global in-demand skills report 2022.

randstad sourceright

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executive summary.

Today's markets are more confusing and competitive than ever. That's why employers are exploring new ways to attract and retain high-demand talent; their traditional hire and fire strategies aren't adequately supporting workforce needs now and won't for the future. Chronic skills gaps have been a major challenge for organizations globally for some time, but limited skill pools and hiring slowdowns are making hiring more complex. And without the people they need to reach business goals, organizations can expect to fall behind in a rapidly changing global economy.

That's why they're implementing strategies from hybrid and flexible working arrangements to internal mobility, reskilling and upskilling, coaching, adjusting compensation and benefits, more authentic employer branding and more to get ahead.

In his October 17, 2022 newsletter, Fortune's Alan Murray highlights this complexity and why companies are searching for strategies that will help them find the people they need: "... it's already clear the battle for talent is continuing, even as recession looms. How else can you account for the fact that the [U.S.] unemployment rate went down in September — to 3.5%? That's why companies are paying such close attention to the great debate over the return to office — a debate in which Meta CEO Mark Zuckerberg and Airbnb CEO Brian Chesky have staked out very different approaches …"

the 2022 Global In-demand Skills research

To help you better understand these market complexities and the ways that you can gain a competitive advantage, Randstad Sourceright's 2022 Global In-demand Skills Report identifies the top 10 in-demand skill clusters across 26 markets that you are competing for over the next year.

The demand for cloud engineers, data scientists and app developers has been unrelenting while the global economy accelerates in its digital transformation. There is tremendous need for professionals in financial management, sales and customer service. These are the roles driving development across nearly all sectors, ranging from healthcare to manufacturing and even to farming.

We know there are many factors that impact how and from where you source talent, so this research also provides intelligence on nine factors impacting talent acquisition for each skill in each market, including:

1. supply and demand
2. market competitiveness
3. remote working
4. compensation
5. related hard and soft skills
6. fields of study
7. gender diversity
8. educational background
9. industries

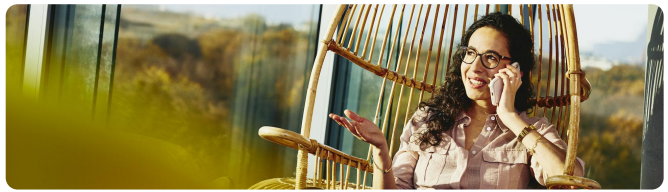
You can learn more about the methodology used to calculate each of these factors here.

Most talent acquisition leaders understand that many of the skill clusters analyzed are among the hardest to hire for today. Even with a potential economic downturn around the corner, many companies are still in need of developers, cybersecurity specialists and customer service agents. During the past 18 months since recovery from the pandemic began, wage inflation, rising job vacancy rates and protracted time to fill have plagued employers.

As you face greater uncertainty in the months ahead, you have the unenviable task of making sure your business is well resourced, even as budgets are constrained. Our data provides pragmatic insights that will help you so you can source, hire, develop and retain the right people when you need them, and within your budget.

For example, you can use the data included here to determine where you should search for specific skills based on market competitiveness, how you will craft your remote working policies based on location and job roles, or where there are opportunities to hire and develop talent based on the adjacent skills they already have.

Skills gaps and scarcity will always be a challenge for most organizations, but equipped with the right insights and a well-crafted talent strategy, you can build a resilient and adaptive workforce for any contingency in the year ahead.



key takeaways.

1. Despite the global economic slowdown, the number of job openings for customer service workers is surging. Employers may need to enhance talent experience to ensure access to these critical employees or they may risk damaging their relationship with customers and their overall brand reputation.

2. More North American user interface and user experience (UI/UX) specialists work in the IT services sector than any other. Businesses outside of this sector should differentiate their employee value proposition to attract these specialists.

3. Remote work has become a thorny issue for organizations, but forcing employees to come back may be detrimental. Employers in the Asia-Pacific region are less inclined to allow employees to work off-site, regardless of the roles they are in. In other places — Argentina, for instance — remote employment is common.

4. Women's representation in technology skill clusters continues to be low, with just 15% of those working in mobile applications identifying as female. Helping women to pursue this field or reskill into it should be a priority for employers.

5. Despite recent headlines, the IT sector employs the majority of professionals with high-demand digital skills. Tech sector employers should still be considered a fierce competitor for these skills, and employers in this sector should consider how to retain this high-demand talent.

6. There has been a significant surge in job postings that mention communication and teamwork as required soft skills since 2018. Job advertisements seeking individuals with critical thinking, planning, research and creativity skills are also on the rise post-pandemic.

7 More than 60 million people work in sales and business development roles — the largest group of all clusters we examined. Consider sourcing from this cluster to fill customer-facing jobs such as account management or client support.

8 Cybersecurity skills are among the highest-paying for the skill clusters we examined, although some roles in artificial intelligence and machine learning (AI/ML) may surpass the average for this cluster. Actively review compensation levels to avoid losing these professionals.

9 Because AI/ML roles have the highest share of remote working potential, employers need to be aware of expectations and offer hybrid work arrangements at the very least. This will help facilitate sourcing and hiring in markets such as the U.S., where acquiring talent with these skills is challenging.

10 Only about a quarter of business intelligence and data visualization professionals received STEM education, with many having graphic arts backgrounds instead. Employers looking to hire these specialists should consider sourcing those with design-focused CVs.

11 When it comes to customer service roles, employers may want to consider opening service centers in India where average salaries for this skill are less than 10% of those in the highest market: Switzerland.

12 The job vacancy rate for mobile developers is highest in Germany — nearly three times the average rate across all 26 markets we surveyed. Companies in the world's fourth largest economy should consider sourcing this cluster of talent from outside its borders or face protracted time to fill.

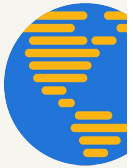
methodology.

Randstad Sourceright's Intelligence team utilized a number of data sources to compile the list of in-demand skill clusters for our 2022 Global In-demand Skills research. This involved sourcing millions of job postings and worker profiles to obtain important supply and demand, educational background, gender diversity, compensation and other factors. We examined key terms and phrases used in all of the job postings assessed and grouped them by skill clusters to arrive at the top 10 list.

Data sources vary based on those that are most representative for each market and include verified information, such as census data, and granular data, such as skill level, job advertisement databases, professional networking sites, social media, vertical networks and more.

The research and analysis were conducted in the third quarter of 2022. Additional desk research involved various news and informational sources to provide context and insights relevant to each skill cluster.

26 markets researched:



the Americas (5)
Argentina, Brazil, Canada, Mexico, the U.S.

Asia-Pacific (7)
Australia, China, Hong Kong SAR, India, Japan, Malaysia, Singapore

Europe (14)
Czech Republic, France, Germany, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, the U.K.

supply & demand

This data indicates the total number of individuals who have the skills required for each of the in-demand clusters set against job postings that require that skill in each of the 26 markets we researched. These figures are based on a combination of verified labor market data by market and granular, skill-based data sourced from professional social media networks and job boards, and career sites. Data is normalized.

market competitiveness

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring each skill cluster that are likely going unfilled in each of the 26 markets researched. This calculation is based on supply and demand data. Higher percentages indicate more competitive markets.

remote working

Remote working data shows the percentage of job postings that offer candidates remote or hybrid work for each of the skill clusters in each of the 26 markets researched. These findings are inclusive of job descriptions that use relevant remote working keywords and are sourced from job advertisement databases, professional networking platforms and job boards. It is estimated that the actual share of remote working opportunities is higher than advertised online.

global snapshot

The global snapshot shows a number of factors that may impact recruitment strategies, by market:

- average compensation for the in-demand skill cluster (y-axis)
- size of the talent supply pool (size of each dot)
- market competitiveness for the in-demand skill cluster (x-axis)

Compensation data is mapped and analyzed from combined sources providing current pay data.

hard & soft skills

This data set shows the most-requested, growing hard skills and top three soft skills for each of the skill clusters globally, based on job advertisement data.

fields of study

This data represents the most common field of study for professionals with the in-demand skill in the 26 markets researched, based on normalized professional network data. These data sets show the 10 most common fields globally when aggregated, as well as the most common field for each market.

gender diversity

Gender diversity shows the current balance of male to female employees currently working in roles for each of the high-demand skill clusters in each of the 26 markets researched. Findings are based on self-identified, normalized data from talent supply sources.

universities

Universities showcases the most common school that relevant talent attended for each skill cluster in each of the 26 markets, based on professional networking and CV data. Data is inclusive of those who attended university only.

industries

These charts show the four industries that currently employ the highest volumes of professionals who possess the in-demand skill cluster in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for the in-demand skills.

global adjacent skills & skills projections.

In our analysis of labor market data from around the world, it's clear that technology is the most influential factor shaping the world of work today. Not only does it dictate which skills are most in demand, but also how people are sourced, screened, hired and deployed.

Remarkably, many technical competencies are universally in high demand across a variety of skill clusters. For instance, Python developers have become more relevant across a variety of skill clusters as the programming language's applications in data science, artificial intelligence, machine learning, cloud engineering and other disciplines increases.

The adjacency of Python to alternative languages, such as Ruby and Java, offers workers greater career mobility and earnings potential. For employers, of course, hiring candidates whose skills have wide applications provides workforce agility and clear economic advantages.

