstraZeneca opened the AstraZeneca Global Hub in Barcelona in March 2023. It is one of the major developments in the pharmaceutical and digital sector this past year in Catalonia and will involve investment coming to €8 billion in the region up to 2025. Set up with the aim of turning the hub into one of the largest centers of excellence and clinical innovation in Europe and the group, it will enhance Catalonia's role as a leader in scientific research worldwide.

The hub encompasses all of AstraZeneca's therapeutic areas (oncology, rare diseases, cardiovascular, renal and metabolism, respiratory and immunology, and vaccines and immunotherapies) and delivers services globally. It stands out for its collaborative spirit both internally, with the company's network of hubs, and externally with the public sector and other stakeholders in the national ecosystem.



The image of this office is a generic, royalty-free resource and does not show AstraZeneca's offices

The AstraZeneca Global Hub in Barcelona is mainly engaged in scientific innovation and is made up of a highly trained and skilled multidisciplinary team. Specifically, more than 60% of the workforce are scientific profiles in the healthcare field while 20-30% encompasses the Digital Health team specialized in data and technology and the remaining 5-10% is in corporate services profiles. In terms of demographics, the hub is currently 60% female with people of 33 different nationalities, resulting in an innovative and diverse environment with a holistic standpoint.

AstraZeneca's recruitment policy prioritizes internal talent regardless of where it is, thus encouraging the mobility of highly skilled people to Barcelona. Moreover, since all AstraZeneca hub employees have to settle in the city, this directly creates significant wealth for the territory.

The hub's successes:

AstraZeneca's commitment to set up Europe's only hub in Barcelona:

- The opening of AstraZeneca's Global Hub in Barcelona is a major investment and a cornerstone of the company globally. The choice of the city as the site for the hub is a huge success for the region and illustrates the company's confidence in its potential.

Creating skilled jobs at a blistering pace:

- In less than a year, the hub has hired more than 500 highly skilled professionals and expects to reach 1,000 employees by 2025.

The hub's future:

AstraZeneca Global Hub expects to continue to grow sustainably based on the following principles:

- 1 Meet the commitment to reach 1,000 people hired by 2025. This highly ambitious and robust growth will have a huge impact on the region.
- 2 Inspire other companies and show them that investing in a healthcare hub in Spain is a strategic decision and delivers major value opportunities for the firm.
- 3 Redefine a new era in chronic disease management by catering for the unmet needs of patients and healthcare professionals.

Retaining the public sector commitment and support the hub has had to date and keeping it going in the future will be pivotal in achieving all this.

“We will develop new technologies as science moves forward with a focus on how we can help enhance people's health, either through artificial intelligence or other technologies we do not have available as yet. In addition to innovative drugs, we also seek to address diseases by diagnosing earlier, better and more accurately.”



3. 2023 in figures



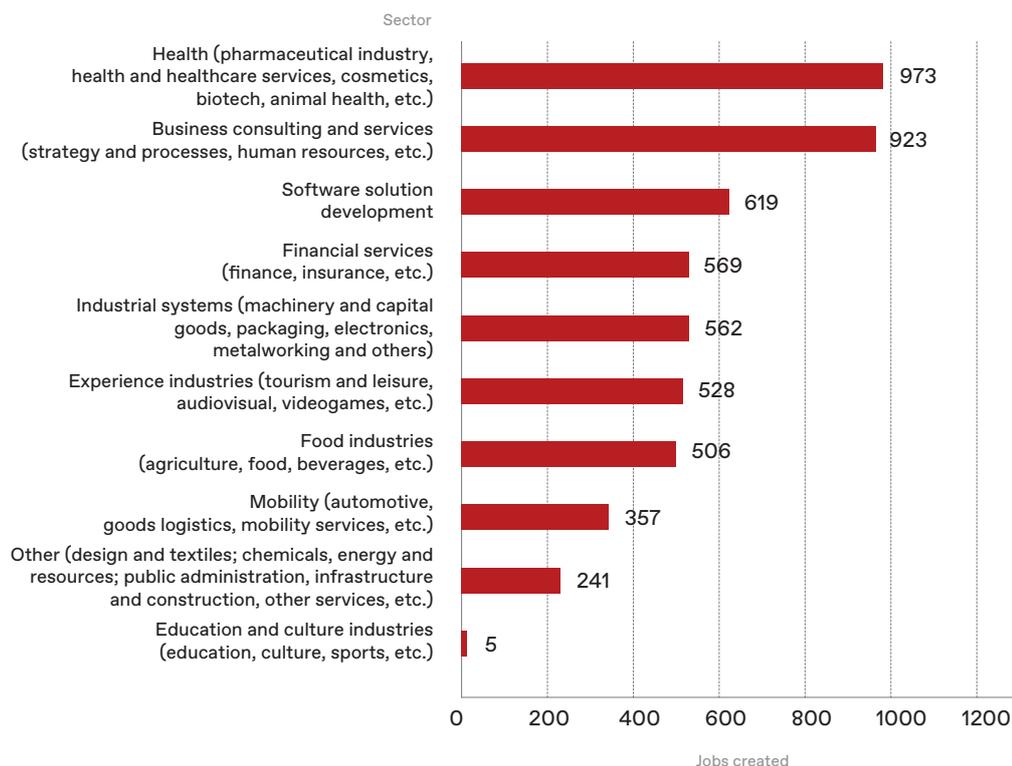
2023 in figures

Tech hubs have created over 5,200 jobs in 2023 in Catalonia, generating an additional economic impact in the region coming to more than €500 million per year.

The health sector and the business consulting and services sector are the leaders with an aggregate 35% share. Likewise, 2023 has seen significant efforts addressed to investigating the potential of generative artificial intelligence as one of the great challenges and opportunities for Catalonia's hubs.

2023 has been shaped by the advent of 14 new hubs while in lockstep their counterparts already established in the region have grown at a rate of approximately 21%, evidence of Catalonia's attractiveness and growth potential.

Jobs created in 2023



Cisco Systems

Xavier Azemar

Head of Barcelona Innovation Center
and Cisco Innovation Labs Spain

Key company data:

Company sector: Business services and IT consulting.

Core business: Manufacture, sale, maintenance and consulting for software and telecoms equipment.

Key hub data:

Year hub set up: 2019

Location: Carrer De Pere IV 362, 08019, Barcelona

Scope: Global

Technologies developed:

Main areas: Networking, cybersecurity, Future of Work, Smart City & Smart Building.

Tecnologies:

 IoT

 Cloud

 Cybersecurity

 Augmented reality /
virtual reality

 Quantum artificial
intelligence

Hub description:

Cisco's hub was set up in 2019 and is now a global leader for the organization. Although initially targeting Smart Cities, it has evolved and expanded its scope until today when its co-innovation commitment enables it to adapt to its customers' challenges and needs. The company delivers key projects in cybersecurity for critical infrastructures and in post-quantum cryptography coupled with collaboration initiatives with significant social impact.

- 1 Hands-on work with the ecosystem and customers to identify technological challenges and furnish an appropriate response. Anchored in a results-oriented approach, the most successful and high-impact proofs-of-concept are escalated to relevant business units so they can develop and scale them up.
- 2 Financial support for innovation and technology research conducted by universities and research centers with the ultimate goal of playing a proactive role in the sector's evolution and growth..
- 3 Organizing events, meetings and tech demonstrations at its offices to connect with the company's international teams and also customers from around the world, turning each meeting into an opportunity to inspire and share innovation.



The hub's successes:

Tech for Good and the social impact of technology:

- Cisco is committed to generating a positive impact on society and has run several groundbreaking Tech for Good projects at its Barcelona hub which have set the standard and been replicated in other locations around the world. They began by addressing the problem of loneliness with “Deleting Loneliness”, a project sponsored and co-financed by the MWC and the Barcelona City Council to harness technology to eliminate the loneliness often experienced by the elderly. The project was awarded as an Environmental Social Commitment Project by Autelsi in 2021 and was the starting point for other projects rolled out all over the region and the world, including “One Click and Let’s Talk” in Mollerussa for people with disabilities and in Toronto for people with ASD.

Post-quantum computing and the challenge of cybersecurity:

- Faced with the global cybersecurity challenge posed by future quantum computers which will put our privacy and security at risk, the hub is collaborating with companies, startups and research centers to develop and test post-quantum cryptography solutions to safeguard the security of future networks.

Cybersecurity in IoT networks and AI systems in cities:

- The Cisco Innovation Center is partnering Barcelona, Tallinn and Helsinki in the European IRIS project to develop and evaluate a platform for detecting and mitigating cyberattacks on IoT infrastructures and AI systems in cities.

The hub's future:

Looking to the future, the hub aims to continue growing in terms of talent, stepping up its capabilities and expanding its global impact and relationship with the local and international ecosystem. It also expects to continue rolling out quantum computing and generative artificial intelligence projects while keeping up its social impact projects.

“Cisco’s innovation center has helped Barcelona cement its position as a global chip design hub.”



Description of the new hubs set up in 2023

The new hubs in Catalonia have generated over 800 skilled jobs and an aggregate economic impact of almost €80 million, building on the upward trend of recent years.

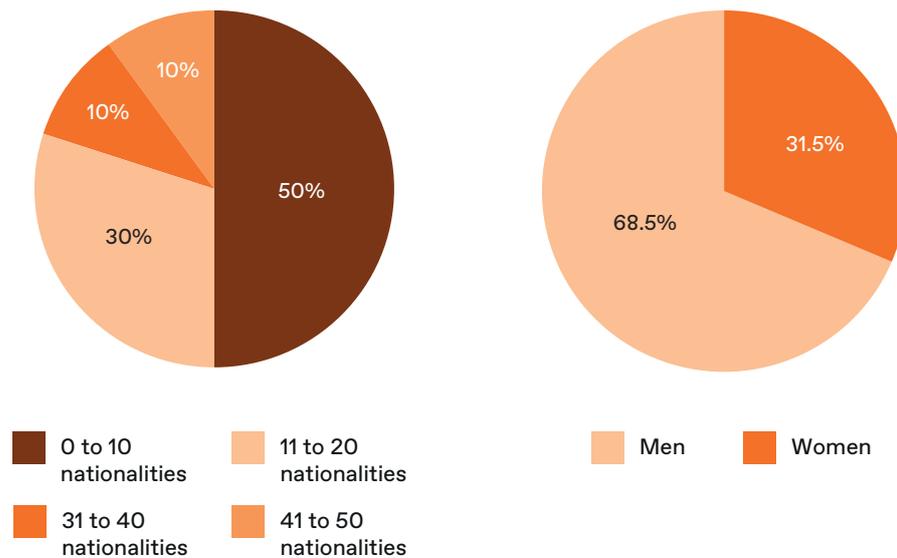
With bright future prospects, they are expected to grow by 159% in turnover by 2026 from more than €100 million in 2023 to over €260 million in 2026.

Overall impact figures for the 14 new hubs

The sectors of the companies which have invested in hubs in Catalonia in 2023 are:

Parent company sector	N° hubs 2023
Mobility	3
Videogames	3
Health	2
Software development	2
Financial services	2
Chemicals	1
Electronics	1

The hubs set up in 2023 have on average a workforce of 10 nationalities, find talent usually in Catalonia, and have a gender parity rate close to that of the other hubs already operating in the region.



