Digital Talent Overview 2021

Analysing the state of digital talent

Barcelona Digital Talent

On
Barcelona Digital Talent

Barcelona Digital Talent combats the current digital talent gap to promote market competitiveness. To position Barcelona as the talent capital, the programme promotes reskilling digital skills for local professionals and attracting new professionals to the market, both nationally and internationally.

Esta alianza está impulsada por Mobile World Capital Barcelona, Cercle Tecnològic de Catalunya, 22@Network, Tech Barcelona, Foment del Treball Nacional, Barcelona Global, PIMEC, Ajuntament de Barcelona y Generalitat de Catalunya.

For more information, visit barcelonadigitaltalent.com

Promoted by:

Corporate partners:

This report has been led by the **Government of Catalonia, Mobile World Capital Barcelona** and **Cercle Tecnològic de Catalunya** in the framework of the **Barcelona Digital Talent** alliance.

Contents

Methodology

Methodology

At the methodological level, this study draws on different sources of information:

- Firstly, based on a desk research phase, reference publications are identified both locally and internationally that provide reliable indicators for monitoring different parameters linked to digital talent.

- Secondly, through data analytics, different job offer platforms are scanned to obtain market data on both the demand side (hiring companies) and the supply side (professionals with a digital profile) - TalentUp

- Finally, the views of senior management of relevant companies in the sector are added to reinforce or qualify the data analysed.

Executive Summary

Employment of ICT specialists in Europe is growing 6 times more than in all other professions

Over the period 2011 - 2019, employment of technology specialists in Europe has grown by 40%, which contrasts with the 6.9% growth in employment in the European economy as a whole for the same period.

By 2020, ICT professionals will account for 4% of total European employment. Finland (7.2%) and Sweden (6.8%) are the countries with the highest penetration of these professionals in their labour markets.

Ratio of the number of people employed as ICT specialists to total employment, EU

2011 - 2019

█ Total employment   █ ICT specialists   ▲ Increase

Shortage of women in technology remains a challenge for the European economy

By 2020, 1 in 5 digital professionals in Europe will be a woman. Bulgaria, with 28.2%, is the country with the highest representation of women, and Greece has experienced the highest growth over the last decade (from 19% to 26.5%), well above the overall growth of 1.5 points.

In terms of cities, Barcelona has 29% of women in the digital sector, 2.5 points higher than in 2019.

29,07%
Barcelona

30,54%
Madrid

30,57%
London

26,76%
París

28,87%
Ámsterdam
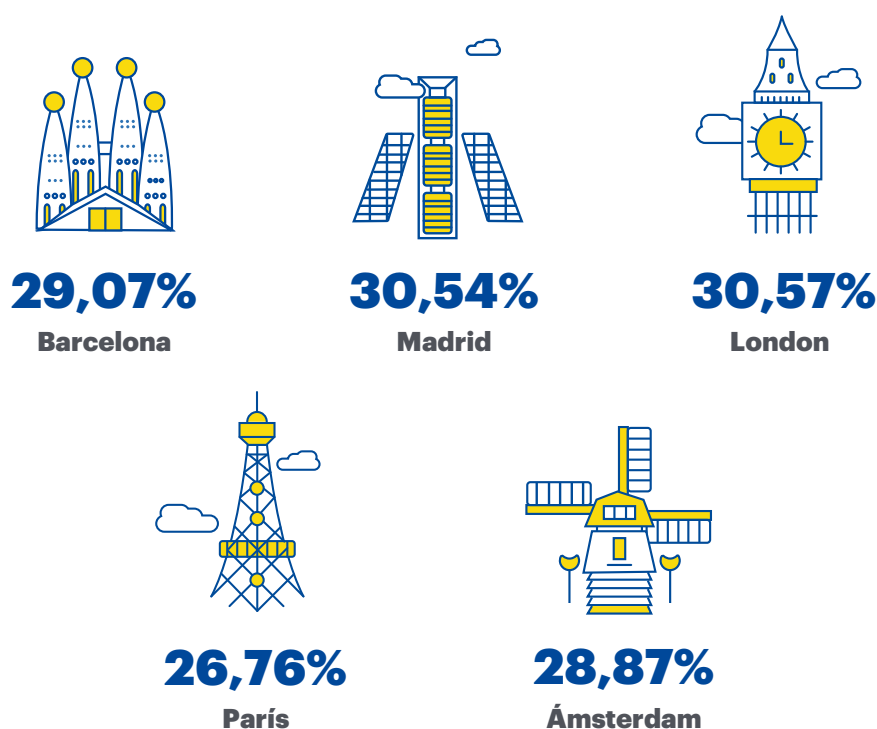
High interest in international mobility, an opportunity for talent attraction

Around half of the European ICT professionals are interested in working outside their home country. The primary motivation for professionals in Northern Europe is to broaden personal experience. At the same time, in Southern Europe, the search for career opportunities predominates and improved salary prospects among Eastern European countries.

London, Amsterdam, Dubai and Berlin are the cities generating the most interest from international ICT talent. Barcelona remains in the TOP 10, although it drops 5 positions compared to 2018.

US, UK, Switzerland and Canada lead in academic excellence in technology

MIT and Stanford University remain the top-ranked universities in the world rankings. The first European universities are the Universities of Oxford and Oxford University and Cambridge, ranked 5th and 6th. The Polytechnic University of Catalonia is the best positioned in Spain, although it is not in the TOP 50 worldwide.

1 International
Massachusetts Institute of Technology (MIT)
United States

1 European
University of Oxford
United Kingdom

1 Spanish
Polytechnic University of Catalonia Barcelona
Catalonia

Digitisation and technological skills at the top of the Next Generation Funds agenda

Germany (50%), Spain (30%) and Italy (27%) are the economies that will invest the most in the digital transition in the deployment of Next Generation funds. Within these plans, innovative initiatives aiming to accelerate digital skills among the population stand out, such as the Italian Digital Civil Service project, which will hire thousands of young people to help them acquire basic digital skills, or the French AI booster initiative, which will help SMEs to apply and develop Artificial Intelligence skills.

Percentage devoted to Digital Transition

2021

Country	Percentage
Germany	50%
Spain	30%
Italy	27%
France	25%
Greece	25%
Portugal	22%
Poland	20%
Romania	20%
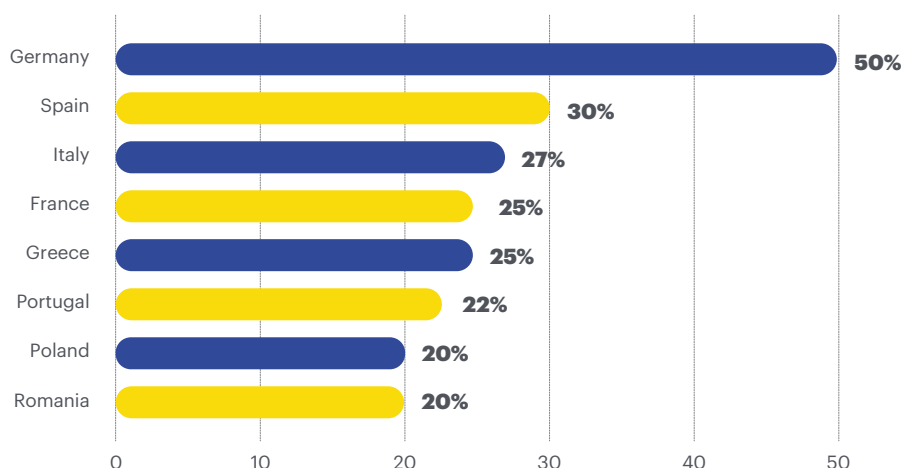
Catalonia, a hub of digital talent, with a high concentration in the Barcelona hub

The ICT sector generated 14,700 jobs in 2020 in Catalonia, reaching a total of 129,000 professionals. This evolution has meant an increase of 12.8% compared to the last quarter of 2019, a trend that contrasts with the 3.1% drop in employment in the ICT sector in the Spanish economy.

In terms of digital profiles, Catalonia had more than 88,000 professionals at the end of 2020. 95% of these are concentrated in the Barcelona area, accounting for 97% of digital job offers in the last quarter of 2020.

Supply and demand of digital profiles in Catalonia

2020

	Catalonia	Barcelona	Girona	Lleida	Tarragona
Digital professionals total in 2020	88.216	84.120	966	882	2.248
Total digital demand in 2020 (3M)	4.444	4.297	46	39	62
Number of digital professionals by offer of work (2020)	20	20	21	23	36

Two out of ten job vacancies in 2020 were digital. This was double the proportion of 2018 when they accounted for one in ten offers

The Barcelona ecosystem has generated 6,700 new professionals in 2020, representing an annual increase of 9% in the total volume of digital talent.

Job vacancies for this type of professional are around 4,000 positions per quarter, a figure similar to the 2018 indicator but 15% lower than the 2019 data. The ratio of offers in the digital sector to all other sectors has increased: in 2018, 1 in 10 offers were digital and by 2020, 2 in 10. This adjustment is well below the drop in job vacancies in the economy as a whole in Barcelona, which has fallen by 43% compared to the previous year.

Barcelona's digital talent specialises in the areas of web and mobile app development, UX/UI design and CRM and ERP consultants. These four specialities add up to more than 61,000 professionals, 73% of the city's technological talent.

Cybersecurity, agile development methodologies, Internet of Things, Blockchain and Computer Vision, are the specialisations with the most significant shortage of digital talent.

Market tension

2019 - 2020

	Digital professionals	Other professionals (all sectors)
2019	1 offer = 15.2 professionals	1 offer = 36.3 professionals
2020	1 offer = 19.6 professionals	1 offer = 68.9 professionals

VET and ICT degrees generate 65% of new digital talent

In 2020, 1,735 ICT students graduated from Catalan universities, increasing more than 5% over the previous year. However, student retention remains a challenge: after 4 years of starting studies, for every 10 students, 4 have dropped out of the system or jumped to other studies, and only 2 have graduated on time.

VET has been a real driving force for the generation of ICT talent. In 2020, 2,700 students graduated from these studies, 20.5% more than the previous year. Low demand among women (only 7% of enrolments) remains one of the main challenges in these studies.

Barcelona continues to attract talent from other cities, but at a slower pace

More than 24,600 digital professionals in the Barcelona ecosystem come from other cities (29.27%). In 2020, Barcelona imported 1,733 professionals, less than the 4,083 specialists attracted in 2019. London and Madrid are the main exporting cities, generating 20% of the talent from other cities..

Competitive salaries

The average salary received by ICT professionals in Barcelona is €37,692. This figure is slightly higher than in 2019 and is around €7,000 higher than the average gross salary received by all professionals in Barcelona (€30,807). Although this remuneration is far from cities like London (€69.330), when normalising the salary by the cost of living, Barcelona's salaries are comparable to cities like Paris or Amsterdam

Digital professional salaries by city

2020
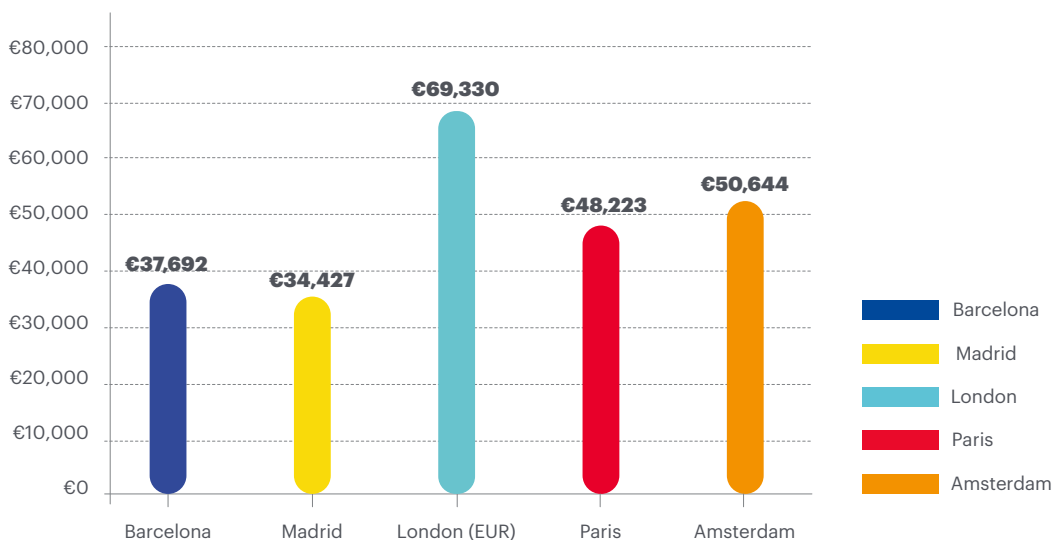
1

Global digital talent trends

The occupation of digital talent in Europe

The employment of professionals employed as ICT specialists in Europe increased by 40% in 2011-2019, while the employment of all professionals has increased by 6.9% in the same period.

It shows that the demand for digital talent in Europe is growing at almost 6 times the overall employment growth rate. Likewise, the incorporation of ICT professionals in the market has been constant since the beginning of the period.

Ratio of the number of people employed as ICT specialists to total employment, EU

2011 - 2019

Source: Eurostat
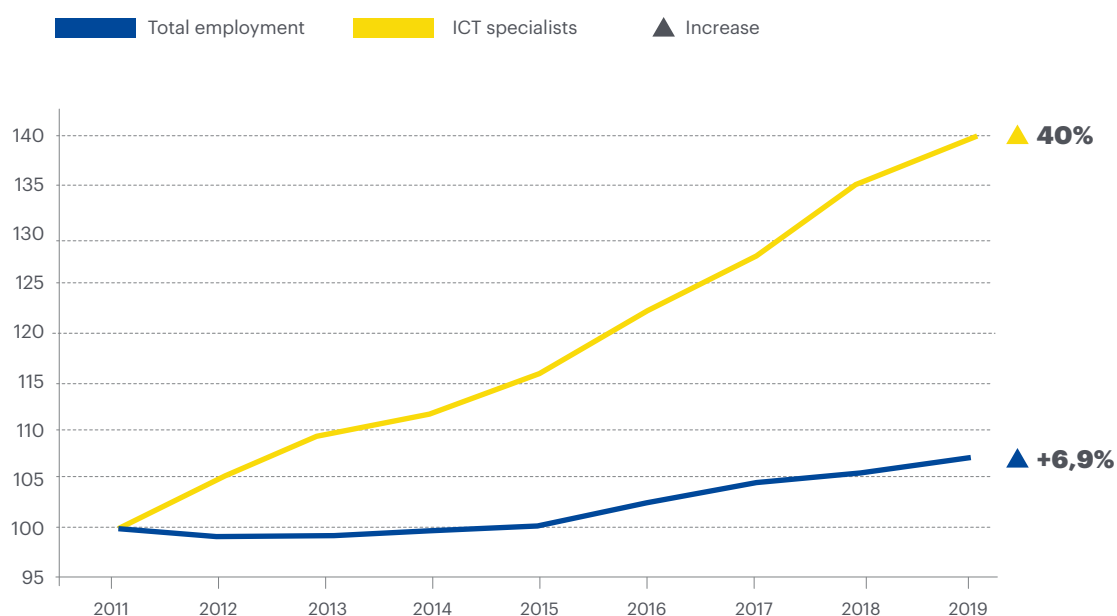
In Europe, 4% of recruited professionals are digital professionals. Finland and Sweden are the two countries with the highest proportion of ICT professionals, with more than 6% of the employed population working in this sector.

Below the European average, most southern countries such as Portugal (2.4%), Spain (3.2%), Italy (2.8%) or Greece (1.8%) are below the European average, although countries such as Germany (3.9%) or France (3.9%) also stand out.

ICT employees out of the country total (%)

2020

Country	%
Finland	7,2%
Sweden	6,8%
Estonia	5,7%
Luxembourg	5,6%
Netherlands	5,4%
United Kingdom	5,1%
Belgium	4,8%
Malta	4,8%
Austria	4,5%
Denmark	4,3%
Ireland	4,3%
Czech Republic	4,1%
Slovenia	4%
European Union	3,9%
Germany	3,9%
France	3,9%
Hungary	3,7%
Croatia	3,5%
Slovakia	3,2%
Spain	3,2%
Bulgaria	3%
Poland	3%
Italy	2,8%
Lithuania	2,7%
Cyprus	2,7%
Portugal	2,4%
Romania	2,2%
Greece	1,8%
Latvia	1,7%
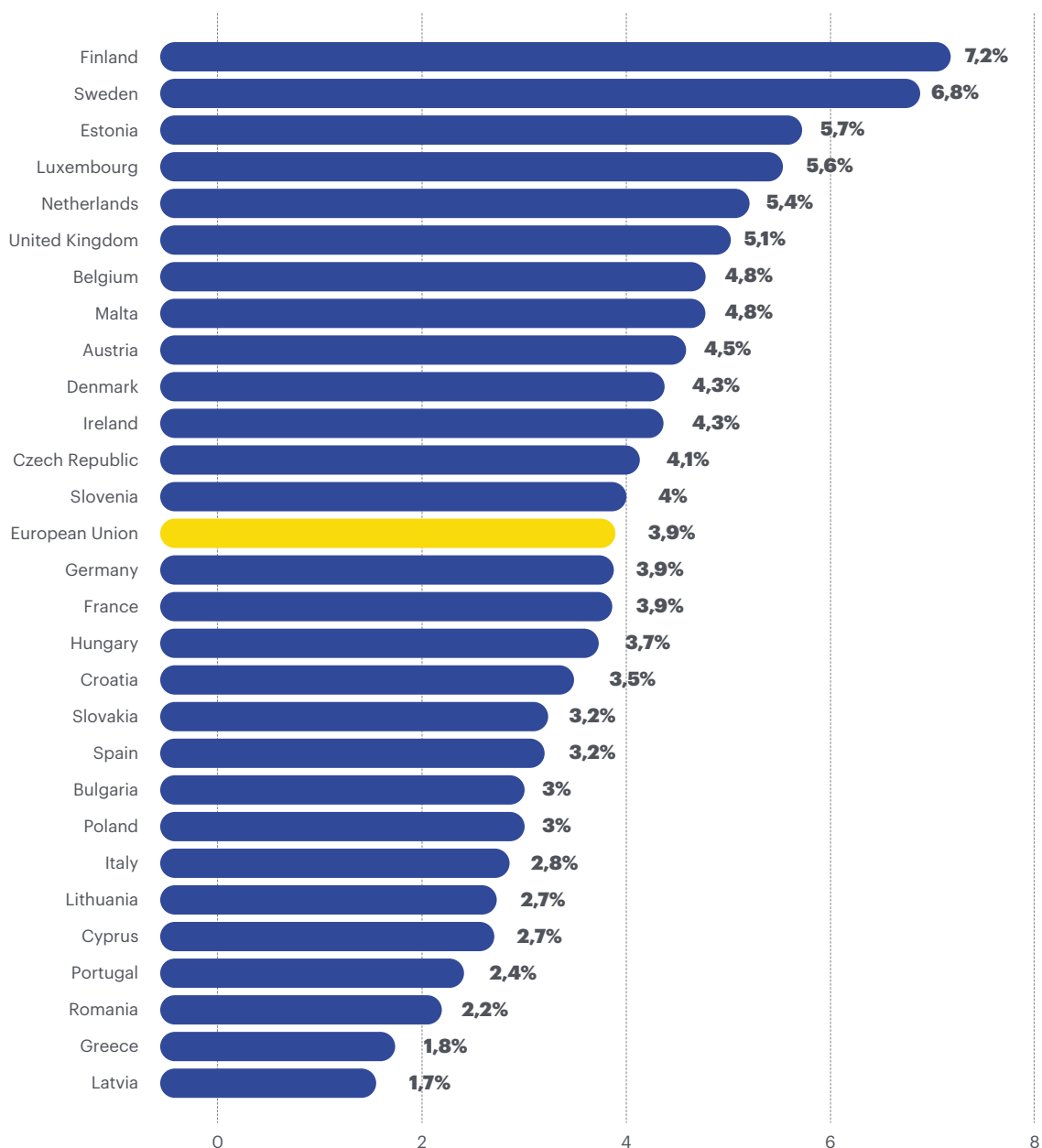
Source: Digital Economy and Society Index (DESI)

The gender gap in Europe

The average number of female ICT specialists employed in the technology sector represents on average 19.5% of the sector's employment in Europe. Compared to 2011, there was an increase of 1.5%, although there is still a long way to go.

Countries such as Bulgaria and Greece lead the European ranking in the recruitment of female ICT specialists. Gender parity is approaching in areas of digital knowledge such as User Experience Designer (43%) or Product Manager (40%), while in the rest of the technological profiles, there is still a significant gap.

% of women and men employed by technical speciality in Europe

2019

■ Male
■ Female

Speciality	Male	Female
Devops engineer	80%	20%
Full stack developer	79%	21%
Android developer	78%	22%
IOS developer	77%	23%
PHP developer	76%	24%
Backend developer	76%	24%
Java developer	75%	25%
Data engineer	75%	25%
Frontend developer	73%	27%
Data scientist	69%	31%
Quality assurance engineer	62%	38%
Product manager	60%	40%
User experience designer	57%	43%

0   20   40   60   80   100
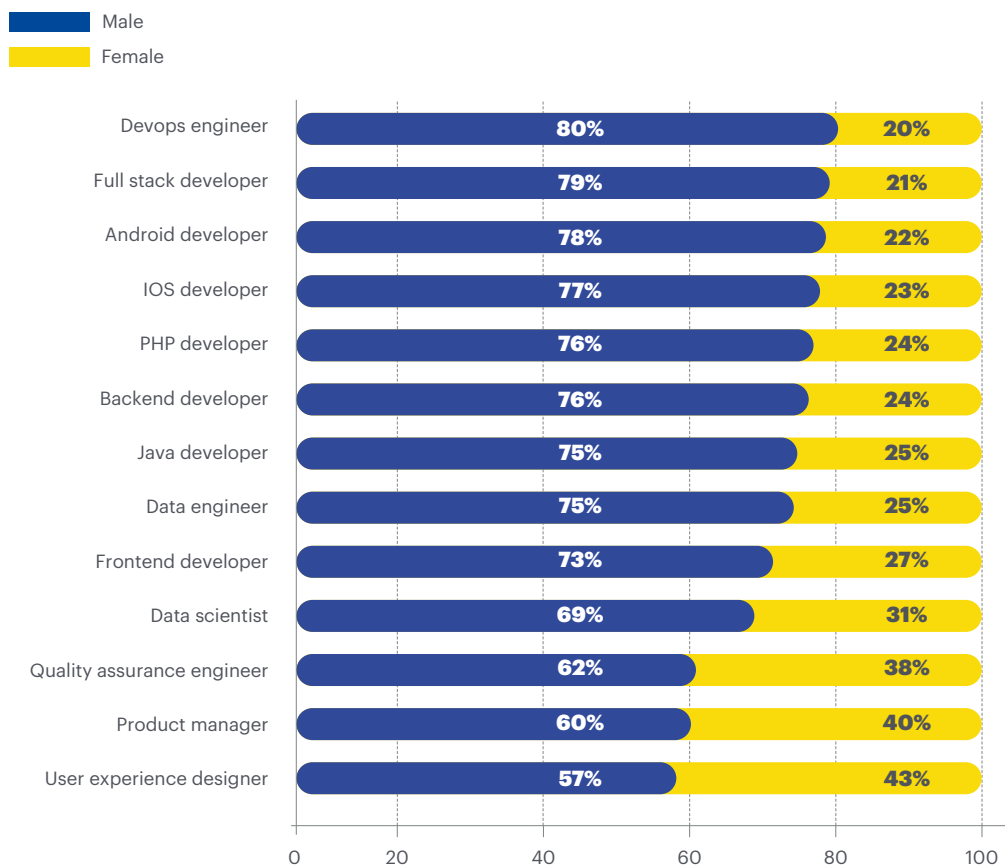
Women ICT specialists recruited (%) in Europe

2011 - 2020

■ 2011
■ 2020

Country	2011	2020
Bulgaria	32,1%	28,2%
Greece	19%	26,5%
Romania	21,7%	26,2%
Finland	19,1%	23,3%
Latvia	24%	22,9%
Denmark	19,5%	22,3%
Estonia	23,8%	22,1%
Portugal	18,9%	21,8%
Sweden	19%	21,3%
Ireland	24,2%	20,7%
Austria	13,2%	20,3%
France	19,7%	20,1%
Spain	20,2%	19,8%
Luxembourg	12,7%	19,8%
UE28	18%	19,5%
Germany	16,4%	18,2%
Croatia	14,2%	18,1%
Cyprus	20,7%	18,1%
Netherlands	12,9%	17,6%
Belgium	16,6%	17,4%
Slovenia	15,8%	17,3%
Slovakia	17,5%	15,8%
Italy	14,6%	15,7%
Poland	14,2%	15%
Hungary	9,5%	12,3%
Malta	17%	11%
Czech Rep.	10,6%	10,3%

Source: Eurostat

Level of training in digital skills in Europe

The digital professionals with the highest index of advanced ICT skills and development are located in Finland (80), Estonia (73) and Sweden (72), with a weighting out of 100 for their technical ICT skills.