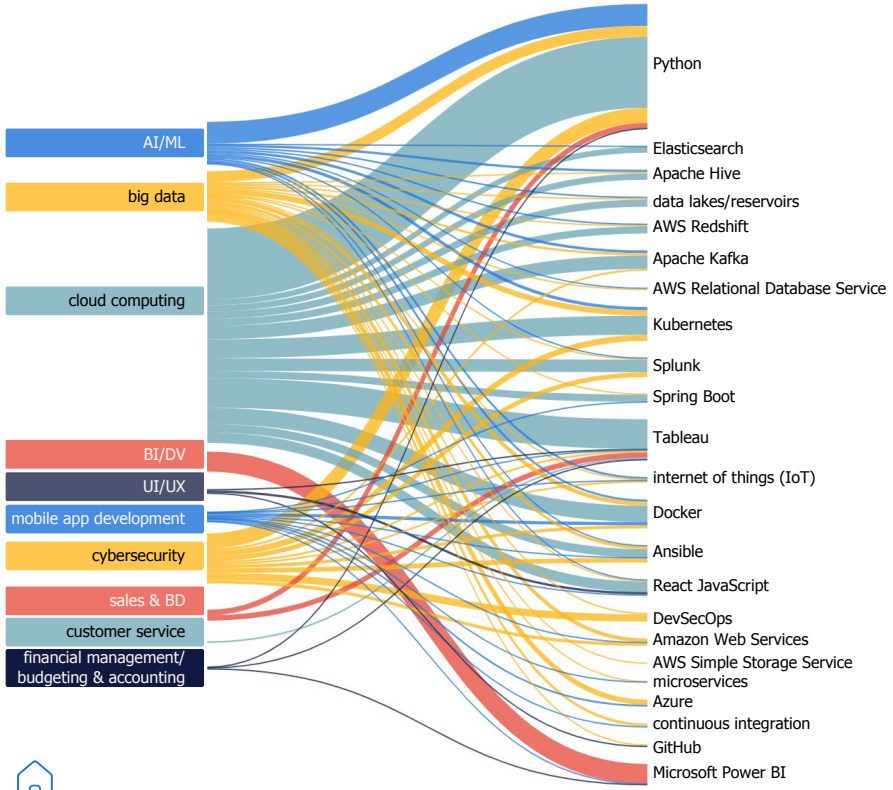
This strategy is not just isolated to technical roles. Customer service skills are often seen as adjacent to sales skills. As customer-facing specialists, these professionals are critical to the success of every organization, and their mastery of communication, collaboration and problem-solving skills is critical to success for sales professionals too.

In a report issued by the Organization for Economic Cooperation and Development (OECD), researchers completed a historical analysis of digital jobs data from 10 OECD markets, starting from 2012. This analysis reveals the profound effects of digitalization on the demand of various roles, but also uses a mathematical vector to uncover how similar roles are. This vector provides clarity for the skilling required to redeploy an advertising sales agent to becoming a digital marketing specialist, for example.

Data from our research confirmed the importance of possessing foundational skills on which talent can build. Whether it's a programming language such as Python or customer-facing skills such as communication, companies need to assess their readiness for change and create comprehensive talent strategies that include accurate skills mapping, an internal mobility program, and robust learning and development initiatives that will keep workers relevant to market changes. Doing so will allow them to build the skills they need internally, and mitigate layoffs for those whose skills competencies aren't relevant to business needs.

The data included in this section will help you understand where there are opportunities for reskilling, based on adjacent skills mapping.

global adjacent skills & skills projections.



Randstad Sourceright's Intelligence team has been closely monitoring shifts in demand for digital skills over the last few years. We have identified a spectrum of competencies that are growing rapidly and have cross-referenced them with millions of job advertisements. In doing this, we are able to conclude how often these competencies are requested across each high-demand skill cluster.

Among the 23 competencies identified on the right side, those that are likely to be future-proof are Python, Tableau, internet of things (IoT), Kubernetes, Apache Kafka, Apache Hive and React JavaScript, as they co-occur most with the high-demand skill clusters identified through this research.

Out of the top 10 in-demand skill clusters, artificial intelligence and machine learning; cloud computing and big data are the highest priorities for organizations across various major sectors (financial services, tech, healthcare, retail), based on recent technology adoption and digital transformation trends.

In the era of the digital world, skills gaps are widening and there is demand for reskilling and upskilling when it comes to both transferable skills and adjacent skills. In this scenario, both employees and employers can benefit: talent remains relevant in the global labor market, and companies more easily acquire the skills they need to remain competitive.

global soft skills projections.

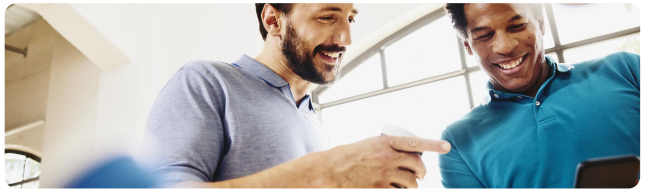
Demand for soft skills continues to grow, with many employers regarding these competencies just as important as technical competence when it comes to market competitiveness.

Randstad Sourceright Intelligence analysis of job advertisements shows a significant surge in postings that mention communication and teamwork as required skills for today's high-demand roles. And critical thinking, planning, collaboration, research and creativity are among the fastest-growing skills sought out by employers since 2018.

This growth in demand for soft skills suggests that employers are seeking talent who are ready to take ownership over their work and drive real innovation at their organizations.

Business and talent leaders will need to consider how they are cultivating workplaces that attract and retain individuals with these highly coveted soft skills — whether that's offering greater autonomy and flexibility, using technology to facilitate greater collaboration, or transforming office spaces to think tanks.

They will also need to understand how these shifts, and the demands that they put on their people, impact stress levels and well-being to ensure ongoing engagement, personal well-being and, ultimately, retention.



The soft skills projections here portray the emerging soft skills that are in demand and frequently requested in job advertisements across each of the in-demand skill clusters globally.

+51%

Based on the data, on average, there is an increase in demand for soft skills (51%) when compared to last year (2020–2021).

+81%

Positive disposition, research and dexterities are among top-growing soft skills in the mobile app development skill cluster — comparatively an average of 81% more than the past year.

+73%

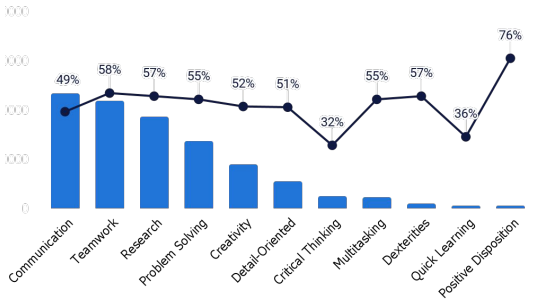
Critical thinking, multitasking and research are highly sought-after skills in cloud computing, where there is an average 73% increase in demand for these competencies.

62%

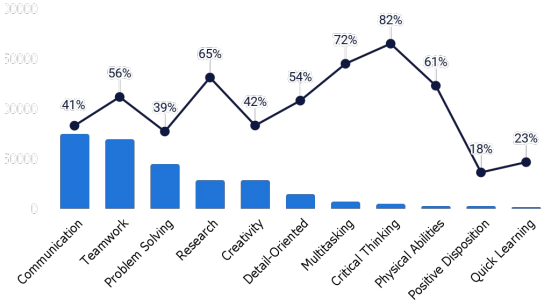
Artificial intelligence and machine learning (AI/ML) job advertisements are seeking those with positive disposition, collaboration, dexterities and multitasking skills. The number of job advertisements that mention these skills across the AI/ML job cluster increased by 62% when compared to the previous year.

Planning is the key differentiating skill requested for financial management roles. Relationship building is the most sought-after skill in customer-centric roles.

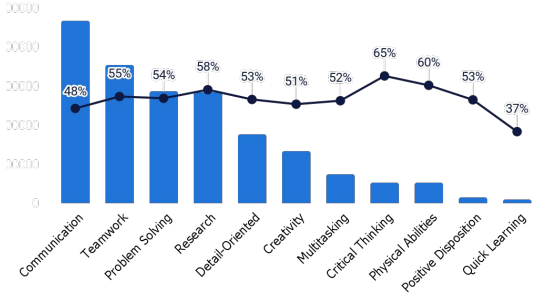
artificial intelligence & machine learning



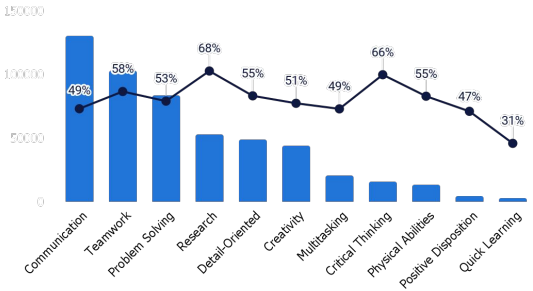
cloud computing



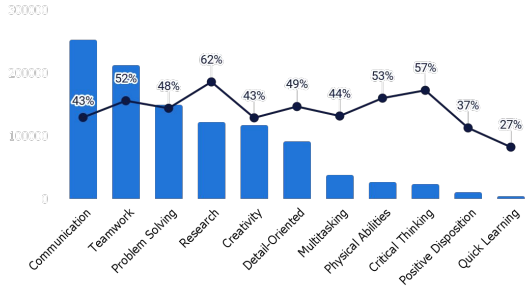
big data

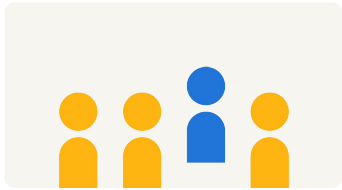


business intelligence & data visualization



user interface & user experience

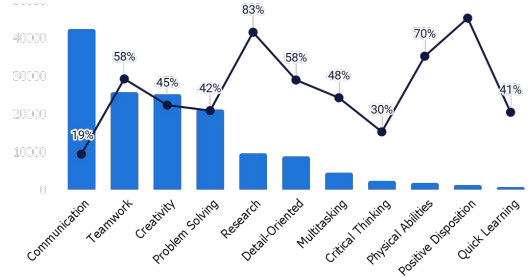




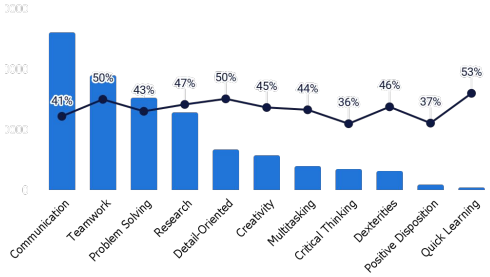
job postings (2020–2021)

growth in job postings (2020–2021/2021–2022)