Details of the 14 new hubs in 2023

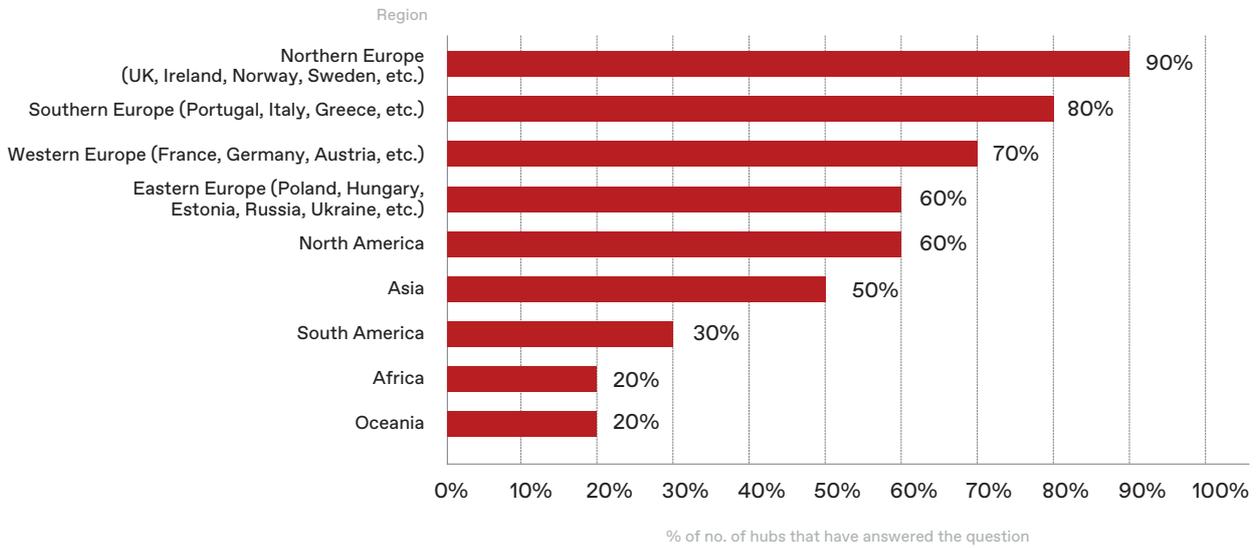
The sectors of the companies which have invested in hubs in Catalonia in 2023 are:

	Parent company sector	Country of origin
	Chemicals	USA
	Health	UK
	Mobility	Israel
	Financial services	Liechtenstein
	Mobility	Germany
	Experience industries	China
	Software solutions development	USA
	Experience industries	Finland
	Experience industries	Saudi Arabia
	Software solutions development	Sweden
	Health	Japan
	Financial services	USA
	Mobility	Germany
	Experience industries	Japan

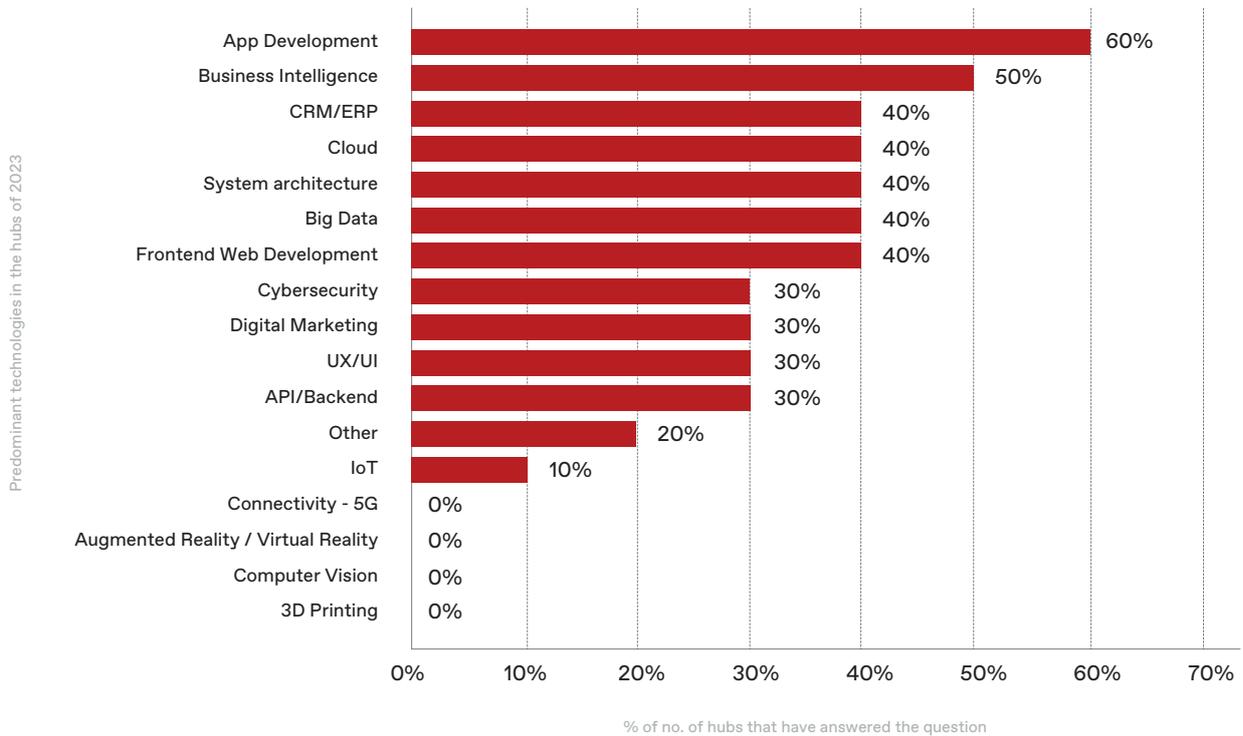
* Investment pending announcement by the company.



Regions to which the new 2023 hubs export



Geographic areas in which the hubs provide service



Dynatrace

Pol Fenollar
Lab Lead at Dynatrace

Key company data:

Company sector: Business consulting and service.

Core business: Developing and managing a platform for observability, monitoring and analytics of web services and user experienc.

Key hub data:

Year hub set up: 2017

Location: Avinguda Diagonal, 211, 08018, Barcelona (Torre Glòries)

Scope: Global

Number of employees (Dec. 2023): 208

Jobs created in 2023: 30

No. of nationalities in the workforce (Dec. 2023): over 40

Technologies developed:

-  API/Backend
-  Generative Artificial Intelligence
-  Cloud
-  UI/UX
-  Frontend Web Development
-  App Development
-  System architecture

Hub description:

In 2017, Dynatrace acquired startup Qumram with the purpose of integrating its platform and setting up a hub in Barcelona with specific expertise in digital experience observability. Over the years, the hub has grown due to the continuous evolution driven by the development of the Dynatrace One Platform technology and is now a preminent observability platform. This innovative technology enables Dynatrace to capture and reproduce the user experience (UX) and gain a holistic view of it in order to optimize it. This is anchored in the premise of user-centric continuous improvement.

In addition to technological development, Dynatrace's hub also has a customer support unit covering the whole of Europe plus other digital experience services with the ultimate goal of crafting an outstanding digital environment for its customers.



The image of this office is a generic, royalty-free resource and does not show Dynatrace's offices.

The hub's successes:

Exponential growth against the backdrop of a pandemic:

- One of the Dynatrace hub's main achievements has been its organic, continuous and exponential growth since it was set up in Catalonia. It started operating in 2017 with 15 staff members and today its workforce has increased more than tenfold to stand at 210 people; a real challenge and even more so against the background of the COVID-19 pandemic. The hub has also earned the trust of its parent company to the point where it now operates with full independence in many of its work areas and leads and fashions global solutions for the entire company.

The hub's future:

Looking to the future, the hub expects to continue growing in staff numbers to reach 300 people by 2025 and also in terms of profiles by expanding the Barcelona hub's capabilities and scope. Work is additionally underway to offer new products as part of its goal of becoming the European observability market leader.

“Our greatest triumph is the growth we have achieved and the consolidation of the hub within the company while showing that we can grow across several areas, leading innovation, solutions and services globally.”



Global impact in 2023 of hubs already established in the territory

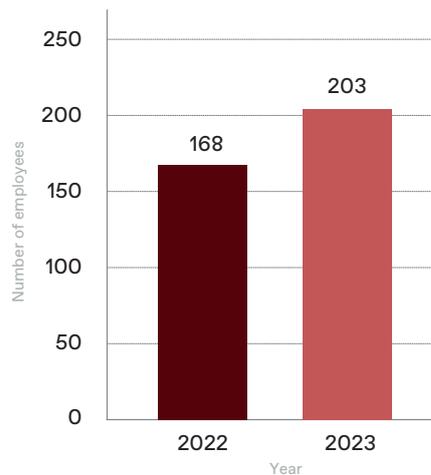
The hubs already established in Catalonia have continued their double-digit growth and in 2023 have created over 4,400 jobs coupled with wealth standing at more than €430 million.

Catalonia's ability to attract talent and its innovative ecosystem have enabled the hubs with a track record in the region to cement their position and grow.

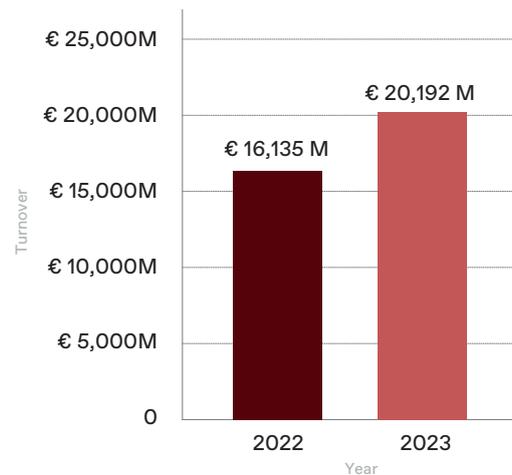
The average tech hub has grown by 35 employees and more than €4 million in turnover in 2023*.

In 2022, each hub had on average 168 employees and turnover coming to over €16 million. In 2023, the consolidation of the hubs already established in Catalonia has been patent with growth in both the average number of employees (203) and average turnover (more than €20 million).

Average number of employees per hub



Average turnover per hub



* Figures calculated for hubs established in Catalonia in 2022 or earlier.



IO Interactive

Eduard López Plans
Studio Head of IOI Barcelona

Key company data:

Company sector: Experience industries (videogames).

Core business: AAA software and videogame development.

Key hub data:

Year hub set up: 2018

Location: C. d'Enric Granados, 84, 08008 Barcelona

Scope: Global

Number of employees (Jan. 2024): 40

Jobs created in 2023: 15

No. of nationalities in the workforce (Jan. 2024): 8

Technologies developed:



Virtual Reality /
Augmented Reality



Proprietary game
engine technology

Hub description:

IO Interactive's hub in Barcelona was set up in 2018 with the aim of expanding knowledge and entering new markets. One of the main challenges in its first year was to find skilled and specialized talent in AAA videogames in Barcelona, a challenge that has been met by expanding from a team of six people at the outset to 40 today.

Development and leadership of the main games marketed worldwide, such as Hitman III and James Bond, is centralized in Barcelona by leveraging virtual reality and other proprietary technologies. This leadership reflects the parent company's confidence in the hub which increasingly takes on more responsibilities globally in the firm as its team grows and new capabilities are onboarded.

Anchored in a collaborative approach, IO Interactive's multidisciplinary teams around the world work closely together and cooperate in the development of the company's video games.



The hub's successes:

Commitment to collaboration and its significance for the sector's growth:

- IO Interactive's commitment to collaboration is expressed not only by the way it works in-house but also by driving initiatives that foster collaboration with the ecosystem. For example, IO Interactive organizes an event every four months in Barcelona that has become a huge success. Professionals from the videogame industry and businesses in the Association of Videogame Developers and Publishers of Catalonia (DEVICADO) come along and share knowledge with each other. This initiative is crucial because it brings together people and expertise from AAA and indie game developers alike, thus furthering the sector's cohesion, evolution and continuous improvement.

The hub's future:

IO Interactive seeks to achieve a market position as a company committed to developing the best games in the world by harnessing new technologies and turning the growing complexity associated with AAA games into an opportunity. To do this, it will be essential to continue attracting talent and ramping up partnerships with the ecosystem to position Barcelona as a preeminent venue for the videogame industry.

“We have brought to Catalonia the Danish model in which collaboration is crucial and it has fitted in extremely well. I think it's a model that delivers the constructive value of ecosystem knowledge, interaction and creation.”



4. Context of tech hubs in Catalonia



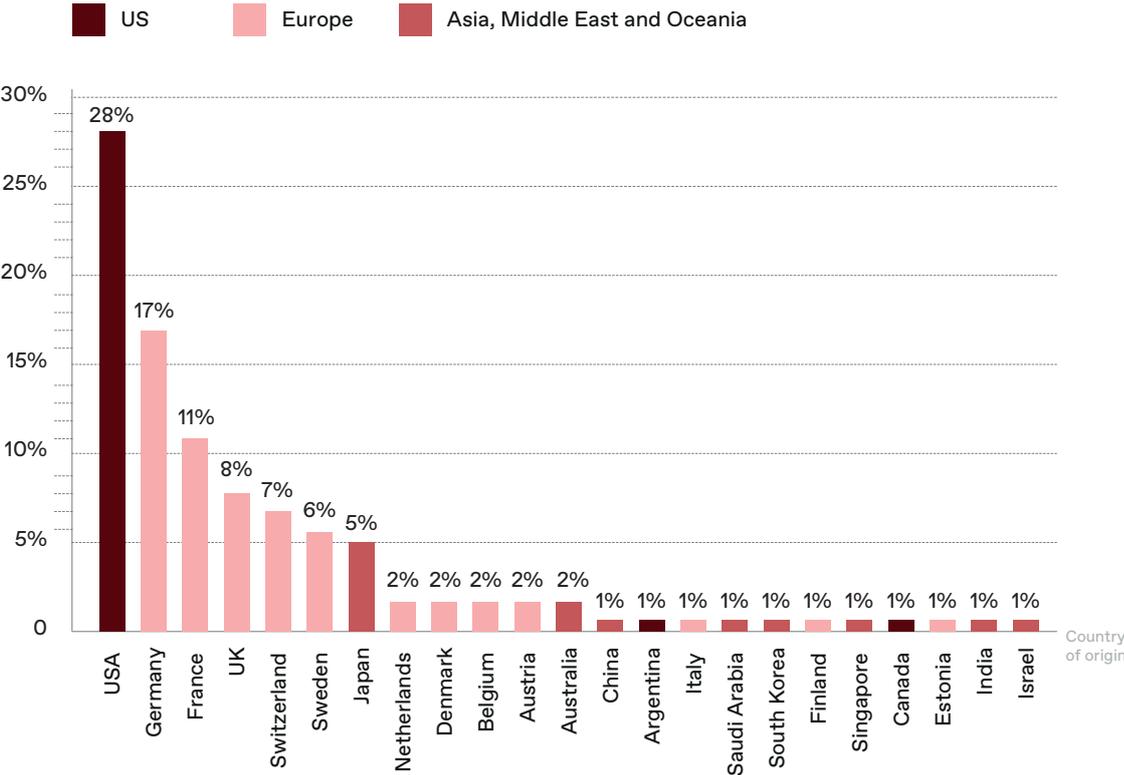
Context of tech hubs in Catalonia

The origin of companies with tech hubs in Catalonia

The United States (28%) and Germany (17%) are the countries most committed to setting up tech hubs in Catalonia.

