CompTIA®

European Tech Hiring Trends 2021

Tech Workforce Hiring Trends and Analysis

Belgium | Czech Republic | France | Germany | Italy | Netherlands | Poland | Portugal | Romania | Spain

ABOUT COMPTIA

The Computing Technology Industry Association (CompTIA) is a leading voice and advocate for the $5 trillion global information technology ecosystem; and the estimated 75 million industry and tech professionals who design, implement, manage, and safeguard the technology that powers the world's economy. Through education, training, certifications, philanthropy, and market research, CompTIA is the hub for advancing the tech industry and its workforce.

CompTIA is the world's leading vendor-neutral IT-certifying body with more than 2.8 million certifications awarded based on the passage of rigorous, performance-based exams. CompTIA's base of certified information technology professionals spans 232 countries worldwide.

CompTIA sets the standard for preparing entry-level candidates through expert-level professionals to succeed at all stages of their career in technology. Through CompTIA's philanthropic arm, CompTIA develops innovative on-ramps and career pathways to expand opportunities to populations that traditionally have been under-represented in the information technology workforce.

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ABOUT COMPTIA'S EUROPEAN TECH HIRING TRENDS

CompTIA's European Tech Hiring Trends provides an in-depth look at hiring trends across 10 markets. The report is designed as a resource for employers, job candidates, workforce and economic developers, policy-makers, media outlets and more. CompTIA developed the report from analysis of employer job posting data aggregated by Emsi Burning Glass. See Methodology page for more details. The Q4 2021 report release covers Q3 and some prior period data series.

Belgium	Netherlands
Czech Republic	Poland
France	Portugal
Germany	Romania
Italy	Spain

Location data maps to the European Union's regional taxonomy. The Nomenclature of territorial units for statistics, abbreviated NUTS (from the French version Nomenclature des Unités territoriales statistiques) is a geographical nomenclature subdividing the economic territory of the European Union (EU) into regions at three different levels (NUTS 1, 2 and 3 respectively, moving from larger to smaller territorial units). Above NUTS 1, there is the 'national' level of the Member States. Most other formatting and labeling in this report aligns to Eurostat standards. See the European Union's Eurostat for more detail.

To make the data most accessible to readers, CompTIA lists the major city or metro area within the region first; and in some cases the accompanying surrounding region in parenthesis. The data is not always fully representative of the city or metro area, but generally, cities and metro areas have the highest concentration of workers in a region and therefore can reasonably serve as a proxy for the location's hiring trends.

Job posting data is a good, but imperfect measure of employer hiring activity. There is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy. For example, a large employer with multiple office locations may deploy job advertisements in various metropolitan areas to target job candidates; data deduplication processes may not perfectly resolve this type of multi-location job postings.

KEY FINDINGS

ECONOMIC AND HIRING REVIEW

→ Just when it appeared the world had turned the corner on the pandemic, a new COVID variant emerged, and with it, a return to another round of lockdowns and uncertainty. Across the 10 markets covered in this report, economic growth rate projections for 2021 had ranged from higher-end growth in the 5.0% to 7.0% range for Romania, France, Italy, Spain, Belgium and Poland, to those on the lower-end in the 3.0% to 4.0% range for Germany, Netherlands and Czech Republic. At the time of publication, yearend 2021 growth rates had yet to be finalized.

→ Unemployment rates in many European countries never reached the levels seen in other markets during the height of the pandemic, such as the United States. As of November 2021, several markets were in a very low unemployment rate range, notably Czech Republic, Netherlands, Germany and Poland. Conversely, the unemployment rate remained quite elevated in Spain and Italy.

→ Despite a degree of labour market stability across many European countries, the uncertainty of 2020 meant new hiring slowed or ceased altogether. Consequently, with pent-up demand to backfill open positions or to pursue new talent to support growth strategies, there was a significant pick-up in hiring activity during 2021. Compared to Q4 2020, total hiring activity as measured by employer job postings for technology positions increased 9% during Q1 2021. As expected, after the initial wave of hiring frenzy employers did curtail some hiring activity during Q2 before another pick-up in Q3 2021.

→ In total, employers across the 10 markets covered in this report posted nearly 900 000 job advertisements during Q3 2021 in their efforts to hire for a range of technology professions. Note: there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy.

→ Key categories for hiring include:
  - → Software Developers, Programmers and Web Developers
  - → Systems Analysts and Cybersecurity
  - → IT Support Specialists and Technicians
  - → Network and Systems Administrators and Technicians

→ Job postings invariably align with the job roles employers are seeking to fill. Digging below the job role, however, reveals a number of common skill threads that span just about every technology job role these days. Employers frequently expect some level of cybersecurity, data, cloud, project management, and related technical skills. And, because of the intersection of technology and business (aka the business of technology), technologists must possess a solid foundation of soft skills in areas such as communications, emotional intelligence, collaboration, problem resolution and more.