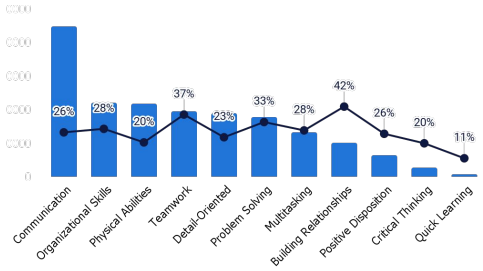
mobile app development



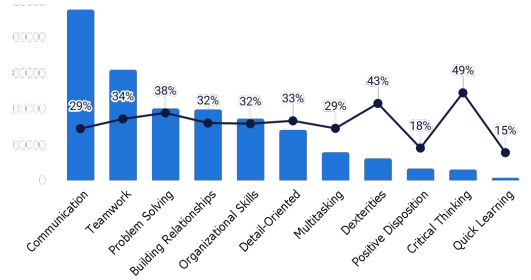
cybersecurity



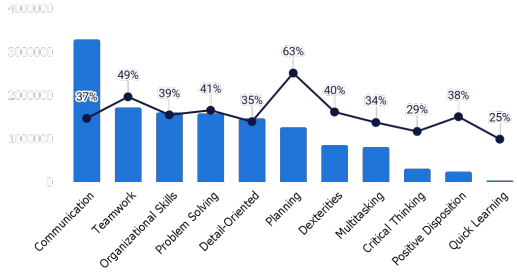
customer service

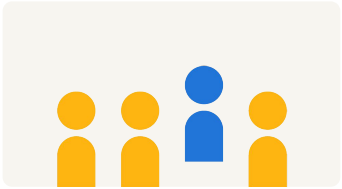


sales & BD



financial management/budgeting & accounting





job postings (2020 - 2021)

growth in job postings (2020-2021/2021-2022)

global gender diversity landscape.

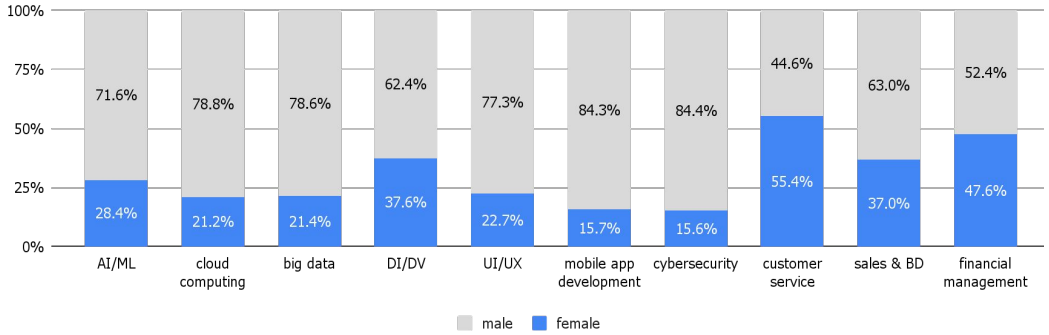
Gender diversity among talent with high-demand tech skills remains unbalanced. Based on Randstad Sourceright Intelligence team analysis of normalized data from talent supply sources, on average, 76% of individuals who are currently employed in this space self-identify as male.

The gender gap is especially visible across cybersecurity and mobile applications development skill clusters, in which many of the markets are approaching 90% male talent pools.

Business intelligence and data visualization (BI/DV) is the most gender diverse IT-related skill cluster, averaging 63% male and 37% female.

Non-IT skill clusters are significantly more balanced, but also present opportunities to create parity. For example, the only skill cluster where females represent the majority is customer service, a lower-paying, service-oriented group.

The graph below shows global averages by skill cluster, but further market breakdowns for each skill can be explored throughout the report.



the top 10 in-demand skill clusters.

1. artificial intelligence & machine learning (AI/ML)
2. cloud computing
3. big data
4. business intelligence & data visualization (BI/DV)
5. user interface & user experience (UI/UX)
6. mobile app development
7. cybersecurity
8. customer service
9. sales & business development (BD)
10. financial management/budgeting & accounting

artificial intelligence & machine learning (AI/ML).

1. AI/ML remains one of the most popular and growing high-tech job families both in demand and supply due to widespread adaptation of technology solutions by countless organizations and other accessible frameworks.

2. AI/ML skills are developed and used in conjunction with other top skills highlighted in this report and are often an essential part of other skill families.

3. Where qualified talent is sourced can have a significant impact on time to fill, cost and specific industry experience.

4. Python is one of the most common skills paired with AI/ML roles. This is because the language is perceived as easily accessible and one of the ubiquitous competencies among talent entering the job market.

artificial intelligence & machine learning (AI/ML)

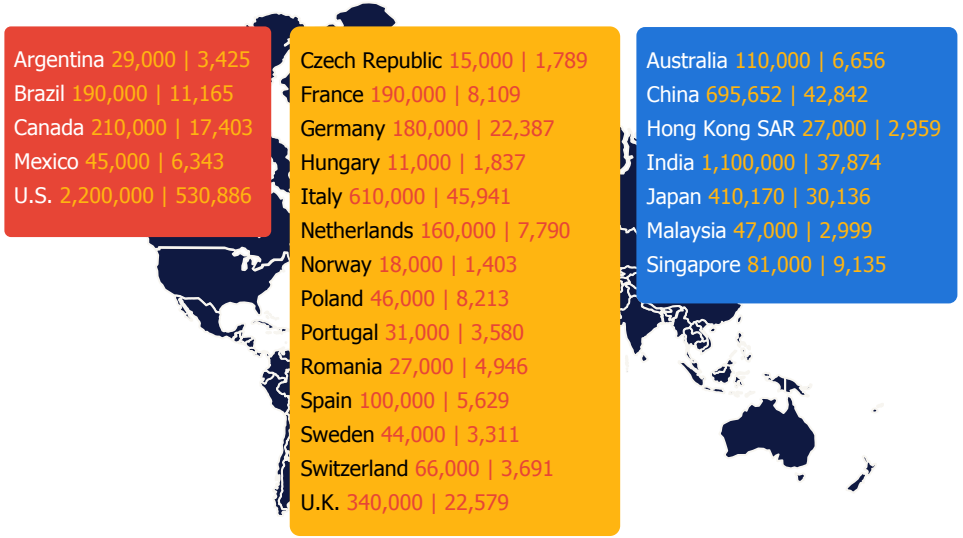
supply & demand.

This data indicates the total number of individuals who have AI/ML relevant skills set against job postings that require AI/ML skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards and career sites. Data is normalized.

The majority of the demand pressure comes from U.S./EU-based companies. Italy has the highest demand for AI/ML among all European markets, while China, India and Japan remain leaders in the APAC market. Most of the talent working with AI/ML are located in the U.S. and India. For these roles, the U.S. has the highest difficulty filling these jobs, while India has the lowest.

The global talent pool of those with AI/ML experience is the third biggest among all skills we analyzed. This category exhibits the biggest discrepancy between market expectations vs. talent competency, which creates a lot of need for employer-driven upskilling.

supply | demand



artificial intelligence & machine learning (AI/ML)

market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring AI/ML skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

For AI/ML skills, those markets that are most competitive include the U.S., Poland, Romania, Hungary and Mexico, whereas competition is lower in India (where talent supply is also high), France and Switzerland.

market	job vacancy rate
U.S.	19%
Poland	15%
Romania	15%
Hungary	14%
Mexico	12%
Argentina	11%
Germany	11%
Czech Republic	11%
Portugal	10%
Singapore	10%
Hong Kong SAR	10%
Canada	8%
Italy	7%
Norway	7%
Japan	7%
Sweden	7%
Brazil	6%
U.K.	6%
Australia	6%
China	6%
Malaysia	6%
Netherlands	5%
Spain	5%
Switzerland	5%
France	4%
India	3%

artificial intelligence & machine learning (AI/ML)

remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for AI/ML skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

AI/ML roles have the highest share of remote working potential, with a significant number of advertisements mentioning this possibility in markets with a high difficulty of fulfillment (e.g., the U.S., Hungary and the Czech Republic).

The markets where remote working is the lowest are China, Japan and Italy. A significant portion of demand in these areas comes from the manufacturing and automotive industries, where remote work is limited.

On average, AI/ML roles have the highest percentage of jobs advertised as remote (24.7% vs. all other skill clusters).

- Argentina 46%
- Mexico 42%
- U.S. 42%
- Brazil 34%
- Canada 29%

- Norway 49%
- Hungary 47%
- Czech Republic 46%
- Portugal 36%
- Spain 33%
- Poland 31%
- Sweden 30%
- Romania 24%
- France 21%
- Switzerland 18%
- Netherlands 16%
- Germany 16%
- U.K. 14%
- Italy 5%

- Australia 15%
- Malaysia 15%
- Hong Kong SAR 11%
- India 9%
- Singapore 5%
- China 3%
- Japan 3%

artificial intelligence & machine learning (AI/ML)

global snapshot.