Companies from European countries (59%) are the main investors in tech hubs located in Catalonia followed by US firms (30%) and in third place Asian and Middle Eastern countries (11%).

Country of origin of the hub's parent company



Lufthansa

Bea Domenech

COO Lufthansa Group Digital Hangar BCN

Key company data:

Company sector: Aviation.

Core business: Delivering aviation services as one of the leading groups in the European aviation industry with numerous international subsidiaries.

Key hub data:

Year hub set up: 2023

Location: Consell de Cent 333, principal, Barcelona 08007

Scope: European

Number of employees (Dec. 2023): 60

Jobs created in 2023: 60

No. of nationalities in the workforce (Dec. 2023): over 12

Technologies developed:

- API/Backend
- Big Data
- Cloud
- Frontend Web Development
- App Development
- Business Intelligence
- System architecture
- Cybersecurity
- CRM/ERP
- UX/UI
- Generative Artificial Intelligence



Hub description:

Lufthansa's Digital Hub in Barcelona has been set up in 2023 to add capabilities to the company's European hangar. As a cross-cutting hub, it is mainly engaged in tech development while also conducting innovation, research and analysis of trends applied to the business with the ultimate goal of ensuring an outstanding experience for Lufthansa passengers and at the same time optimizing the company's internal operations. By tapping the SAFe methodology and with the engagement of technical and business profiles in all its activities, the Barcelona hub enables continuous delivery of value to the business and guarantees the efficient and coordinated development of large-scale business solutions.

The Lufthansa hub stands out for its versatility which takes shape in two main work strands:

- 1 Product:** targeted at developing products to improve customer service, build customer loyalty and foster sustainable behavior with the goal of constantly enhancing the customer experience and meeting demand with innovative solutions.
- 2 Service:** geared towards delivering excellence in the service rendered by developing decision support systems and upgrading its technological architecture, thus ensuring its internal systems operate successfully. This work strand enables them to contribute to the company's operational reliability and make sure customers get an outstanding and hassle-free flight experience.

The hub's successes:

Fast hub growth and consolidation:

- In less than a year in Barcelona, the Lufthansa hub has grown significantly in terms of talent to reach 60 people. Likewise, it is already developing solutions that are fully operational and add value at the European level which has made it an undeniable success within the Lufthansa group.

The hub's future:

Lufthansa's hub in Barcelona envisages a promising future of growth where challenges will involve four key areas:

- **Cultural:** with talent drawn from many different countries and cultures, it will be essential to continue fostering and ensuring effective integration of the team by crafting an environment in which everyone can play their part to the best of their potential.
- **Growth:** aspiring to continue to grow, the team expects to reach 120-150 people in 2024. To make this possible, the hub will soon move to new, larger offices.
- **Efficiency and productivity:** with the goal of becoming an exemplary team in terms of productivity and efficiency and positioning itself as a model for other company sites, the hub will continue to work to deliver maximum value with minimum necessary resources.
- **New technologies:** in a fast-growing industry, the Lufthansa hub envisions a future with new technologies especially targeting artificial intelligence where it seeks to position itself as a leader and keep up to speed with cutting-edge emerging trends to bring continuous innovation to the sector.

“Lufthansa has chosen Barcelona for its ability to attract world-class talent, its innovation and university ecosystem, and the institutional support you get when setting up a new company in the city.”

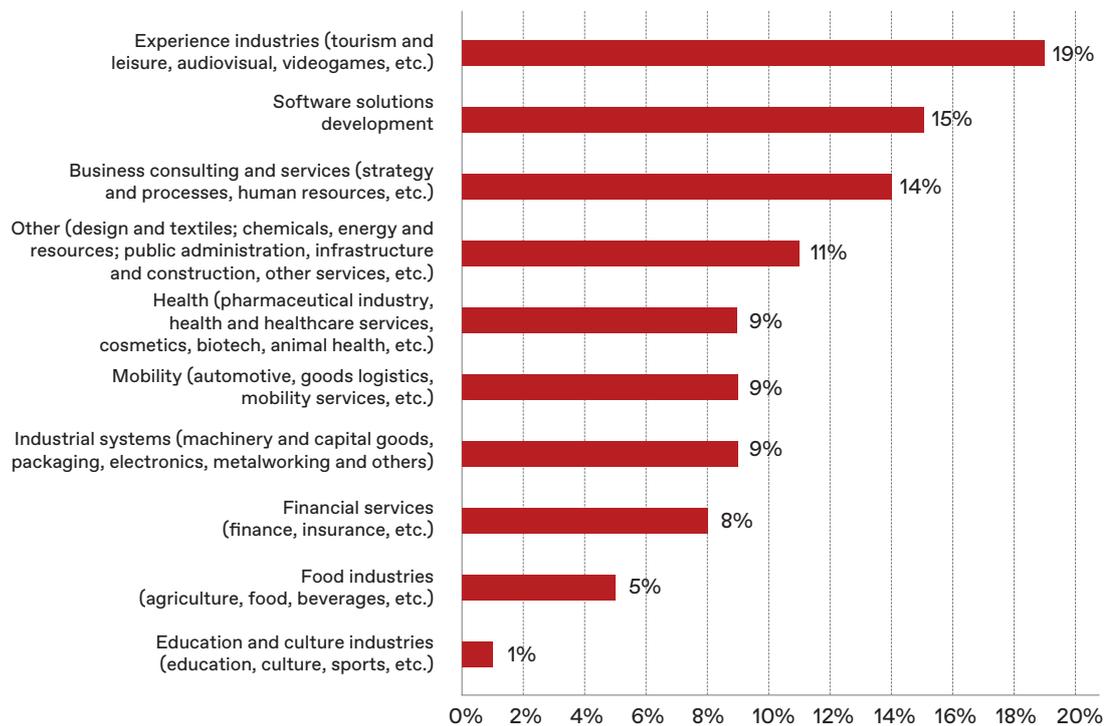


Sectors of tech hubs in Catalonia

Almost 20% of the companies with tech hubs in Catalonia are in the videogames sector which has pulled in fresh similar investment and helped to fashion an environment for collaborating and sharing best practices among them.

Software solutions development (15%) and business consulting and services (14%) are the second and third most prominent sectors in the hub ecosystem.

Sectors of the hubs' parent companies

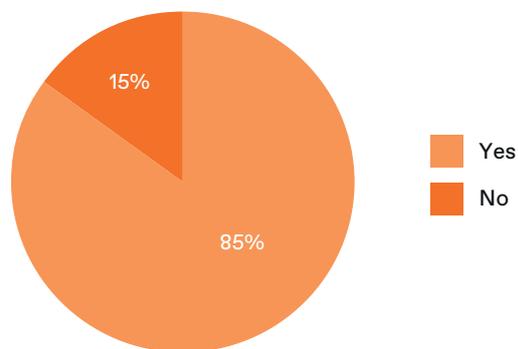


Locations competing with Catalonia - Barcelona

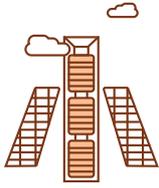
Barcelona's main competitors in the race to establish new tech hubs are in the Iberian Peninsula (Madrid and Lisbon) and across Europe (London, Berlin, Paris and Amsterdam).

However, in 15% of the cases no other city was considered in the investment decision process.

Did you consider cities other than Barcelona?



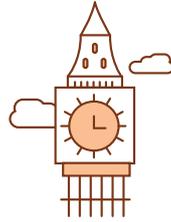
Locations that competed with Catalonia - Barcelona



22%
Madrid



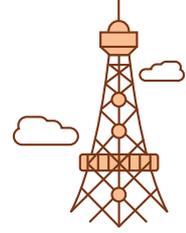
18%
Lisbon



15%
London



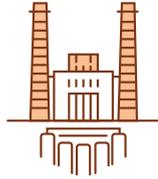
12%
Berlin



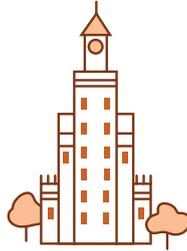
11%
Paris



10%
Amsterdam



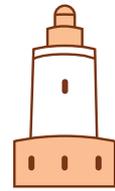
9%
Dublin



9%
Warsaw



9%
Budapest



7%
Malaga



5%
Prague



5%
Bucharest



4%
Munich



3%
Stockholm



3%
Helsinki



3%
Milan



3%
Istanbul



2%
Pune



2%
Stuttgart



2%
Tel Aviv



Oracle

Joan Planella

Barcelona Office Managing Director
& Sovereign Cloud EMEA Sales for Spain
(Mediterranean & North) and Portugal

Jose Rodriguez Maniega

Global Business Development Indirect
Markets & General Manager Spain,
Portugal & Latam

Key company data:

Company sector: Tech firm.

Core business: Developing cloud solutions (ERP, SCM, HCM, CX and verticals such as health, financial services, telecommunications, tourism industry, etc.), infrastructure and platforms (hybrid and on-premise OCI), and databases (autonomous DB, etc.).

Key hub data:

Year hub set up:

NetSuite: 2017 | Oracle Health: 2023

Location: Av. Diagonal, 211, 22@, 08018 Barcelona

Scope:

NetSuite: Global | Oracle Health: European

Number of employees (Dec. 2023):

NetSuite: over 250 | Oracle Health: over 65

No. of nationalities in the workforce (Dec. 2023):

NetSuite: over 40 | Oracle Health: over 40

Technologies developed:

- | | |
|--|---|
|  API/Backend |  System architecture |
|  Databases Big |  Cybersecurity |
|  Big Data |  CRM/ERP |
|  Cloud |  Digital marketing |
|  Frontend Web Development |  UX/UI |
|  App Development |  Artificial intelligence |
|  Business Intelligence |  Blockchain |
| |  Supercomputing |



Hub description:

NetSuite:

- Oracle opened the NetSuite hub in 2017 with the goal of stepping up the company's software development capabilities. Since its inception, NetSuite has been engaged in devising and enhancing solutions for integrated management of companies that meet the needs of customers all over the world, targeting SMEs and startups in particular, and has gained a market leadership position.
- Oracle Netsuite has several worldwide hubs that complement each other albeit in different roles. Hence even though NetSuite is part of a multinational company, the hub can make independent decisions within the framework of the corporate strategy shared with the rest of Oracle.

Oracle Health:

Oracle is committed to Spain and its hubs throughout the country are a prime example of this. Following the NetSuite hub's success, in 2023 Oracle Health has been set up in Barcelona as a strategic location where the city's quality of life and especially its ability to attract talent were key to choosing it. This commitment is bolstered by its vibrant university ecosystem and the robust health network run by the Catalan Government featuring world-class hospitals. Hence the region is an exceptionally appealing setting for a project as advanced and transformational as Oracle Health.

Targeting excellence in technology applied to medicine, the hub addresses aspects of innovation in health applications at the European level and data sovereignty, thus helping to enhance the industry and people's wellbeing. Oracle Health Millennium and Health Intelligence Data Platform stand out.

The hub's successes:

NetSuite:

Backing startups right from the outset:

- NetSuite's software development has enabled it to support numerous companies over the years which have grown exponentially. In particular, NetSuite is in practically all Spanish unicorn startups such as Wallbox and Cabify.

Oracle Health:

Outstanding growth in less than 6 months since its opening:

- The hub's great success story at the moment is how much its talent has grown in a period of less than six months since it opened. The challenge of finding skilled talent is being successfully met owing to the hub's in-house endeavors and the welcome from Catalonia's public sector. Institutional officials attended the opening of the hub, evidencing their confidence in the innovation and talent Oracle Health will bring to the region.

The hub's future:

Oracle's hubs expect to continue growing in the coming years, delivering knowledge, innovation and technology which help to enhance the wellbeing of the public, the growth of the local and global business community, and straightforward uptake of the cloud to unlock digital transformation. However, this calls for the public sector in Catalonia and Europe to address the challenges of continuing the commitment to public investment in health while also fast-tracking use of the cloud in institutions and the ecosystem.