→ Job advertisements for technology positions represented approximately 19% of total hiring advertisements during Q3 2021, up from 11% during 2020 (see methodology note about posting duplication). This stems from the ongoing trend of digital transformation and the growing presence of technology across industry sectors and businesses of all sizes. Top hiring industry sectors for technology professionals during Q3 2021:
  - → Information and Communication
  - → Manufacturing
  - → Administrative and Support Services
  - → Professional, Scientific and Technical Services
  - → Financial and Insurance

ECONOMIC SIZING AND GROWTH

	2021 Economic Base Proj. (billions)	2021 Economic Growth Proj.
Belgium	€ 518	5.6%
Czech Republic	€ 246	3.8%
France	€ 2 617	6.3%
Germany	€ 3 765	3.1%
Italy	€ 1 887	5.8%
Netherlands	€ 897	3.8%
Poland	€ 583	5.1%
Portugal	€ 224	4.4%
Romania	€ 256	7.0%
Spain	€ 1 282	5.7%

Source: IMF, constant currency | Oct 2021 dataset

LABOUR FORCE AND UNEMPLOYMENT RATE

	Labour Force (millions)	2021[1] Unemployment Rate
Belgium	4.7	6.3%
Czech Republic	5.1	2.6%
France	26.7	7.6%
Germany	43.3	3.3%
Italy	22.3	9.4%
Netherlands	8.7	2.9%
Poland	16.1	3.4%
Portugal	4.6	6.4%
Romania	8.3	5.3%
Spain	19.1	14.5%

Source: Eurostat, IMF | [1]As of Nov 2021

EMPLOYER JOB POSTINGS FOR TECH HIRING
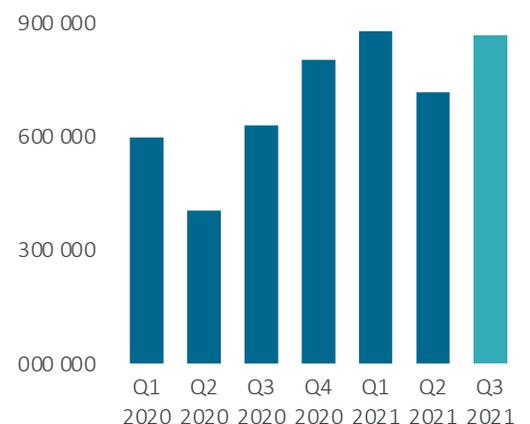
Source: Emsi Burning Glass

EMPLOYERS SEEK WELL-ROUNDED TECHNOLOGY PROFESSIONALS

→ Occupation-level and skills-level analysis of job postings confirms the depth and breadth of the tech workforce. As the macro trend of digital transformation continues to remake business operations across industry sectors, job roles and skills requirements will evolve accordingly.

→ Mirroring the pattern seen in most countries, the software developer occupation category accounts for the largest portion of job postings across the European countries covered in this report. Alternatively, during Q3 2021, there was more employer hiring activity around software positions relative to other categories. As a reminder, there is not a 1:1 relationship between hiring activity and actual hiring. For very competitive positions, such as an emerging field like an artificial intelligence (AI) architect, employers may have to deploy significant hiring resources to recruit a single candidate, resulting in a skewed hiring activity to hiring ratio.

→ Hiring activity during Q3 also confirms the interrelated nature of technology. Software applications require robust network infrastructure, data optimisation, systems integration, management and support, and of course, a strong cybersecurity posture. To achieve maximum return from technology investments, businesses require orchestration of not only the technologies, but also the personnel, processes and work flows.

→ At the skills level, summary analysis across all job postings for all tech job roles suggests employers tend to seek well-rounded candidates. This also reflects the ever-expanding nature of innovation, whereby new platforms, new coding languages, new hardware and devices, new data streams and new combinations of technology building blocks (think IoT) are a de facto part of the job for any technology professional. In the leading technical skills table, there is representation across these areas, including software, infrastructure, data and business applications. While cybersecurity is not specifically listed in these top 10 skills, it is becoming increasingly common for employers to expect baseline cybersecurity expertise for all IT professionals.

→ The intersection of business and technology (aka the business of technology) means business skills and soft skills can no longer be viewed as secondary, but rather, of equal importance with technical skills. The job posting data bears this out with employers specifically requiring team work, problem solving, creating thinking, project management and more.

→ While many employers now hire for skills, expertise and performance, certain criteria, such as years of experience, continue to play a role in hiring. During Q3 2021, employers focused much of their hiring efforts on entry-level positions with a desired years of experience of 0-2 years. It is difficult to determine, but presumably the 'not specified' segment is evenly distributed among job levels, with a portion allocated to entry-level, mid-level and advanced-level positions.

  → 54%   0-2 years of experience
  → 16%   3-10 years of experience
  → 7%   11+ years of experience
  → 22%   Not specified

→ Advertised tech salaries indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs. Specialised expertise, level of experience, location, non-advertised compensation in the form of bonuses and other factors account for the significant variance in tech salaries. See Methodology for additional factors affecting salary data.

LEADING TECH OCCUPATIONS FOR EMPLOYER HIRING ACTIVITY

Occupation Category	Job Postings Q3 2021
Software Developers	259 851
Systems Analysts and Cybersecurity	208 468
Systems Administrators	94 709
Web and Multimedia Developers	76 265
ICT Support Specialists and Technicians	49 611
ICT Managers and CIOs	36 660
Database and Networking	31 287
ICT Installers and Servicers	24 028
Software and Application Dev., Other	15 400
Applications Programmers	15 389

LEADING TECHNICAL SKILLS CITED IN TECH JOB POSTINGS

1. Office / Spreadsheets
2. Programming / Object-oriented programming
3. Business IT systems
4. SQL
5. IT system administration
6. Java
7. Database
8. Web programming / Front-end design
9. Unified Modelling Language
10. PHP

LEADING BUSINESS AND SOFT SKILLS CITED IN TECH JOB POSTINGS

1. Team work / Team focused
2. Problem solving
3. Creative thinking
4. Adaptability
5. Project management
6. Customer service
7. Proactive
8. Responsible
9. Time management
10. Work independently

REGIONAL SUMMARY

EMPLOYER JOB POSTINGS FOR TECH HIRING[1]