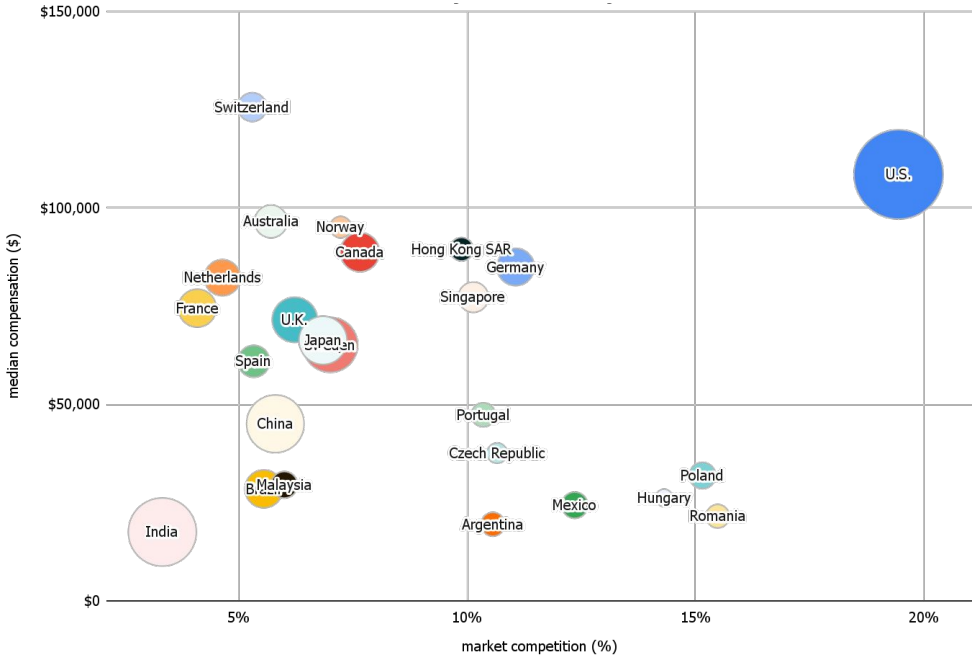
This global snapshot shows a number of factors that may impact recruitment strategies, by market:

1. average compensation for AI/ML skills (y-axis)
2. size of the talent supply pool (size of each dot)
3. market competitiveness for AI/ML skills (x-axis)

The markets with the lowest cost options for attracting AI/ML talent are Argentina and India.

France and India have the least difficult time acquiring talent based on their job vacancy rates.

The talent pool in Argentina and Romania are trailing demand, but their time to fill is not nearly as long as that of the U.S.



artificial intelligence & machine learning (AI/ML)

hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the AI/ML skill cluster globally, based on aggregate, normalized job advertisement data.

Employers filling AI/ML roles are seeking individuals with communication, collaboration and research skills. Increasing demand for technical capabilities requested includes Python, Kubernetes, IoT and data lakes, among others.

top requested hard skills

1. Python
2. Kubernetes
3. Apache Kafka
4. Apache Hive
5. Docker Software
6. internet of things
7. data lakes/reservoirs
8. AWS Redshift

top 3 requested soft skills

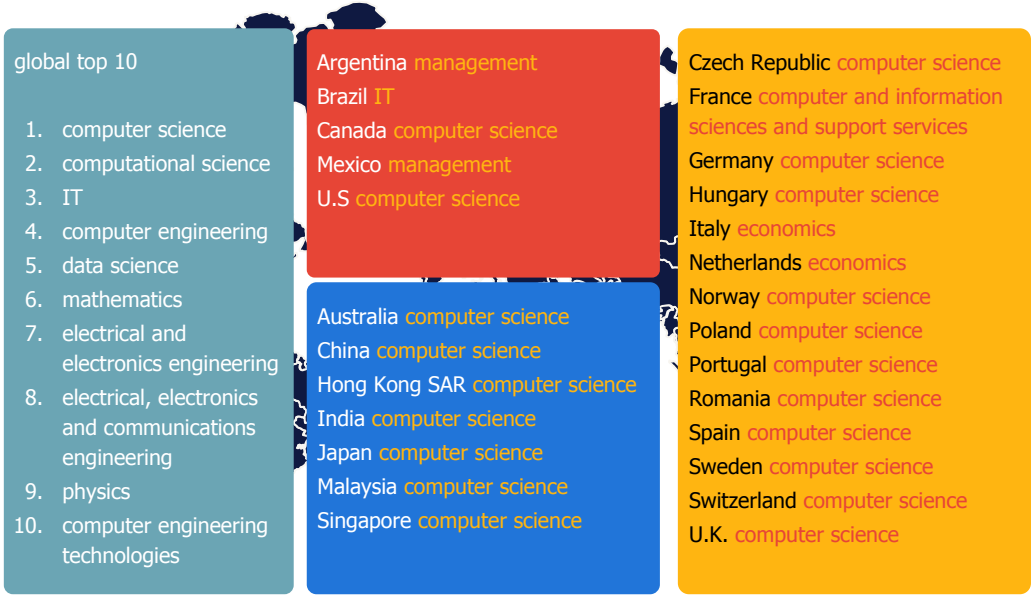
1. communication
2. teamwork/collaboration
3. research

artificial intelligence & machine learning (AI/ML)

fields of study.

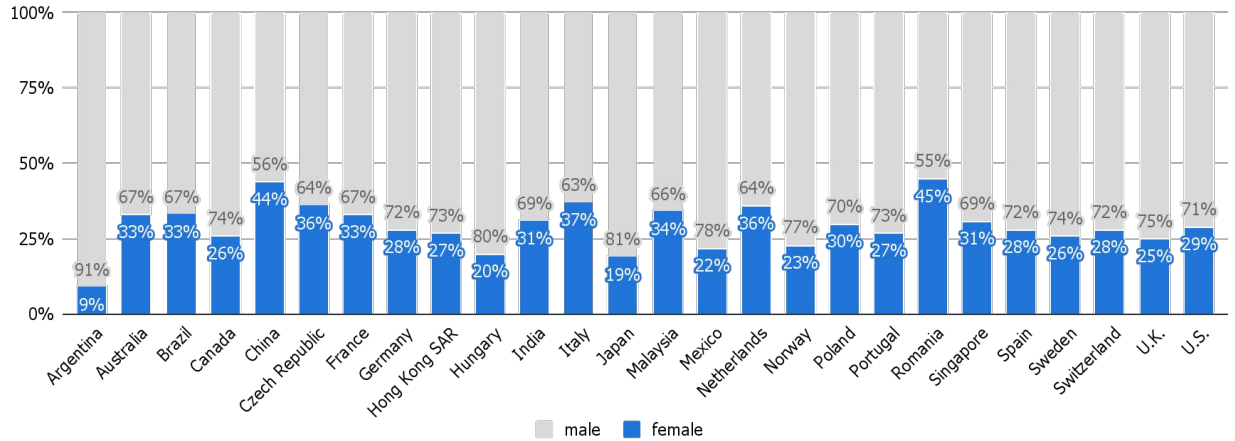
This data represents the most common field of study for professionals who possess AI/ML skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

For AI/ML skills, computer science, computational science and IT are most common. Around 51% of AI/ML talent state they have an IT-, engineering- or math-related background.



artificial intelligence & machine learning (AI/ML)

gender diversity.



Gender diversity shows the current balance of male to female employees currently working AI/ML-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources.

On average, 76% of professionals across all the tech skill clusters are male. Romania and China have the highest percentage of female talent who have this kind of skill set, where just 9% of AI/ML professionals in Argentina are female. Most markets have a strong opportunity to create greater balance.

artificial intelligence & machine learning (AI/ML)

universities.

These tables showcase the most common school that relevant talent attended for the AI/ML skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina University of Buenos Aires
Brazil Universidade de São Paulo
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of California, Berkeley

Czech Republic Charles University
France Université Paris Cité
Germany Technical University of Munich
Hungary Budapest University of Technology and Economics
Italy Sapienza Università di Roma
Netherlands University of Amsterdam
Norway Norwegian University of Science and Technology
Poland Warsaw University of Technology
Portugal Instituto Superior Técnico
Romania University POLITEHNICA of Bucharest
Spain Universidad Politécnica de Madrid
Sweden KTH Royal Institute of Technology
Switzerland ETH Zürich
U.K. UCL

Australia UNSW
China Tsinghua University
Hong Kong SAR University of Hong Kong
India Kendriya Vidyalaya
Japan University of Tokyo
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

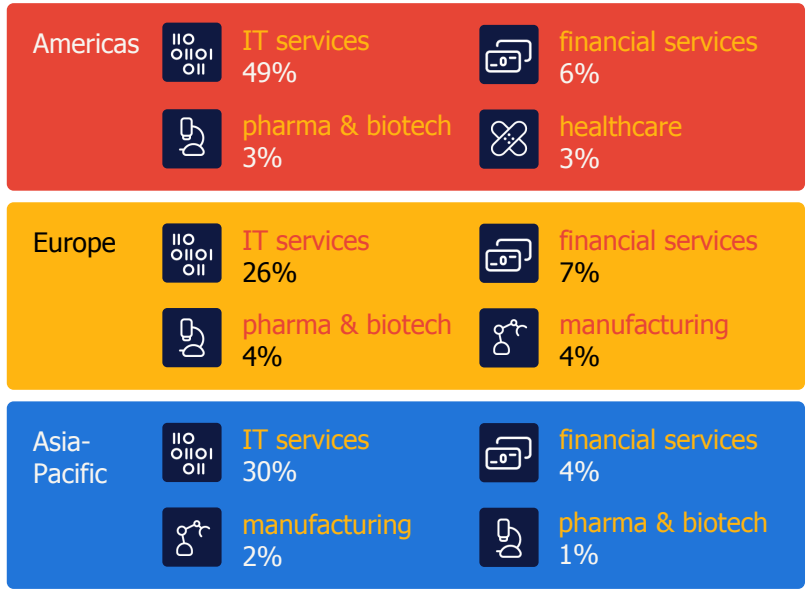
artificial intelligence & machine learning (AI/ML)

industries.