“It is one of the most thrilling moments of my career and the whole company is very excited about the healthcare legacy we can leave.”

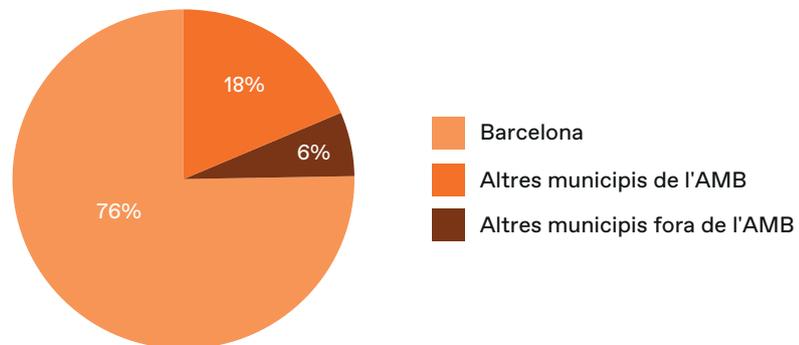


Hub locations in Catalonia

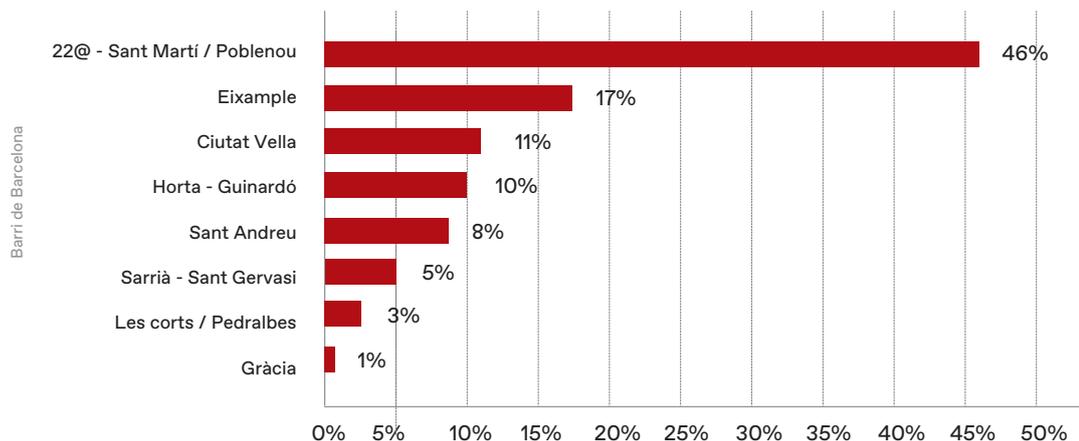
Barcelona and its Metropolitan Area are now established as destinations for most of the tech hubs in Catalonia.

More than 75% of the technological hubs located in Catalonia have been located in Barcelona, of which 46% are in the 22@ - Sant Martí and Poblenou district. Other municipalities in the Metropolitan Area of Barcelona other than the capital are also positioned as attractive locations, such as Sant Cugat del Vallès, Cornellà de Llobregat or L'Hospitalet. Only 8 of the technology centers are located outside the metropolitan area.

The hubs' locations



Breakdown of the hubs' locations



5. Talent

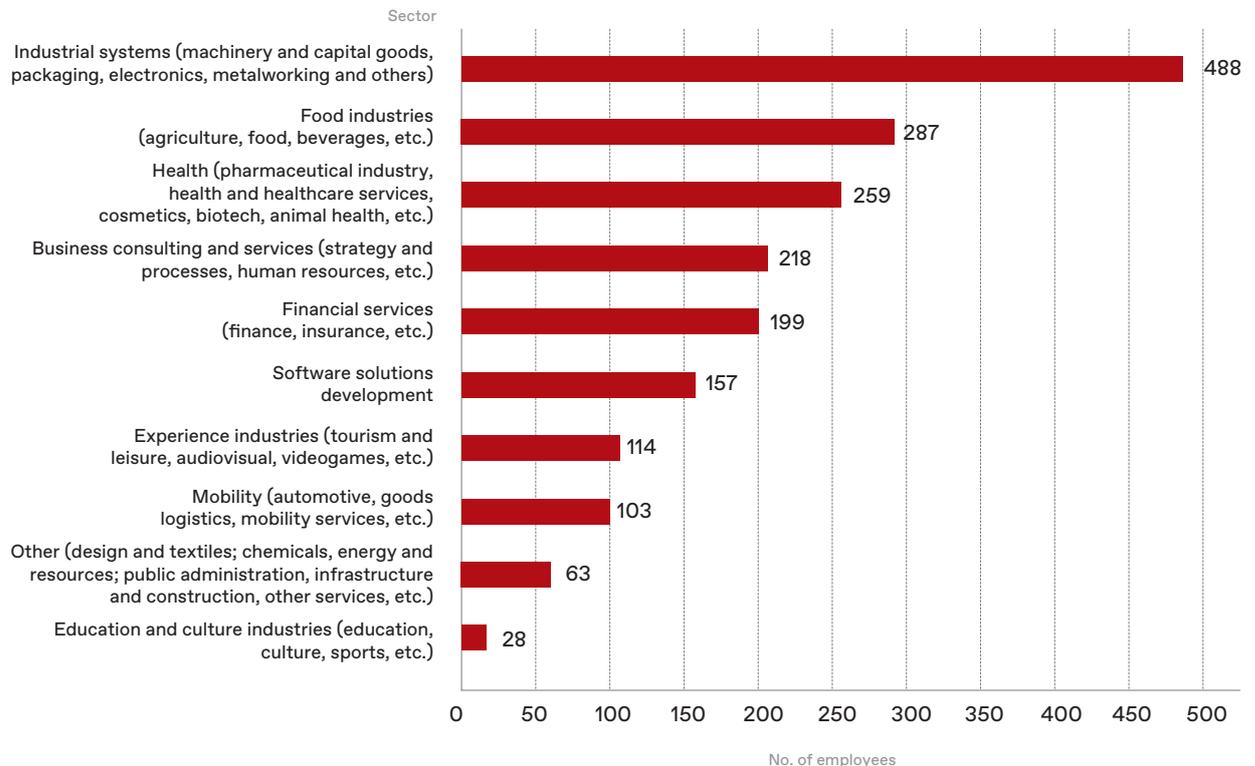


The sectors contributing most to employment in the hubs

The industrial machinery and food sectors have the largest hubs at between 488 and 287 staff members.

They are followed by the health sector (259 employees on average per hub) and the business consulting and services sector (218 employees on average per hub). These figures underscore the key role of these sectors in driving the region's economy.

Average number of employees per sector and hub

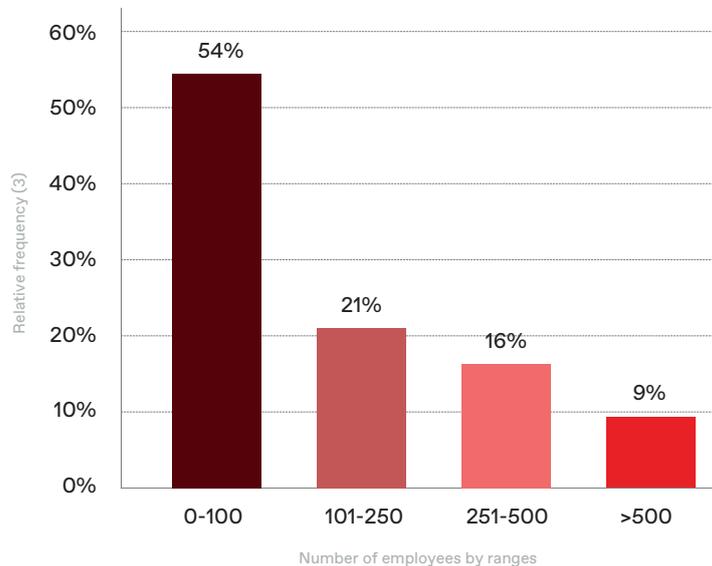


Talent in the hubs today

The hubs are gaining ground in the region and almost half of them have a workforce of more than 100 people.

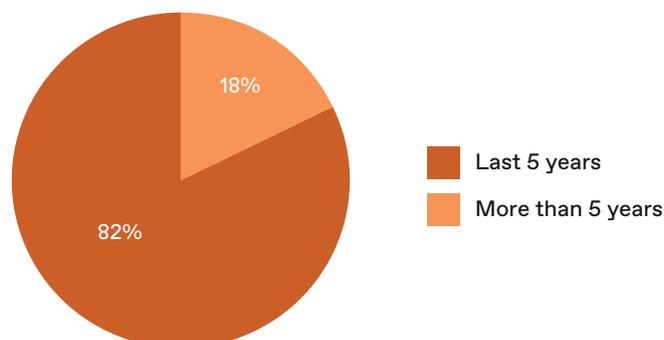
37% of the hubs in Catalonia are medium-sized (between 101-500 employees) while 9% can be classified as large companies (>500 employees). Over 80% of the hubs with 100 employees or fewer were set up less than five years ago and have therefore had little time to grow. By 2026, this growth is expected to be substantial as 26% of the 54% of hubs which now have between 0 and 100 employees plan to move up to a higher bracket.

Number of people currently working in the hubs



*Relative frequency calculated as a ratio of the total number of hubs for which this information is available.

Proportion of hubs with 0-100 employees by year founded



Social Point

Jorge Bassols

Finance Director at Social Point

Key company data:

Company sector: Experience industries (videogames and other).

Core business: Development of software and mobile video games.

Key hub data:

Year hub set up: 2008

Location: C. de la Llacuna, 166, 08018 Barcelona

Scope: Global

Number of employees (Feb. 2024): 340+

Jobs created in 2023: 40

No. of nationalities in the workforce (Feb. 2024): over 25

Technologies developed:

 API/Backend

 App Development

 System architecture

 Digital Marketing

 UX/UI

Hub description:

Social Point was founded in Barcelona in 2008 and started out on its business journey with a worldwide footprint. In its early days as a startup, it gained a place in the gaming industry by developing online social games on Facebook. However, it was with the transition to crafting mobile games and the release of Dragon City that the project began to grow exponentially, up from 20 employees in early 2012 to over 100 by late 2012. The enormous popularity of its products meant that by the end of 2012 the company began to turn a profit. In 2015 and 2016, the hub had over €100 million in turnover and expanded its employee base to more than 300. The hub continued to grow sustainably and in 2017 was acquired by American video game multinational Take-Two Interactive.

The Social Point hub has always prioritized local talent yet also draws industry professionals from all over the world. It has recruited highly skilled staff, allocating a large amount of resources to attracting them by building ties universities, headhunters, agreements with local associations and fairs, etc.

The hub also picks out the tech and gaming environment which has been built over recent decades in Barcelona as crucial to its success. The company plays a proactive role in all the industry's structures and groups which has helped to cement the studio's place in the city.



The hub's successes:

Creating global phenomena:

- The hub in Barcelona has developed games with a global impact such as Dragon City and Monster Legends, their two biggest successes. This worldwide footprint has enabled them to constantly expand in terms of turnover, profits and staff.

Analytical, efficient and optimal in-house decision making:

- As a technology and data-driven company, Social Point's hub has developed a proprietary internal platform called spbackoffice which captures thousands of metrics concerning its videogames.

Young talent empowerment program:

- Due to its exceptionally close relationship with universities and other educational institutions, the hub is strongly committed to young talent. As an example, one of Social Point's most successful games is currently being developed by two Catalan professionals who have recently completed their studies, and indeed one of them is the videogame's director.

The hub's future:

The company plans to achieve the following goals in the near future:

- 1 Integrate in Social Point the headcount of the hub run by Zynga, a Take-Two Interactive group firm. The talent, technology and ambition demonstrated by the Barcelona-based studio means its parent company will integrate this new hub with Social Point, thus further expanding the Catalan hub's influence worldwide.
- 2 Triple turnover in three years. The hub is already well on its way to achieving this goal set last year as it has doubled its revenue in this period alone.

“What's available in Barcelona in terms of location, climate and access to talent is amazing; the city's gaming ecosystem has really solid foundations.”