According to the Digital Economy and Society Index, which weights the level of digital skills training, the number of professionals in the sector and the number of women ICT specialists employed in the country, southern European countries such as France (40), Spain (38), Portugal (24) or Greece (22) show a competence index below the European average weighted at 42 in digital skills.

Index of advanced skills and development in ICT specialists. Score 0 - 100

2020

Country	Score
Finland	80
Estonia	73
Sweden	72
Malta	66
Ireland	59
Luxembourg	54
United Kingdom	52
Denmark	51
Netherlands	50
Germany	49
Croatia	46
Slovenia	44
Belgium	43
Czech Rep.	42
European Union	42
Bulgaria	42
France	40
Romania	39
Spain	38
Hungary	38
Poland	34
Slovakia	33
Lithuania	33
Latvia	29
Cyprus	28
Italy	25
Portugal	24
Greece	22
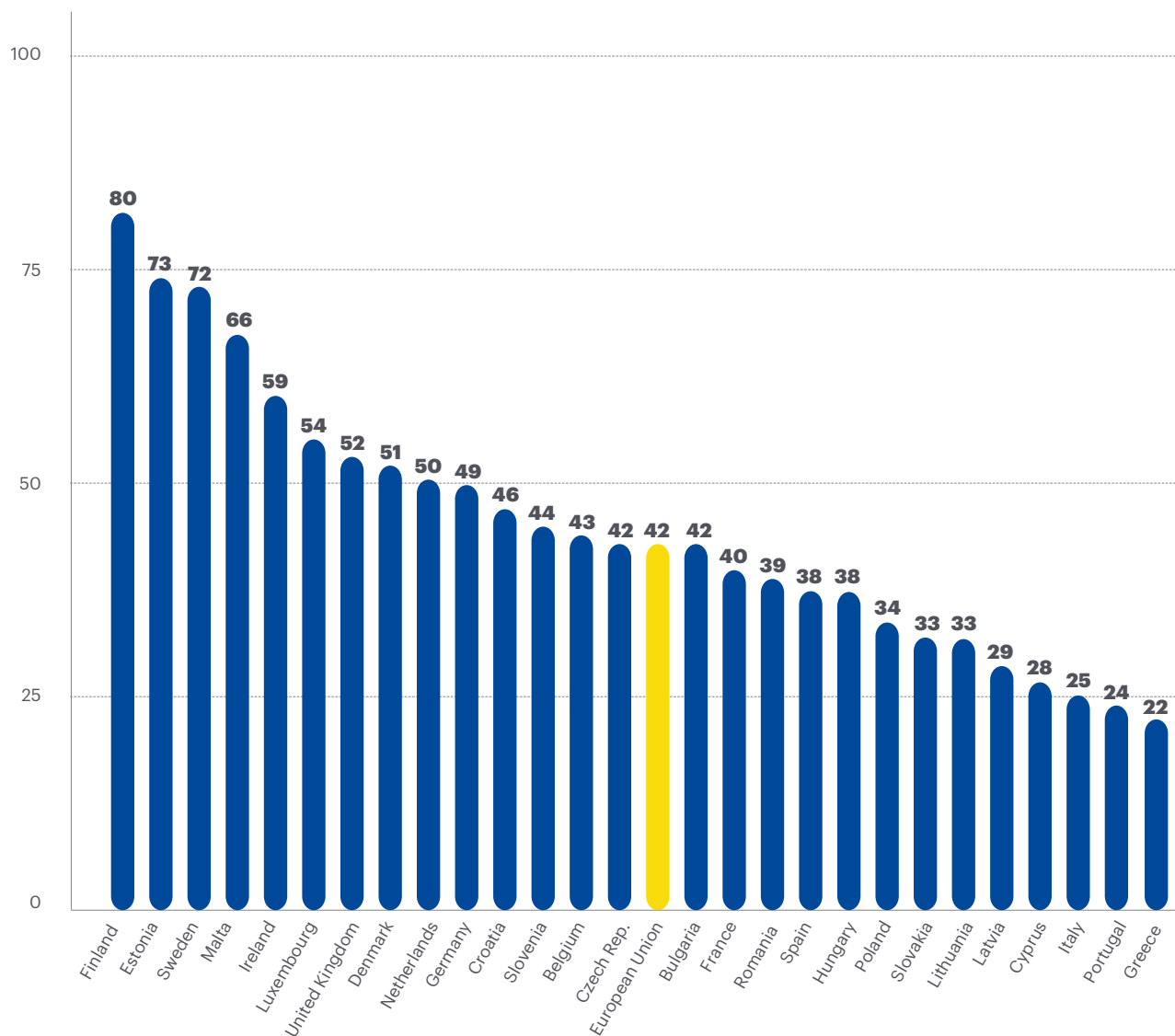
Source: Digital Economy and Society Index (DESI)

―――――――― « »

"The demand for digital talent continues to grow and requires specialised solutions from institutions and organisations to stay ahead of technological changes. At Ironhack we take this commitment in all our aspects: offering an education model focused on the development of the digital economy, helping companies with the reskilling of their workforces and providing opportunities to all those who wish to specialise in a digital career.

As a technology school, we remain focused on training the next generation of digital talent and seek to democratise access with funding solutions tailored to the needs of each of our students.

We work with the clear objective of reducing the digital divide and enabling Barcelona to position itself as a leader in the training of skilled and competitive digital professionals capable of transforming the digital ecosystem. We are backed by 8 years of experience and more than 9,000 graduates with an employability rate of more than 80%. These figures are a source of pride for us, as is seeing the ability of our students to transform their careers through technology."

Tiago Santos

Managing Director of Ironhack

Difficulty in finding competent profiles in Europe

The Czech Republic, Austria and the Netherlands are the most difficult countries to find a specific digital professional profile, as the development of their companies generates specific needs where it is more difficult to find competent CVs.

In Spain or Greece, these needs are blurred. The presence of low levels of difficulty in finding suitable profiles may be due to several factors, such as the fact that demand is not so demanding or that the sample of companies analysed does not correspond to specific hubs where technological development is at its most specialised.

Companies reporting hard-to-fill vacancies for ICT specialists

2020

Legend:

- 0
- 15
- 30
- 45
- 61
- 76
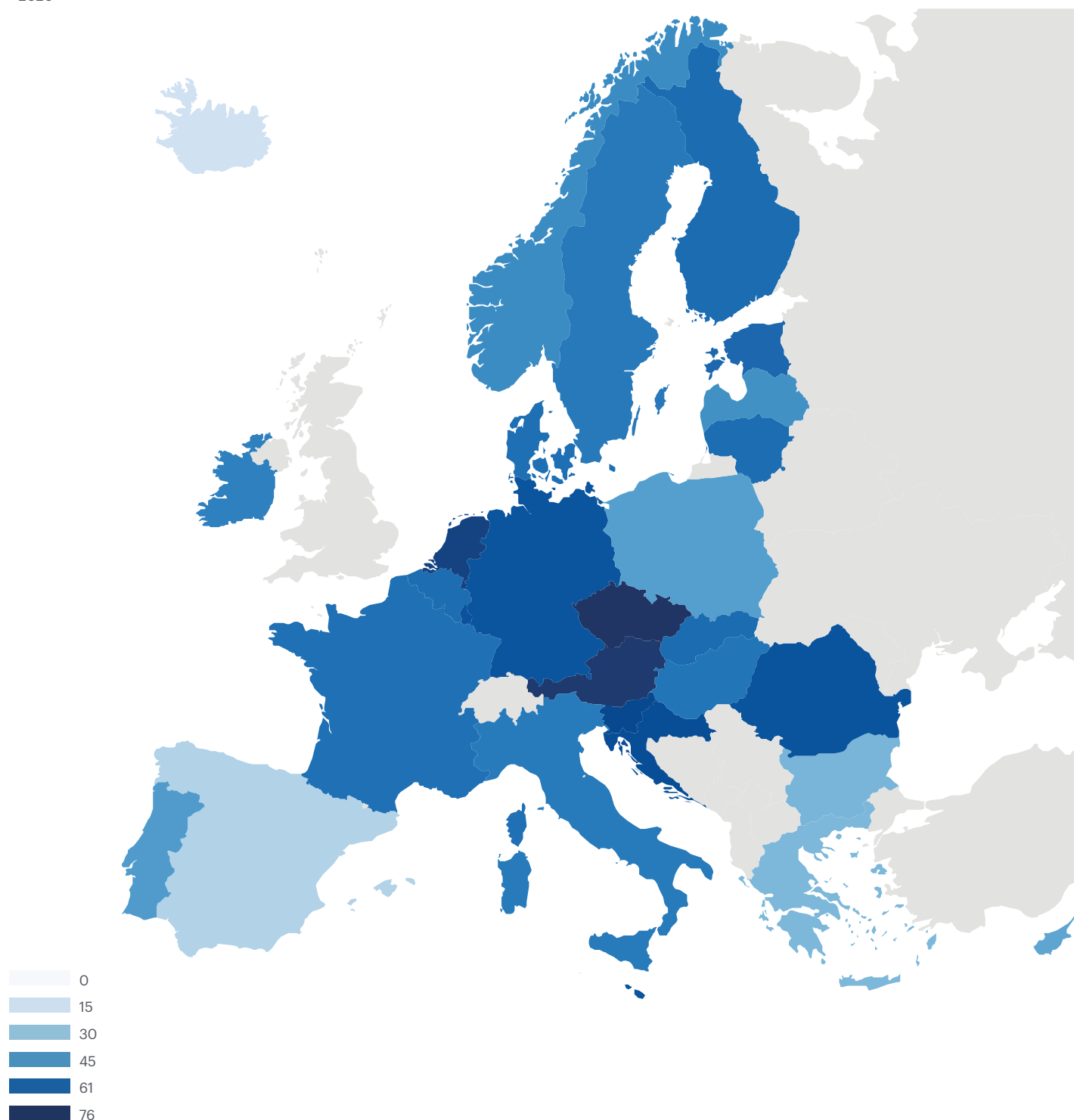
Source: Digital Economy and Society Index (DESI)

The mobility of digital talent in Europe

In 2018, 56% of European digital professionals were interested in working outside their home country. In 2020, this trend declined across the board to 49%. The Covid-19 pandemic is likely to have been one of the reasons for this reduced interest.

Professionals from Sweden, Belgium and Italy show the highest interest in working in another country in 2020. Denmark, on the other hand, has seen the sharpest decline in this type of motivation.

Interest in working abroad

2018 - 2020

■ Interest in working abroad 2020
■ Interest in working abroad 2018
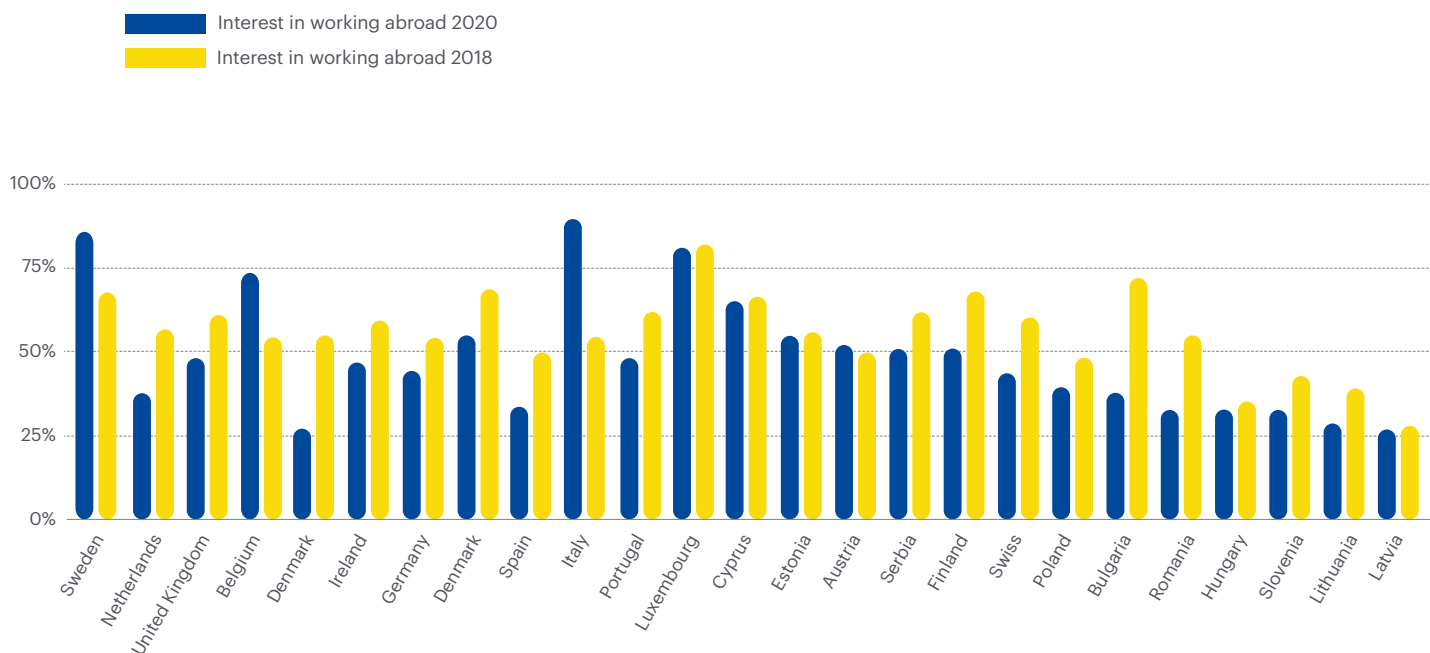
Source: The Network. Decoding Global Talent, Onsite and Virtual (2020)

Among the main motivations highlighted by professionals interested in working abroad are: gaining significant personal experience and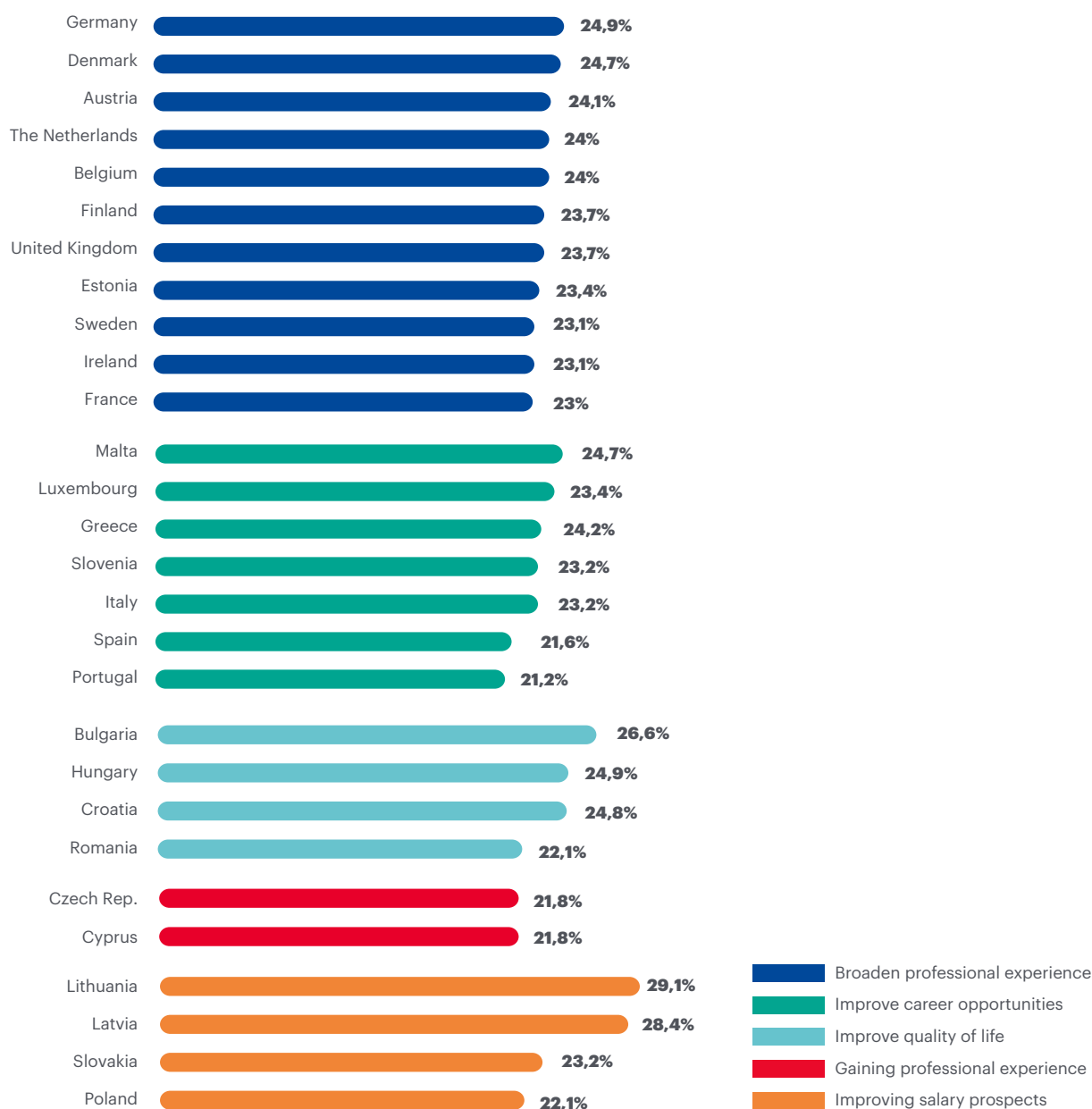 the search for better career opportunities. Professionals from southern European countries such as Italy and Portugal are more interested in seeking better job opportunities.

Main motivation for working outside the home country

2020

Country	Value
Germany	24,9%
Denmark	24,7%
Austria	24,1%
The Netherlands	24%
Belgium	24%
Finland	23,7%
United Kingdom	23,7%
Estonia	23,4%
Sweden	23,1%
Ireland	23,1%
France	23%
Malta	24,7%
Luxembourg	23,4%
Greece	24,2%
Slovenia	23,2%
Italy	23,2%
Spain	21,6%
Portugal	21,2%
Bulgaria	26,6%
Hungary	24,9%
Croatia	24,8%
Romania	22,1%
Czech Rep.	21,8%
Cyprus	21,8%
Lithuania	29,1%
Latvia	28,4%
Slovakia	23,2%
Poland	22,1%

Legend:
- Broaden professional experience
- Improve career opportunities
- Improve quality of life
- Gaining professional experience
- Improving salary prospects
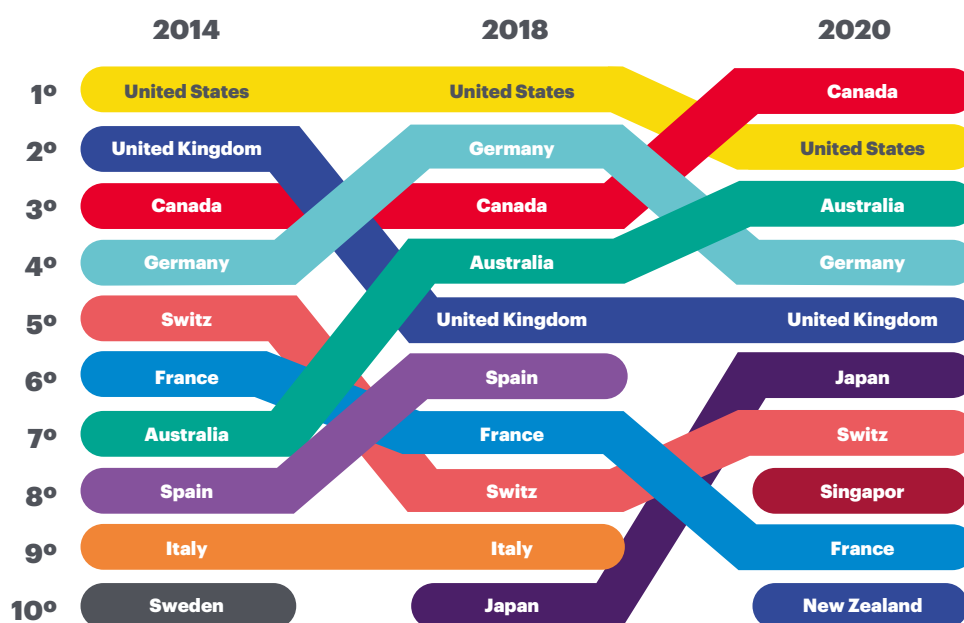
Most popular destinations to work in digital

Canada, the United States and Australia are the three countries where digital professionals are most interested in working, according to 2020 data. Spain and Italy, previously ranked in the top 10, have dropped out of the ranking, and new destinations such as New Zealand and Singapore have taken their place.

From the perspective of the most attractive cities to work in, London, Amsterdam and Dubai stand out. Barcelona remains in the ranking of the top 10 cities with the most significant interest in digital talent.

At the European level, digital professionals prefer to work in countries such as the United States, Germany, the United Kingdom and Canada. Switzerland, Sweden and Spain are selected mainly because of their physical and cultural proximity.