These charts show the four industries that currently employ the highest volumes of AI/ML professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for AI/ML skills.

The industry with the greatest source for AI/ML skills is IT services, but even in this sector regional differences are notable. At 49%, IT services organizations in the Americas have a much higher supply of these skills than companies in other sectors. The supply of AI/ML specialists is more evenly distributed among different industries outside of the IT services industry.

Employment of AI/ML experts is also becoming more common in pharma, biotech and healthcare industries, as these skills have broad applications across many sectors.



cloud computing.

1 Demand for cloud computing skills has grown explosively during the pandemic, and the global market size is estimated to grow 100% over the next five years. With digitization accelerating at many companies, the switch to cloud technologies and business models has led many companies to prioritize the acquisition of these skills over other technical competencies.

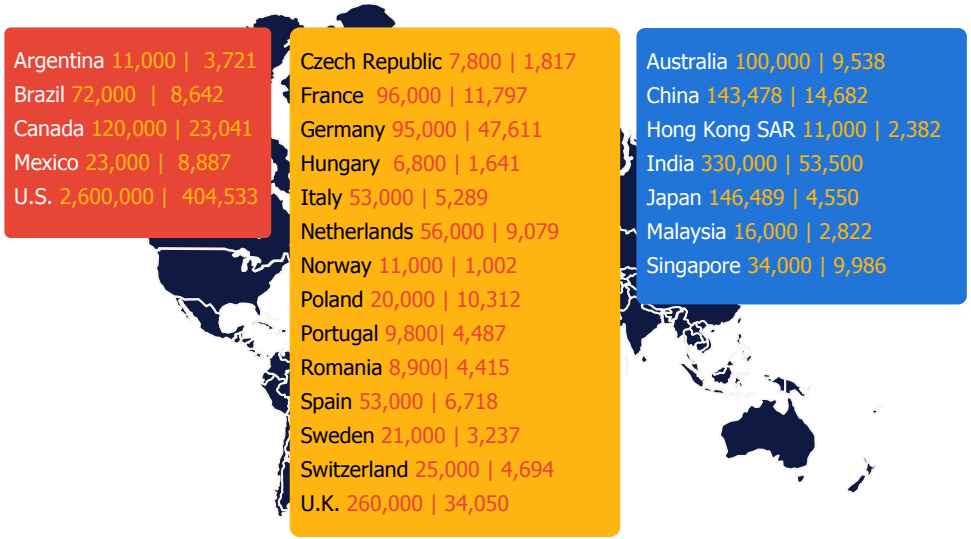
2 The cloud computing skill cluster is the biggest and most common set that intersects with other technical skills analyzed in this research. Core technologies such as Amazon Web Services (AWS), Azure or Google Cloud Platform (GCP) are only a fragment of the overall cloud technology toolkit.

cloud computing
supply & demand.

This data indicates the total number of individuals who have cloud computing skills set against job postings that require cloud computing skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards and career sites. Data is normalized.

A significant portion of the demand for cloud experts is based in the United States. India, Germany and the U.K., however, are also experiencing significantly higher needs in comparison to other markets. Surprisingly, demand for cloud computing is relatively low in Japan and Italy.

supply | demand



cloud computing
market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring cloud computing skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

Labor markets in Romania, Portugal, Germany, Poland and Mexico are significantly out of balance, with cloud computing job vacancy rates above 30%.

Because their demand is among the lowest of the 26 markets analyzed, Italy and Japan have both lower job vacancy rates and adequate talent pools to meet their economic needs.

On average, cloud computing roles have the highest job vacancy ratios of all skill clusters listed here on a market-by-market basis (17.3%). This indicates an extremely high split between talent available across all the markets in comparison to local demand.

markets	job vacancy rate
Poland	34%
Germany	33%
Romania	33%
Portugal	31%
Mexico	28%
Argentina	25%
Singapore	23%
Czech Republic	19%
Hungary	19%
Hong Kong SAR	18%
Canada	16%
Switzerland	16%
Malaysia	15%
Netherlands	14%
India	14%
U.S.	13%
Sweden	13%
U.K.	12%
Brazil	11%
France	11%
Spain	11%
Italy	9%
China	9%
Australia	9%
Norway	8%
Japan	3%

cloud computing

remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for cloud computing skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

As with most high-demand tech skills, a significant share of cloud computing roles advertised offer remote working benefits. Only in the Asia-Pacific region are such benefits less common. In China, the percentage of jobs advertised as remote was less than 1%.

Among all skill clusters analyzed, cloud computing has the second highest share of remote working opportunities advertised.

Argentina 63%
Mexico 56%
Brazil 48%
U.S. 41%
Canada 39%

Hungary 51%
Portugal 39%
Romania 34%
Czech Republic 33%
Poland 32%
Spain 29%
Norway 20%
Italy 19%
Sweden 18%
U.K. 13%
Germany 11%
Netherlands 10%
France 9%
Switzerland 9%

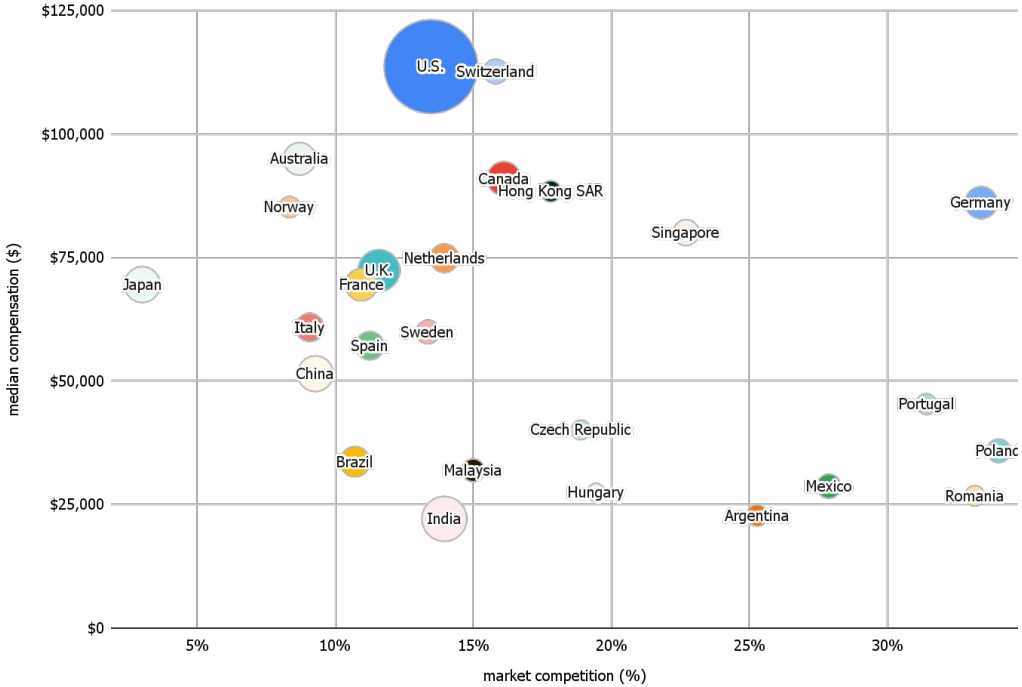
Australia 9%
India 6%
Japan 5%
Malaysia 5%
Singapore 3%
Hong Kong SAR 2%
China 0%

cloud computing
global snapshot.

The graph here represents three factors in each of the 26 markets we researched:

1. the average compensation for cloud computing skills (y-axis)
2. the size of the talent supply pool (size of each dot)
3. market competitiveness for cloud computing skills (x-axis)

Cloud computing is one of the most competitive skill clusters, especially within Europe, where competition is high in Poland, Germany, Romania and Portugal. Employers experiencing challenges should look to Brazil, China, Italy, Spain and Japan where market competitiveness and compensation rates provide fewer roadblocks.



cloud computing

hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the cloud computing skill cluster globally, based on aggregate, normalized job advertisement data.