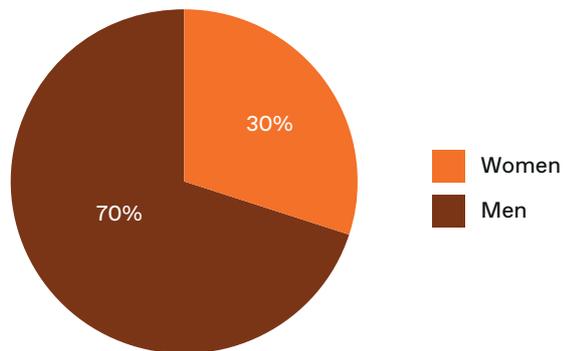


Hub employee profile

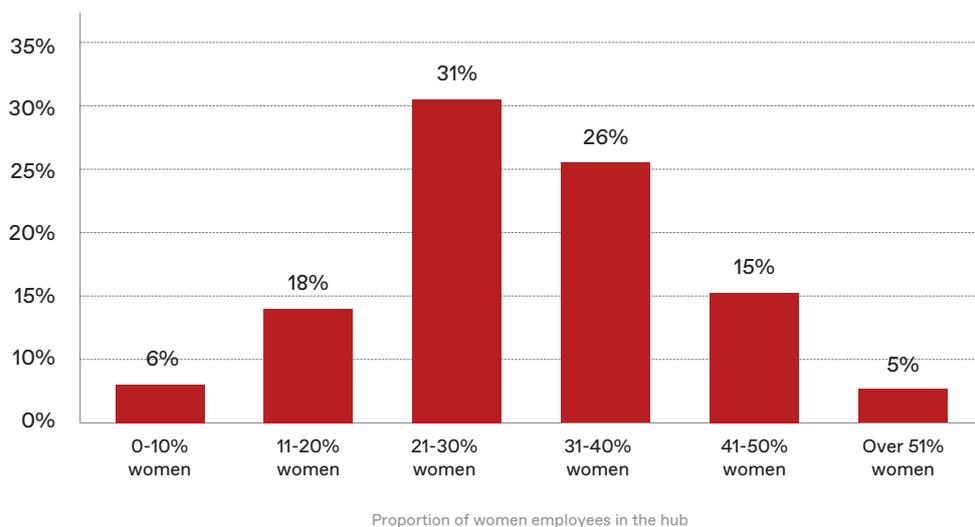
In 2023, the average number of women on the staff of tech hubs is once again above the average for the digital industry in Barcelona (28.69% in 2022) and even higher than the European average (18.9%)¹.

Almost 50% of the hubs in the region have workforces in which women make up more than 30% of the total. Some 7,800 women currently work in Catalonia's tech hubs.

Average percentage of women in the workforce



Proportion of hubs by gender parity of workers



¹ Source: Digital Talent Overview and Mobile World Capital Barcelona.

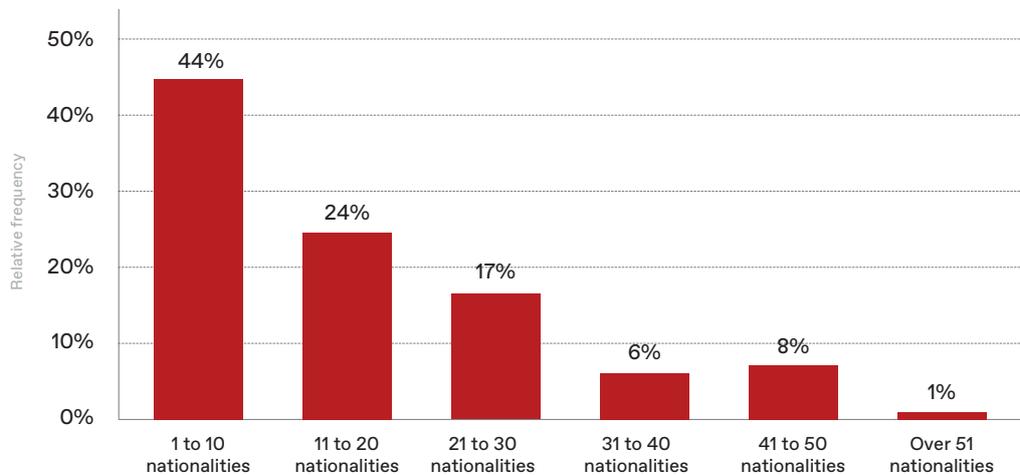


Multinational hubs

Barcelona and the technology hubs' attractiveness for international talent can be seen in their multinational make-up as their workforces include 16 nationalities on average.

56% of the hubs are made up of more than 10 nationalities with European and Latin American backgrounds the most frequent.

Number of nationalities in the hubs' workforces

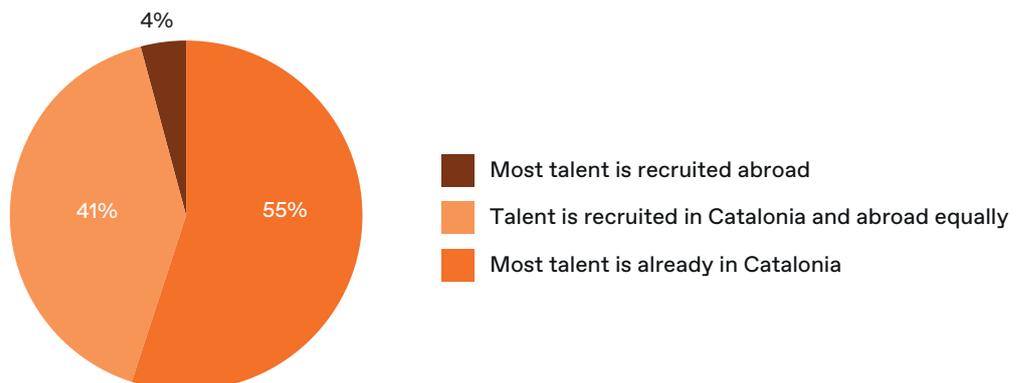


*Relative frequency calculated as a ratio of the total number of hubs for which this information is available.

Despite the high presence of international talent in their workforces (38% according to the 2022 analysis), there is an increasing availability of talent in Catalonia. Some 55% of the hubs recruit this talent directly in the region and 41% in similar proportions in Catalonia and abroad.

Catalonia's highly skilled profiles are pivotal for the technology hubs which usually partner with universities and training centers to foster local knowledge and technological specialization. The rise in the proportion of talent recruited directly in Catalonia compared to the last edition (47%) underlines its significance.

Where is talent recruited?



Salesforce

Jordi Ossó

Regional Sales Director at Salesforce Barcelona

Key company data:

Company sector: Software solutions development.

Core business: Developing and maintaining customer relationship management software (CRM) to enhance relationships between companies and customers.

Key hub data:

Year hub set up: 2010

Location: Avinguda Diagonal, 545, 08029 Barcelona

Scope: Global

Technologies developed:

-  Cloud
-  Business Intelligence
-  API/Backend
-  Digital Marketing
-  Artificial intelligence
-  Big Data

Hub description:

With a track record stretching back over 15 years, Salesforce's hub in Barcelona integrates software solution sales, implementation and development roles. The hub's closeness to its customers was behind the decision to open a site in the city, although the hub's area of influence reaches beyond Catalonia and the Iberian Peninsula to take in other areas of Europe, Africa and Asia.

Its platform tailored to each industry's needs and special features enables the hub to help its customers optimise their B2B or B2C relations with their consumers.

The Salesforce hub's highly customized services have allowed it to grow significantly in just a few years and it is now a CRM leader in Catalonia. Over the years it has also forged close ties with Catalonia by setting up three key investment pillars in the territory: women's leadership projects, digital talent and sustainability.



The hub's successes:

Leader in Catalonia by number of certifications:

- Salesforce's ecosystem in Catalonia has earned more than 6,000 certifications in the company's technology solutions with expected growth in 2024 coming to about 30%.

Major diversification of the business in Barcelona:

- With customized solutions for 14 different industries, companies in many different sectors choose Salesforce's product.

In Barcelona they have become leaders of the digital transformation of multinationals including in the consumer goods sector and the automotive, pharmaceutical and fashion retail industries.

Generating an impact reaching beyond Catalonia:

- There are many cases in which the Barcelona hub has delivered technological solutions to customers that have been rolled out locally but then scaled up to their international operations. As a result, the hub is a provider of digital expertise to the entire world.

The hub's future:

Salesforce's hub in Barcelona seeks to continue to grow in the future through two key mainstays:

- 1 Developing technologies such as big data, the cloud and AI and primarily by transferring knowledge of them to the market and making them more easily accessible for companies' functional divisions to ramp up productivity with their customers.
- 2 Publicising the significance of technology and innovation for today's society, businesses and the public sector.

“Talent has played a major role in our growth, yet we have been able to attract this talent due to the features of the Catalan business community, the ambition to transform the region's companies and their belief in our solution.”

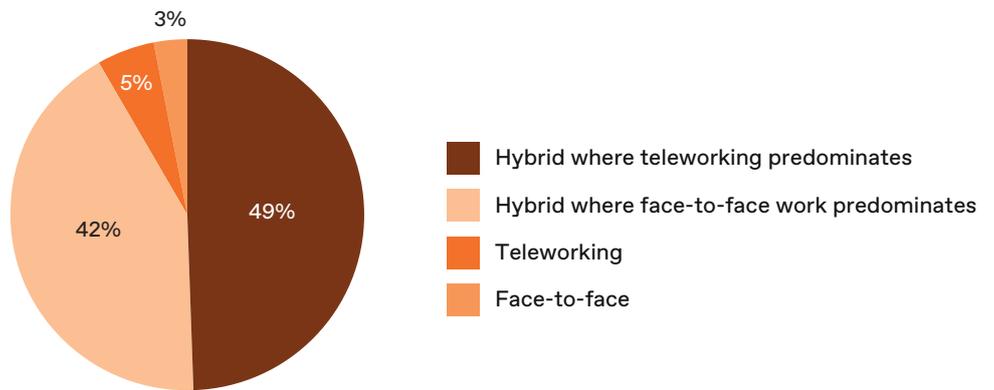


New ways of working

Teleworking is becoming more and more common in Catalonia and its hubs are no exception to the rule. Over 90% adopt a hybrid approach and teleworking is predominant in 49% of them.

The more traditional way of working in which face-to-face attendance is total is in last place with only 3% of the hubs opting for it.

Hub work patterns



6. Technologies



Technologies

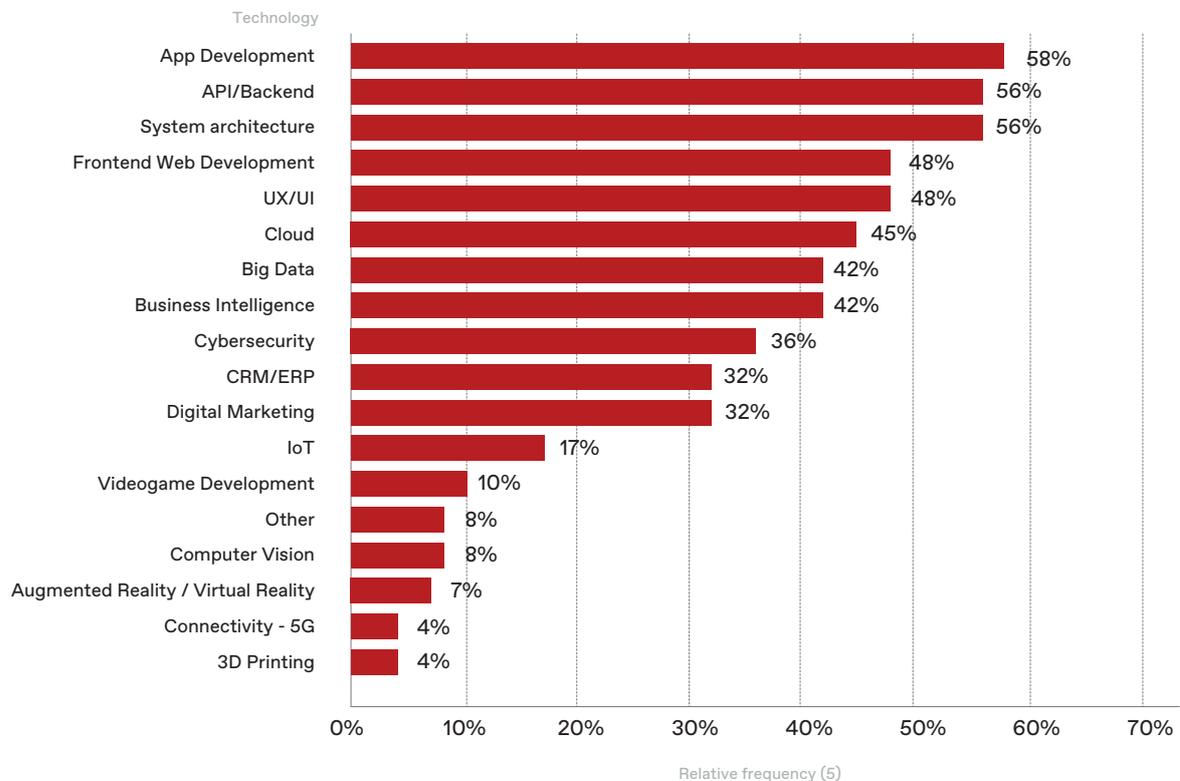
The technologies developed by Catalonia's hubs

Technological diversity in the ecosystem of hubs in Catalonia where artificial intelligence predominates in the most innovative technologies.