Reporting Data Source: Emsi Burning Glass | CompTIA
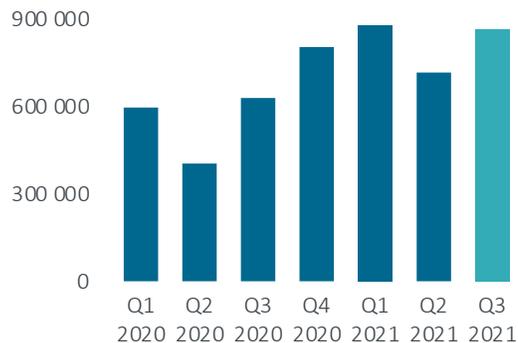
Employers in the European countries evaluated in this report made 864 461 job postings during Q3 2021 for tech hires

LEADING COUNTRIES FOR TECH HIRING

	Q3 2021	Change vs. Q2
Germany	278 631	+30%
Poland[1]	274 418	+81%
France	151 345	+16%
Netherlands	40 748	-17%
Italy	30 375	-17%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy; this factor was especially high for Poland during Q3.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	372 525	+19%
Systems Analysts and Cybersecurity[2]	208 468	+19%
Network and Systems Admin. and Technicians	119 185	+36%
IT Support Specialists and Technicians	86 254	+10%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years	3-10 years	11+ years	Not Specified
54%	16%	7%	22%

LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

- Capgemini
- Sii Poland
- Billennium
- Brunel
- Grupo Digital
- Tecdata Engineering
- effiCity
- Aubay
- IEFP
- CGI
- LINKIT
- Smals
- FixedToday
- Axcent Company
- ICTP
- Johnson & Johnson
- Deloitte
- MassMutual Romania
- 2K Czech
- Avast

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Information and Communication
2. Manufacturing
3. Administrative and Support Services
4. Professional, Scientific and Technical Services
5. Financial and Insurance

[2]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

Greater than €36.000	Up to €36.000
36%	64%
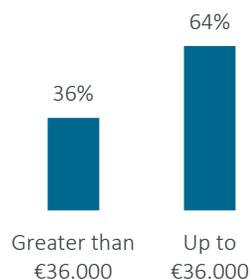
Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.

[2]Based on available data; most job postings do not include salary details, especially those at the advanced-level. See Methodology.

BELGIUM

EMPLOYER JOB POSTINGS FOR TECH HIRING
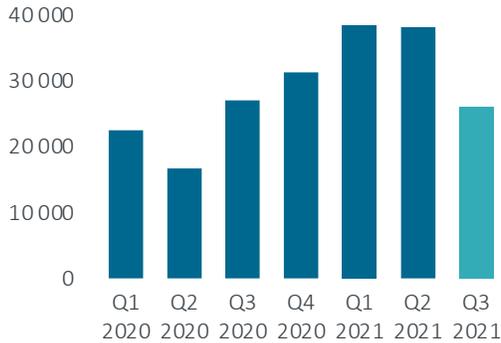
Employers in Belgium made 26 006 job postings during Q3 2021 for tech hires

Reporting Data Source: Emsi Burning Glass | CompTIA

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Brussels	4 000	-13%
Antwerp	3 246	-15%
Charleroi	3 157	-56%
Gent	1 632	-22%
Kortrijk	766	-21%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	11 309	-34%
Systems Analysts and Cybersecurity[1]	7 349	-31%
IT Support Specialists and Technicians	3 093	-20%
Network and Systems Admin. and Technicians	1 520	-33%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years — **40%**

3-10 years — **13%**

11+ years — **9%**

Not Specified — **36%**
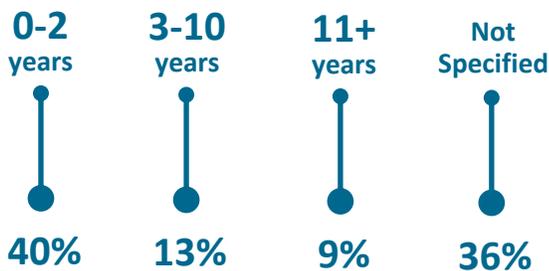
LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. Smals
2. Capgemini Belgium
3. Deloitte
4. Ernst & Young
5. UniPartners IT
6. Pauwels Consulting
7. BDO Belgium
8. Imalink
9. Colruyt Group
10. Federale Politie

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Information and communication
2. Manufacturing
3. Professional, scientific and technical
4. Administrative and support service
5. Financial and insurance

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

Greater than €36.000 — 55%

Up to €36.000 — 45%

Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.

[2]Based on available data; most job postings do not include salary details, especially those at the advanced-level. See Methodology.

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CZECH REPUBLIC

EMPLOYER JOB POSTINGS FOR TECH HIRING
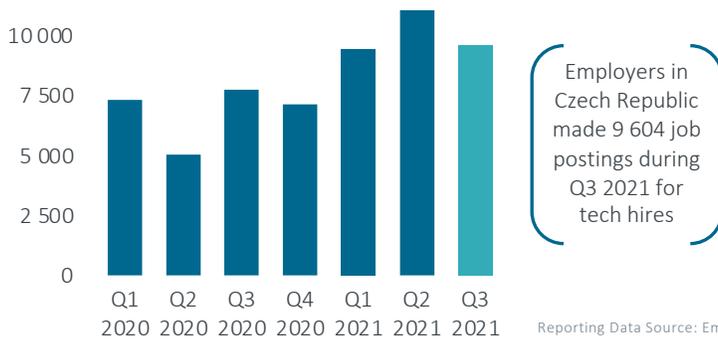
Employers in Czech Republic made 9 604 job postings during Q3 2021 for tech hires