Most desirable countries for digital professionals to work in globally
2014-2020

	2014	2018	2020
1º	United States	United States	Canada
2º	United Kingdom	Germany	United States
3º	Canada	Canada	Australia
4º	Germany	Australia	Germany
5º	Switz	United Kingdom	United Kingdom
6º	France	Spain	Japan
7º	Australia	France	Switz
8º	Spain	Switz	Singapor
9º	Italy	Italy	France
10º	Sweden	Japan	New Zealand

Most desirable Cities for digital professionals to work in globally

2020

18%
London
0

15%
Amsterdam
+3

14%
Dubai
+3

13%
Berlin
-1

11%
Abu Dhabi
+9

11%
Tokyo
+4

11%
Singapore
+8

10%
New York
-6

9%
Barcelona
-5

8%
Sydney
-1
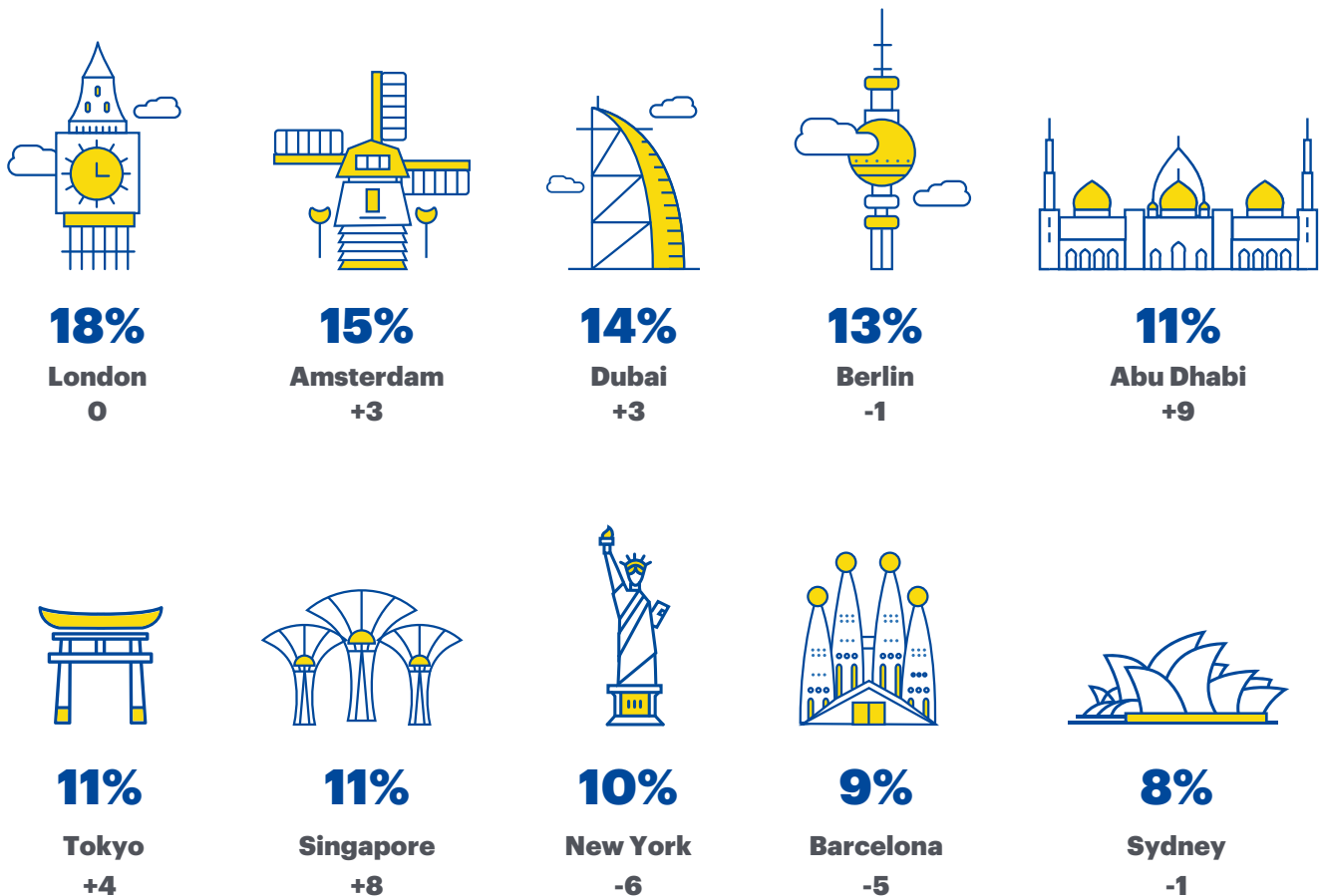
% interest in moving to the city
º+/- change in ranking from 2018 to 2020

Source: Decoding Global Talent, Onsite and Virtual (The Network, 2020)

Where digital professionals want to work

2020

País	Interest 1	Interest 2	Interest 3
Germany	United States	Switzerland	United Kingdom
Austria	Germany	Switzerland	United Kingdom
Belgium	France	Canada	United States
Bulgaria	Germany	United Kingdom	Switzerland
Cyprus	United States	Canada	Spain
Croatia	Germany	Austria	United Kingdom
Denmark	United States	Germany	Sweden
Slovakia	Czech Rep.	Austria	Germany
Slovenia	Austria	Germany	United Kingdom
Spain	United States	Germany	United Kingdom
Estonia	Finland	United States	Sweden
Finland	United Kingdom	United States	Sweden
France	Switzerland	Canada	United States
Greece	United Kingdom	United States	Switzerland
Hungary	Austria	Germany	United States
Ireland	United States	United Kingdom	Canada
Italy	United Kingdom	United States	Germany
Latvia	Germany	United Kingdom	United States
Lithuania	Germany	United Kingdom	Norway
Luxembourg	Switzerland	Germany	Canada
Malta	United Kingdom	Australia	United States
The Netherlands	United States	Australia	Canada
Poland	Germany	United Kingdom	United States
Portugal	Spain	United Kingdom	Germany
United Kingdom	Australia	United States	United States
Czech Rep.	Germany	Austria	United Kingdom
Romania	Germany	United Kingdom	France
Sweden	United States	United Kingdom	Germany

———— « »

"In March 2020, as a result of Covid-19, enterprises that still relied heavily on on-premises infrastructure urgently migrated to the cloud, which significantly impacted the capabilities of cloud providers, as, at the same time, those that were already in the cloud also significantly accelerated their digitisation.

The pandemic also demonstrated that physical presence in the company is not an absolute necessity. International companies have started recruiting in the main Spanish technology hubs, further accentuating the demand for IT profiles and thus generating significant inflation of the salaries offered to IT specialists, more specifically systems engineers and cloud architects (AWS and Azure), cybersecurity experts, Data Scientists, DevOps engineers and, of course, developers, both frontend (Angular, React and Vue) and backend (C#, Python, Java) to develop new applications or profoundly transform some existing but functionally or technologically outdated ones.

For Spanish companies, it is essential to be able to differentiate themselves so that they can not only recruit but also retain their talent. This requires projects and attractive technologies, but also modern methodologies and working conditions, continuous training and transformational leadership."
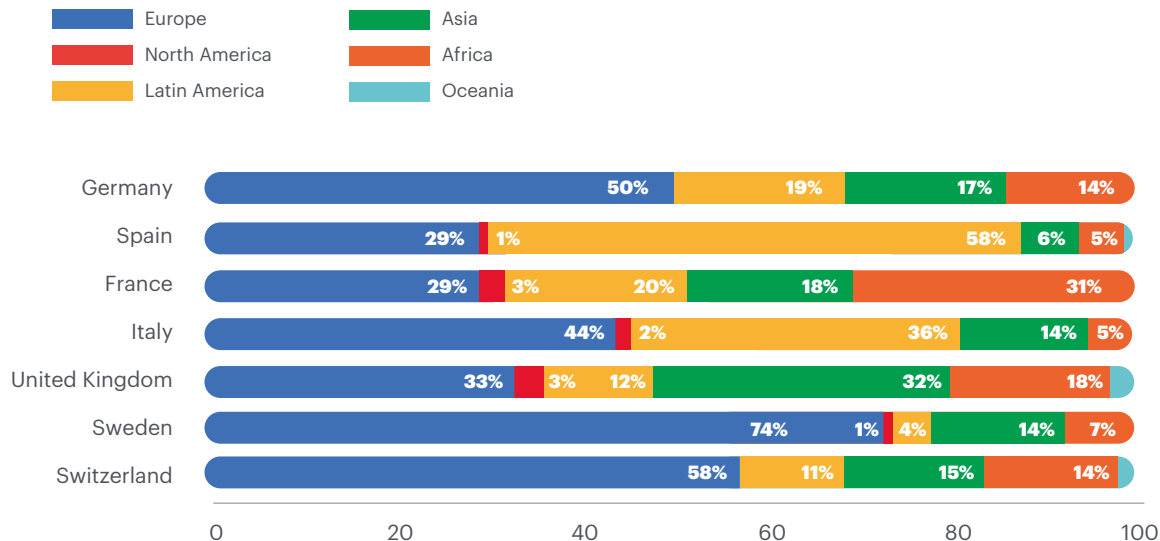
Damien Peteau
Software Development & Cloud App Management Director en Wolters Kluwer Tax & Accounting España

Origin of digital professionals

Digital workers who want to work in Europe come primarily from the same continent. Spain and Italy are an exception because the proportion of Latin American professionals who would like to work there stands out significantly. Linguistic and cultural similarities can explain this.

Sources of digital professionals who want to work in the most desirable European countries

2020

- Europe
- North America
- Latin America
- Asia
- Africa
- Oceania

	Europe	North America	Latin America	Asia	Africa	Oceania
Germany	50%		19%	17%	14%	
Spain	29%	1%	58%	6%	5%	
France	29%	3%	20%	18%	31%	
Italy	44%	2%	36%	14%	5%	
United Kingdom	33%	3%	12%	32%	18%	
Sweden	74%	1%	4%	14%	7%	
Switzerland	58%		11%	15%	14%	

Digital training in Europe

The United States, United Kingdom, Switzerland and Canada lead the global and European rankings of academic excellence in digital skills in 2020. Among the criteria considered were academic reputation, the reputation of the centres in the business community and the quality of their research.

Barcelona is home to the leading ICT training centre in Spain, the Polytechnic University of Catalonia (UPC). This academic institution is a benchmark in digital training in Spain, followed by the Universidad Carlos III de Madrid (UC3M) and the Polytechnic University of Madrid (UPM).

No Catalan university is among the top positions in the international rankings. For this reason, one of the challenges facing the academic sector in Catalonia is to reach the top of the international ranking of universities by achieving European recognition in ICT training.

Most recognised training centres in Computer Science and Information Systems
2020

Top 10 internacional

	University	Country
1.	**Massachusetts Institute of Technology (MIT)**	**United States**
2.	Stanford University	United States
3.	Carnegie Mellon University	United States
4.	University of California, Berkeley	United States
5.	University of Oxford	United Kingdom
6.	University of Cambridge	United Kingdom
7.	Harvard University	United States
8.	École Polytechnique Fédérale de Lausanne (EPFL)	Switzerland
9.	ETH Zurich - Swiss Federal Institute of Technology	Switzerland
10.	University of Toronto	Canada

Source: QS Top Universities

Europe Top 10

2020

University	Country	Position in international ranking
1. **University of Oxford**	**United Kingdom**	**5**
2. University of Cambridge	United Kingdom	6
3. École Polytechnique Fédérale de Lausanne (EPFL)	Switzerland	8
4. ETH Zurich - Swiss Federal Institute of Technology	Switzerland	9
5. Imperial College of London	United Kingdom	14
6. University College London	United Kingdom	17
7. The University of Edinburgh	United Kingdom	23
8. Technical University of Munich	Germany	36
9. Université PSL (Paris Sciences & Lettres)	France	39
10. Politecnico di Milano	Italy	40

Spain Top 10

2020

University	Country	Position in international ranking
1. **Polytechnic University of Catalonia Barcelona (UPC)**	**Catalonia**	**51-100**
2. Carlos III University of Madrid (UC3M)	Madrid	101-150
3. Polytechnic University of Catalonia (UPM)	Madrid	101-150
4. University of Barcelona	Barcelona	101-150
5. Complutense University of Madrid	Madrid	101-150
6. Polytechnic University of Valencia	Valencia	201-250
7. University of Granada	Andalusia	251-300
8. University of Navarre	Navarra	401-450
9. Rey Juan Carlos University	Madrid	401-450
10. University of Seville	Andalusia	451-500

Source: QS Top Universities

Barcelona Digital Talent

nited States
- **Massachusetts Institute of Technology (MIT)**
- Stanford University
- Carnegie Mellon University
- University of California, Berkeley
- Harvard University

United Kingdom
- **University of Oxford**
- University of Cambridge
- Imperial College of London
- University College London
- The University of Edinburgh

Germany
- Technical University of Munich

Switzerland
- École Polytechnique Fédérale de Lausanne (EPFL)
- ETH Zurich - Swiss Federal Institute of Technology

Canada
- University of Toronto

Italy
- Politecnico di Milano

France
- Université PSL (Paris Sciences & Lettres)

Spain
- **Polytechnic University de Catalonia Barcelona (UPC)**

International

1 International
Massachusetts Institute of Technology (MIT)
United States

1 European
University of Oxford
United Kingdom

1 Spanish
**Polytechnic University of Catalonia Barcelona**
Catalonia

Use of the most popular programming languages in the ecosystem

Python continues to be the programming language most in demand by technology companies. Because of its versatility, this language is used in many projects and is increasingly included in training programmes.

React is the most popular framework in the digital sector. Its compatibility with multiple programming languages, its high-performance capability and its simplicity explain its growth in recent years.
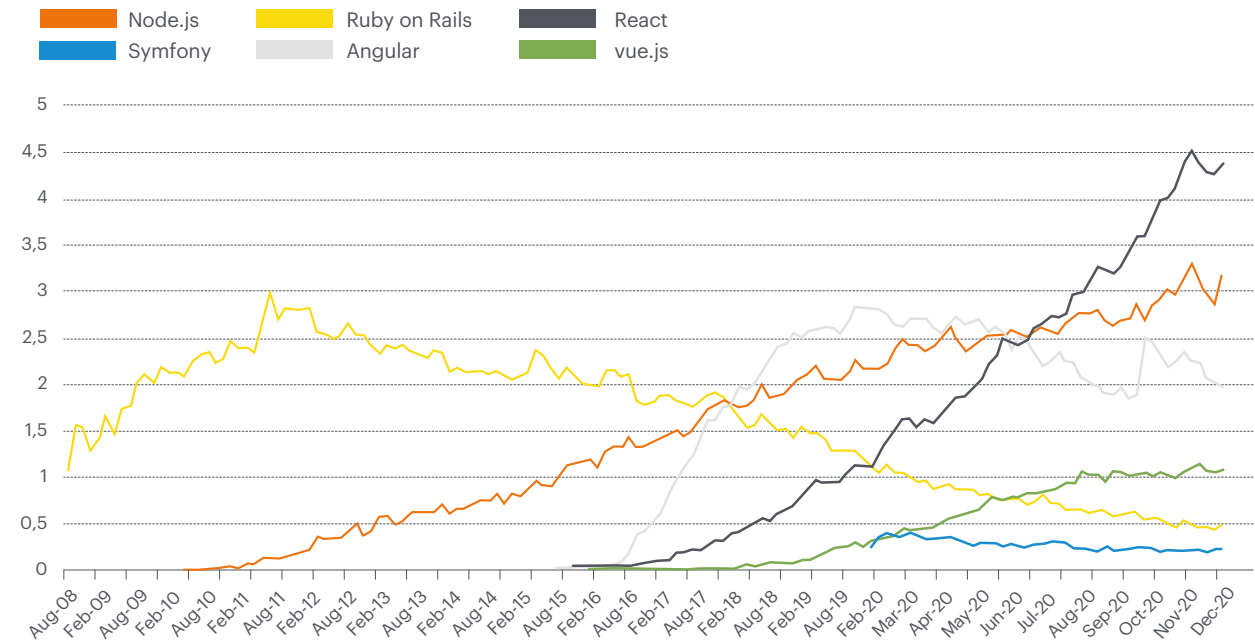
Global trends. Programming languages

2008-2020

Legend: Javascript, Elixir, Ruby, Python, Android, IOS, C, PHP, Java
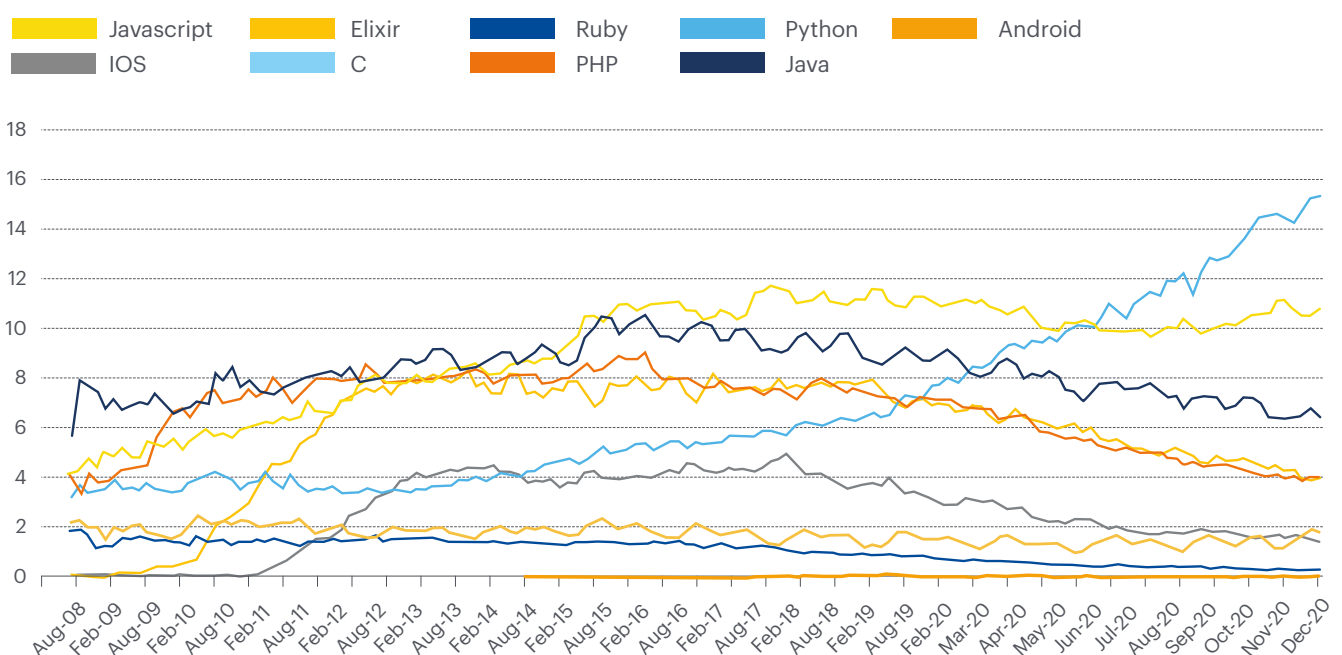
Source: TalentUp

Global trends. Frameworks

2008-2020

- Node.js
- Ruby on Rails
- React
- Symfony
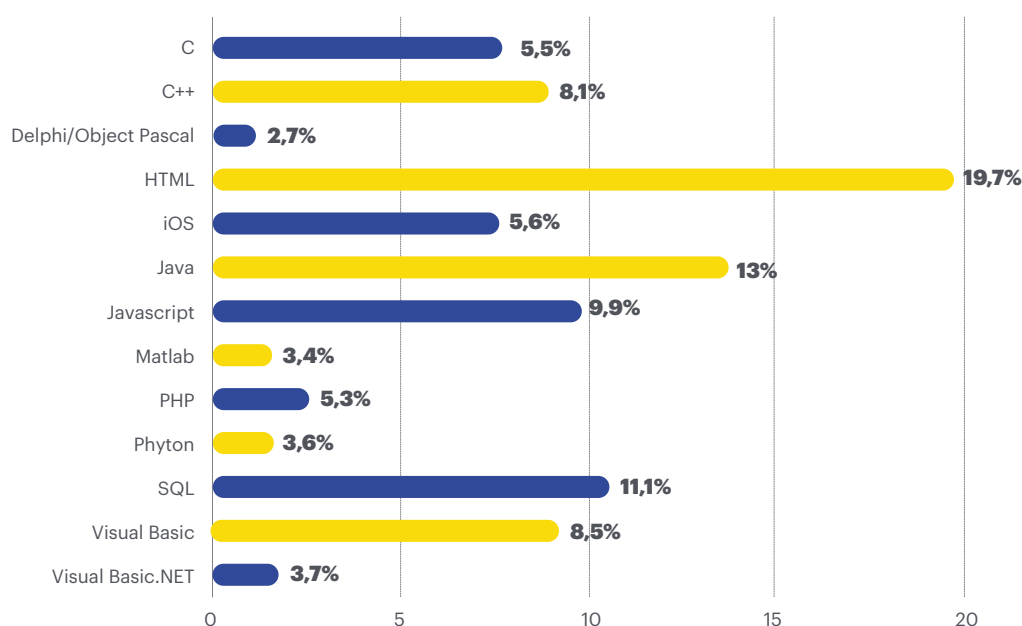- Angular
- vue.js

Source: TalentUp

Programming skills consolidated among digital professionals

Globally, digital talent profiles show high skills in HTML, Java and SQL. This data does not necessarily correspond to the type of language most commonly used in companies. Also, it is surprising how poorly Python is mastered both internationally as well as in Spain, as it is highly needed in companies.

In other European countries, knowledge of HTML, Java and Javascript stands out. HTML is a basic markup language that is used for the frontend, Java is a programming language that is already consolidated and Javascript that is newer, easier to learn and very versatile. The latter two are among the programming languages most in demand by companies globally.

Programming skills of global digital professionals

2020

C — 5,5%
C++ — 8,1%
Delphi/Object Pascal — 2,7%
HTML — 19,7%
iOS — 5,6%
Java — 13%
Javascript — 9,9%
Matlab — 3,4%
PHP — 5,3%
Phyton — 3,6%
SQL — 11,1%
Visual Basic — 8,5%
Visual Basic.NET — 3,7%

Source: The Network. Decoding Global Talent Data Tool

Programming skills of global digital professionals

2020

	C	C++	Delphi/ Object Pascal	HTML	iOS	Java	Javascript
Sweden	7,2	8,2	2,2	18	4	12	9
The Netherlands	5,1	6,3	2,5	18	5	12	10
United Kingdom	4,3	6,6	1,4	21	7	13	12
Belgium	5,2	6,3	1,5	20	6	13	11
Denmark	4,6	6,4	2,2	21	4	13	11
Germany	6,7	9,1	2,1	19	4	11	8
France	5,6	6,2	1,3	20	7	13	11
Italy	7,7	8,1	1,6	18	5	12	9
Portugal	4,6	5,2	1,7	19	8	16	12
Spain	4,1	5,8	1,2	20	8	16	12

	Matlab	PHP	Python	SQL	Visual Basic	Visual Basic. NET
Sweden	5,2	4	3,5	12,6	9,5	4,1
The Netherlands	3,1	5,1	4,6	12,7	11,1	5
United Kingdom	2,6	3,8	4,3	10,5	9,2	4,7
Belgium	3,6	4,9	4	10,9	9,7	4,4
Denmark	3,4	4,7	3,1	13,1	9,1	4,4
Germany	4,7	5	4,2	12,4	10,1	3,5
France	2,9	4,7	2,8	11,9	9,6	3,3
Italy	4,7	4,8	2,7	11,8	9,9	4,9
Portugal	2,4	3,4	2,2	8,7	9,8	7
Spain	2,7	4,8	3,1	7,9	9,4	5,2

Source: The Network. Decoding Global Talent Data Tool
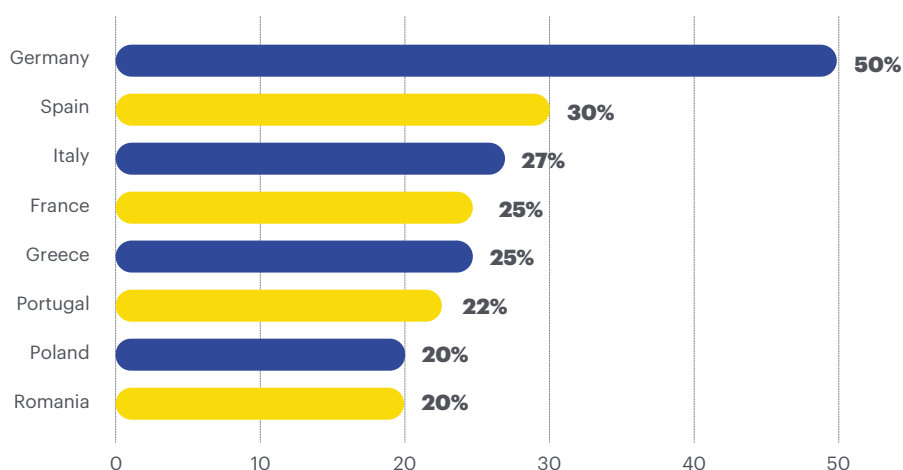
European Net Generation Funds

In the framework of this report, an analysis of the digital skills plans included in the strategies submitted to the European Commission by the 8 EU Member States that will receive the largest amount of the Recovery Funds has been carried out *Next Generation*.