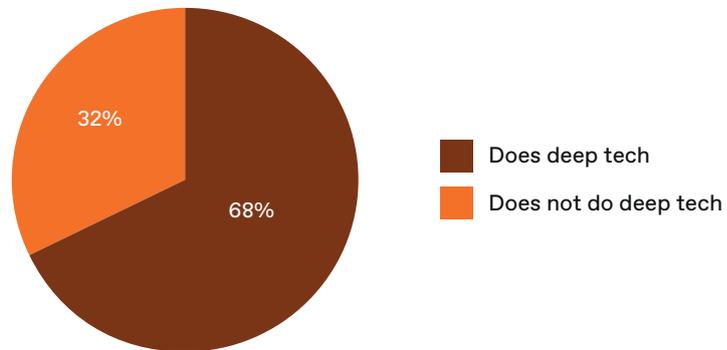
App development (58%) maintains its predominance in the technological areas Catalonia's hubs work in followed by API/backend (56%), systems architecture (56%) and frontend development (48%).

The deep tech technology segment is gaining momentum in Catalonia's hubs and 68% are already working on it. Looking at artificial intelligence, generative AI projects have a key role in future agendas. Blockchain and robotics are also highly relevant.

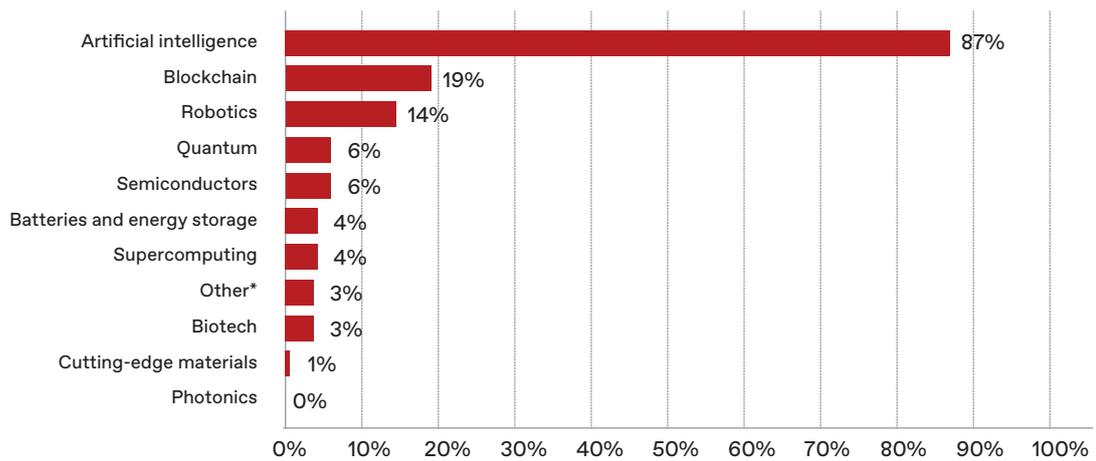
Hubs' technologies of specialization



Proportion of hubs developing deep tech



Which deep tech technologies do these hubs work in?



*The Other category includes technology such as cleantech, hardware, embedded software, electric mobility and supply planning.



Porsche Digital

Scott Francis
Managing Director at Porsche
Digital Barcelona

Key company data:

Company sector: Technology.

Core business: Digital products and services in the field of mobility.

Key hub data:

Year hub set up: 2020

Location: Carrer de la Llacuna 42, 08005, Barcelona

Scope: Global

Number of employees (Jan. 2024): 110

Jobs created in 2023: 81

No. of nationalities in the workforce (Jan. 2024): 26

Technologies developed:

 Frontend Web
Development

 API/Backend

 App Development

 UX/UI

 Business Intelligence

 Systems
Architecture

 Digital Marketing

Hub description:

The Porsche Digital office in Barcelona was inaugurated in July 2020 as a new location in one of Europe's most vibrant tech scenes.

Porsche Digital Barcelona is a technological and digital unit of Porsche AG. The company aims to create exceptional experiences that enrich the digital lives of Porsche fans, customers, and drivers in and around the car, as well as beyond the realm of mobility. As a subsidiary 100% owned by Porsche, Porsche Digital is a key strategic partner in the company's digital transformation.



Porsche Digital's activity focuses on three key lines of work developed in close collaboration with other Porsche departments:

- 1 In the car: creation of premium and customized in-car solutions for Porsche drivers. In addition to developing its own products and services, the company integrates existing customer ecosystems into the car and builds strategically relevant subsystems to deliver the best driver experience.
- 2 Around the car: development of digital products and connected services around the car. These products offer customers a seamless, integrated digital experience across a variety of touchpoints, from websites to dealerships. Therefore, for both fans, buyers and loyal customers, Porsche Digital makes a significant contribution to the company's overall brand experience and provides support in areas beyond the traditional realm of mobility.
- 3 Customer relations: introduction of the human element to Porsche's digital products and services, through the company's internal customer service centers. In cooperation with specialized and technical departments, they act as the first point of contact for all Porsche-related matters, including those related to the Porsche store and the Porsche museum.

The hub's successes:

Exponential growth:

- In less than three years of being established, the hub has managed to grow from a single worker to 100+. In this sense, the multinationality of the team, which includes up to 20+ different nationalities, stands out, but especially the fact that they have a gender-equal team, with approximately 50% men and women, a much higher rate than the sector average.

Obtaining a key role in the development of the company's digital services:

- The office is a vital part of Porsche Digital's global activities in developing and improving digital products for Porsche fans and customers alike. With a focus on customer related products like *Dealer Websites as a Service*, the office in BCN further aims to scale and grow further.

Fostering local talent in technological skills adapted to the needs of companies:

- In addition to collaborating with programming and technology schools, the hub has actively participated in the promotion of local initiatives for the development of technological skills of minority groups. Specifically, they have supported, organized events and contributed knowledge to MigraCode, a code academy in Barcelona that provides programming skills to refugees and immigrants, thus contributing to the integration of these people.

The hub's future:

The Porsche Digital hub hopes to continue growing in Catalonia in the future, based on two key issues:

- 1 Deepen the introduction of data science and *deep technologies tech* in business, such as artificial intelligence.
- 2 Maintain sustainable growth based on its fundamental principles: diversity and gender parity. In the same vein, the hub hopes to continue promoting local talent and strengthen relationships with programming schools and universities.

“We integrate local and international talent into our team. We consider that this diversity has an extremely positive effect on the office culture, and international city like Barcelona offers us this possibility.”



7. The operation of the hubs in Catalonia



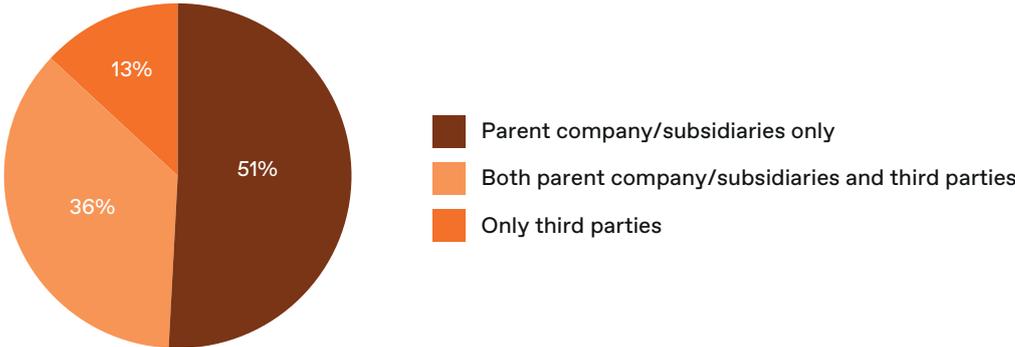
The operation of the hubs in Catalonia

Who Catalonia's tech hubs deliver services to

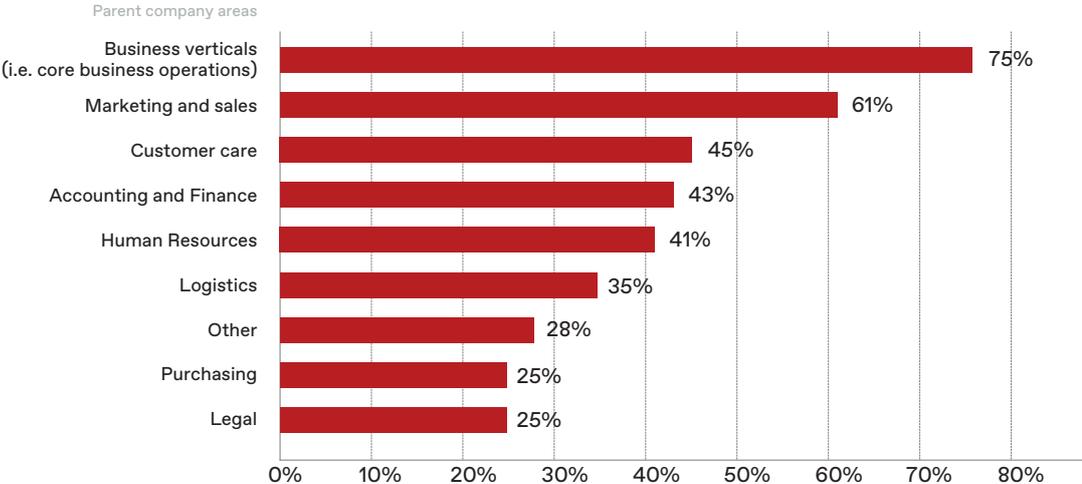
Catalonia's tech hubs are a crucial component of the business of the companies they report to and nearly 90% of the hubs deliver services to their parent companies..

75% of the hubs rendering services to their parent company directly target critical core business operations which further enhances the position of Barcelona and Catalonia as leading global tech players.

Hub's main customer



Parent company areas served by the hub

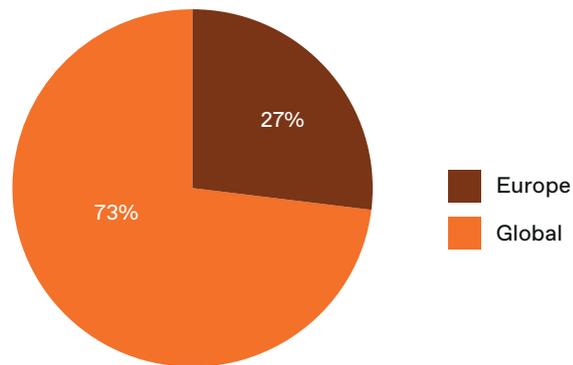


The hubs' scope

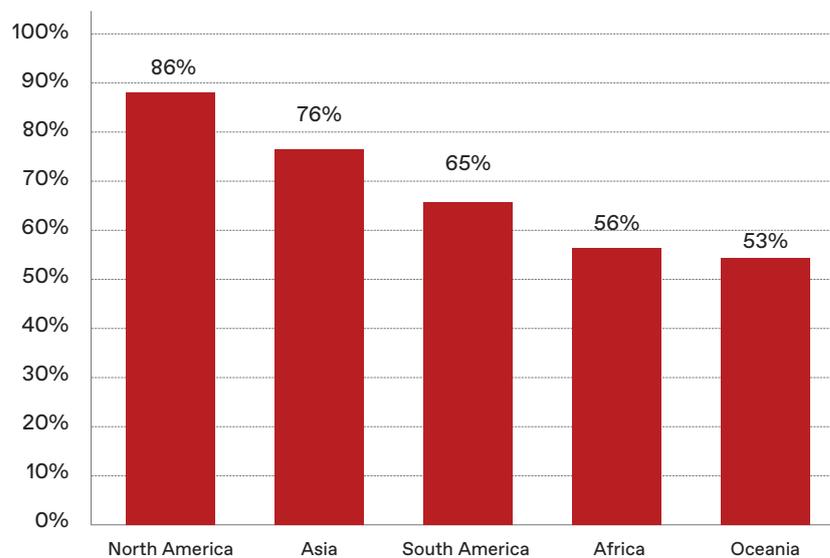
Over 70% of the hubs provide services outside Europe. Of these, 86% operate in North America and 76% in Asia.

The regions where the hubs deliver most services are in Europe due to their geographical closeness.

Geographical scope of the services provided by the hubs



Regions outside Europe where the hubs provide services



NTT DATA

David Pereira

Head of Data & Intelligence Europe

Key company data:

Company sector: Business services and consulting.

Core business: Software development, IT consulting, technology infrastructure management, business processes and other services for digital transformation.