The most commonly requested soft skills in cloud computing job advertisements are teamwork and collaboration, communication and problem-solving. Increasing demand for technical capabilities requested includes continuous integration, Amazon Web Services and Ansible, among others.

top requested hard skills

1. Python
2. Kubernetes
3. Microsoft Azure
4. Docker Software
5. Amazon Web Services
6. Ansible
7. continuous integration
8. Apache Kafka

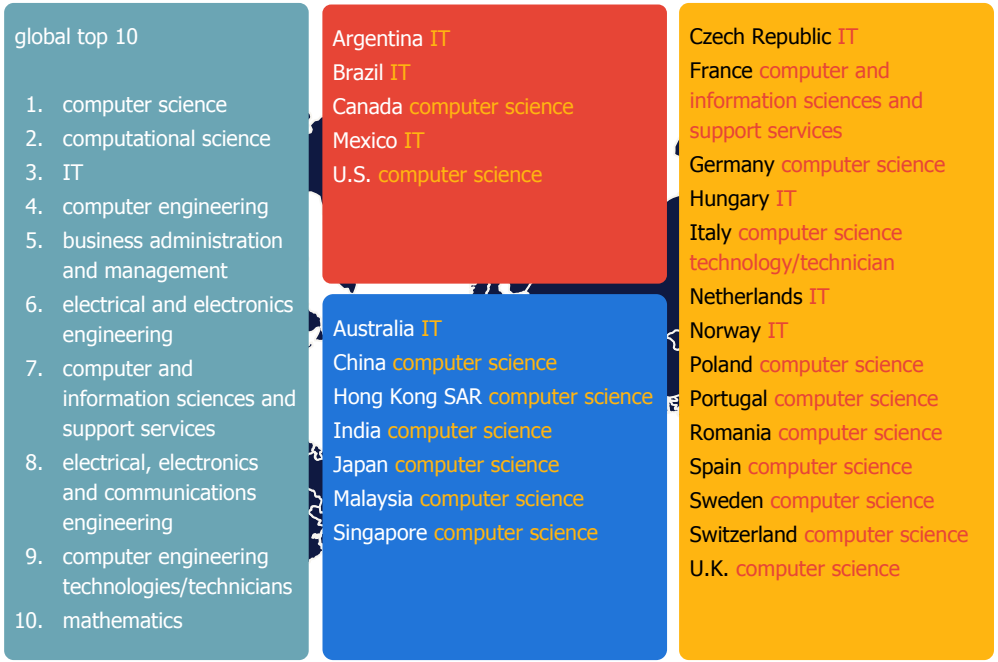
top 3 requested soft skills

1. teamwork/collaboration
2. communication
3. problem-solving

cloud computing
fields of study.

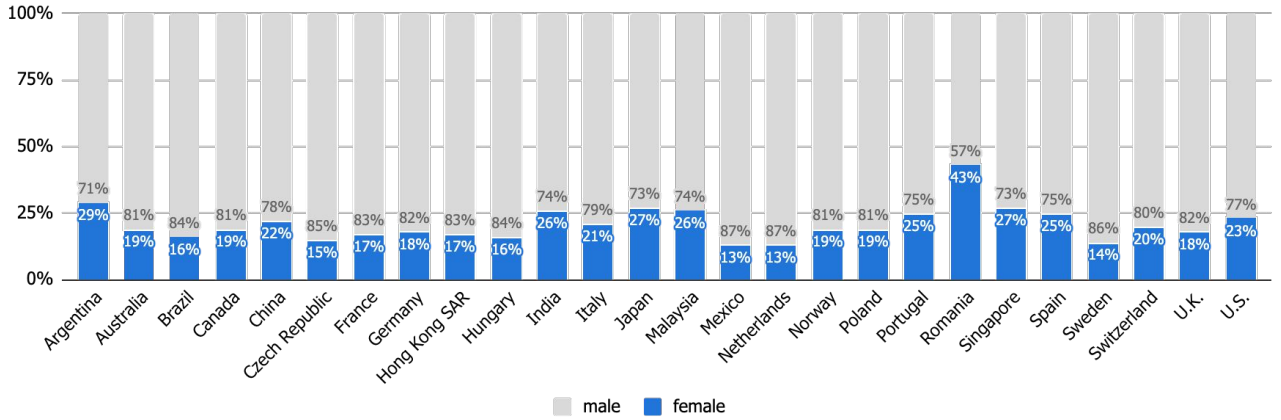
This data represents the most common field of study for professionals who possess cloud computing skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

For talent with cloud computing skills, around 44% of talent declare an IT-, engineering- or math-related university background; however, many also pursue degrees in business administration and management.



cloud computing

gender diversity.



Gender diversity shows the current balance of male to female employees currently working cloud computing-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources.

The gender composition of the cloud computing talent pool is similar to other high-demand tech skill clusters. Romania and Argentina are the most gender-diverse, but in most markets, women account for less than one-quarter of the professionals working in these roles.

cloud computing universities.

These tables showcase the most common school that relevant talent attended for the cloud computing skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina Universidad Tecnológica Nacional
Brazil Fundação Getulio Vargas
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of Phoenix

Czech Republic Czech Technical University in Prague
France Conservatoire National des Arts et Métiers
Germany Technical University of Munich
Hungary Budapest University of Technology and Economics
Italy Sapienza Università di Roma
Netherlands Amsterdam University of Applied Sciences
Norway BI Norwegian Business School
Poland Warsaw University of Technology
Portugal Instituto Superior Técnico
Romania University POLITEHNICA of Bucharest
Spain Universidad Politécnica de Madrid
Sweden KTH Royal Institute of Technology
Switzerland ETH Zürich
U.K. The Open University

Australia TAFE NSW
China Shanghai Jiao Tong University
Hong Kong SAR City University of Hong Kong
India Kendriya Vidyalaya
Japan Waseda University
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

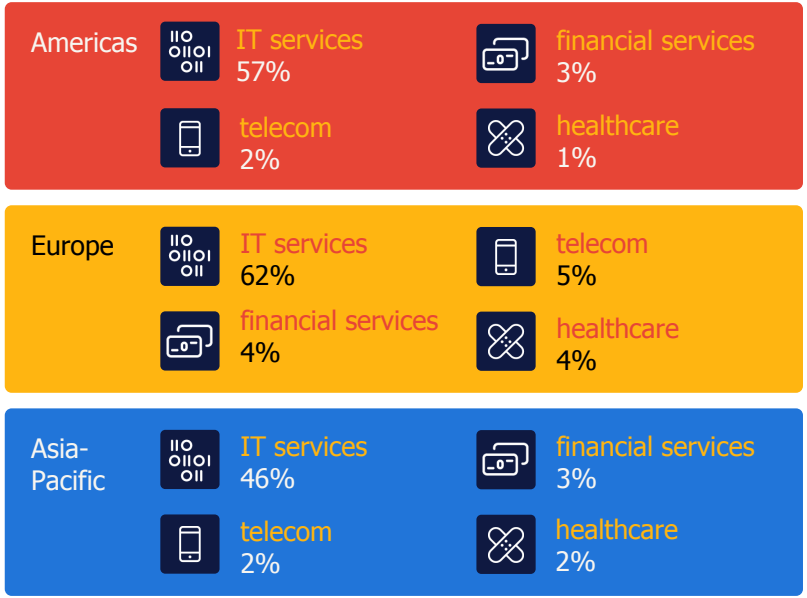
cloud computing industries.

These charts show the four industries that currently employ the highest volumes of cloud computing professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for cloud computing skills.

As expected, cloud computing accounts for a significant percentage of roles within the IT industry, spanning across other technology clusters analyzed in this report.

Financial services — second to IT services — also employs many with cloud-related skills. European telecom businesses in particular account for a higher share of these specialists within their industry.

Financial services, telecom and healthcare industries have consistent demand for cloud computing skills across all regions.



big data.

1. Big data has been growing for years and is perennially one of the most promising career fields for young talent. With utilization in all organizations, as well as applications across all technologies, big data proliferation will continue for some time.

2. Application of analytics in AI, machine learning, marketing and automation is invaluable and will be critical to continuous business improvements.

3. Employers increasingly want their workforce capable of using data and insights to drive performance and evidence-based initiatives.

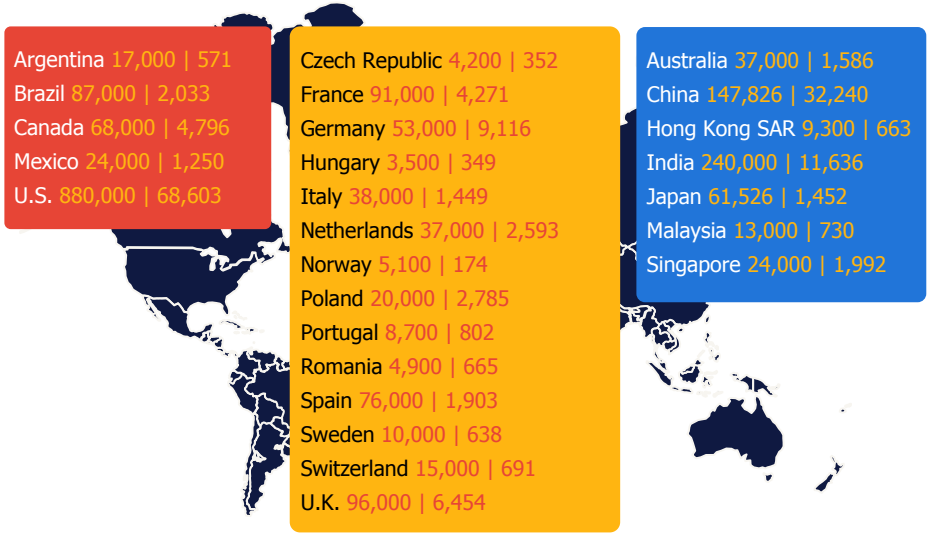
big data
supply & demand.

This data indicates the total number of individuals who have big data skills set against job postings that require big data skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards and career sites. Data is normalized.

General demand for big data skills is relatively lower than other tech skills due to a more specialized view of big data tech. As much as it's applicable to a wide variety of services, associated skills aren't common.