The countries analysed allocate between 20 and 30% of the funds to the Digital Transition, with Germany standing out with 50% of the funds allocated to this category.

On the timing and deployment of measures, there is still little consensus in most countries. As a result, the manner and timing of mobilisation and launching calls for proposals/ allocations of funds are not very clear.
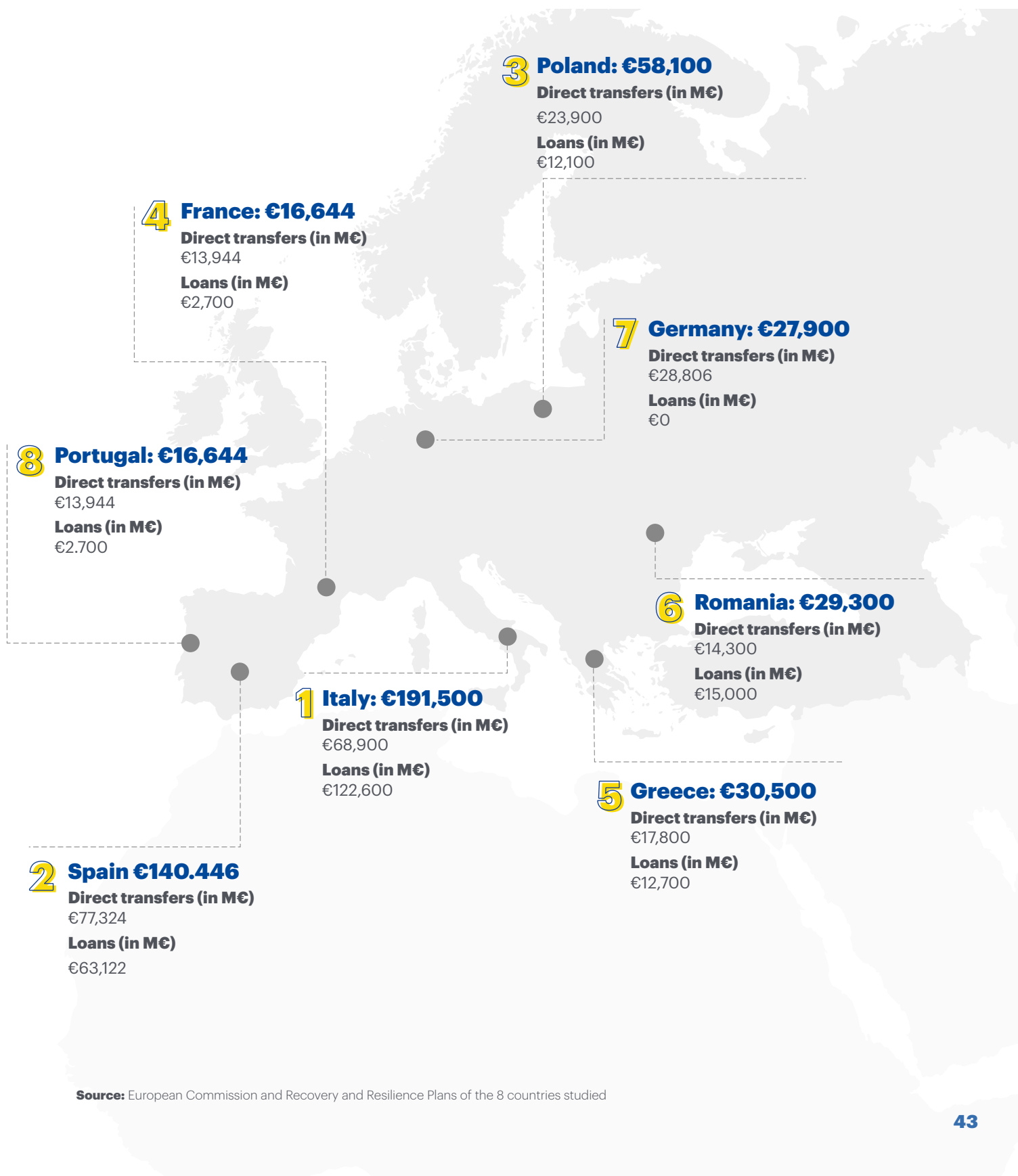
Percentage devoted to Digital Transition

2021

Country	Percentage
Germany	50%
Spain	30%
Italy	27%
France	25%
Greece	25%
Portugal	22%
Poland	20%
Romania	20%

Source: European Commission and Recovery and Resilience Plans of the 8 countries studied

Distribution of Recovery Funds in the 8 countries surveyed

3 Poland: €58,100
Direct transfers (in M€)
€23,900
Loans (in M€)
€12,100

4 France: €16,644
Direct transfers (in M€)
€13,944
Loans (in M€)
€2,700

7 Germany: €27,900
Direct transfers (in M€)
€28,806
Loans (in M€)
€0

8 Portugal: €16,644
Direct transfers (in M€)
€13,944
Loans (in M€)
€2.700

6 Romania: €29,300
Direct transfers (in M€)
€14,300
Loans (in M€)
€15,000

1 Italy: €191,500
Direct transfers (in M€)
€68,900
Loans (in M€)
€122,600

5 Greece: €30,500
Direct transfers (in M€)
€17,800
Loans (in M€)
€12,700

2 Spain €140.446
Direct transfers (in M€)
€77,324
Loans (in M€)
€63,122

Source: European Commission and Recovery and Resilience Plans of the 8 countries studied

The following are the most important initiatives in the countries under study:

1 At the basic skills level

- **Italy:** the **Digital Civil Service** project which consists of hiring thousands of young people as "digital facilitators" to help them acquire basic digital skills.

- **Portugal:** The creation of **Communities of Practice** to develop best practices within the public administration, such as digital transformation managers.

2 At the basic skills level

- **Spain:** The conversion of classrooms into applied technology spaces (to build bridges between trainees and business technologies). In addition to this, the **creation of entrepreneurship classrooms** in public vocational education and training centres, through a network of 50 centres of excellence, stimulate research and the constant improvement of programmes and methodology at the educational centre level.

- **Portugal:** The **Academia Portugal Digital** project for large-scale digital skills development to provide workers in the business sector with a self-assessment of their current level of digital skills, a personalised training plan, access to online training resources and a personal passport.

- **Germany:** Building a **digital educational space** connects the transfer, acquisition and development of digital skills in all academic areas and phases.

3 At the level of applied/specialised skills

- **Romania:** Development of an **e-learning platform** which will offer two-day courses to improve employability in terms of digital skills, especially for the application of the use of emerging technologies (cyber-physics, robotics, artificial intelligence ...). The training companies will receive vouchers based on the results of the course graduation tests.

- **France: IA Booster** as an innovative device to support SMEs in their digital transformation by means of artificial intelligence. It adapts to the company's needs and supports it throughout its transformation process, including the necessary skills, especially digital skills.

2

Digital talent
in Catalonia

___

Supply and demand of digital profiles

Barcelona is positioned as the hub of digital talent in Catalonia. It has a total of 84,120 professionals, representing 95% of all digital talent in Catalonia.

Meanwhile, digital professionals in Tarragona represent 2.5% of the market, while Girona and Lleida, with a similar proportion, reach a percentage of around 1%.

Concerning the supply of available professionals in Catalonia, we can see an average of 20 digital professionals available for each job offer. This figure is close in all regions except Tarragona, where the competition to fill this post amounts to 36 specialists per job offer.

The demand for employment in the sector is proportional to the distribution of digital talent in Catalonia. Tarragona has the second-highest volume of digital talent but is the region with the least competition per job offer in the digital sector.

Supply and demand of digital profiles in Catalonia

2020

	Catalonia	Barcelona	Girona	Lleida	Tarragona
Digital professionals total in 2020	88.216	84.120	966	882	2.248
Total digital demand in 2020 (3M)	4.444	4.297	46	39	62
Number of digital professionals by offer of work (2020)	20	20	21	23	36

Source: TalentUp

In recent years, digital talent has gained importance in Catalonia. By 2020, the employed population of the ICT sector has increased by approximately 14,700 professionals. Freelance professionals are increasing in parallel with salaried professionals, also underpinning the growth of the sector.

The growth of the ICT employed population in Catalonia contrasts with the negative trend at the national level in 2020.

Population employed in the ICT sector in Catalonia by professional status. In thousands of people

2016 - 2020

Legend:
- Total
- Employees
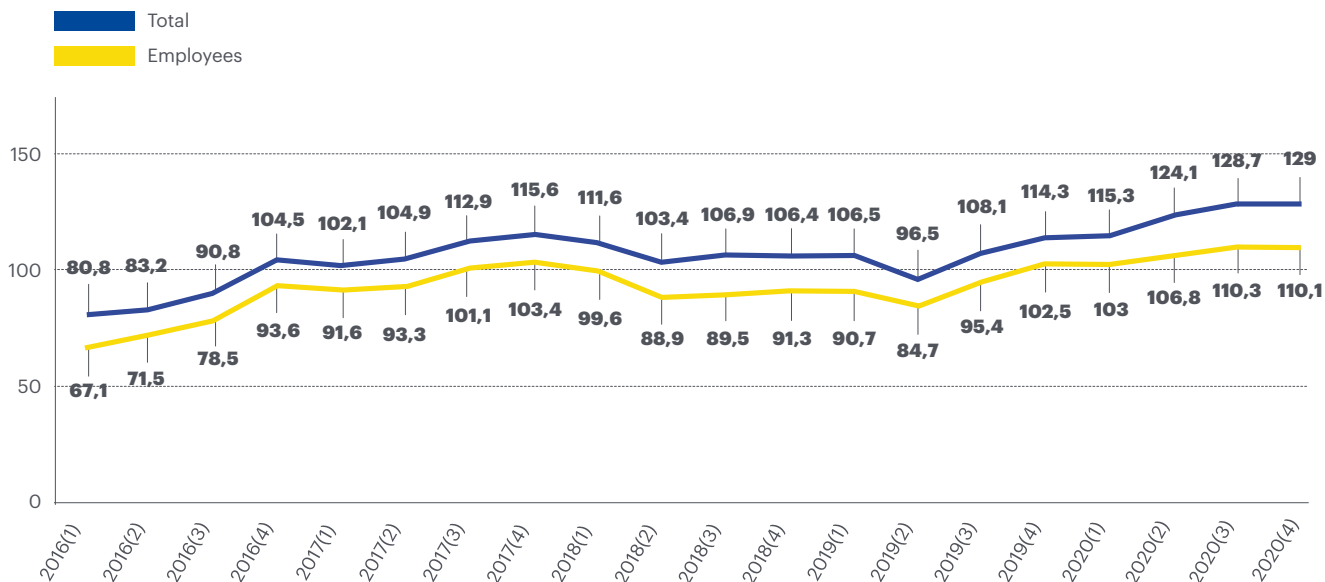
Population employed in the ICT sector. In thousands of people

2008 - 2020

	T4/2019	T4/2020	Difference	Percentage
Catalonia	114.300	129.000	14.700	+12,8% increase
Spain	566.100	548.800	-17.300	-3,1% decrease

Source: Idescat (based on INE's EPA data)

Digital talent works in many business sectors

There is a similar trend throughout Catalonia in the sectors that have the highest number of digital employees. Business services have the strongest presence in this territory, representing between 15% and 18% of the volume of professionals.
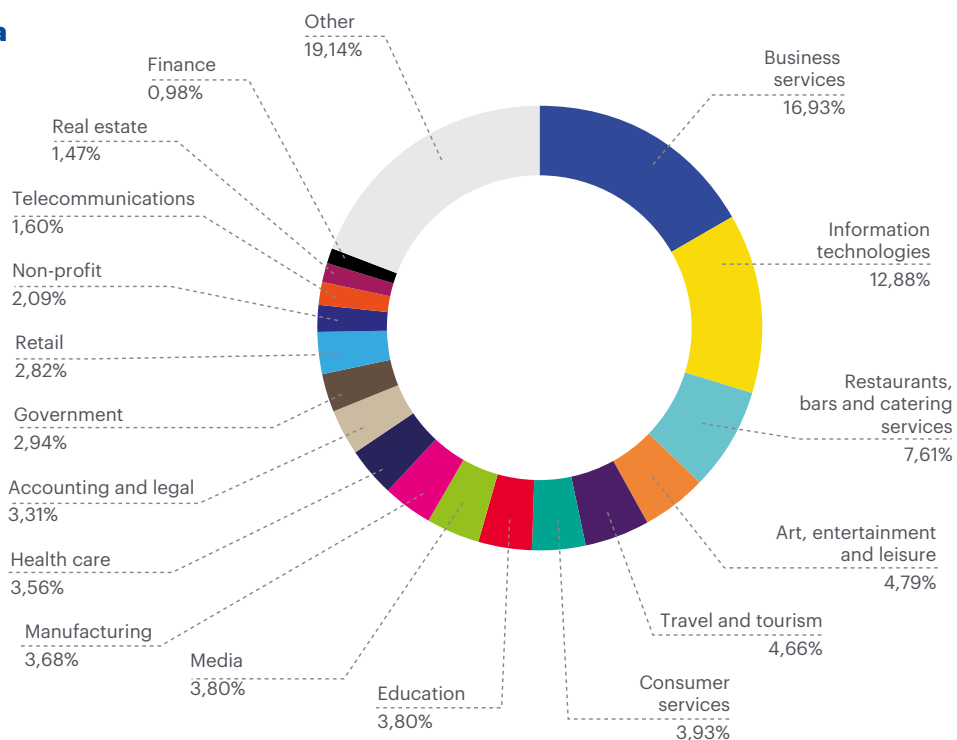
The other large conglomerate of companies is found in those focused on information technology (ICT) because they represent between 10% and 15% of the business muscle in each province.

The main difference between the provinces is in the third sector of specialisation. In Girona, for example, the catering (7.6%) and entertainment (4.8%) sectors stand out; in Lleida, the health (6.4%) and consumer service (5.2%) sectors; in Barcelona, companies in the health (5.8%) and media (5.1%) sectors; and in Tarragona, which shows greater diversification, the education (6.6%), manufacturing (6.6%), catering (6.4%) and health (6.2%) sectors stand out.
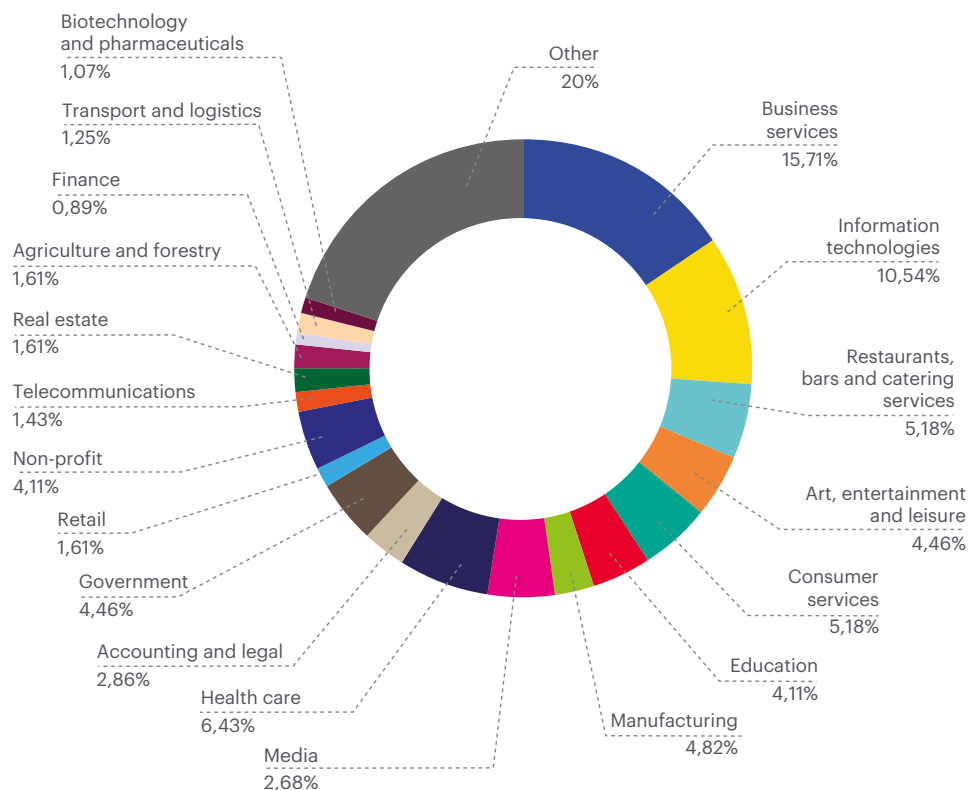
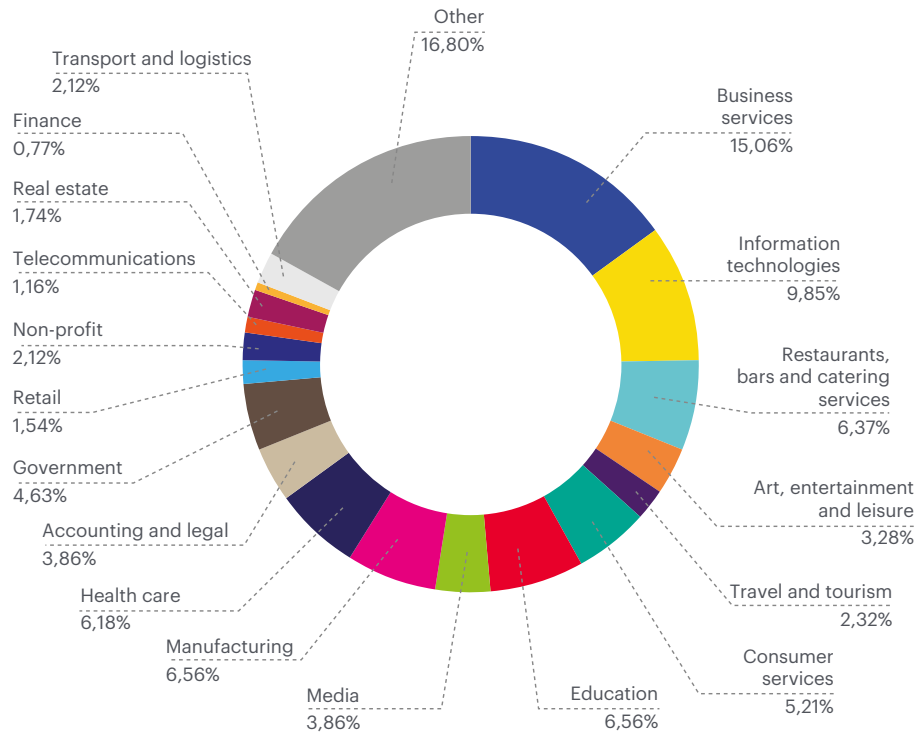## Distribution of companies where ICT profiles work
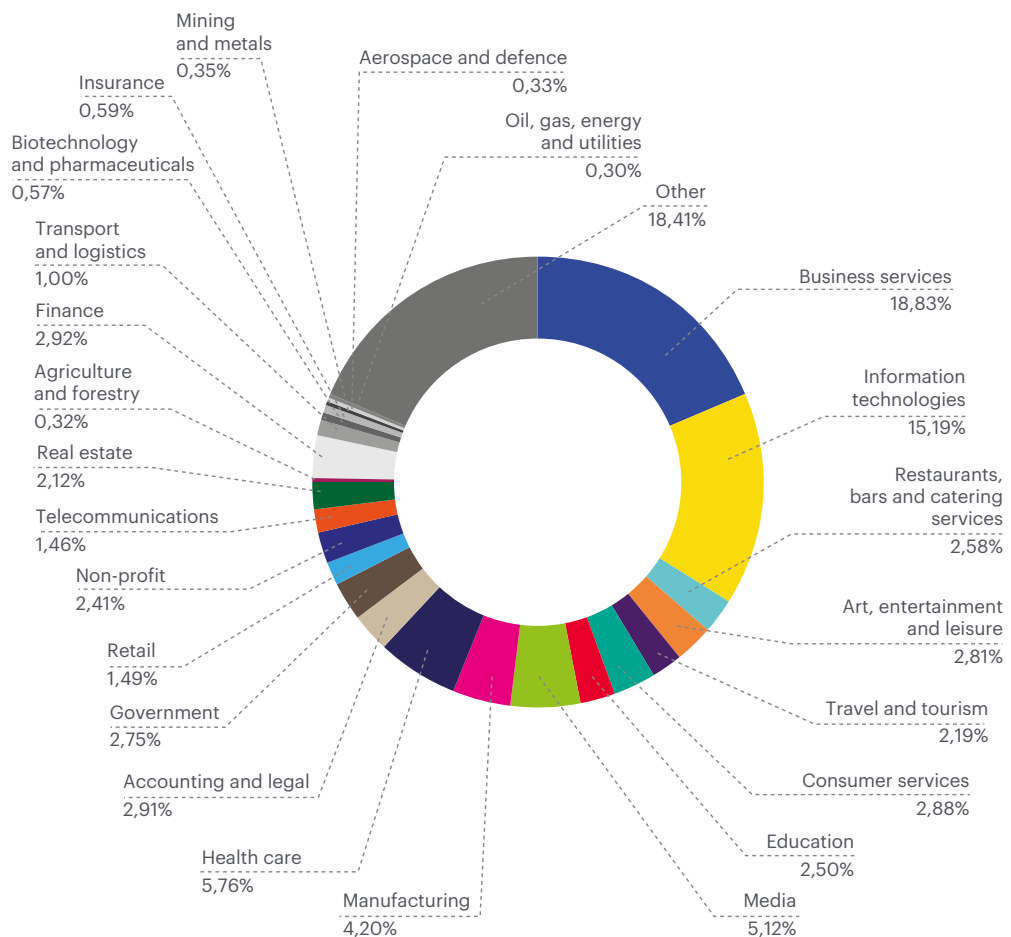
2020

Girona

Other
19,14%

Finance
0,98%

Real estate
1,47%

Telecommunications
1,60%

Non-profit
2,09%

Retail
2,82%

Government
2,94%

Accounting and legal
3,31%

Health care
3,56%

Manufacturing
3,68%

Media
3,80%

Education
3,80%

Consumer
services
3,93%

Travel and tourism
4,66%

Art, entertainment
and leisure
4,79%

Restaurants,
bars and catering
services
7,61%

Information
technologies
12,88%

Business
services
16,93%

Lleida

Biotechnology
and pharmaceuticals
1,07%

Transport and logistics
1,25%

Finance
0,89%

Agriculture and forestry
1,61%

Real estate
1,61%

Telecommunications
1,43%

Non-profit
4,11%

Retail
1,61%

Government
4,46%

Accounting and legal
2,86%

Health care
6,43%

Media
2,68%

Manufacturing
4,82%

Education
4,11%

Consumer
services
5,18%

Art, entertainment
and leisure
4,46%

Restaurants,
bars and catering
services
5,18%

Information
technologies
10,54%

Business
services
15,71%

Other
20%

Source: TalentUp.io

Tarragona

Other
16,80%

Transport and logistics
2,12%

Finance
0,77%

Real estate
1,74%

Telecommunications
1,16%

Non-profit
2,12%

Retail
1,54%

Government
4,63%

Accounting and legal
3,86%

Health care
6,18%

Manufacturing
6,56%

Media
3,86%

Education
6,56%

Consumer services
5,21%

Travel and tourism
2,32%

Art, entertainment and leisure
3,28%

Restaurants, bars and catering services
6,37%

Information technologies
9,85%

Business services
15,06%

Barcelona

Mining and metals
0,35%

Aerospace and defence
0,33%

Insurance
0,59%

Oil, gas, energy and utilities
0,30%

Biotechnology and pharmaceuticals
0,57%

Other
18,41%

Transport and logistics
1,00%

Finance
2,92%

Agriculture and forestry
0,32%

Real estate
2,12%

Telecommunications
1,46%

Non-profit
2,41%

Retail
1,49%

Government
2,75%

Accounting and legal
2,91%

Health care
5,76%

Manufacturing
4,20%

Media
5,12%

Education
2,50%

Consumer services
2,88%

Travel and tourism
2,19%

Art, entertainment and leisure
2,81%

Restaurants, bars and catering services
2,58%

Information technologies
15,19%

Business services
18,83%

—————— « »

"In the current environment, the search for new profiles has increased, with a strong focus on technological, digital and transformational talent. The effective recruitment of talent has led us to incorporate a vision of the candidate's experience in all our processes, adding an approach to recruitment and selection that focuses on their experience in their relationship with CaixaBank. To work on this experience, a Talent Hub, People Xperience Hub, has been set up to create a disruptive brand image for new technology companies, start-ups, etc., who we compete for talent with, taking advantage of synergies between the different companies in the group.