Key hub data:

Year hub set up: 2019

Location: Av. d'Icària, 211, Sant Martí, 08005 Barcelona

Scope: Global

Number of employees (Dec. 2023): 60

Jobs created in 2023: 20

No. of nationalities in the workforce (Dec. 2023): 10

Technologies developed:

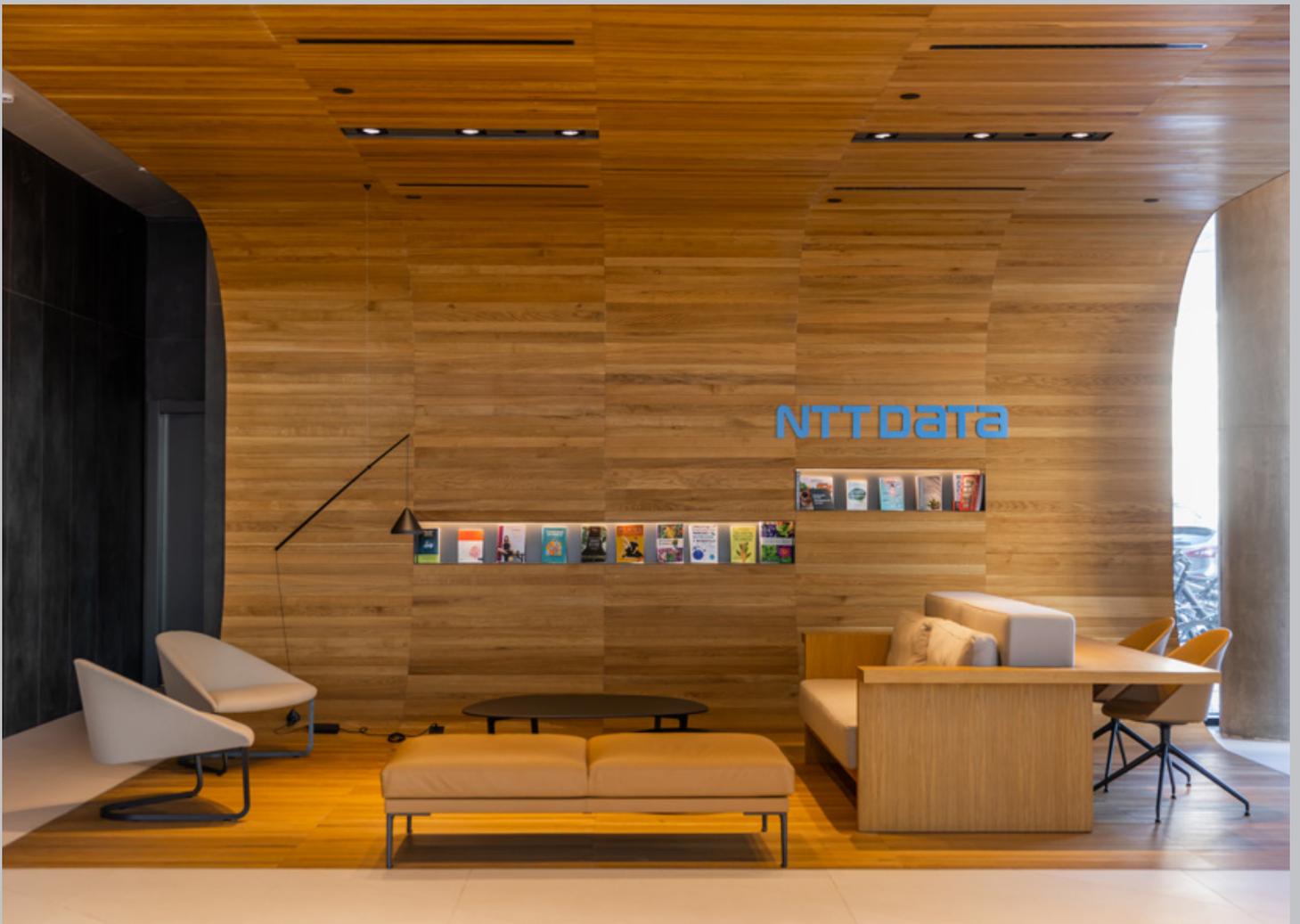
 Big Data

 Cloud

 Artificial intelligence

Hub description:

NTT DATA's technology and excellence hub was set up as an innovative initiative at a time when there were few business hubs specializing in artificial intelligence (AI) in the market. Recognizing the opportunity to fashion new capabilities for the company, the Japanese parent decided to establish its global AI hub in Barcelona as an integrated innovation center covering the entire lifecycle of a project from research to direct support and mentoring for domestic and international customers. The idea was to ensure AI would have a direct impact and application in the business.



Today the hub has several roles that position it as a key AI player in the company:

- 1 Firstly, the Barcelona hub invests significant efforts in researching and evaluating frontier AI technologies from a technical perspective to ensure it is constantly at the forefront and able to fully leverage the technology's potential while also factoring in the ethical implications and considerations of AI and algorithms.
- 2 Secondly, it leads NTT DATA's AI value proposition by contributing to the company's global projects. Its outstanding technical capabilities and consolidated knowhow position the hub as a leader in AI while also laying the critical foundations for the company's continued success in the digital era.
- 3 Finally, it supports across its areas of expertise the company's domestic and international teams and business units that are rolling out AI-related projects.

NTT DATA's hub has recently been named one of the 2023 Global Generative AI Service Provider Market Leaders by HFS Horizons.

The hub's successes:

Artificial intelligence applied to tools that optimize business operations:

- One of the projects with the greatest impact in which the NTT DATA Hub has taken part is defining and deploying the Microsoft Azure Open AI Services platform at Almirall. This is an AI-powered information processing tool which enables optimizing review of medical documents and information extraction, meeting key issues for the business, generating answers with an accuracy rate of over 90% and thus delivering an innovative and efficient solution for conducting the process.

The importance of public-private partnership:

- As founding members of the Center of Innovation for Data tech and Artificial Intelligence (CIDAI), NTT DATA hub managers are constantly partnering with the public sector to drive AI innovation and knowledge transfer. The NTT DATA hub works with CIDAI and also with universities, investment funds, and other key ecosystem players. This means it has a significant impact on the AI industry in Catalonia.

The hub's future:

NTT DATA's hub charts an ambitious course for the future with the goal of expanding its team from 60 to more than 120 highly skilled professionals over the next three years to cater for the needs of a growing market with huge potential.

Nonetheless, this growth will have to be coupled with a significant increase in private investment that will cement Barcelona's position as a key player in the global AI market.

“2023 is the year of generative AI and the widespread use of AI. It is the year in which for the first time everyone has grasped that AI is no longer a promise but rather is actually here and will transform not only our businesses but also our society.”

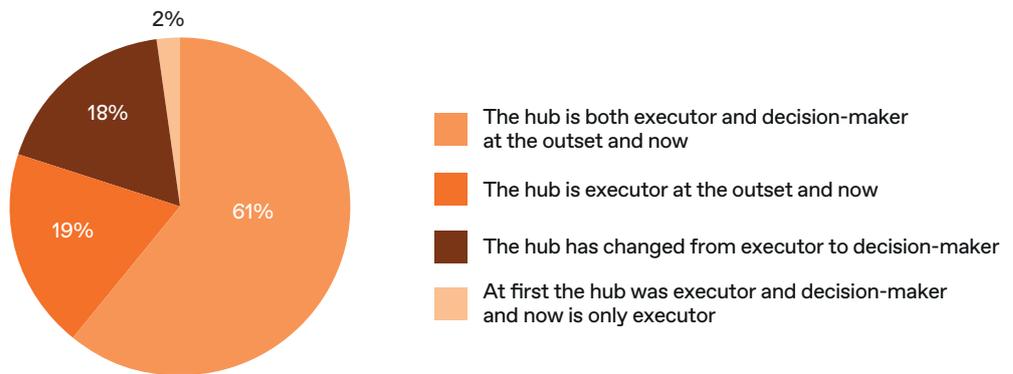


The role of Catalonia's hubs and their evolution

In addition to developing technology, 79% of Catalonia's tech hubs can also influence their parent company and take part in decision-making.

The hubs in Catalonia can influence the parent companies to which they report. Around 18% of the hubs that were initially engaged exclusively in tech development are now key players and take part in their parent company's strategic decision-making.

Change in the hub's role



8. Growth and achievements of the hubs in Catalonia



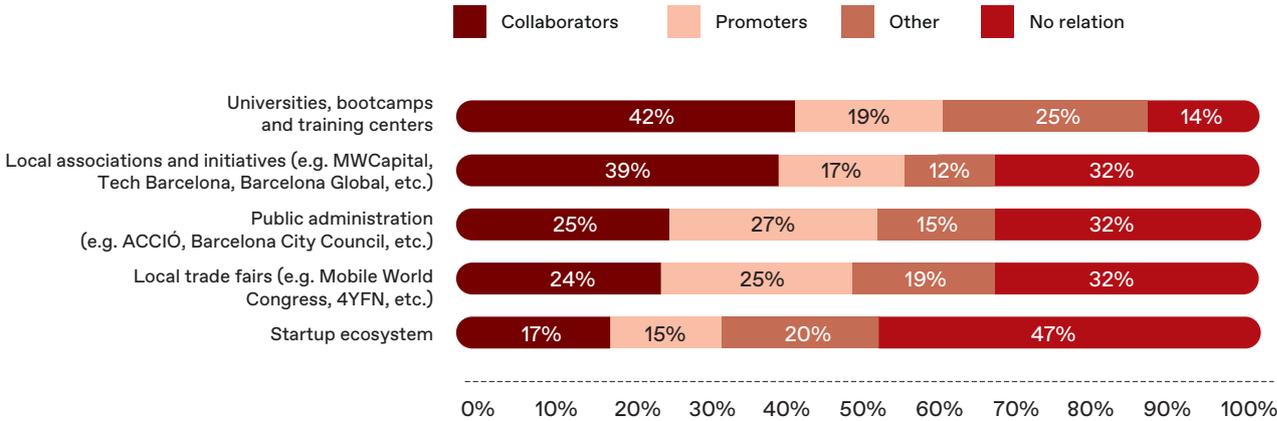
Growth and achievements of the hubs in Catalonia

The key role of the Catalan ecosystem

The tech hubs drive the Catalan digital economy in numerous aspects where relationships with educational institutions, local fairs such as the MWC and local associations and initiatives are pivotal.

Up to 86% of the hubs say they have some kind of relationship with universities, bootcamps and training centers, evidence of the hubs' engagement in fostering local talent. The ecosystem and partnership with the region are also essential in which 68% of them have ties with trade fairs, local associations and initiatives or public administration. The startup ecosystem is identified as an unresolved issue in most hubs' relationships.

Breakdown of the role of ecosystem stakeholders

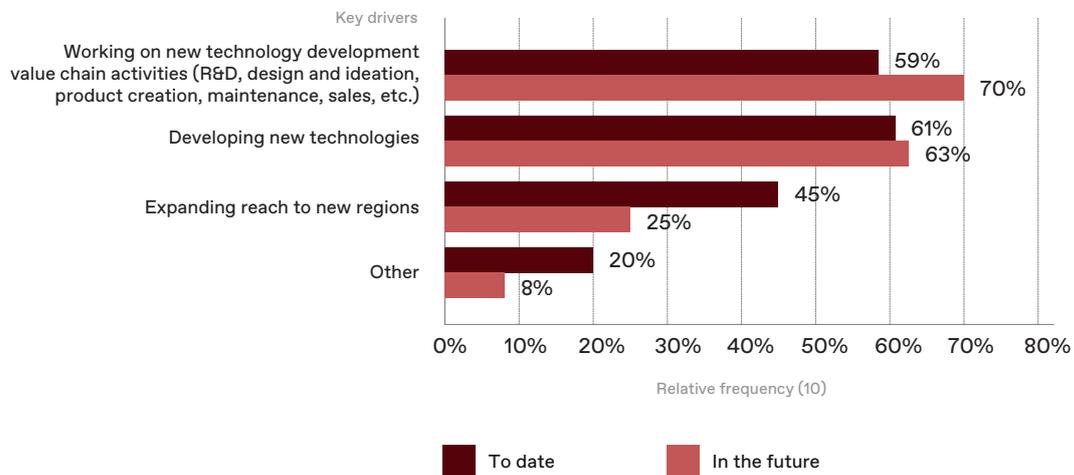


Growth of Catalonia's hubs in roles and scope of activities

Catalonia's hubs are steadily growing and taking on new roles; most of them which started up over two years ago are now performing new operations and/or working on new technologies.

In the immediate future, the hubs mainly expect to continue to expand their business operations and develop new technologies to keep on growing in the region.