The highest demand comes from the U.S., where the supply is also significantly higher than all other markets. When it comes to tech-skill demand, the U.S. significantly surpasses every other market in most cases. Here, big data skills demand in the U.S. is more than twice the volume of demand in China, which is second highest.

supply | demand



big data
market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring big data skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

China is the market with the highest JVR (18%), meaning it's far harder to hire big data specialists here than in other markets. Other challenging markets include Germany (15%), Poland and Romania (both 12%). On the other hand, Brazil, Spain and Japan have the lowest JVRs, indicating a more accommodating market for employers.

markets	job vacancy rate
China	18%
Germany	15%
Poland	12%
Romania	12%
Hungary	9%
Czech Republic	8%
Portugal	8%
Singapore	8%
Canada	7%
Hong Kong SAR	7%
Netherlands	7%
U.S.	7%
Sweden	6%
U.K.	6%
India	5%
Malaysia	5%
Mexico	5%
Australia	4%
France	4%
Italy	4%
Switzerland	4%
Argentina	3%
Norway	3%
Brazil	2%
Japan	2%
Spain	2%

big data
remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for big data skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

Argentina (52%), Mexico (40%) and Canada (34%) have a high percentage of job postings mentioning remote work. Comparatively, the average for all markets is 15.3%, with some Asia-Pacific countries lower in the single digits.

Argentina 52%
Mexico 40%
Canada 34%
Brazil 30%
U.S. 17%

Romania 33%
Poland 25%
Portugal 24%
Hungary 20%
Spain 19%
Czech Republic 18%
Norway 14%
Italy 12%
Sweden 11%
U.K. 8%
Switzerland 7%
Germany 7%
Netherlands 6%
France 5%

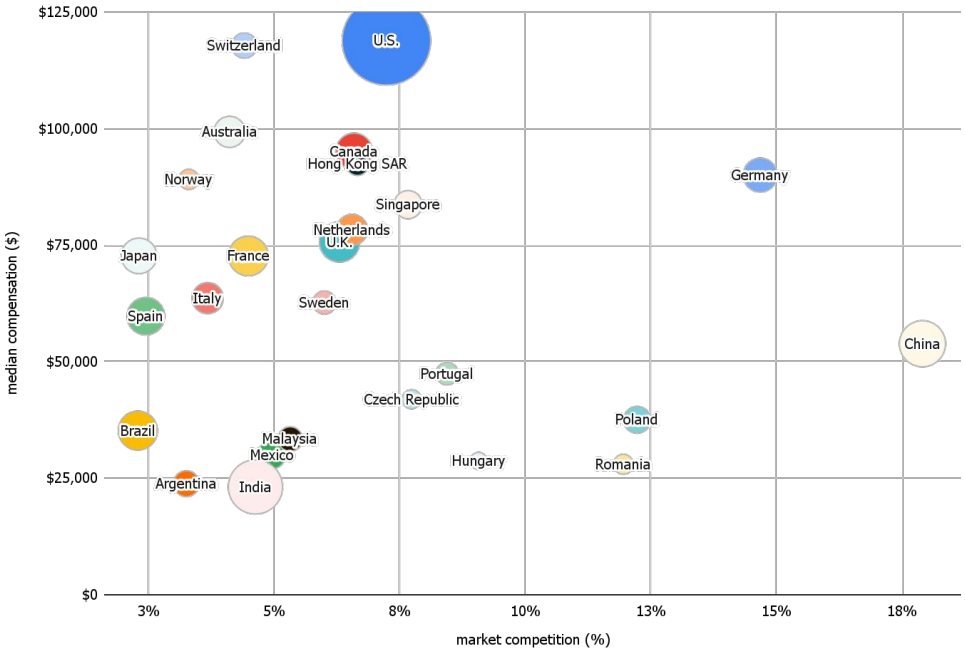
Australia 5%
India 5%
Malaysia 2%
Singapore 2%
Japan 2%
Hong Kong SAR 1%
China 0%

big data
global snapshot.

The graph here represents three factors in each of the 26 markets we researched:

1. the average compensation for big data skills (y-axis)
2. the size of the talent supply pool (size of each dot)
3. market competitiveness for big data skills (x-axis)

Remunerations for big data talent ranks second in the 26 markets analyzed, trailing only AI/ML professionals. Big data talent within high-pay regions, such as the U.S., Germany, the U.K., Japan, China and Canada, however, make more than peers in other job families.



big data
hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the big data skill cluster globally, based on aggregate, normalized job advertisement data.

Much like other high-demand tech skill clusters, employers are seeking professionals who have communication, teamwork, collaboration and strong research skills. This is in addition to increasing demand for technical competencies, such as Python, Tableau and Kubernetes, among others.

top requested hard skills

1. Python
2. Tableau
3. Kubernetes
4. Docker Software
5. Apache Kafka
6. Splunk
7. React JavaScript
8. Ansible
9. Spring Boot

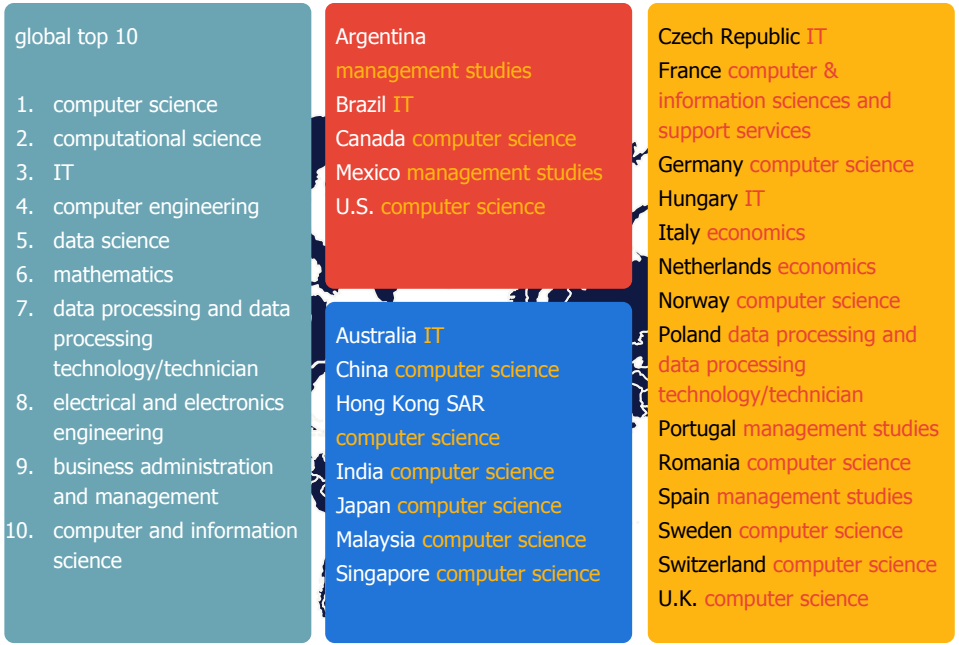
top 3 requested soft skills

1. communication
2. teamwork/collaboration
3. research

big data
fields of study.

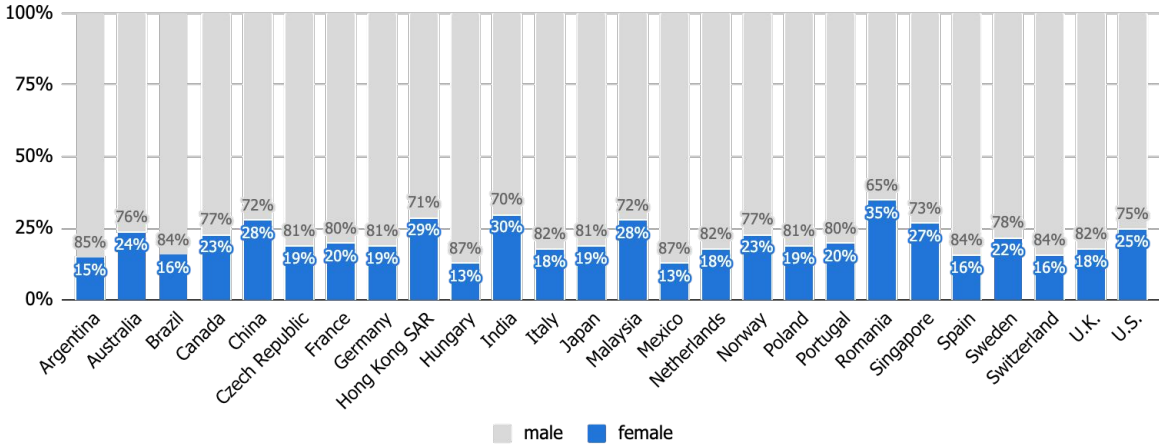
This data represents the most common field of study for professionals who possess big data skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

Only 50% of talent within the big data skill cluster have an IT-, math- or engineering-related background, showing the field's potential for upskilling and reskilling.



big data

gender diversity.



Gender diversity shows the current balance of male to female employees currently working big data-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources.

Romania (35%) continues to lead all markets in talent diversity, followed by India (30%) and China (28%).

big data universities.