We thus managed to highlight the power of the CaixaBank Group: different companies, high specialisation in various technologies, a wide range of knowledge, internal experts and gurus, and volume of recruitment, also explaining what we will be in the future and what profiles we will need to recruit to build the banking of the future.

We want to provide the selection process with a more innovative and experiential experience, which is why we are working on incorporating: virtualised tests to help us make decisions, creation of landings, analysis of the digital footprint and in-depth analysis of the different talent pools such as forums, events and schools that attract the profiles we are interested in; collaboration with niche schools, universities and organisations, as well as participation in different types of events: and organisations as well as participation in different types of events: hackathons, online challenges, webinars or mentorships to raise awareness of the hub and share internal knowledge, creating an ecosystem of knowledge and talent."

Susana Barrios
Recruitment Manager at CaixaBank

The major employers of digital talent

There is a mixed profile of companies in the Barcelona area, while there is a predominance of consultancy firms in the other areas. In fact, these are the most in-demand digital professionals in the last year.

In addition to consultancies, the leading recruiters include retail companies such as BonArea, e-commerce platforms such as Freshly Cosmetics and automotive companies such as Lear Corporation and Applus Idiada.

Top technology employers in Catalonia

2020

Barcelona	Girona	Lleida	Tarragona
Capgemini Engineering	DXC Technology	Indra Sistemas	T-Systems
Inetum	NexTreT	Minsait (Indra)	Lear Corporation
Everis	Colaborum	GFT Technologies	Applus IDIADA
Glovo	Fundación Esplai	BonArea	Freshly Cosmetics
Sogeti (Capgemini)	Codi Tramuntana	Digi Spain Telecom	Viewnext (Grupo IBM)

Source: Job Insights

Barcelona, the demarcation with the most competitive salaries in Catalonia

Barcelona is the city with the most competitive salaries in Catalonia. The average salary of a developer with three or four years of experience is around €37,692 in Barcelona compared to €28,200 in Tarragona.

In second and third place are Lleida and Girona, respectively. Tarragona is the second most digitally talented region and the one with the least market tension in the sector, offering the lowest salary range.

Average salary for a software developer position with 3-4 years of experience
2020

€37,692   €29,000   €30,500   €28,200

Barcelona   Girona   Lleida   Tarragona

Source: TalentUp

"The fact that digital and technological profiles are increasingly in demand in the labour market by all types of companies is not new, instead a trend that has been consolidating for some time now.

Faced with this reality, Barcelona has managed to position itself as a cosmopolitan and multicultural city with a great capacity to attract this type of profile. More and more companies have located their technological development headquarters in Barcelona and, as a result, have generated excellent competition for talent.

The supply of technology positions continues to grow even though technology talent is not keeping pace with demand. Given this reality, we see how, in a booming sector such as the technology sector, the laws of supply and demand apply. Salaries for this type of profile are constantly on the rise, and companies are struggling to attract the attention of this type of profile. These events have led to most of this talent beings concentrated in Barcelona or its surroundings, to the detriment of other parts of Catalonia.

The Covid-19 pandemic has brought about intensive teleworking, which has enabled many people to work from different locations. Now that companies are planning the return to the new normal, it remains to be seen whether Barcelona will continue to attract most of this talent or whether the trend towards remote working from towns far from the big city will consolidate."

Roger-Wolf Onnen Grima
People & Talent Director at Fundacio i2CAT

3
Digital talent in Barcelona

The digital professionals in Barcelona

The digital sector accounts for 5.37% of all professionals in the entire business ecosystem in Barcelona.

The supply of available digital professionals is on an upward trend compared to previous years. Although the growth rate is lower in 2020 (+8.7%) than in 2019 (+14.27%), the digital sector is growing slightly faster than all sectors.
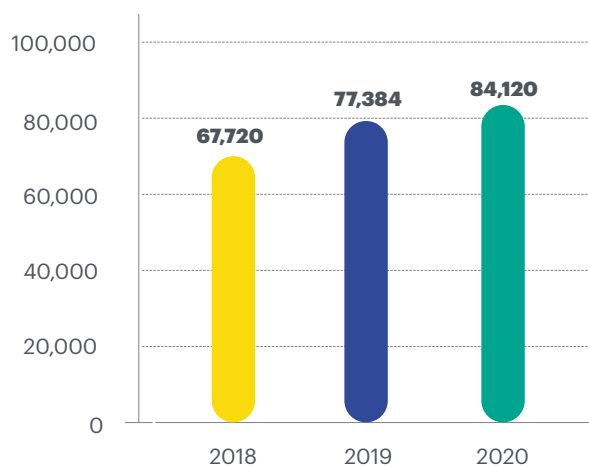
Porcentaje de los profesionales digitales vs mercado global

2019 - 2020

■ Global market
■ Digital professionals

5,37%   94,63%   5,32%   94,68%

2020   2019

Source: TalentUp.io
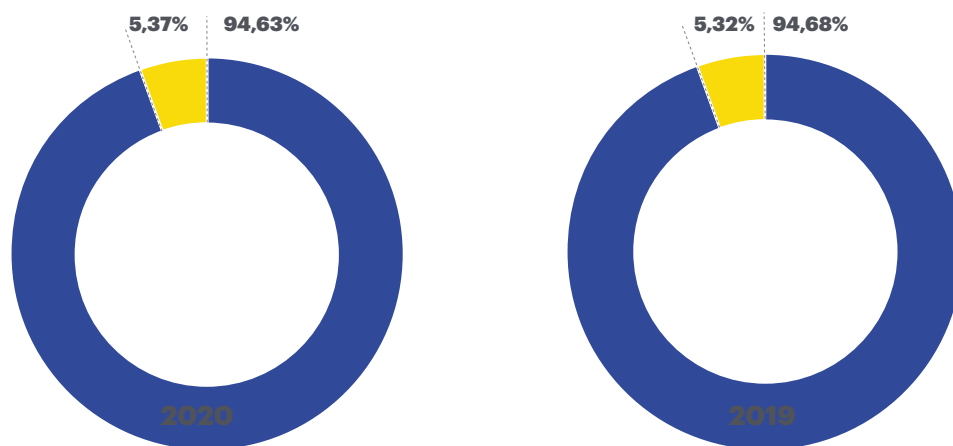
Total number of digital professionals

2018 - 2020

67,720   77,384   84,120

100,000
80,000
60,000
40,000
20,000
0

2018   2019   2020

2019 ▲14.27%
2020 ▲ 8.7%

Total professionals (all sectors)

2018 - 2020

1,282,583   1,4555,79   1,565,993

2,000,000
1,500,000
1,000,000
500,000
0

2018   2019   2020

2019 ▲ +13.49%
2020 ▲ +7.59%

Source: TalentUp.io
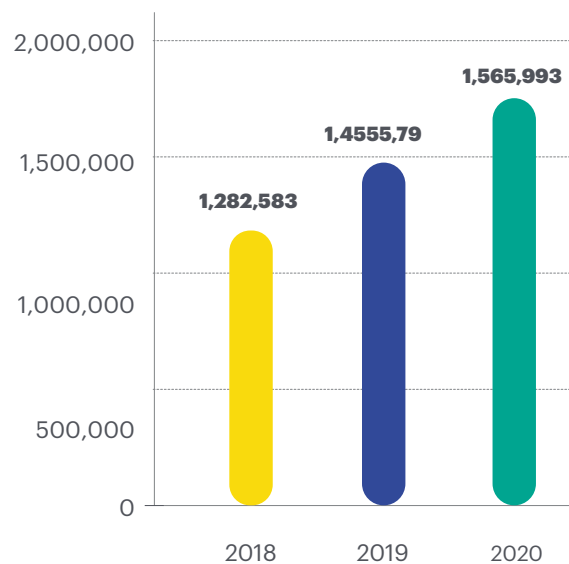
The ICT sector's employment demand increases compared to 2018

Digital talent is more resilient in terms of labour demand than other sectors. While overall job demand in all other sectors decreased by 43.34% in 2020, the digital sector has only reduced its demand by 15.76% compared to 2019.

In the digital sector, the demand for professionals increases by 8.4% compared to 2018, while the demand in all sectors experiences a drastic decrease of 34.65% in the same period (2018 - 2020). As a result, it is the digital sector that manages, despite Covid-19, to maintain higher levels of demand than before the pandemic.

The ratio of digital to non-digital offers has increased: in 2018, 1 in 10 offers were digital and in 2020, 2 in 10.

Demand for digital professionals and the total number of professionals (last quarter)

2019 - 2020
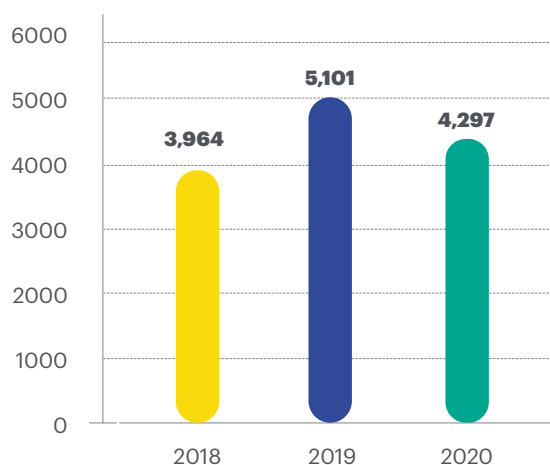
| 2019 | ▲ 28.68% |
| 2020 | ▼ 15.76% |

Demand all sectors

2019 - 2020
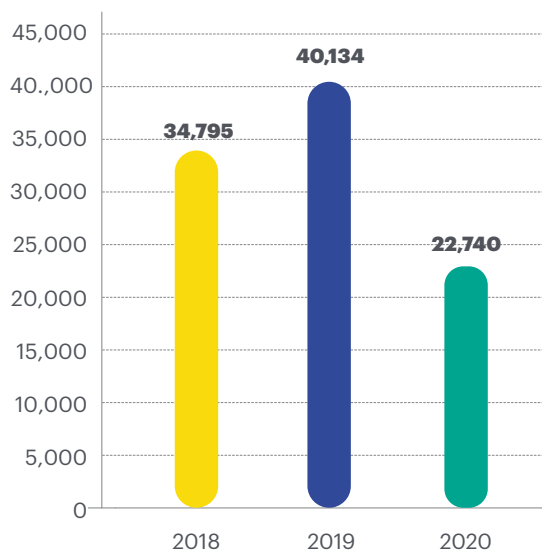
| 2019 | ▲ 15.34% |
| 2020 | ▼ 43.34% |

Source: TalentUp.io

The market tension between supply and demand in the digital sector is reduced

In 2019, for every job offer in the digital sector, there were 15.2 professionals available.

In 2020, this rate increased to 19.6 available professionals per offer in the last year.

Across all sectors, market tightness has been significantly reduced, with a ratio of 68.9 available persons per offer in 2020. This reduction in market tension may be due to the impact of the pandemic.

Market tension

2019 - 2020

Digital professionals

Other professionals
(all sectors)

2019 1 offer = 15.2 professionals

1 offer = 36.3 professionals

2020 1 offer = 19.6 professionals

1 offer = 68.9 professionals

Source: TalentUp.io

— « »

"Barcelona, with its digital ecosystem, is recognised as one of the leading cities in innovation. To keep our city as a benchmark, our commitment at Bayer is to boost the development of our team in digital skills and attract international talent to enrich our ecosystem by being more diverse and inclusive.

The company works along three lines to achieve this: an inspiring purpose based on health and food for all. This professional projection consists of promoting growth within the organisation and a personal project offering ample flexibility to reconcile professional and personal life."

Marc Ferré Hausmann

Managing Director Bayer Service Center Barcelona

Talent demand for established technologies

Barcelona's digital talent specialises in web and mobile app development, UX/UI design and CRM and ERP consultants. As in previous years, the profile of the web developer is the most in demand in the market with 49.4% of the total number of profiles analysed.

In 2020, the number of available web developers had increased, and the number of job offers has slightly decreased, resulting in a market tension of 16.25 candidates per job offer.
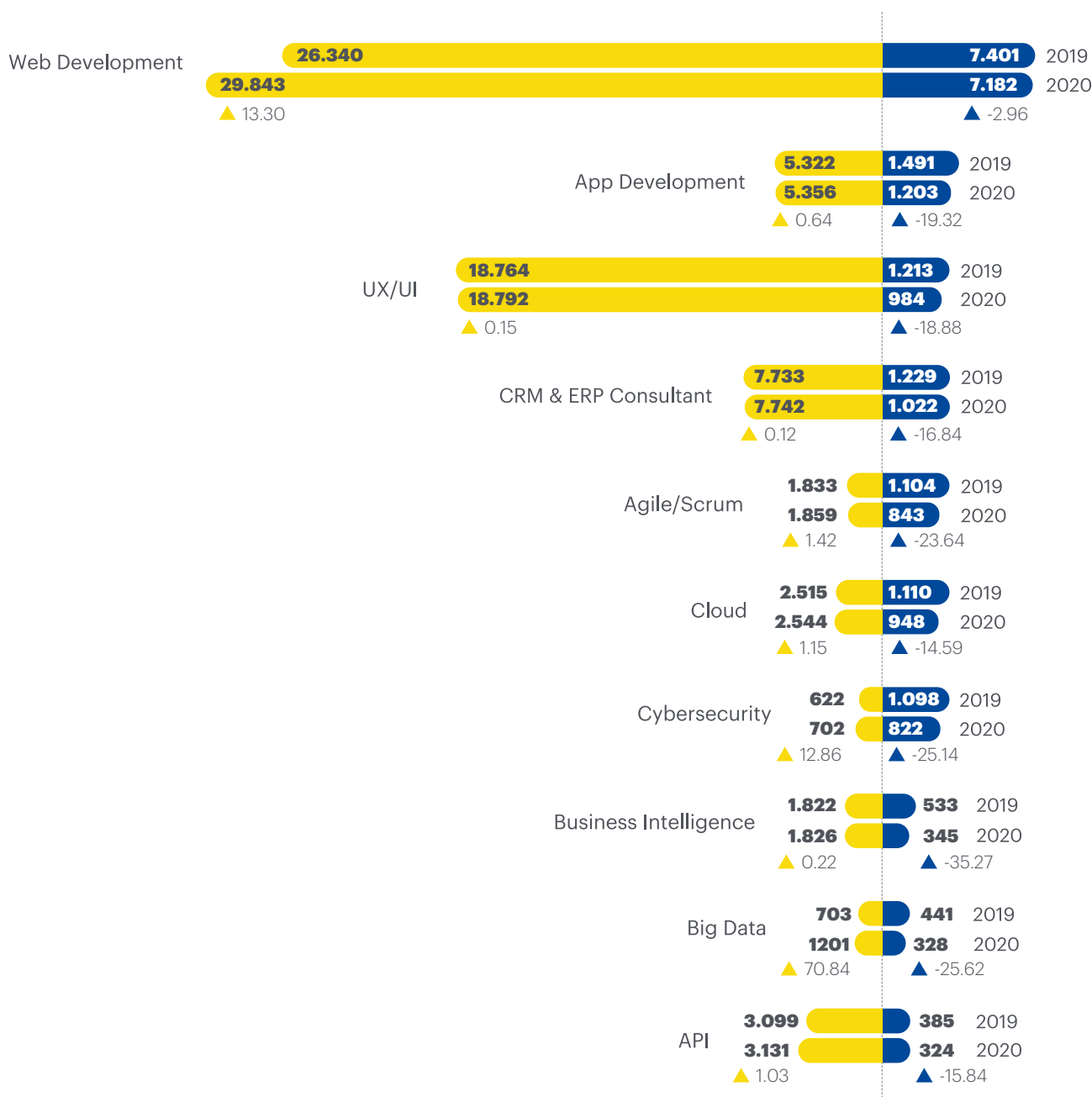
The knowledge area of UX/UI design is the one with the lowest market tension. Approximately four times higher than the average for the digital sector (76.39 professionals per offer). The Big Data and Business Intelligence specialisations also increase market tension compared to 2019 (14.63 and 21.17 professionals per offer, respectively, representing growth of 169.3% and 50.89%). Although the ratio figure increases, the market tension relaxes because there are more professionals per position than last year.

Cybersecurity stands out as the speciality with the highest market tension. For every job offer, 3.42 digital professionals can fill the position.

Talent supply and demand for established technologies

2019 - 2020

Supply ▲ Increased supply ■ Annual demand ▲ Increased demand

Web Development
26.340 | 7.401 | 2019
29.843 | 7.182 | 2020
▲ 13.30 | ▲ -2.96

App Development
5.322 | 1.491 | 2019
5.356 | 1.203 | 2020
▲ 0.64 | ▲ -19.32

UX/UI
18.764 | 1.213 | 2019
18.792 | 984 | 2020
▲ 0.15 | ▲ -18.88

CRM & ERP Consultant
7.733 | 1.229 | 2019
7.742 | 1.022 | 2020
▲ 0.12 | ▲ -16.84

Agile/Scrum
1.833 | 1.104 | 2019
1.859 | 843 | 2020
▲ 1.42 | ▲ -23.64

Cloud
2.515 | 1.110 | 2019
2.544 | 948 | 2020
▲ 1.15 | ▲ -14.59

Cybersecurity
622 | 1.098 | 2019
702 | 822 | 2020
▲ 12.86 | ▲ -25.14

Business Intelligence
1.822 | 533 | 2019
1.826 | 345 | 2020
▲ 0.22 | ▲ -35.27

Big Data
703 | 441 | 2019
1201 | 328 | 2020
▲ 70.84 | ▲ -25.62

API
3.099 | 385 | 2019
3.131 | 324 | 2020
▲ 1.03 | ▲ -15.84

Note: Demand is annualised based on data from one quarter of 2020, the supply is the sum of digital professionals at the end of 2020. The supply-demand ratio is calculated in relation to the demand in a quarter.

Source: TalentUp.io

Number of digital professionals available for each job offer

2019 - 2020

Web Development
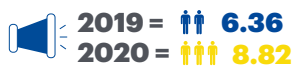
2019 = 16.25
2020 = 16.62

App Development

2019 = 13.37
2020 = 17.81

UX/UI

2019 = 54.84
2020 = 76.39

CRM & ERP Consultant

2019 = 25.41
2020 = 30.30

Agile/Scrum

2019 = 6.36
2020 = 8.82

Cloud

2019 = 8.73
2020 = 10.73

Cybersecurity

2019 = 1.96
2020 = 3.42

Business Intelligence

2019 = 14.03
2020 = 21.17

Big Data

2019 = 5.44
2020 = 14.65

API

2019 = 34.06
2020 = 38.65
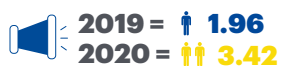
Most popular positions for established technologies

2020
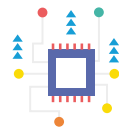
	1	2	3
Web Development	Software Developer	Frontend Developer	Fullstack Developer
App Development	iOS Developer	Android Developer	Mobile Developer
UX/UI	UI/UX Designer	Product Designer	Graphic Designer
CRM & ERP Consultant	SAP Developer	.NET Developer	Salesforce Developer
Agile / Scrum	Product Manager	Scrum Master	Software Engineer
Cloud	Software Engineer	Devops Engineer	Developer
Cybersecurity	Security Engineer	IT Security Engineer	Security Analyst
Business Intelligence	BI Consultant	BI Developer	BI Analyst
Big Data	Data Scientist	Data Engineer	Data Analyst
API	Software Engineer	Developer	Backend Developer

Source: TalentUp.io

Talent demand for emerging technologies

The supply of professionals in emerging technologies grew by 18.31% in 2020 compared to 2019. The knowledge areas with the highest number of digital professionals are in 3D Printing and Artificial Intelligence.

The most in-demand emerging technology in the market is the Internet of Things (IoT), followed by Artificial Intelligence (AI). It highlights the shift to Artificial Intelligence. It has gone from being positioned as a digital talent shortage area in 2019 (1.99 professionals per offer) to having almost three times as many professionals as jobs available in 2020 (10.88 per offer).

The market tension is low for knowledge areas such as Blockchain and Computer Vision, where for every job offer, there is a ratio of 8.71 and 2.86 professionals available, respectively. The rest of the technologies increase market tension compared to the previous year, especially in Artificial Intelligence.

Talent supply and demand for emerging technologies

2019 - 2020

| | Supply | ▲ Increased supply | | Annual demand | ▲ Increased demand |

Artificial Intelligence
- 228 / 385 / 2019
- 261 / 96 / 2020
- ▲ 14.47 / ▲ -75.06

IOT
- 161 / 298 / 2019
- 170 / 238 / 2020
- ▲ 5.59 / ▲ -20.13

3D Printing
- 239 / 67 / 2019
- 277 / 57 / 2020
- ▲ 15.90 / ▲ -14.93

Blockchain
- 117 / 74 / 2019
- 148 / 68 / 2020
- ▲ 26.50 / ▲ -8.11

Computer Vision
- 110 / 84 / 2019
- 142 / 75 / 2020
- ▲ 29.09 / ▲ -10.71
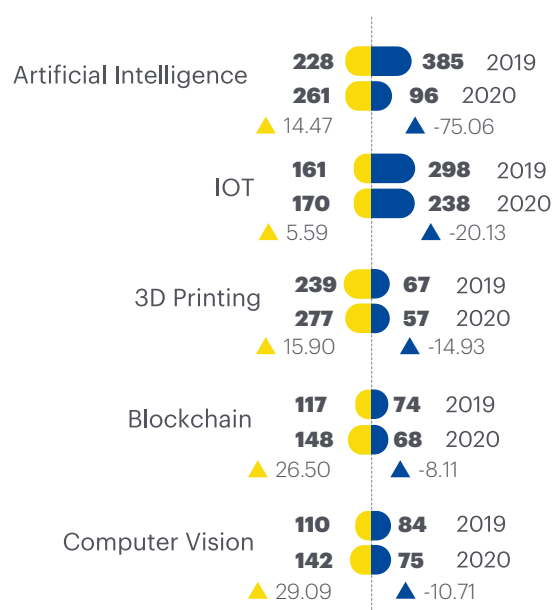
Number of digital professionals available for each job offer

2019 - 2020

Artificial Intelligence
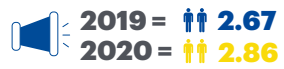
2019 = 👤 **1.99**
2020 = 👤👤👤 **10.87**

Internet of things

2019 = 👤👤 **2.67**
2020 = 👤👤 **2.86**

3D Printing

2019 = 👤👤👤👤👤 **18**
2020 = 👤👤👤👤👤 **19.44**

Blockchain

2019 = 👤👤👤👤 **10.5**
2020 = 👤👤👤 **8.71**

Computer Vision

2019 = 👤👤👤 **8.38**
2020 = 👤👤👤 **7.57**
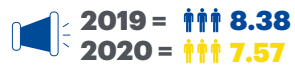
Most popular positions for established technologies

2020

	1	2	3
Artificial Intelligence	Software Engineer	Developer	Backend Developer
IoT	Developer	Fullstack Developer	Backend Developer
3D Printing	Product Manager	Technical Support Engineer	R&D Engineer
Blockchain	Blockchain Developer	Blockchain Engineer	Blockchain Architect
Computer Vision	Computer Vision Engineer	Machine Learning Engineer	Data Scientist

Source: TalentUp.io

—————— « »

"In mobility trends, we are committed to the hybrid model, responding to the teleworking law under the slogan "Omni connected experience", which allows employees to work safely (taking care of their physical, emotional and employment status) and adapting to the needs of the employee and our customers.