Reporting Data Source: Emsi Burning Glass | CompTIA

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Prague (Hlavní město Praha)	2 822	-5%
Brno (Jihomoravský)	1 295	-21%
Ostrava (Moravskoslezský)	543	-11%
Pardubice (Pardubický)	295	-11%
Plzeň (Plzeň)	240	-12%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	4 113	-21%
Systems Analysts and Cybersecurity[1]	1 757	-8%
IT Support Specialists and Technicians	1 012	-10%
Network and Systems Admin. and Technicians	936	-8%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years	3-10 years	11+ years	Not Specified
41%	14%	11%	34%
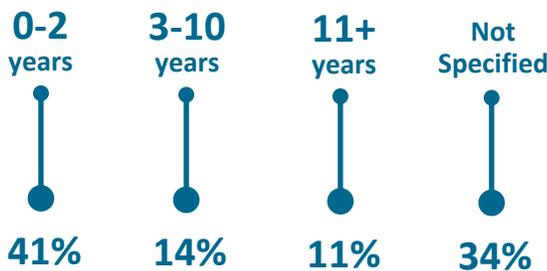
LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. 2K Czech
2. Avast
3. NXP Semiconductors
4. FZU (Institute of Physics of the Czech Academy)
5. SVĚT OKEN
6. UBK
7. 24i Media CZ
8. TESCO
9. Vendavo
10. Škoda Auto

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Manufacturing
2. Information and communication
3. Administrative and support service
4. Professional, scientific and technical
5. Construction

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

Greater than €36.000	Up to €36.000
55%	45%

Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.

[2]Based on available data; most job postings do not include salary details, especially those at the advanced-level. See Methodology.

FRANCE

EMPLOYER JOB POSTINGS FOR TECH HIRING

Q1 2020	
Q2 2020	
Q3 2020	
Q4 2020	
Q1 2021	
Q2 2021	
Q3 2021	
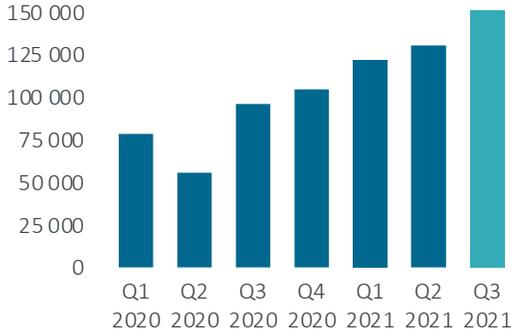
Employers in France made 151 345 job postings during Q3 2021 for tech hires

Reporting Data Source: Emsi Burning Glass | CompTIA

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Paris (Paris)	15 242	-3%
Lyon (Rhone)	9 574	+13%
Nanterre (Hauts-de-Seine)	7 973	+40%
Toulouse (Haute-Garonne)	5 998	+32%
Nantes (Loire-Atlantique)	5 814	+27%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	64 588	+32%
Systems Analysts and Cybersecurity[1]	42 617	+10%
IT Support Specialists and Technicians	17 901	-9%
Network and Systems Admin. and Technicians	17 583	+19%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years	**3-10** years	**11+** years	**Not Specified**
46%	**15%**	**12%**	**27%**

LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. effiCity
2. CGI
3. Marine Nationale
4. Thales
5. Inetum
6. Optimhome
7. Capgemini
8. Armée de Terre
9. Devoteam
10. Le Bon Agent

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Financial and insurance
2. Administrative and support service
3. Manufacturing
4. Professional, scientific and technical
5. Information and communication

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

58%	42%
Greater than €36.000	Up to €36.000

Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.

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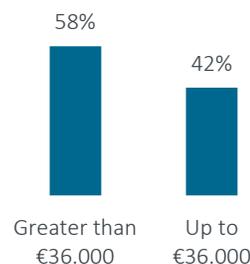
GERMANY

EMPLOYER JOB POSTINGS FOR TECH HIRING
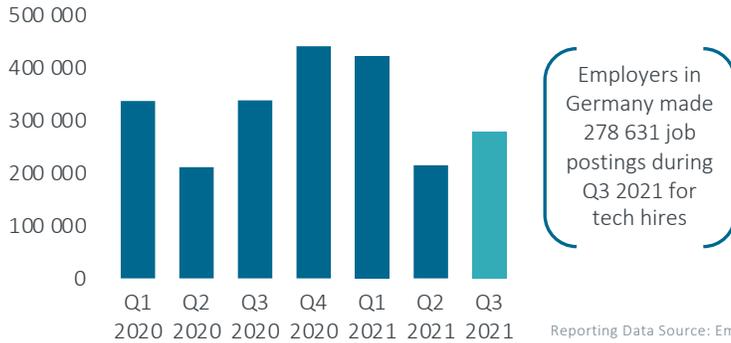
Employers in Germany made 278 631 job postings during Q3 2021 for tech hires

Reporting Data Source: Emsi Burning Glass | CompTIA

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Munich	19 977	+34%
Berlin	16 563	+3%
Hamburg	13 460	+20%
Stuttgart	8 763	na
Cologne	7 543	+23%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	85 877	+20%
Systems Analysts and Cybersecurity[1]	73 497	+25%
Network and Systems Admin. and Technicians	69 529	+52%
IT Support Specialists and Technicians	36 440	+28%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years — **44%**

3-10 years — **17%**

11+ years — **8%**

Not Specified — **31%**
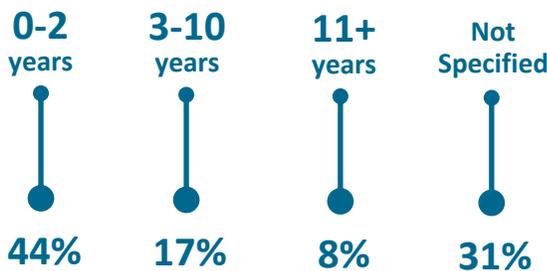
LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. Capgemini Deutschland
2. Brunel
3. Deutsche Bahn AG
4. dotSource
5. Modis
6. BWI
7. ANG
8. NConsult IT-Systemhaus
9. Magnus Consulting
10. itelligence Global Managed Services

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Manufacturing
2. Information and communication
3. Administrative and support service
4. Professional, scientific and technical
5. Other service

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

32% — Greater than €36.000

68% — Up to €36.000

Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.