Key growth drivers for the hubs in the region



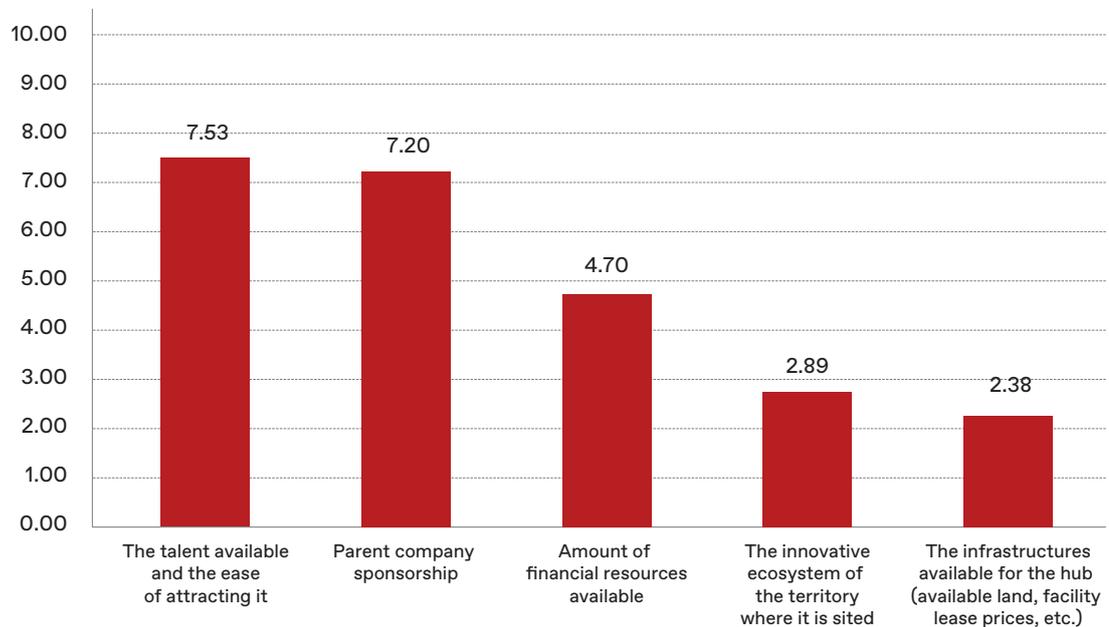
Key growth drivers for the hubs

Talent and the ability to attract it as key drivers to meet the growth expectations of Catalonia's hubs.

The hubs need highly skilled talent and Barcelona has local profiles with these features plus the ability to pull in talent from abroad. Looking to the future, hubs make their growth contingent on the availability of tech talent.

The parent company's sponsorship of the hubs is also a significant driver over and above financial resources available, the ecosystem and infrastructures.

Key growth drivers for hubs (prioritization on a scale from 1 to 10)

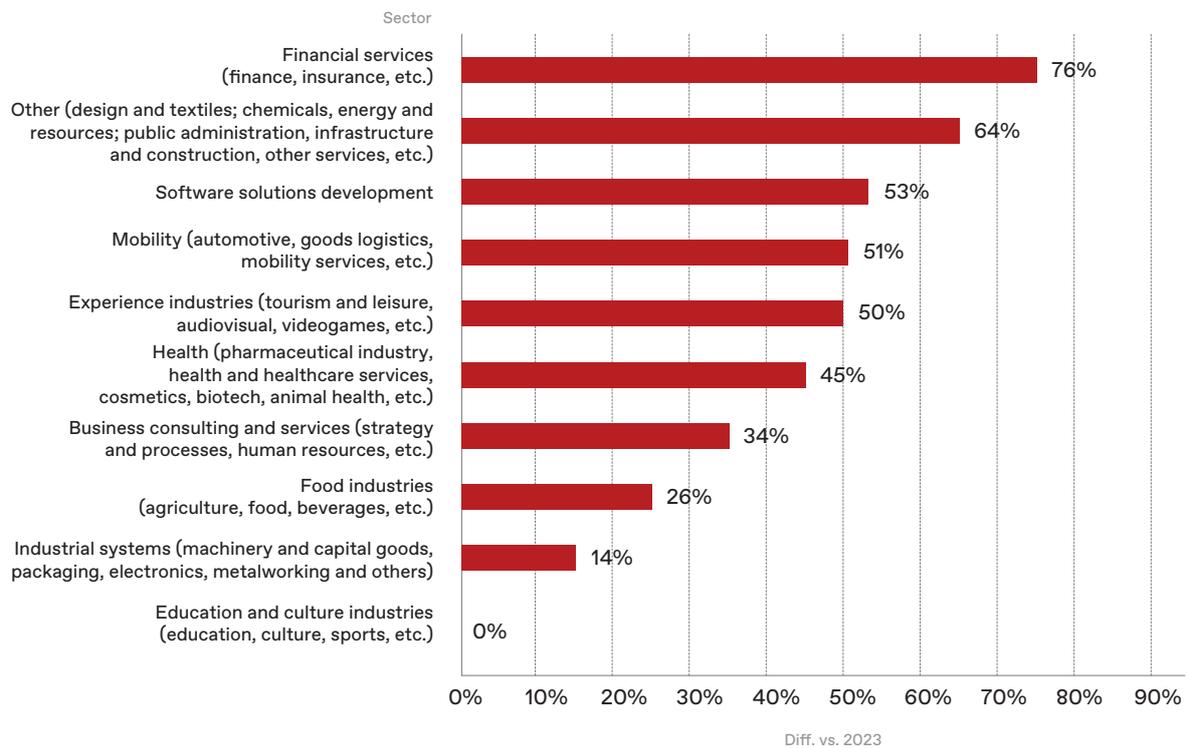


Expected growth of the hubs in staff numbers

The financial services sector, with exponential growth forecast for the coming years, expects to increase its number of employees by 76%.

The horizon is expanding for Catalonia's technology hubs, with the financial services sector leading growth expectations and looking to create more than 1,100 jobs by 2026.

Expected growth in the number of employees by 2026 by sector



9. Success stories



Success stories



Bayer GBS Barcelona

Success story: Groundbreaking innovation and efficiency in supply chain management.

Bayer Global Business Services Barcelona (GBS) exemplifies a paradigm of innovation and operational efficiency. With over 870 employees spanning 40 nationalities, GBS is a diverse spectrum of professional expertise and cultural standpoints.

GBS's main success is its 200-strong supply chain management (SCM) team. This team includes supply chain experts, data engineers and project managers who oversee supply chain operations for Bayer's Pharmaceutical and Over-The-Counter products.

The rollout of a unified SCM hub is a strategic initiative that enhances the management of Bayer's entire supply network. This approach not only enables standardization and automation of processes but also optimizes organizational structure. The results of this centralization are striking: a substantial reduction in operating costs, enhanced customer delivery metrics and improvements in forecast accuracy and forecast bias.



PepsiCo

Success story: Fast growth with talent attraction as the main driver.

After just three years and growing from one to 185 employees at present, PepsiCo's hub now leads priority global projects for the company.

The outstanding achievements of its multi-skilled tech team featuring data scientists, data engineers, product managers and other specialists include delivering digital programs harnessing artificial intelligence across various world markets such as Integrated Business Planning, Net Revenue Management, Holistic Cost Management and Sales Effectiveness.

The hub also picks out as an independent and complementary success story the capabilities and diversity of its digital talent made up of professionals of 37 nationalities. Likewise, the hub has recruited 50% female talent in 2023 to achieve the cultural and gender vibrancy of the center of excellence which helps towards an inclusive and collaborative work environment.





Boehringer Ingelheim

Success story: Leadership in ramping up efficiency and crafting synergies in data processing.

Ocado Technology's development center in Barcelona helps drive the online business of large supermarkets around the world and specializes in e-commerce.. Since it was set up 2016, its cross-functional digital team engaged in four areas (data engineering, products, data science and UX) has enabled it to achieve numerous milestones which unlock the rollout of extremely fast, convenient and secure consumer experiences.

The hub picks out success stories such as delivering technological features for the Ocado Smart Platform (OSP) comprehensive e-commerce platform which ranges from supermarket logistics to the consumer experience in the shopping process. As part of this platform, they have been involved in devising and developing features including Smart Shop, a technology harnessing machine learning to enable users to make quick and personalized purchases in seconds, a culinary chatbot powered by a large language model (LLM) and flash sales which suggest deals to the user based on their preferences and also designed to cut down on food waste.



Ocado Technology

Success story: Embedding next-generation technologies in the shopping cart.

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HP

Success story: Consolidating technological innovation in Catalonia and setting up a new hub specialized in digital design.

More than 30 years after HP's arrival in Sant Cugat with the opening of the HP International Center, the company is continuing to expand in Catalonia and foster technological talent in the region with a new global digital innovation and design hub in Spain inaugurated in October 2023 and called La Masia, HP Experience Design Center.

This new digital design hub will develop end-to-end digital solutions to enhance the consumer experience. To achieve this goal, the tech hub is to recruit 80 professionals with skills spanning product management, UX Design, UX Copywriting, visual design, UX Researchers, Frontend Developers and data science.

By setting up the hub, HP is building on its achievements so far in Catalonia and expanding them to other areas to drive the digital design excellence of the company and the region.



Nestlé

Success story: Internal and external digital transformation with a diverse and equal tech team.

Nestlé's tech hub in Barcelona has cemented its place as an outstanding leader in the city with stunning growth since its foundation in 2016. Hosting a workforce that has grown from 50 to more than 700 people, this center is now a key driver for the development and scalability of technology globally, covering all the company's brands, countries and areas.

An extremely diverse team bringing together over 50 nationalities and with about 40% women in the workforce has enabled the hub to bring greater speed, flexibility and efficiency to the parent company's digital processes to allow large-scale technology deployment.

Another of the hub's successes is setting up a virtual reality health and safety training center for the company's employees which makes information sharing more effective. They have also achieved external successes such as tapping consumer information gleaned from their coffee machines to enhance the customer experience¹.

¹ The information was taken from a February 2023 interview with Susana Pastor, Director of the Global IT Hub in Barcelona ([La fábrica digital de Nestlé en Barcelona explora el metaverso \(elnacional.cat\)](#)).





Sanofi

Success story: Leading the artificial intelligence revolution in the pharmaceutical industry.

With eight years of experience and now 400 workers, Sanofi's Global Innovation Center in Barcelona leads innovation and digital transformation for the entire group. The hub operates in areas as diverse as finance, the supply chain and the development of new technologies in general for the group.

As part of the group's newly launched artificial intelligence platform, pAI, which delivers an unprecedented 360° view of all Sanofi's operations, in conjunction with Aily Labs the Barcelona hub has designed and developed pAI.Supply, an application that predicts low inventory risks by tapping stochastic processes and root cause analysis and furnishes data-driven recommendations for mitigating contingencies and building resilience.

This success has positioned the hub as the group's leader in terms of expertise in artificial intelligence and its application to the pharmaceutical industry in order to deliver better treatments to patients.



Zurich

Success story: Experience, innovation and ongoing growth through disruptive digital solutions.

Although it was set up in Barcelona more than 15 years ago, the Zurich Group's Technology Delivery Center is seeing significant growth. It began 2021 with 475 tech sector professionals, a figure which rose to 600 in 2022, and it has ended 2023 with a 740-strong workforce.

This constant and substantial growth clearly displays the hub's productivity to the group and confirms its ability to deliver outstanding digital solutions in all the services and products marketed in Zurich's key strategic areas such as intelligence artificial, the cloud, data analytics, robotics, automation, cybersecurity, UX/UI, and app development.

The Technology Delivery Center team's growth not only reflects the organization's strength but also its commitment to leading the technological present and future.





Ingram Micro

Success story: Galvanizing the business of third companies by tapping new generation technologies.

Set up only three years ago, Ingram Micro's tech hub in Barcelona delivers high added value services and projects (engineering and R&D and innovation) for the group, especially in digital technologies (cloud),² business intelligence and digital transformation.

As part of these technologies, the hub works on highly technologically complex computer applications to craft an ecosystem made up of various online platforms (Xvantage and CloudBlue) which allows third parties to access and leverage on a single platform all kinds of tech products and services such as SaaS, IaaS, XaaS², hardware, software, cloud solutions and services.

The organization has generated over 350 jobs at its digital hub in recent years, a key commitment to ensure the tech hub is positioned worldwide as a leader in the technologies and services it develops.



Schneider Electric

Success story: Harmonizing the parent company's processes and data.

Schneider Electric's multidisciplinary hub develops technologies for its parent company ranging from big data and the cloud to artificial intelligence and blockchain. An indicator of the hub's importance for the group is that in 2023 it has expanded its workforce by 40%, thus exceeding its growth expectations.

The hub picks out its leadership in the UNIFY project to unify Schneider Electric's global processes and data in a single ERP which will make it possible to streamline the company's decision-making and enhance its relationship with customers and suppliers alike.

The impact of this transformation will benefit over 135,000 employees in more than 110 countries. To attain this goal, the hub will draw on the SAP S/4HANA Public Cloud Edition ERP which will enable them to have an easily scalable and updatable model to ensure they are always at the forefront.

² Software as a service, infrastructure as a service and anything as a service respectively.





IBM

Success story: Tailoring state-of-the-art technologies to the local needs of businesses and public institutions.

Run by a leader in developing cloud and artificial intelligence solutions for businesses, IBM's hub in Barcelona helps to devise state-of-the-art technologies aimed at improving company processes and digitally transforming them.

As a company that supports both private organizations and public institutions, one of the hub's great achievements was its pivotal role in creating and maintaining the app to manage COVID-19 vaccination in Catalonia. By delivering this service which provided an essential social benefit at a time of great needs, the hub showcased its outstanding efficiency and efficacy during an uncertain and challenging time.





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