At Accenture, we see one of the main challenges facing the sector: the shortage of digital talent and the lack of recruitment. Therefore, one of our objectives is to generate an employee value proposition (EVP) that links people with the purpose of the company and the projects, that is, to transfer the emotional salary and all the products in an attractive way to create loyalty among our professionals. On the other hand, we also promote the training of our employees in digital skills and soft skills because we believe that the combination of both is the key to the capabilities of the digital era. To this end, we launched an internal training programme for all our professionals to increase their knowledge of eight advanced technologies: Cloud, Blockchain, Agile & DevOps, Security, Big Data, Artificial Intelligence, Technology Platforms (IPS) and Automation."

María José Vos

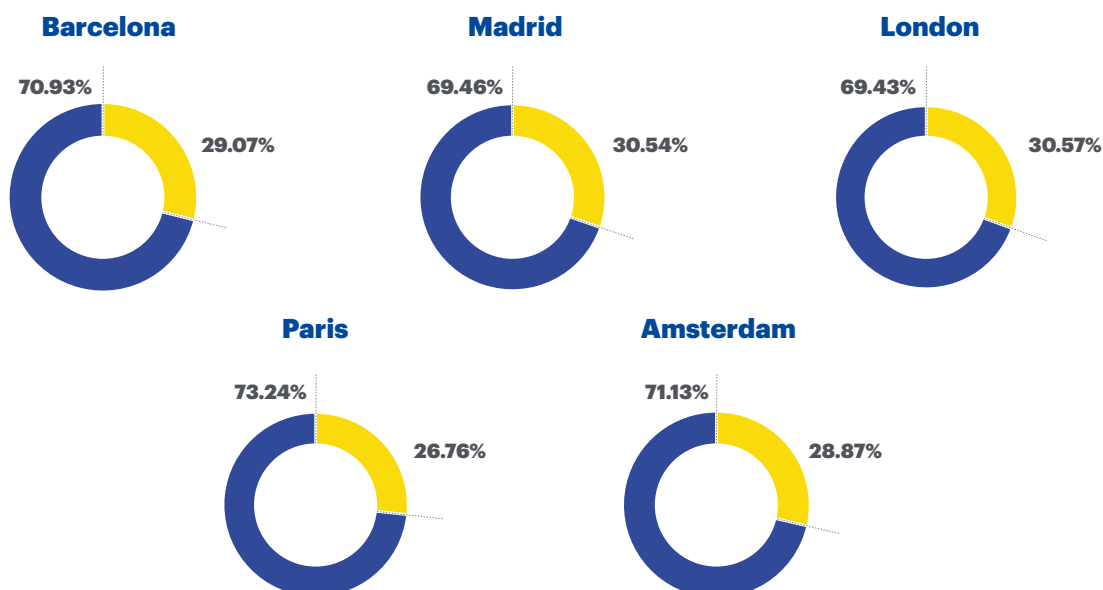Talent Strategy Lead Accenture Spain

The gender gap is reduced in the digital sector

In Barcelona, the percentage of women in the digital sector is 29%, equivalent to the average of the five European cities analysed. The trend is positive, with an increase of 2.5% compared to 2019.

The presence of women is most significant in Madrid and London, where they occupy 31% of the digital sector. Both cities are on the verge of reaching a third of the total digital talent. Of the cities analysed, Paris is the European city with the lowest percentage of women in the sector, at around 27%.

Percentage of women in the sector by city

2020

■ Men
■ Women

Barcelona
70.93% 29.07%

Madrid
69.46% 30.54%

London
69.43% 30.57%

Paris
73.24% 26.76%

Amsterdam
71.13% 28.87%

Source: TalentUp.io

Barcelona stands out as one of the cities with the most women in the digital sector, although its average presence in the sector is still 29%.

The recruitment of women in the technology sector is highest in UX/UI design, where it reaches almost gender parity with 48% of women in the workforce.

Barcelona has yet to incorporate more women in specific sectors such as cybersecurity, cloud and app development, specialities in which digital professionals are less prevalent.

Percentage of women in the sector by city and by consolidated technology
2020

	Barcelona	London	Madrid	Paris	Amsterdam
Web Development	24,52	24,85	27,55	21,33	22,18
App Development	21,95	21,70	25,70	21,40	18,11
UX/UI	48,23	37,50	50,00	47,06	28,57
CRM & ERP Consultant	25,57	23,33	20,65	15,71	18,00
Agile/Scrum	20,00	20,00	36,20	28,32	36,43
Cloud	17,57	17,57	19,17	21,06	19,36
Cybersecurity	12,97	11,36	28,71	22,81	28,09
Business Intelligence	30,11	24,44	41,38	20,00	16,67
Big Data	29,58	29,63	23,08	33,33	34,43
API	27,82	27,82	28,86	26,83	25,42

———————— « »

"Today, the common denominator for all companies, whatever the type of activity, is the need for digital talent to ensure competitiveness and sustainability.

Digitalisation affects all business areas across the board. It is necessary for challenges such as automation, taking on higher value-added work, developing new business models or implementing new development methodologies to devise better products and bring them to market in less time.

Many of the profiles we need are common to the rest of the companies, so we compete to attract this talent and get them "hooked" on our project.

As this is a structural change, it also includes employees who are already part of our organisation, and we are implementing different development plans such as boot camps to transform employees into programmers for SEAT:CODE, the Industry 4.0 Academy in collaboration with the University of Barcelona (UB) or 3,000 people already trained in digital subjects. Finally, it should be noted that in the next 5 years we plan to multiply our training activity in the development of these skills sevenfold."

Sílvia Roig
Head Learning & Development at SEAT

Covid-19 reduces attraction of international talent

While Barcelona attracted more than 4,000 digital professionals from outside the city during 2019, the mobility restrictions imposed by the pandemic have reduced this amount by more than half. In 2020, Barcelona incorporated 1,733 professionals from other cities, representing a percentage of 29.27%, a figure very similar to that of the previous year.

Barcelona has a large number of professionals from other cities specialising in different areas of knowledge.

The specialisations attracting the most talent are cybersecurity expertise (39%) and mobile application developers (38%).

Attracting new digital professionals from other cities to Barcelona

2019 - 2020

2019 4,083

2020 1,733

Specialities that attract more digital talent from other cities

2019 - 2020

■ 2020
■ 2019

Speciality	2020	2019
Web Development	30.72%	32.72%
App Development	38%	34%
UX/UI	22.07%	23.07%
CRM & ERP Consultant	31.45%	29.45%
Agile/Scrum	35.04%	35.04%
Cloud	28.13%	26.13%
Cybersecurity	39.93%	37.93%
Business Intelligence	32.5%	33.5%
Big Data	35.06%	34.06%
API	29.39%	31.39%
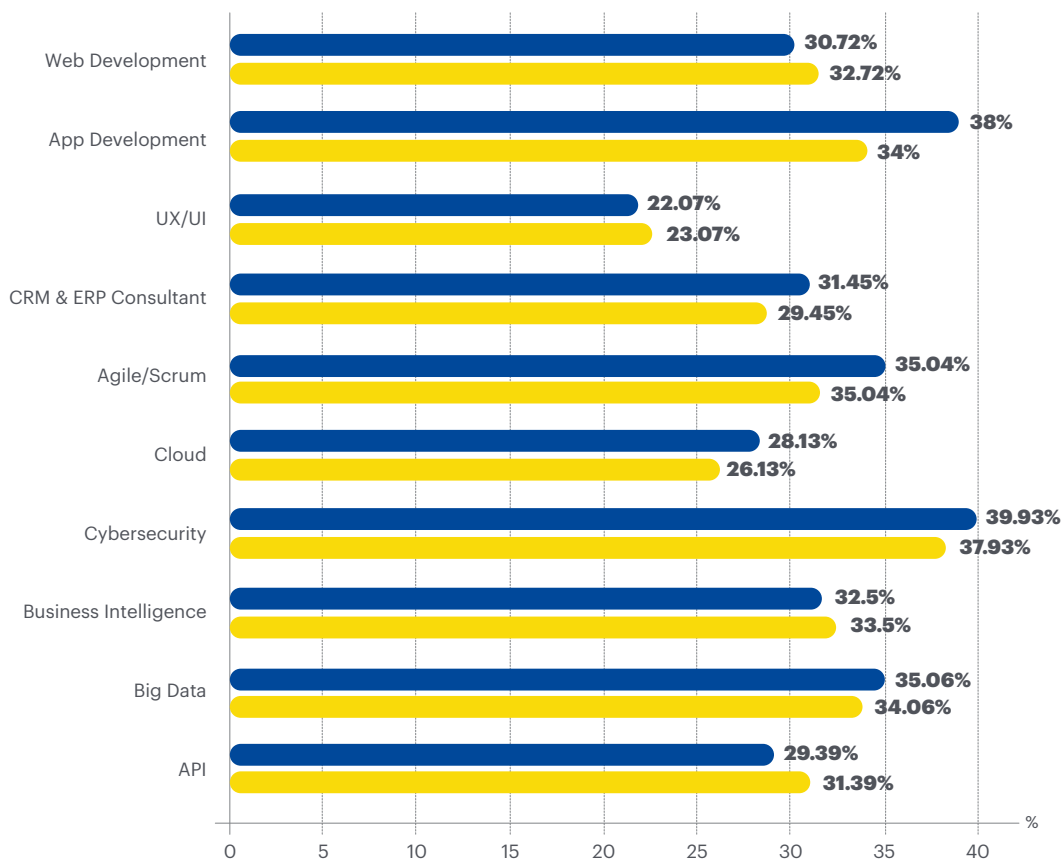
Weighted average:

2020: 29.27%
2019: 29.58%

Note: The average percentage of international digital talent is calculated based on the 10 profiles with the highest volume as they are considered to have the most relevant representation.

Source: TalentUp.io

The cities that export the most talent to Barcelona are London (11%) and Madrid (9%) to work, above all, in CRM and ERP consultancy and UX/UI design.
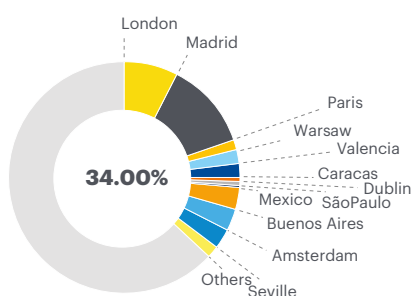
Migration to Barcelona

2020

10.79%
London

9.35%
Madrid

2.69%
Buenos Aires

2.46%
São Paulo

2.15%
Valencia

1.8%
Paris

1.72%
Mexico City

1.55%
Seville

1.2%
Dublin

0.91%
Amsterdam

0.75%
Caracas

0.72%
Warsaw

66.47%
Others
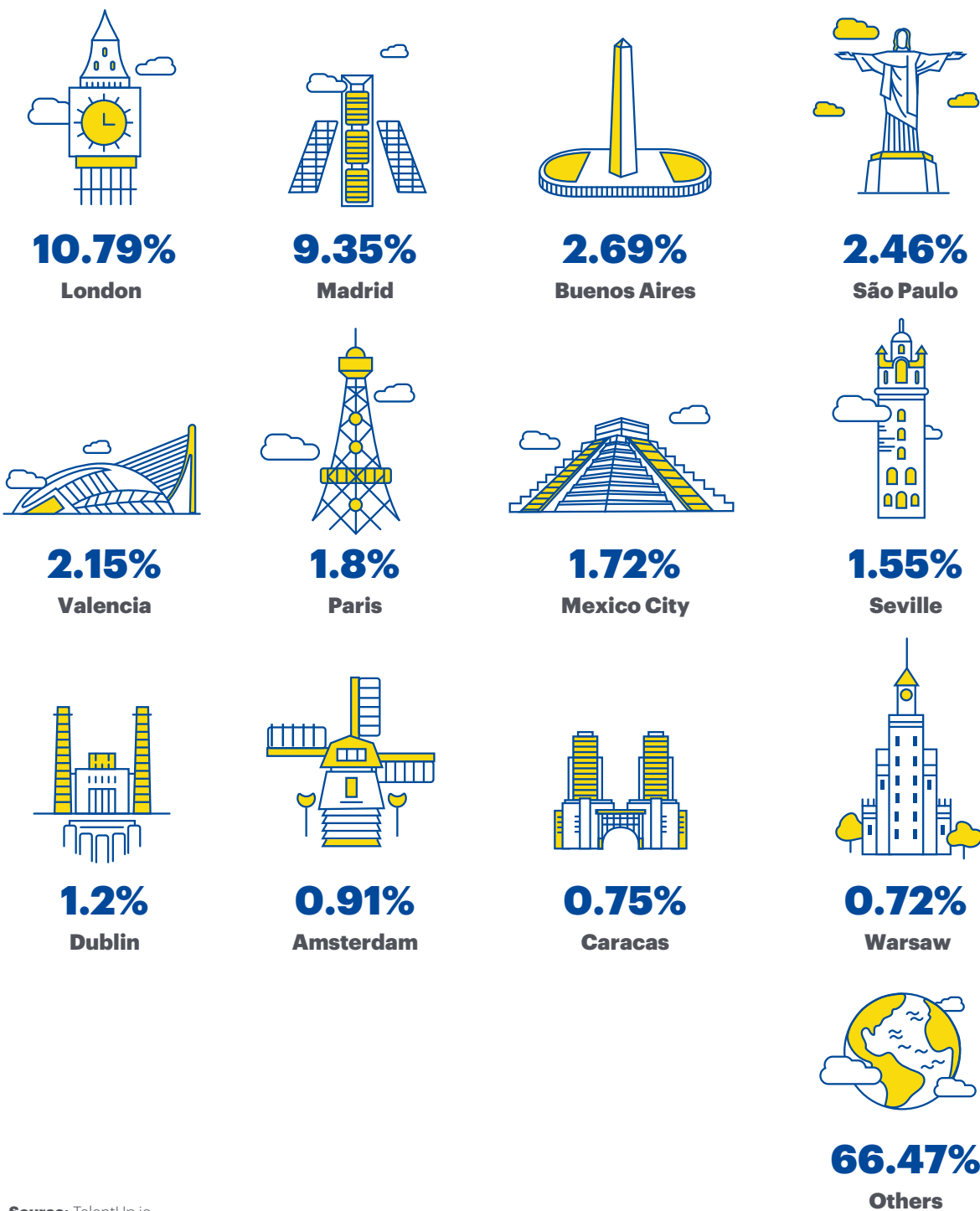
Migration to Barcelona by consolidated technologies and by city
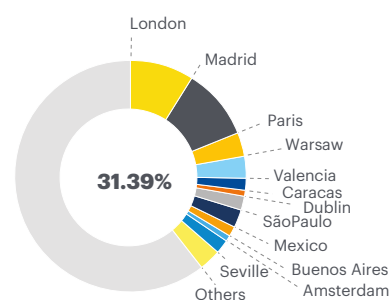
2020
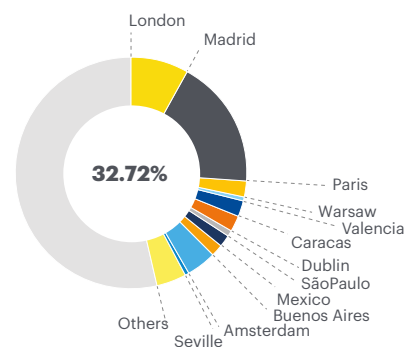
Web Development
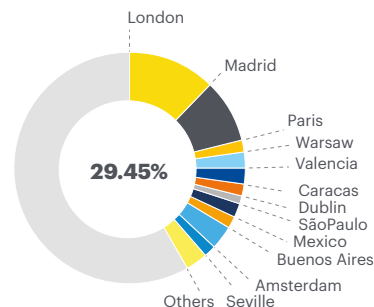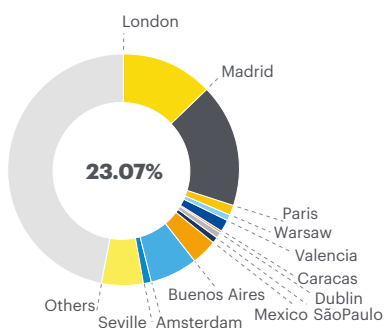
App Development

UX / UI

CRM & ERP Consultant
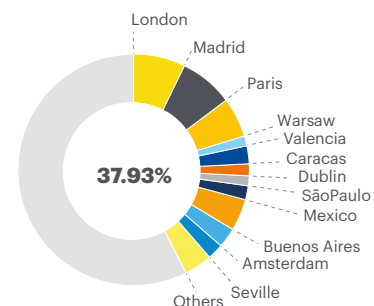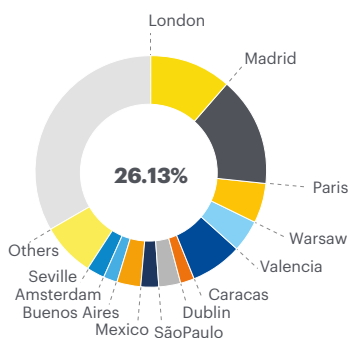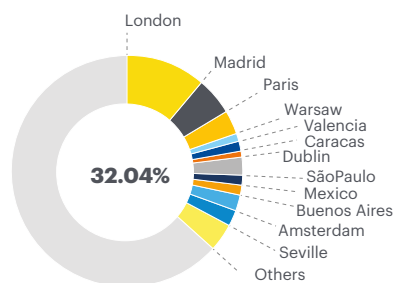
Agile / Scrum

Cloud

Cybersecurity
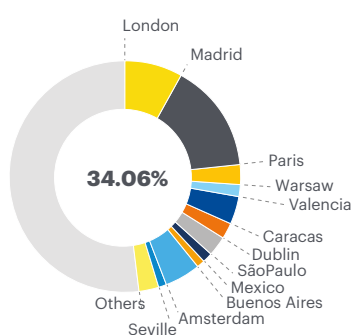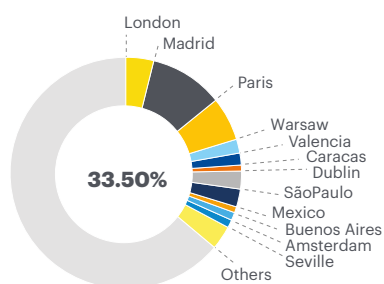
Business Intelligence

Big Data

API

Source: TalentUp.io

— « »

"Barcelona is becoming one of southern Europe's leading hubs for the digital economy. This includes various opportunities to attract and train digital talent, especially for those fields and professions where hybrid profiles are needed. These profiles imply a deep knowledge of economics (e.g. sales, underwriting, finance...) and experience in digital business, with agile methodologies, knowledge of data analytics, and digital business models.

Barcelona is well-placed to attract digital talent from other countries and continents. However, it should strengthen its technological innovation ecosystem, with greater public and private investment in talent accelerators to foster entrepreneurship, with closer and more fluid contact networks between young entrepreneurs, large companies, investors, technology centres, and institutions. We must make a solid commitment to innovative development formulas, mixing on-the-job methodologies and easy access to digital skills to grow these skills in hybrid professionals because if we manage to transform a significant part of our existing talent into digital talent, we will be one of the main poles of the digital economy in Europe."

Stefano de Liguoro
Head of Digital Business at Zurich Seguros

Diversification of business Sectors who demand the most digital talent

The digital talent market is notable for the wide range of companies and sectors requiring digital talent.

The trend observed in 2019 continues, with traditional and digital companies, start-ups, digital service centres (hubs), consultancies and technology providers leading the recruitment of digital professionals in Barcelona.

Companies that hire the most digital profiles

2020
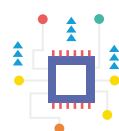
	1	2	3
Web Developers	Typeform	Altran	Between
App Developers	Glovo	Travelperk	Slashmobility
UX/UI	Socialpoint	King	Ubisoft
CRM + ERP Consultant	Sanofi	Zurich	Accenture
Agile/Scrum	Adevinta	Between	Wefox
Cloud (AWS)	Adevinta	Netcentric	Between
Cybersecurity	Nestlé	Adevinta	Accenture
Business Intelligence	clariba	Between	Abast
Big Data	HP	Schneider Electric	Capgemini
API	Atmira	Wefox	Ohpen
Artificial Intelligence	Sermicro	Between	Vistaprint
IOT	Between Technology	Worldsensing	Fundación i2CAT
3D Printing	HP	bcn3d technologies	Between
Blockchain	Neon blockchain	Finboot	Fundación i2CAT
Computer Vision	Eurecat	Between	Remy Robotics

Source: TalentUp.io
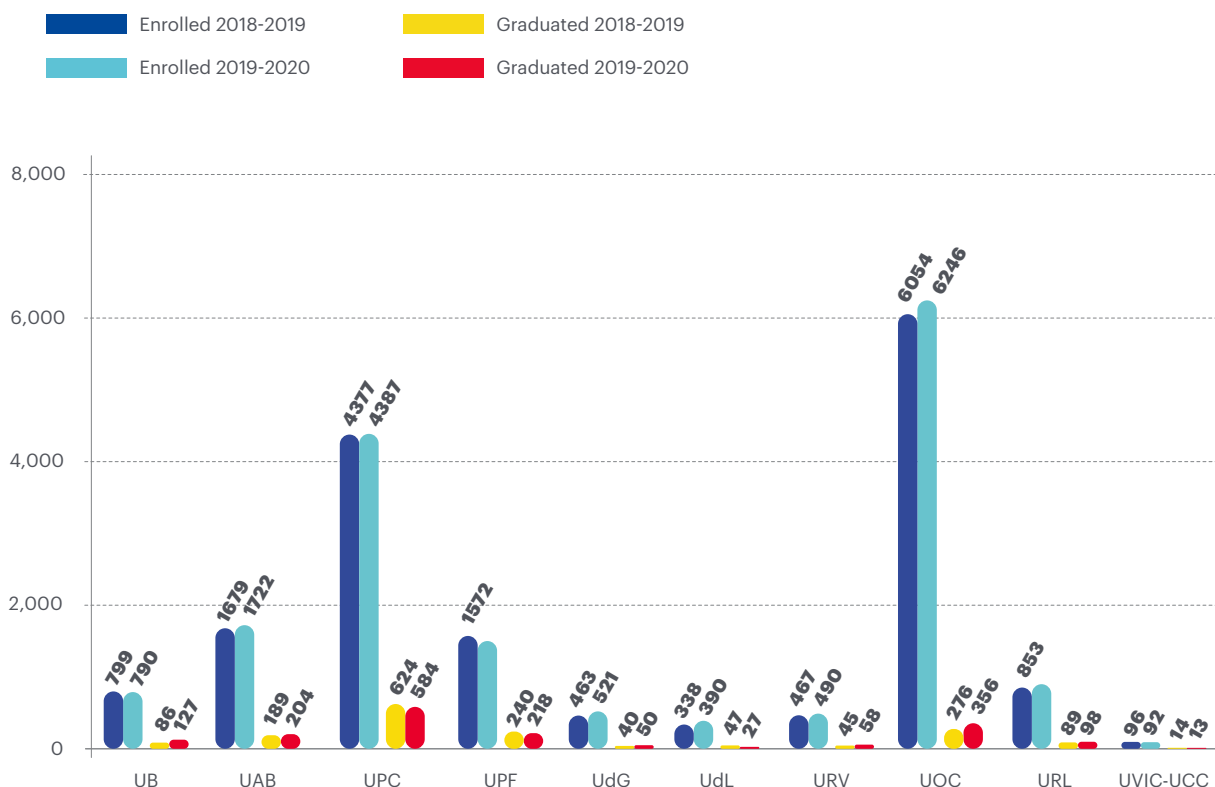
Evolution of ICT studies in the university

Public universities are centres of reference for training in digital talent. The demand for technological training has been maintained over time and has seen an increase in the number of enrolments in recent years (2.04% compared to the 2018-2019 academic year).