[2]Based on available data; most job postings do not include salary details, especially those at the advanced-level. See Methodology.

ITALY

EMPLOYER JOB POSTINGS FOR TECH HIRING
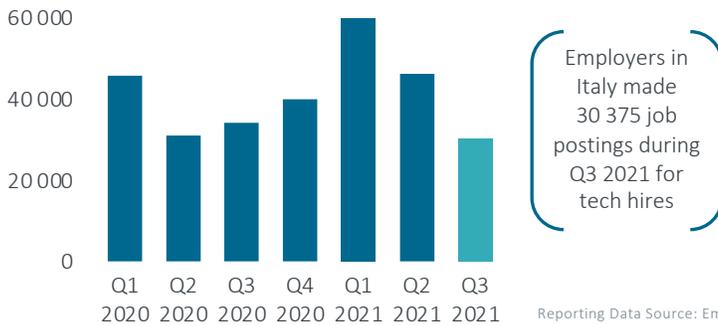
Employers in Italy made 30 375 job postings during Q3 2021 for tech hires

Reporting Data Source: Emsi Burning Glass | CompTIA

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Milan	2 847	-43%
Rome	1 586	-41%
Bologna	963	-31%
Torino	622	-32%
Modena	610	-32%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	13 351	-37%
Systems Analysts and Cybersecurity[1]	7 057	-29%
IT Support Specialists and Technicians	4 697	-30%
Network and Systems Admin. and Technicians	3 124	-34%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years	3-10 years	11+ years	Not Specified
32%	19%	10%	39%

LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. Axcent Company
2. ICTP
3. IT Consulting
4. Esprimo Milano
5. Philmark Group
6. RL Italia
7. Niuma
8. Ali Group
9. Carpe Diem Solutions
10. Omicron Consulting

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Information and communication
2. Accommodation and food service
3. Manufacturing
4. Financial and insurance
5. Professional, scientific and technical

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

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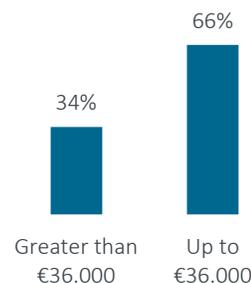
NETHERLANDS

EMPLOYER JOB POSTINGS FOR TECH HIRING
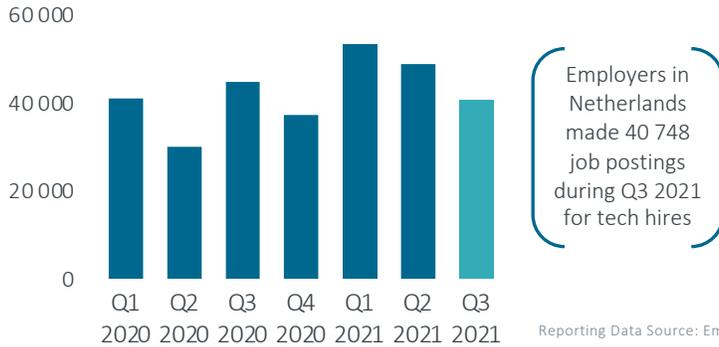
Employers in Netherlands made 40 748 job postings during Q3 2021 for tech hires

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Amsterdam (Groot-Amsterdam)	7 740	+2%
Utrecht (Utrecht)	5 694	-32%
Rotterdam (Groot-Rijnmond)	2 725	-25%
Antwerp (Zuidoost-Noord-Brabant)	2 499	-2%
The Hague (Agglomeratie 's-Gravenhage)	2 405	-13%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	20 067	-19%
Systems Analysts and Cybersecurity[1]	10 246	-14%
IT Support Specialists and Technicians	3 582	-9%
Network and Systems Admin. and Technicians	3 337	-19%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years	**3-10** years	**11+** years	**Not Specified**
45%	**10%**	**13%**	**31%**

LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. LINKIT
2. FixedToday
3. Anjumo
4. Belastingdienst
5. CGI Inc
6. Brunel
7. Rabobank
8. Johnson & Johnson
9. Booking.com
10. Ernst & Young

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Information and communication
2. Manufacturing
3. Arts, entertainment and recreation
4. Transportation and storage
5. Other service activities

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

44% Greater than €36.000

56% Up to €36.000
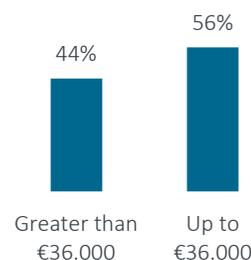
Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.

[2]Based on available data; most job postings do not include salary details, especially those at the advanced-level. See Methodology.

POLAND

EMPLOYER JOB POSTINGS FOR TECH HIRING
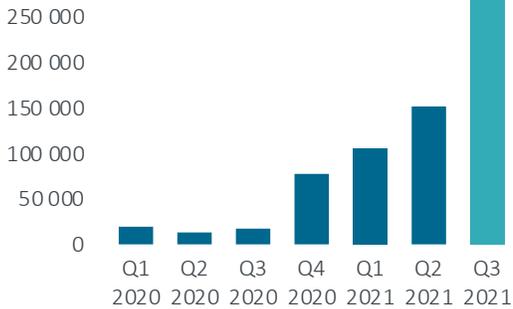
Employers in Poland made 274 418 job postings during Q3 2021 for tech hires

Reporting Data Source: Emsi Burning Glass | CompTIA

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Warsaw	29 613	+79%
Kraków	28 712	+83%
Lódź	28 513	+89%
Wrocław	13 084	+60%
Ozarow Mazowiecki	5 760	+54%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy (especially prevalent for Poland during Q3) | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	146 695	+70%
Systems Analysts and Cybersecurity[1]	55 941	+93%
IT Support Specialists and Technicians	11 646	+115%
Network and Systems Admin. and Technicians	19 375	+97%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years	3-10 years	11+ years	Not Specified
78%	15%	3%	4%

LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. Sii Poland
2. Billennium
3. ING Bank Śląski
4. Capgemini Software Solutions Center
5. Sage
6. ING Tech Poland
7. Quad/Graphics Europe
8. Acxiom Global Service Center Polska
9. Ringier Axel Springer Polska
10. Asseco Poland S.A.

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Information and communication
2. Administrative and support
3. Professional, scientific and technical
4. Other service
5. Financial and insurance

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

Greater than €36.000 — 15%
Up to €36.000 — 85%

Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.

[2]Based on available data; most job postings do not include salary details, especially those at the advanced-level. See Methodology.

CompTIA.
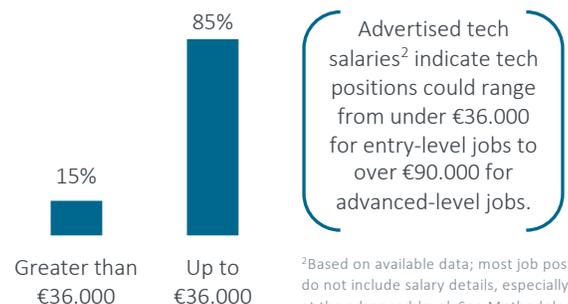
PORTUGAL

EMPLOYER JOB POSTINGS FOR TECH HIRING
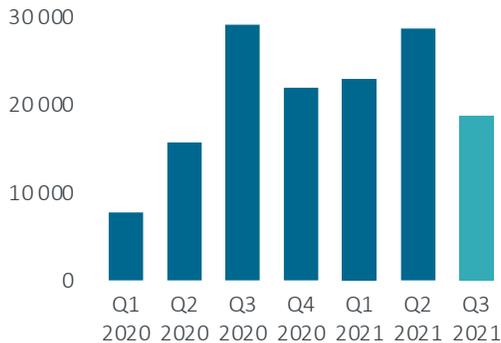
Employers in Portugal made 18 735 job postings during Q3 2021 for tech hires

Reporting Data Source: Emsi Burning Glass | CompTIA

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Lisbon	7 848	-37%
Porto	4 501	-38%
Douro	855	-4%
Tejo	837	-50%
Viseu	403	+48%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	9 286	-38%
Systems Analysts and Cybersecurity[1]	2 942	-41%
IT Support Specialists and Technicians	3 891	-16%
Network and Systems Admin. and Technicians	872	-45%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years	3-10 years	11+ years	Not Specified
49%	12%	10%	28%

LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. Aubay
2. IEFP
3. KCS IT
4. SYSMATCH
5. DECSKILL
6. agap2IT
7. BOLD by Devoteam
8. Noesis Portugal
9. Dellent Consulting
10. InnoWave

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Information and communication
2. Professional, scientific and technical
3. Administrative and support service
4. Other service
5. Manufacturing

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.

[2]Based on available data; most job postings do not include salary details, especially those at the advanced-level. See Methodology.

CompTIA.
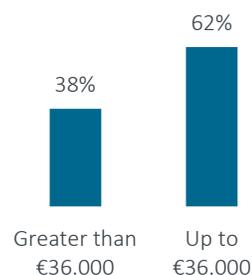
ROMANIA

EMPLOYER JOB POSTINGS FOR TECH HIRING
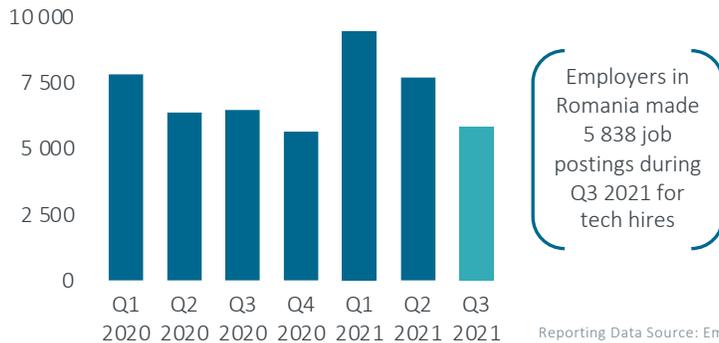
Employers in Romania made 5 838 job postings during Q3 2021 for tech hires

Reporting Data Source: Emsi Burning Glass | CompTIA

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Focsani	1 545	-8%
Alba Iulia	729	-70%
Cluj-Napoca	426	-29%
Timisoara	394	+10%
Iasi	270	-3%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	2 682	-38%
Systems Analysts and Cybersecurity[1]	1 301	-5%
IT Support Specialists and Technicians	591	-5%
Network and Systems Admin. and Technicians	303	+1%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years	3-10 years	11+ years	Not Specified
58%	10%	7%	26%

LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. Johnson & Johnson
2. MassMutual Romania
3. Continental AG
4. Cognizant Softvision
5. Ubisoft
6. Inetum
7. Fortech
8. Accenture
9. Bosch Group
10. Qualitest Group

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Information and communication
2. Administrative and support service
3. Professional, scientific and technical
4. Human health and social work
5. Financial and insurance

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

49% Greater than €36.000

51% Up to €36.000

Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.
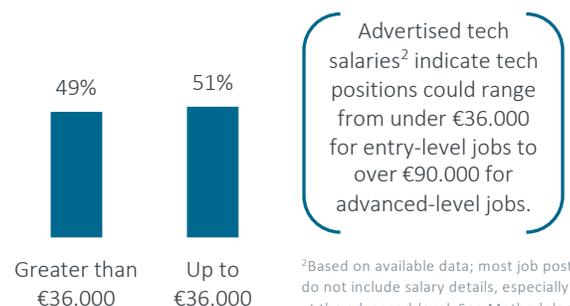
[2]Based on available data; most job postings do not include salary details, especially those at the advanced-level. See Methodology.

SPAIN

EMPLOYER JOB POSTINGS FOR TECH HIRING
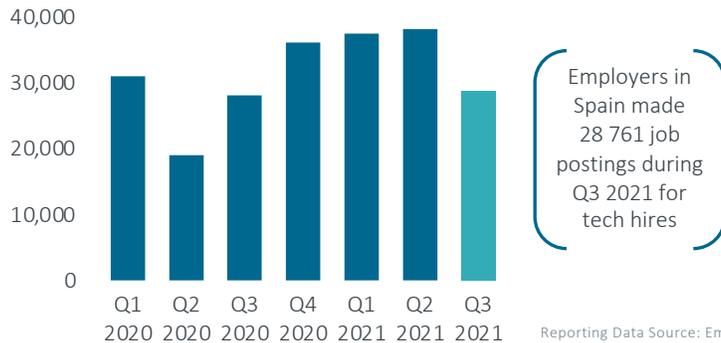
| Q1 2020 | Q2 2020 | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 | Q3 2021 |

Employers in Spain made 28 761 job postings during Q3 2021 for tech hires

Reporting Data Source: Emsi Burning Glass | CompTIA

LEADING METRO AREAS (REGIONS) FOR TECH HIRING

	Q3 2021	Change vs. Q2
Madrid	9 901	-29%
Barcelona	4 800	-33%
Seville	867	-18%
Malaga	662	-32%
Valencia	578	-14%

[1]As noted in the methodology there is a duplication factor in the job posting data due to some employers utilizing a multi-location or multi-faceted hiring strategy | See Methodology for how regions and metropolitan areas are defined.

LEADING JOB ROLE CATEGORIES IN DEMAND

	Q3 2021	Change vs. Q2
Software Developers, Programmers and Web	14 557	-23%
Systems Analysts and Cybersecurity[1]	5 761	-30%
IT Support Specialists and Technicians	3 401	-19%
Network and Systems Admin. and Technicians	2 606	-24%

TECH HIRING BY REQUESTED YEARS OF EXPERIENCE

0-2 years — **35%**

3-10 years — **43%**

11+ years — **4%**

Not Specified — **18%**

LEADING EMPLOYERS FOR TECH HIRING [for time period: Q1 2021]

1. Grupo Digital
2. Tecdata Engineering
3. CMV Consultores
4. Rawson
5. Krashlando
6. BETWEEN Technology
7. PSS Tecnologías de la Información
8. Krell Consulting & Training
9. Soltel
10. Inetum

LEADING INDUSTRY SECTORS FOR TECH HIRING

1. Information and communication
2. Wholesale and retail trade
3. Manufacturing
4. Professional, scientific and technical
5. Administrative and support service

[1]In this data set, cybersecurity does not yet have a dedicated occupation category, but rather spans several categories. For reporting purposes, it is grouped with Systems Analysts.

TECH OCCUPATION SALARIES [for time period: Q1 2021]

Greater than €36.000	Up to €36.000
15%	85%

Advertised tech salaries[2] indicate tech positions could range from under €36.000 for entry-level jobs to over €90.000 for advanced-level jobs.
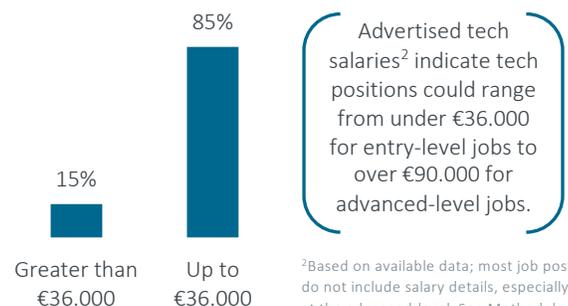
[2]Based on available data; most job postings do not include salary details, especially those at the advanced-level. See Methodology.