In general, public universities show a greater training capacity, especially in the Polytechnic University of Catalonia (UPC) case. The private university that gathers a large part of the demand for digital training is the Open University of Catalonia (UOC).

In total, 1,735 people graduated from Catalan universities in training related to digital skills. This figure represents an increase of 5.15% over the previous year.

Students enrolled and graduates in official ICT degrees in Catalonia

2018 - 2020

Legend:
- Enrolled 2018-2019 (dark blue)
- Enrolled 2019-2020 (light blue)
- Graduated 2018-2019 (yellow)
- Graduated 2019-2020 (red)

University	Enrolled 2018-2019	Enrolled 2019-2020	Graduated 2018-2019	Graduated 2019-2020
UB	799	790	86	127
UAB	1679	1722	189	204
UPC	4377	4387	624	584
UPF	1572		240	218
UdG	463	521	40	50
UdL	338	390	47	27
URV	467	490	45	58
UOC	6054	6246	276	356
URL	853		89	98
UVIC-UCC	96	92	14	13

*It includes the following ICT degree courses: Bioinformatics, Data Science and Engineering and Physics, Applied Sports and Fitness Science and Technology, Telecommunications Science and Technology, Interactive Digital Content, Digital Design and Creative Technologies, Video Game Design and Development, Video Game Design and Production, Data Engineering, Audiovisual Systems Engineering, Telecommunications Systems Engineering, Electronic Systems Engineering, Telecommunications Systems and Services Engineering, ICT Systems Engineering, Telecommunication Technologies and Services Engineering, Telecommunication Technologies and Services Engineering and Physics, Telecommunication Technologies and Services Engineering and Computer Science, Telecommunication Networks Engineering, Telecommunication Electronics Engineering, Geoinformation and Geomatics Engineering, Computer Science Engineering, Information and Communication Technologies Organisation Engineering, ICT Organisation Engineering, Audiovisual Systems Engineering, Industrial Technologies Engineering and Computer Science, Computer Engineering, Computer Engineering - Mathematics, Management and Information Systems Computer Engineering, Computer Engineering and Business Administration, Computer Engineering and Biotechnology, Computer Engineering and Telecommunication Systems Engineering, Computer Engineering and Physics, Multimedia Engineering, Telematics Engineering, Photography and Digital Creation, Computer Science and Services, Audiovisual Media, Multimedia, Applications and Video Games, Software Application Techniques, Web and Mobile Application Development Techniques, Digital Interaction and Computing Techniques, Telecommunication Technologies

University master's degrees boost talent upskilling

In postgraduate education, the UOC continues to be an attractive option for specialised ICT profiles. Among public universities, the UPC is also a leader in this type of study.

The Catalan university system generated 1,234 master's degree graduates in the 2019-2020 academic year, 12.8% more than in the previous academic year.

Students enrolled and graduates in official ICT Master in Catalonia

2018 - 2020

- Enrolled 2018-2019
- Enrolled 2019-2020
- Graduated 2018-2019
- Graduated 2019-2020
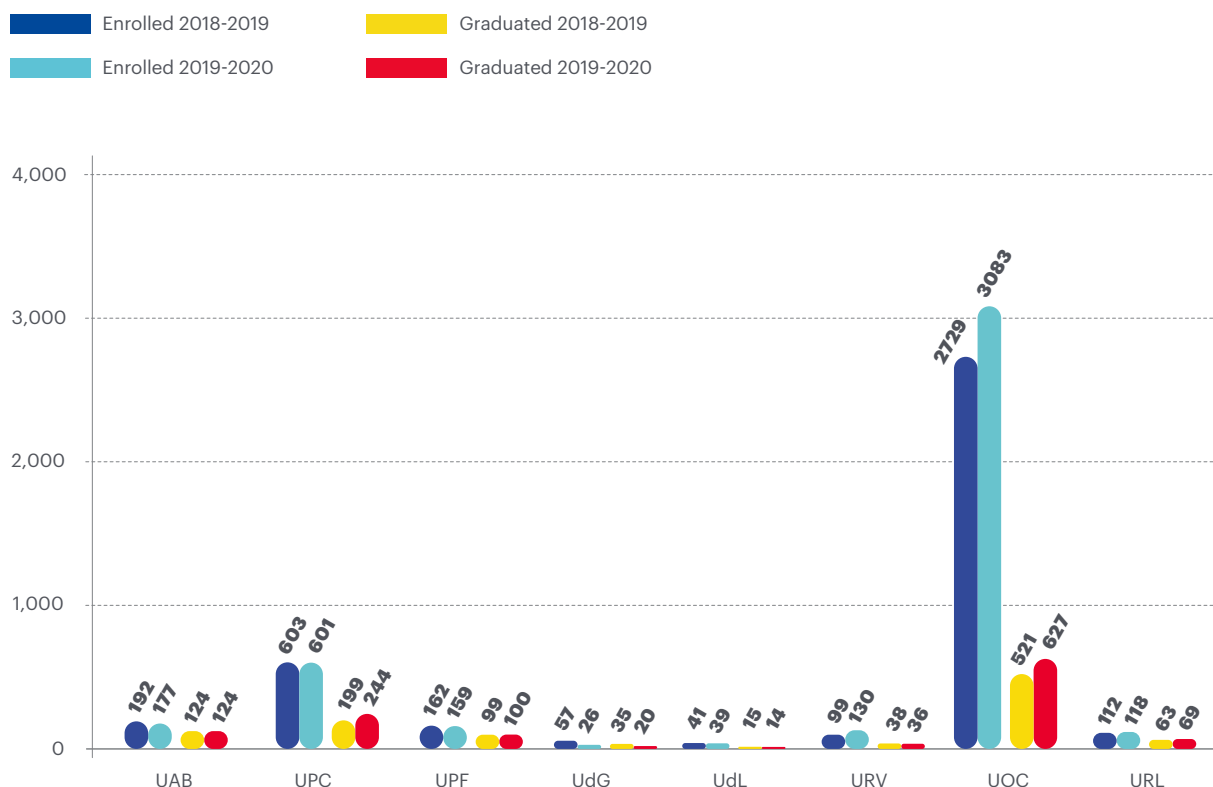
*It includes the following ICT degree courses: Bioinformatics, Telecommunication Engineering, Computer Vision, Remote Sensing and Geographic Information Systems, Geoinformation, Internet of Things for Digital Health, Advanced Informatics, Micro and Nanoelectronics Engineering, Computer Science and Engineering, Computer Vision and Artificial Intelligence, High Performance Computing, Multimedia Technologies, Telecommunication Systems Design, High Performance Computing, Information Theory and Security, Multimedia Ambient Intelligence, Computer Engineering, Medical Imaging and Applications, Industrial Informatics and Automation, Computer Vision and Robotics, Industrial Informatics, Automation, Computing and Systems (MIIACS), Computer Vision and Robotics - VICOT, Information and Automation Technologies, Computer Engineering, Intelligent Technologies for Health Systems, Medical Imaging and Applications, Open Source Engineering, Human-Computer Interaction, Bioinformatics and Biostatistics, Digital Health, Web Application and Site Development, User Experience and Interaction Design, Video Game Design and Programming, Cybersecurity and Privacy, Open Source Software, Security of Information and Communication Technologies, Multimedia Applications, Development of Applications for Mobile Devices, Automation and Robotics, Innovation and Research in Computer Science, Artificial Intelligence, Applications and Management of Telecommunication Engineering (MASTEAM), Advanced Telecommunication Technologies, Cybersecurity, Neuroengineering and Rehabilitation, Computer Architecture, Networks and Systems, Information Technologies, Telecommunications Engineering and Management, Information and Communication Technologies, Research in Information and Communication Technologies (MERIT), Computing, Telematics Engineering, Distributed Computing, Information Technologies for Business Intelligence, Research in Information and Communication Technologies, Bioinformatics for Health Sciences, Cognitive Systems and Interactive Media, Sound and Music Technologies, Interactive Intelligent Systems, Biomedical Computational Engineering, Interdisciplinary Media and Interactive Cognitive Systems, Advanced Modern Telecommunications Sciences, Mobile Communications, Management of Information and Communication Technologies, High-Performance Web Programming, Big Data Engineering, Animation and Visual Effects, Network and Telecommunications Engineering, Computer Engineering and Management, Multimedia Creation, Design and Engineering, Research in Information and Communication Technologies and Management, Multimedia Creation and Serious Games, Computer Engineering and Mathematics, Computer Security and Artificial Intelligence Engineering, Computer Security and Intelligent Systems, Industrial Organisation, Computer Engineering: computer Security and Intelligent Systems, Electronic Systems Engineering and Technology, Applied Information Technologies, Mobile Applications and Games, Sports Technology.

Catalonia shows an extensive training capacity and, although this trend varies from case to case, overall there is more supply than demand in the training of digital talent. This is true for both public and private universities.

Training in digital skills is demanding, as demonstrated by the graduation rates: 20% graduate in 4 years, 20% graduate in 5 years and 20% go on to further education. In addition, 20% of those enrolled in ICT studies decide to drop out, and 20% choose to change their degree.
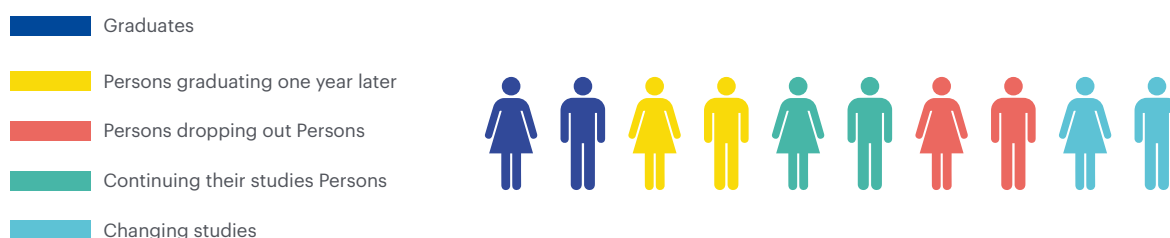
Access rate to university studies (ICT)

2019-2020

	Places offered	Demand 1st preference - June	New access	% Coverage Places (new access/places)
Total universities public	2831	2947	2620	92.5%
Total universities private	330	242	241	73%
Total universities face-to-face	2800	4503	1925	68.8%
Total University System Catalan (SUC)	5961	7692	4786	80.3%

Cohort analysis degrees (ICT)

2019-2020

If 10 persons were enrolled in the academic year 2016 - 2017, in the academic year 2019 - 2020:

Graduates

Persons graduating one year later

Persons dropping out Persons

Continuing their studies Persons

Changing studies

ICT studies in Vocational Education and Training (VET)

The percentage of women enrolled in technological vocational education and training represents 9% of the total number of categories. In this area, the presence of women has grown very moderately in recent years.
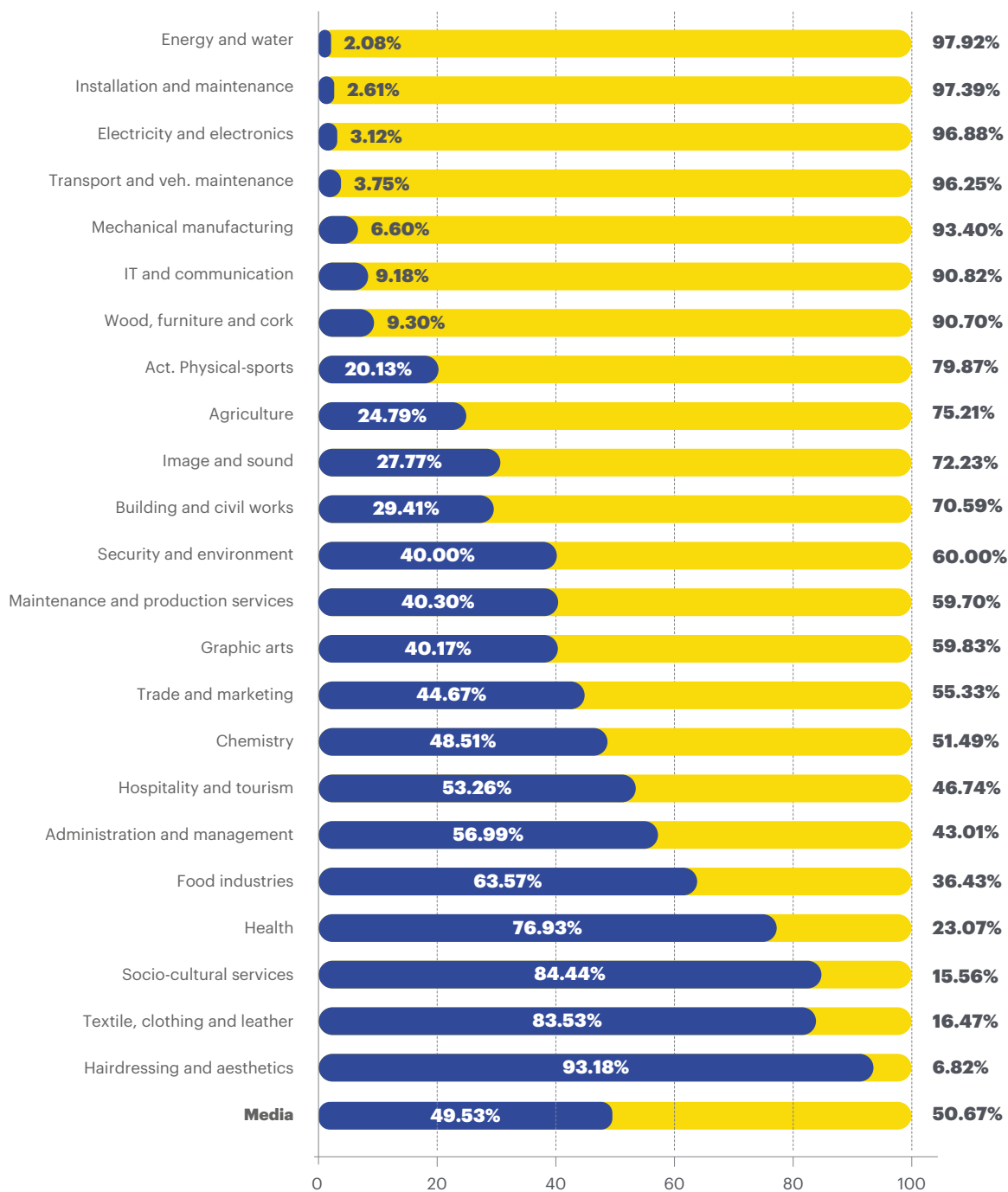
The gender gap in the labour market starts in non-compulsory education, where women opt for the categories "personal image, socio-cultural services and textile, clothing and leather."

In vocational education and training in digital skills, 91% of those enrolled are men. The speciality of web application development is the one with the highest presence of women (15.71%), while others, such as the development of computer science applied to logic, the presence of women is null.

Barcelona Digital Talent

VET enrolment by professional families. Barcelona Metropolitan Area

2019 - 2020

■ % Women
■ % Men

Professional family	% Women	% Men
Energy and water	2.08%	97.92%
Installation and maintenance	2.61%	97.39%
Electricity and electronics	3.12%	96.88%
Transport and veh. maintenance	3.75%	96.25%
Mechanical manufacturing	6.60%	93.40%
IT and communication	9.18%	90.82%
Wood, furniture and cork	9.30%	90.70%
Act. Physical-sports	20.13%	79.87%
Agriculture	24.79%	75.21%
Image and sound	27.77%	72.23%
Building and civil works	29.41%	70.59%
Security and environment	40.00%	60.00%
Maintenance and production services	40.30%	59.70%
Graphic arts	40.17%	59.83%
Trade and marketing	44.67%	55.33%
Chemistry	48.51%	51.49%
Hospitality and tourism	53.26%	46.74%
Administration and management	56.99%	43.01%
Food industries	63.57%	36.43%
Health	76.93%	23.07%
Socio-cultural services	84.44%	15.56%
Textile, clothing and leather	83.53%	16.47%
Hairdressing and aesthetics	93.18%	6.82%
Media	49.53%	50.67%

0   20   40   60   80   100

Enrolment VET AMB. Barcelona Metropolitan Area

2019 - 2020

- ■ Women
- ■ Men

	2015/2016	2016/1017	2017/2018	2018/2019	2019/2020
Women	846	836	908	959	1107
Men	8084	8646	9195	9927	10946

Specialised education and vocational training in ICT generated 2,699 graduates in the 2019-2020 academic year, an increase of 20.49% over the previous academic year.

Enrolled and graduated VET AMB. Barcelona Metropolitan Area

2019-2020

■ Enrolled
■ Graduates

Category	Enrolled	Graduates
Microcomputer systems and networks	4631	1226
Networked IT system administration	2509	558
Networked IT system administration (cybersecurity)	272	19
Development of multiplatform applications (IT applied tologistics)	39	12
Development of multiplatform applications (video games and digital entertainment)	252	66
Development of multiplatform applications	2512	473
Web application development	1725	317
Web application development (bioinformatics)	113	28

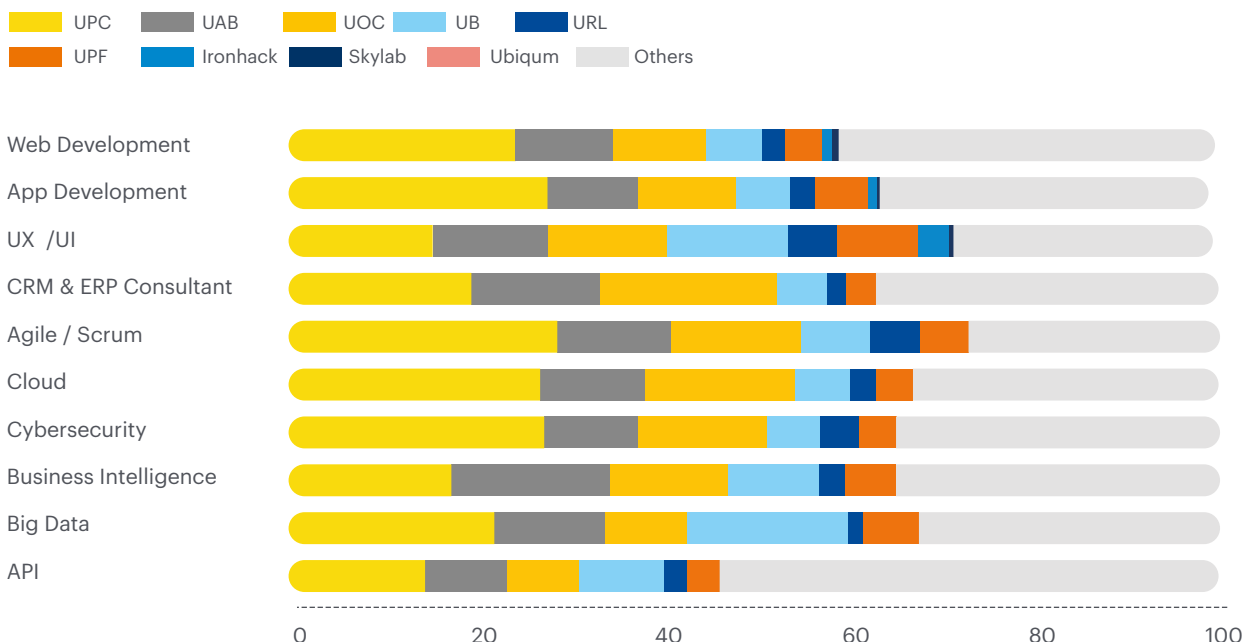**Source:** Department of Education. Indicators and Statistics Service

Digital skill training

The UPC remains a reference centre for digital talent in Barcelona. Endorsed by world rankings, this university trains a large part of Catalonia's working professionals in both consolidated and emerging technologies.

The training capacity for emerging technologies lies mainly with universities. In consolidated technologies, although the leading training agent is still the university, different academies also offer training opportunities in the most sought-after sectors for digital talent.

Training centres in emerging technologies

2020

Legend: UPC · UAB · UOC · UB · URL · UPF · Ironhack · Skylab · Ubiqum · Others

Categories: Web Development, App Development, UX /UI, CRM & ERP Consultant, Agile / Scrum, Cloud, Cybersecurity, Business Intelligence, Big Data, API

Scale: 0 — 20 — 40 — 60 — 80 — 100

Training centres in emerging technologies

2020

- ■ UPC
- ■ UAB
- ■ UOC
- ■ UB
- ■ URL
- ■ UPF
- ■ Ironhack
- ■ Skylab
- ■ Ubiqum
- ■ Others

Artificial Intelligence
IOT
3D Printing
Blockchain
Computer Vision

0   20   40   60   80   100
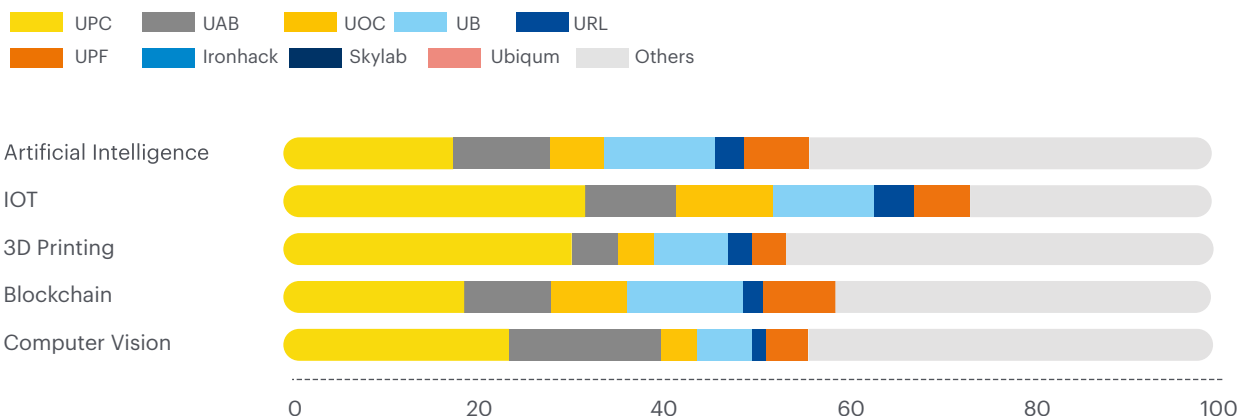
Source: TalentUp.io

——— « »

"Demand for digital talent continues to grow and requires specialised solutions from institutions and organisations to stay ahead of technological changes. At Ironhack we take this commitment in all our aspects: offering an education model focused on the development of the digital economy, helping companies with the reskilling of their workforces and providing opportunities to all those who wish to specialise in a digital career.