APPENDIX

APPENDIX I

ID	Occupation Category	Total
1330	IT Managers and CIOs	36 660
2153	Telecommunications Engineers	2 809
2511	Systems Analysts and Cybersecurity	208 468
2512	Software Developers	259 851
2513	Web and Multimedia Developers	76 265
2514	Applications Programmers	15 389
2519	Software and Applications Developers Other	15 400
2521	Database Designers and Administrators	7 273
2522	Systems Administrators	94 709
2523	Network Administrators and Engineers	11 273
2529	Database and Network Professionals Other	31 287
3511	IT Operations Technicians	6 689
3512	IT Support Specialists and Technicians	49 611
3513	Network and Systems Technicians	13 203
3514	Web Technicians	5 620
3521	A/V technicians	5 926
7422	IT Installers and Servicers	24 028
	Q3 2021 TOTAL	864 461

APPENDIX II

ID	Occupation Category	Belgium	Czech Republic	France	Germany	Italy
1330	IT Managers and CIOs	1 229	1 572	6 372	4 976	803
2153	Telecommunications Engineers	67	1	329	1 372	250
2511	Systems Analysts and Cybersecurity	7 349	1 757	42 617	73 497	7 057
2512	Software Developers	7 919	3 022	50 749	62 090	9 912
2513	Web and Multimedia Developers	2 558	485	7 297	10 738	1 800
2514	Applications Programmers	413	212	1 914	7 026	832
2519	Software and Applications Developers Other	311	317	1 172	4 884	291
2521	Database Designers and Administrators	223	78	884	1 669	143
2522	Systems Administrators	822	761	13 680	60 670	2 249
2523	Network Administrators and Engineers	266	96	3 267	1 248	565
2529	Database and Network Professionals Other	1 216	135	1 071	5 271	950
3511	IT Operations Technicians	625	193	2 289	1 112	884
3512	IT Support Specialists and Technicians	1 876	767	12 028	11 922	3 185
3513	Network and Systems Technicians	432	79	636	7 611	310
3514	Web Technicians	108	77	3 456	1 139	516
3521	A/V technicians	470	43	2 863	1 633	136
7422	IT Installers and Servicers	122	9	721	21 773	492
	Q3 2021 TOTAL	**26 006**	**9 604**	**151 345**	**278 631**	**30 375**

ID	Occupation Category	Netherlands	Poland	Portugal	Romania	Spain
1330	IT Managers and CIOs	1 344	18 078	428	638	1 220
2153	Telecommunications Engineers	96	375	50	12	257
2511	Systems Analysts and Cybersecurity	10 246	55 941	2 942	1 301	5 761
2512	Software Developers	11 926	93 568	6 443	1 981	12 241
2513	Web and Multimedia Developers	6 516	42 793	2 104	413	1 561
2514	Applications Programmers	985	2 722	494	174	617
2519	Software and Applications Developers Other	580	7 396	221	112	116
2521	Database Designers and Administrators	294	3 475	154	49	304
2522	Systems Administrators	1 884	13 047	487	138	971
2523	Network Administrators and Engineers	1 259	3 985	135	22	430
2529	Database and Network Professionals Other	1 782	18 833	1 112	262	655
3511	IT Operations Technicians	350	773	288	77	98
3512	IT Support Specialists and Technicians	2 788	10 496	3 471	408	2 670
3513	Network and Systems Technicians	194	2 343	250	143	1 205
3514	Web Technicians	60	216	24	2	22
3521	A/V technicians	229	131	73	104	244
7422	IT Installers and Servicers	215	246	59	2	389
	Q3 2021 TOTAL	**40 748**	**274 418**	**18 735**	**5 838**	**28 761**

METHODOLOGY

This report was developed by CompTIA using employer job posting data aggregated by Emsi Burning Glass (https://www.burning-glass.com).

Emsi Burning Glass aggregates employer job posting data across a range of sources to produce the best possible depiction of hiring activity. As with any data source, however, there are limitations. Employer job posting data is a useful, but an imperfect proxy for job demand. Not every posting translates to a new job; hiring employers may change their plans, post multiple times for the same job, hire internally, try different approaches to find the right candidate and so forth. For example, a large employer with multiple office locations may deploy job advertisements in various metropolitan areas to target job candidates; data deduplication processes may not perfectly resolve this type of multi-location job postings. Also, one ad may be posted for multiple openings. EMSI Burning Glass data methodologies address many of these potential issues, but there will inevitably be some margin of error.

Additionally, within a time period, there may be situations where a worker is hired, the person is not the right fit and is let go, and a firm starts the process over again. In the aggregate there is a single position, but using job posting data, it may appear there are 2 positions.

CompTIA recommends using job posting data in conjunction with government labour market statistics and other data sources where available to get a more complete picture of workforce dynamics for a given occupation category.

Occupation categories are standardised for consistency and to enable comparisons across markets. The tradeoff is slightly less granularity, especially in certain newer job roles. For example, this data set does not have dedicated categories for cybersecurity, cloud, data scientist, or artificial intelligence. Rather, these positions are combined under broader occupation categories.

Location data maps to the European Union's regional taxonomy. The Nomenclature of territorial units for statistics, abbreviated NUTS (from the French version Nomenclature des Unités territoriales statistiques) is a geographical nomenclature subdividing the economic territory of the European Union (EU) into regions at three different levels (NUTS 1, 2 and 3 respectively, moving from larger to smaller territorial units). Above NUTS 1, there is the 'national' level of the Member States. See the European Union's Eurostat site for more detail.

To make the data most accessible to readers, CompTIA lists the major city or metro area within the region; and in some cases the accompanying region in parenthesis as noted above. The data does not fully represent the city or metro area, but generally, cities and metro areas have the highest concentration of workers in a region and therefore can reasonably serve as a proxy for the location's hiring trends.

As noted in the footnote associated with the salary data, the information presented in this report should be used for directional guidance only. Most job postings do not include salary details. The data presented is a relatively small subset of overall hiring activity. The final negotiated salary may differ from the advertised salary and the addition of bonuses or other forms of compensation may increase annual earnings. Advanced-level positions are more likely to omit salary details, resulting in a skewing of the data downward.

Please contact the CompTIA Research and Market Intelligence Department at research@comptia.org with any questions.

CompTIA

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CompTIA is responsible for all content and analysis. Any questions regarding the report should be directed to CompTIA Research and Market Intelligence staff at research@comptia.org.