As a technology school, we remain focused on training the next generation of digital talent and seek to democratise access with funding solutions tailored to the needs of each of our students.

We work with the clear objective of reducing the digital divide and enabling Barcelona to position itself as a leader in the training of skilled and competitive digital professionals capable of transforming the digital ecosystem. We are backed by 8 years of experience and more than 9,000 graduates with an employability rate of more than 80%. These figures are a source of pride for us, as is seeing the ability of our students to transform their careers through technology."

Tiago Santos
Managing Director of Ironhack

Barcelona leads training in boot camps

Barcelona leads the ranking of boot camps in Spain. 40% of the centres that offer this type of training are located in Barcelona.

Barcelona and Madrid account for around 74% of the boot camp training activity in Spain.

The vast majority of boot camps in Barcelona are newly created. In fact, 82.35% have been set up in the last 5 years.

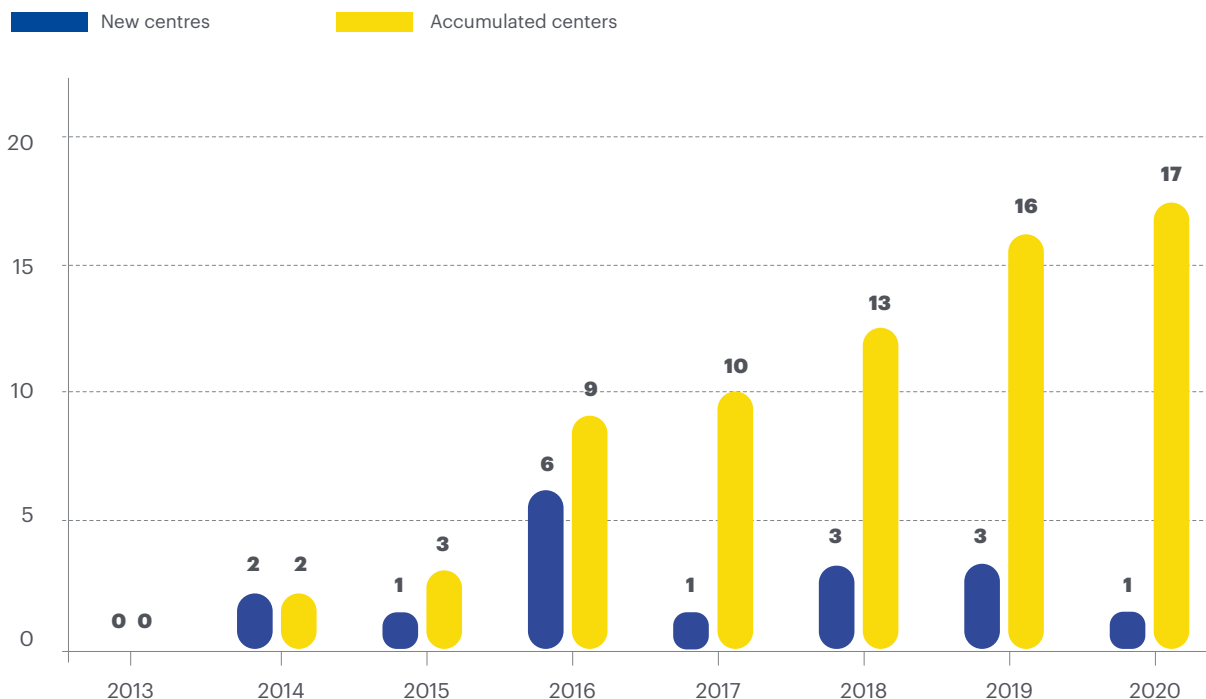**Offer of boot camps with face-to-face or hybrid training offered by cities in Spain**
2020

40.5%
Barcelona

33.3%
Madrid

7.1%
Bilbao

4.8%
Seville

14.3%
Others
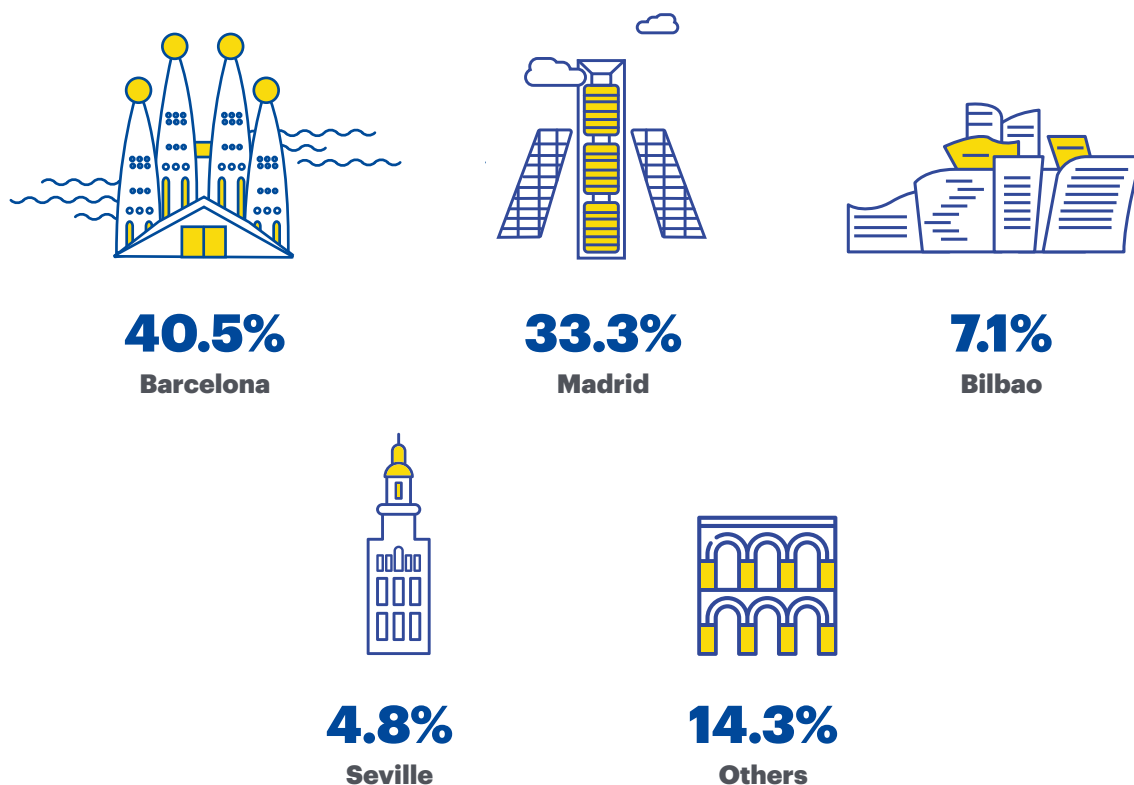
Source: Mobile World Capital Barcelona. Barcelona Digital Talent (Talent and boot camps)

Centres offering boot camps in Barcelona by year of creation

2014-2020

■ New centres   ■ Accumulated centers

Source: Mobile World Capital Barcelona. Barcelona Digital Talent (Talent and boot camps)

《 》

"It is clear that we have to reinvent ourselves. If there is one clear reading that we must make from now on, it is to keep in step with the market. Therefore, we have to constantly retrain ourselves and adapt our business strategy to the digital transformation.

What this pandemic has achieved is to accelerate a process that we were already experiencing in recent years: the transition of thousands of profiles from a traditional industry to a much more digital one. Job positions in companies are evolving the worker's profile, which is why it is so important to train employees with those skills and soft skills that the market demands in a fast, intensive and practical way.

At Nuclio Digital School, our boot camps allow quick reinsertion into the labour market or reskilling through technological training in a short period of time. But not only that, we design our programmes with a focus on enhancing creativity, so vital

for innovating and looking for solutions to complex problems. The combination of technological knowledge with human skills, in this case, creativity, ensures a successful future in the workplace."

Jared Gil

Managing Director & Co-Founder at Nuclio Digital School

Barcelona has more competitive digital wages than other European cities

Salaries in Barcelona are competitive by European standards when compared to the standard of living in the city.
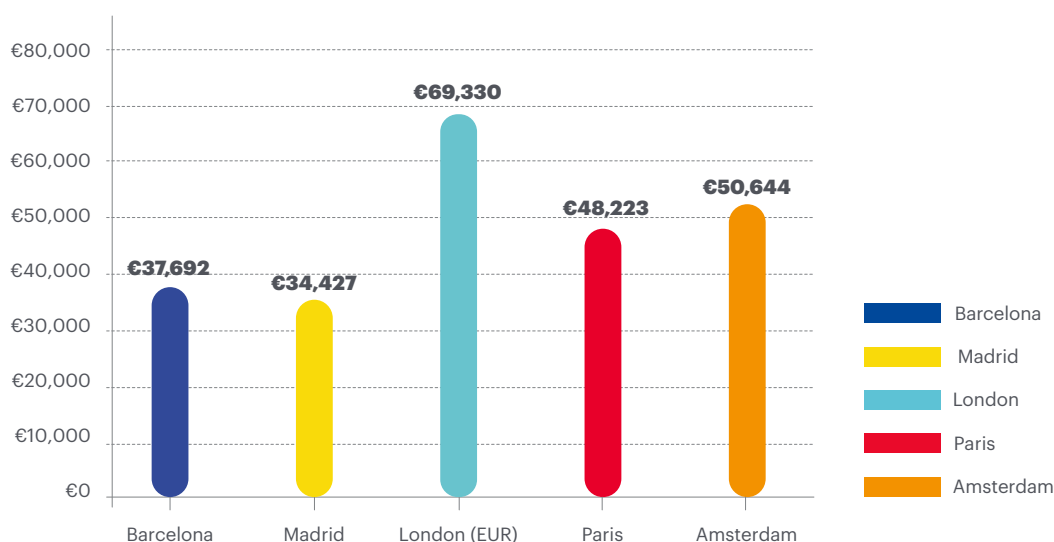
As in previous years, Barcelona stands out for having similar salaries to other European cities in relation to the standard of living. In absolute terms, London and Amsterdam offer higher salaries.

The standardised salary for each city shows Barcelona as an attractive option to work in. Among European cities, only London shows a higher salary in relation to the standard of living in the city.

The salary difference between specialisations is approximately 10,000 euros per year. While user interface design (UX/UI) tends to be the lowest paid (average €42,705 per year in the cities surveyed), jobs with technologies such as Cloud and Cybersecurity are the best paid (average €54,480 and €52,946 per year in the cities surveyed).
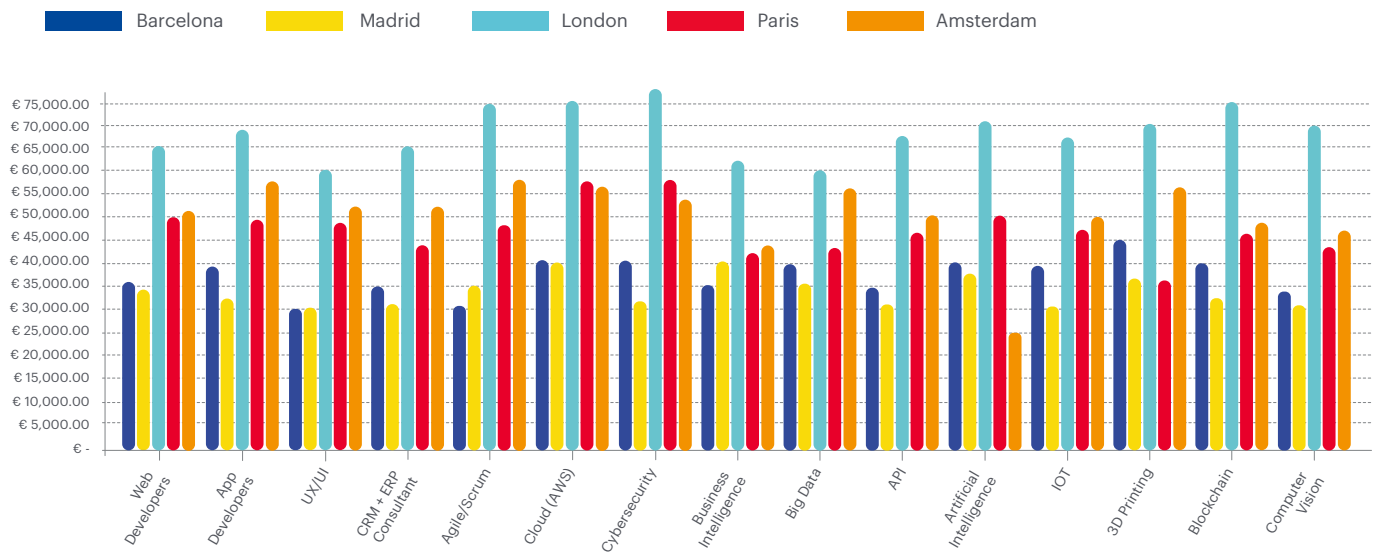
Digital professional salaries by city

2020

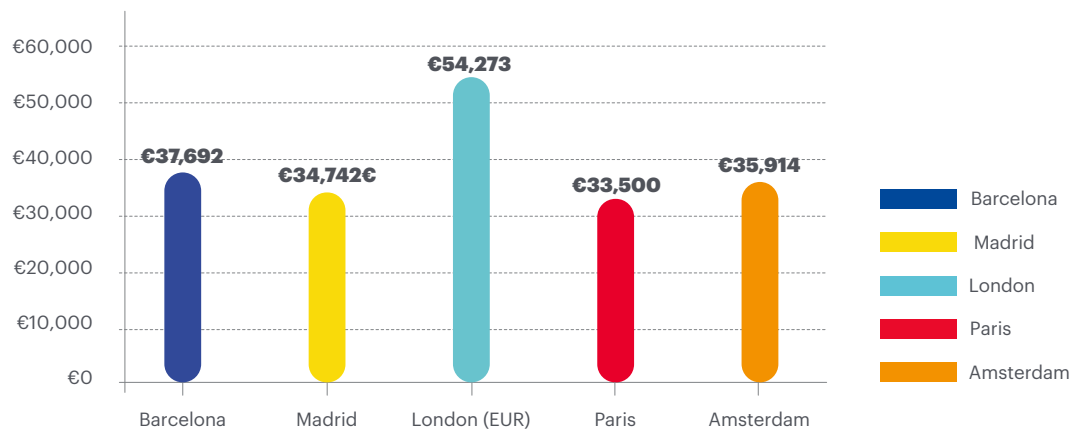| City	Salary
Barcelona	€37,692
Madrid	€34,427
London (EUR)	€69,330
Paris	€48,223
Amsterdam	€50,644

Legend: Barcelona, Madrid, London, Paris, Amsterdam

Salaries by city by speciality

2020

Legend: ■ Barcelona ■ Madrid ■ London ■ Paris ■ Amsterdam

Average salaries

■	€37,691.53
■	€34,426.73
■	€69,329,93
■	€48,222.67
■	€50,644.47

Average standardised salaries by cost of living

2020

Barcelona	€37,692
Madrid	€34,742€
London (EUR)	€54,273
Paris	€33,500
Amsterdam	€35,914

Legend: Barcelona, Madrid, London, Paris, Amsterdam

Standardised cost-of-living salaries by specialisation

2020

Legend: Barcelona, Madrid, London, Paris, Amsterdam

Categories: Web Developers, App Developers, UX/UI, CRM + ERP Consultant, Agile/Scrum, Cloud (AWS), Cybersecurity, Business Intelligence, Big Data, API, Artificial Intelligence, IOT, 3D Printing, Blockchain, Computer Vision
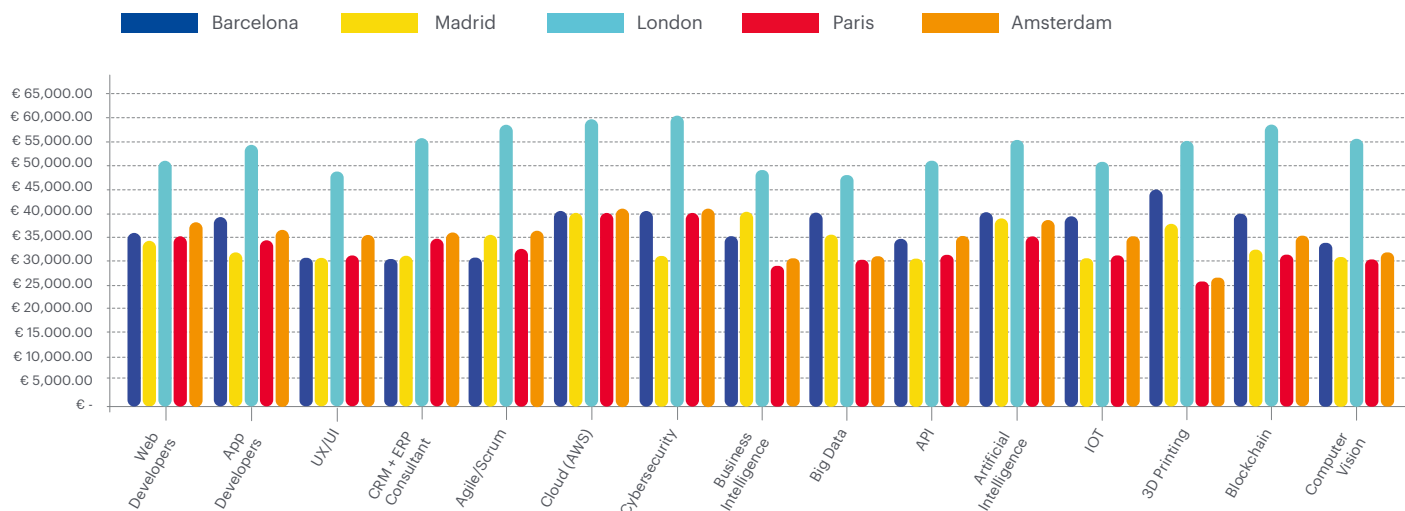
Cost of living* vs cost of living + rent

2020

	Barcelona	Madrid	London	Paris	Amsterdam	NYC
Cost of living	61.71%	61.15%	78.,83%	88.83%	82.86%	100%
Cost of living + rent	46.52%	47.52%	72.17%	67.67%	69.39%	100%

*Note: e.g. for the Madrid standard wage: Salary_Madrid x cost_of_living_bcn / cost_of_living_madrid.

Source: TalentUp.io

4
Fighting the digital talent divide

Priority axes for action

Based on the main recommendations of the study, the following is a set of proposals for action aimed at generating and attracting more and better digital talent in Barcelona and Catalonia:

1 We must maximise the quantity, quality and diversity of talent generated in our ecosystem of digital training centres
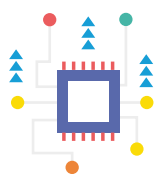
Although Barcelona has some of the best universities for technological studies in Spain, in general it cannot be satisfied with the current figures, which are far from the top positions in international rankings.

Furthermore, concerning the creation of **digital talent by the university system, the slight increase in graduates and enrolled students is still insufficient to meet the high demand for profiles.** Address the ICT drop-out rate, currently close to 40%, may also represent a key element for the university system in bridging the digital talent gap.

In the field of **vocational education and training, the number of people trained continues to grow at double digits, which is a very positive figure, even though the gender gap in this type of training is still very high.** This fact suggests that specific actions should be taken to attract female talent in ICT Vocational Education and Training.

Based on the contextual situation, it is recommended:

- Launch ambitious initiatives to create STEAM vocations at school, accelerate demand and enrolments in these ICT studies in the medium term, and integrate the key players in the digital talent ecosystem (companies, educational centres, public administrations, etc.)

- Expand investment and deployment of initiatives for the generation of technological vocations among girls and stimulate the incorporation of adult women in technological retraining programmes.

- Undertake the necessary investments to position at least one ICT university among the top 50 in global excellence rankings.

- Identify and offer ICT training alternatives to people who drop out of ICT university studies, for example, by designing ad hoc public vocational education and training programmes for these groups or encouraging them to take part in intensive digital training programmes such as boot camps.

2 We must turn the threat of job automation into an opportunity to generate new ICT professionals through reskilling

As **digital skills evolve, we see an increasing diversity of expertise required, opening up the range of possibilities for people with different interests and backgrounds.** For example, the emergence of **no-code or low-code digital** techniques and **platforms**, which require virtually no prior programming knowledge, **allow entry into the digital domain with even lower barriers to entry**, which should undoubtedly be exploited both for young people and especially in cases of reskilling.

The survey data also shows that the digital transition generates digital skills needs in almost all sectors beyond the ICT industry.

Thus, retraining towards digital skills is one of the primary measures to bridge the gap of technology professionals while avoiding the destruction of jobs at risk of automation. In this field, measures such as the following should be considered:

- The promotion and deployment of training geared towards the generation of hybrid professionals, enabling employees to strengthen their skills in sectoral knowledge and, in turn, incorporate digital skills applied to their field of activity (disciplines such as *Fintech, edtech,* industry 4.0, *insurtech, traveltech*, etc.)

- Accelerate the development of so-called *citizen developers*, professionals without programming skills competent in the use of *low code* platforms, and *no code*, which in collaboration with professional developers can generate digital products.

3 The paradigm shifts resulting from Covid-19 should enable us to attract talent and also to distribute it territorially beyond the Barcelona hub

The presence of nearly **30% of digital talent from outside the Barcelona area and the consolidation of the city in the TOP 10 of preferred locations for international ICT talent mobility** reinforce Barcelona's status as a pole of talent attraction.

On the other hand, the acceleration of teleworking can be harnessed as a trend to attract international digital talent who can work for other hubs from Barcelona. Furthermore, the concentration of more than 95% of Catalonia's digital talent in the Barcelona area is a fact that could be corrected thanks to the opportunity presented by the new forms of work in the ICT sector.

According to data from the European DESI 2019 index (Digital Economy and Society Index), the city of Barcelona and Catalonia as a whole stands out as one of the best areas on the continent in terms of fixed and mobile broadband. In addition, there is a commitment to significant public and private investment to boost connectivity as a competitive vector further.

Thus, the following measures are suggested to attract and relocate digital talent in the territory:

- Launch campaigns to raise awareness and attract international digital talent, especially in those markets that already export talent to Barcelona, such as European countries and the LATAM market. In this regard, it is essential to streamline visa management procedures and to amend the regulatory framework to facilitate attracting digital talent from outside the EU through a Technological Visa in line with those promoted by countries such as Portugal and the United Kingdom.

- Promote the development of digital professions from rural environments through awareness-raising campaigns and incentives to attract and retain digital talent from urban areas to sparsely populated areas.

4   European funds provide an opportunity to accelerate digital talent

The Next Generation Funds are aimed at transforming the economy and society for the next generation of European citizens. In addition, in all EU countries, they are allocating a significant percentage of these funds to digital transformation, which will put additional strain on this sector from the perspective of the talent needed to tackle the projects that will be undertaken. This is a **unique opportunity to address systemic transformations in the uptake of digital literacy across society,** from increasing interest in digital literacy among children to retraining or reskilling programmes for the over 50s, as well as improving the gender gap.

In this respect, it will be crucial:

- The deployment of initiatives that can incorporate best practices from the implementation plans of funds from other European economies, such as the Italian Digital Civil Service project or the French "AI booster" initiative.

- Focus on managing digital skills funds on both the timely implementation of the budget and planned projects and the generation of impact in generating digital skills and new digital jobs.

**Barcelona
Digital Talent**