These tables showcase the most common school that relevant talent attended for the big data skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina University of Buenos Aires
Brazil Fundação Getulio Vargas
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of California, Berkeley

Czech Republic Czech Technical University in Prague
France Université Paris Cité
Germany Technical University of Munich
Hungary Budapest University of Technology and Economics
Italy Sapienza Università di Roma
Netherlands University of Amsterdam
Norway Norwegian University of Science and Technology
Poland SGH Warsaw School of Economics
Portugal Instituto Superior Técnico
Romania Academia de Studii Economice din București
Spain Universidad Complutense de Madrid
Sweden KTH Royal Institute of Technology
Switzerland ETH Zürich
U.K. UCL

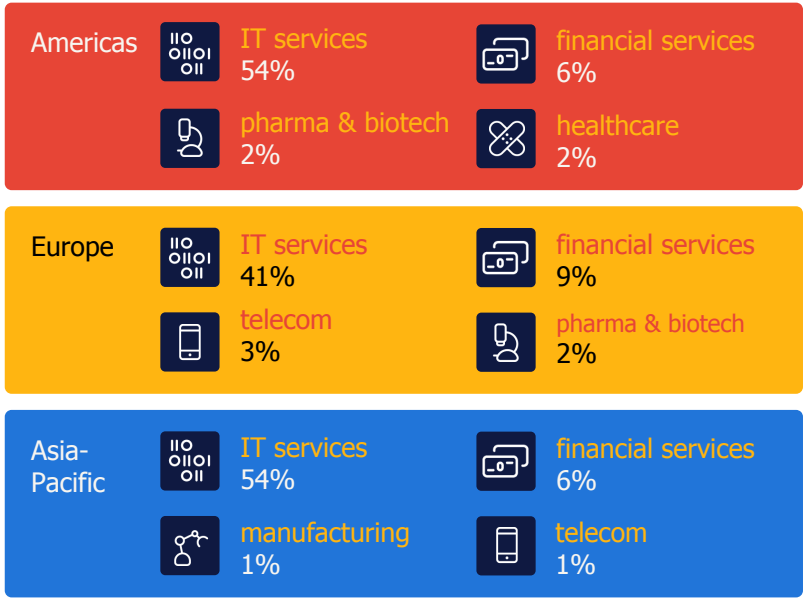
Australia Monash University
China Shanghai Jiao Tong University
Hong Kong SAR The Chinese University of Hong Kong
India Kendriya Vidyalaya
Japan University of Tokyo
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

big data
industries.

These charts show the four industries that currently employ the highest volumes of big data professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for big data skills.

The industry with the highest percentage of employees possessing big data skills is, of course, the IT services industry, closely followed by financial services.

Major differences can be spotted from a regional perspective. Europe has a smaller share of big data specialists employed in IT and a higher share within financial services, compared to the Americas and Asia-Pacific. In Asia-Pacific, big data specialists are also well employed within the manufacturing industry.



business intelligence & data visualization (BI/DV).

1. BI/DV is a key function connecting data and business to ensure the organization is well prepared with data-driven insights. Just like other skill clusters in our research, BI/DV has many intersection points with other categories and big data in general.

2. Understanding and processing data, and knowing how to use visualization tools such as Tableau or PowerBI are some of the essential skills needed by this group.

3. BI/DV competencies are increasingly critical as they empower decision-makers to understand business and market trends quickly and clearly, helping them to avoid delays in strategic execution. As a result, communication is also a growing high-demand soft skill for BI/DV professionals.

business intelligence & data visualization (BI/DV)

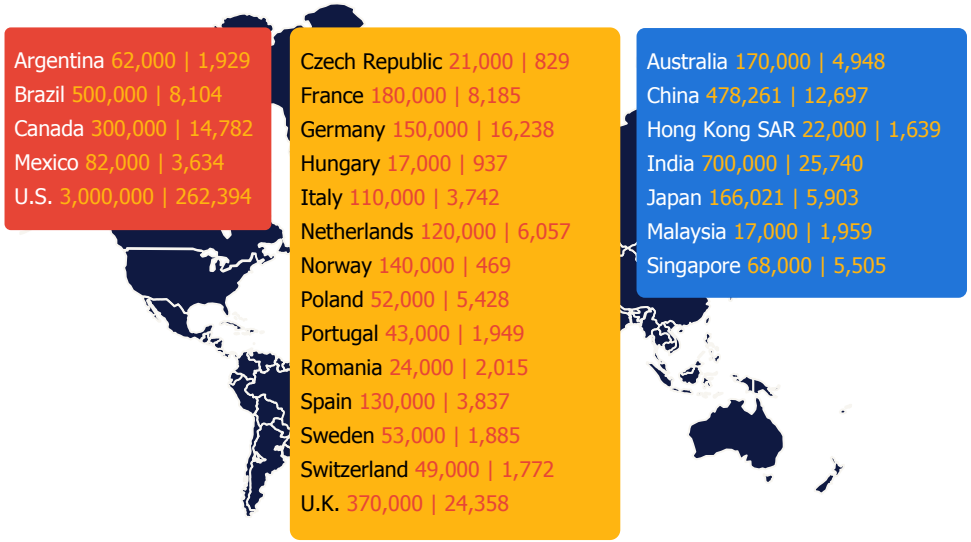
supply & demand.

This data indicates the total number of individuals who have BI/DV skills set against job postings that require BI/DV skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards and career sites. Data is normalized.

The supply of BI/DV specialists is relatively broad in comparison to other skills, with Brazil and Norway having proportionately larger talent pools than other markets. China and India have the second and fourth largest BI/DV talent pools.

Strong demand for these specialists is driven by the U.S., India and the United Kingdom.

supply | demand



business intelligence & data visualization (BI/DV)

market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring BI/DV skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

Based on a relatively large supply, the U.S., India and the U.K. show the lowest average JVRs (4.9%), compared with all other skill clusters. Employers in Germany and Malaysia face the greatest challenges in terms of recruitment, but in Norway the JVR is less than 1% — the lowest of all markets examined here.

markets	job vacancy rate
Germany	10%
Malaysia	10%
Poland	9%
U.S.	8%
Romania	8%
Singapore	7%
Hong Kong SAR	7%
U.K.	6%
Canada	5%
Netherlands	5%
Hungary	5%
Mexico	4%
Portugal	4%
Czech Republic	4%
France	4%
India	4%
China	3%
Australia	3%
Spain	3%
Japan	3%
Italy	3%
Argentina	3%
Sweden	3%
Switzerland	3%
Brazil	2%
Norway	0%

business intelligence & data visualization (BI/DV)

remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for BI/DV skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

In comparison to other tech skill groups, this cluster is relatively behind the other skill clusters examined here. Argentina and Mexico offer the greatest opportunities for remote working, but this is still low, with just 19% and 18% of job ads offering this benefit. Asia-Pacific markets are least likely to offer remote work, at an average of 2%.

Argentina 19%
Mexico 18%
U.S. 14%
Brazil 12%
Canada 10%

Spain 14%
Poland 13%
Romania 13%
Czech Republic 13%
Hungary 12%
Portugal 12%
Germany 9%
U.K. 8%
Norway 7%
Sweden 6%
Italy 5%
Switzerland 4%
France 3%
Netherlands 3%

Australia 3%
India 3%
Malaysia 3%
Singapore 2%
Hong Kong SAR 1%
Japan 1%
China 0%

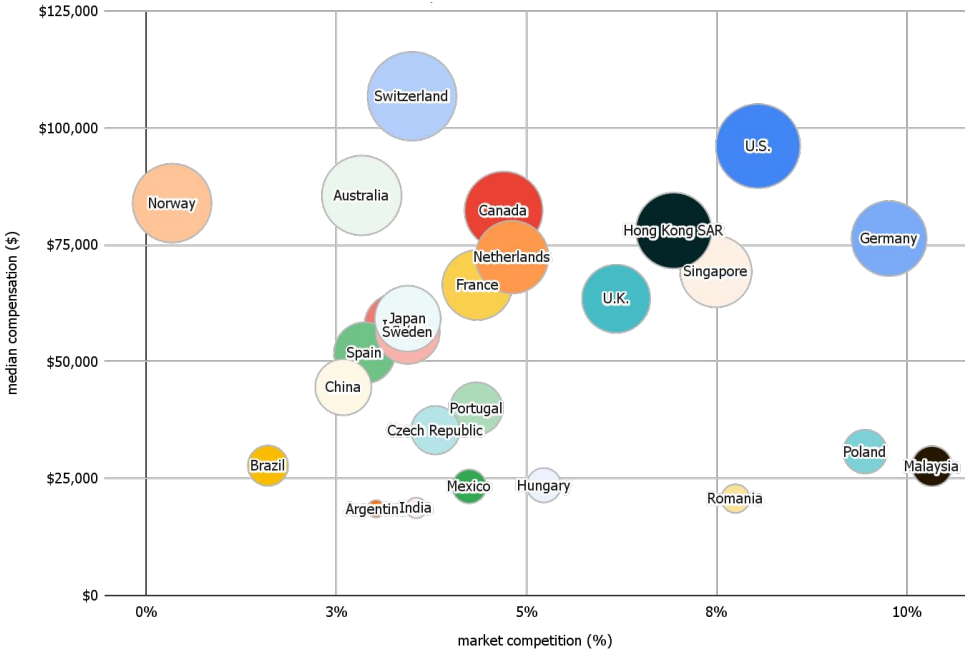
business intelligence & data visualization (BI/DV)

global snapshot.

The graph here represents three factors in each of the 26 markets we researched:

1. the average compensation for BI/DV skills (y-axis)
2. the size of the talent supply pool (size of each dot)
3. market competitiveness for BI/DV skills (x-axis)

BI/DV specialists are among the lowest-paid groups across all tech skill clusters. Switzerland, the U.S., Australia and Canada are among the best-paying markets at levels slightly above UI/UX professionals. Other markets, such as Spain, Czech Republic and Portugal also show sizeable talent pools, with lower salaries and competition.



business intelligence & data visualization (BI/DV)

hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the BI/DV skill cluster globally, based on aggregate, normalized job advertisement data.

Employers are seeking BI/DV talent who also have strong communication, collaboration and problem-solving skills, in addition to increasing demand for technical capabilities, such as Microsoft Power BI, which is seeing year-over-year growth, and Tableau, which was already commonly requested.

top requested hard skill

1. Microsoft Power BI
2. Tableau

top 3 requested soft skills

1. communication
2. teamwork/collaboration
3. problem-solving

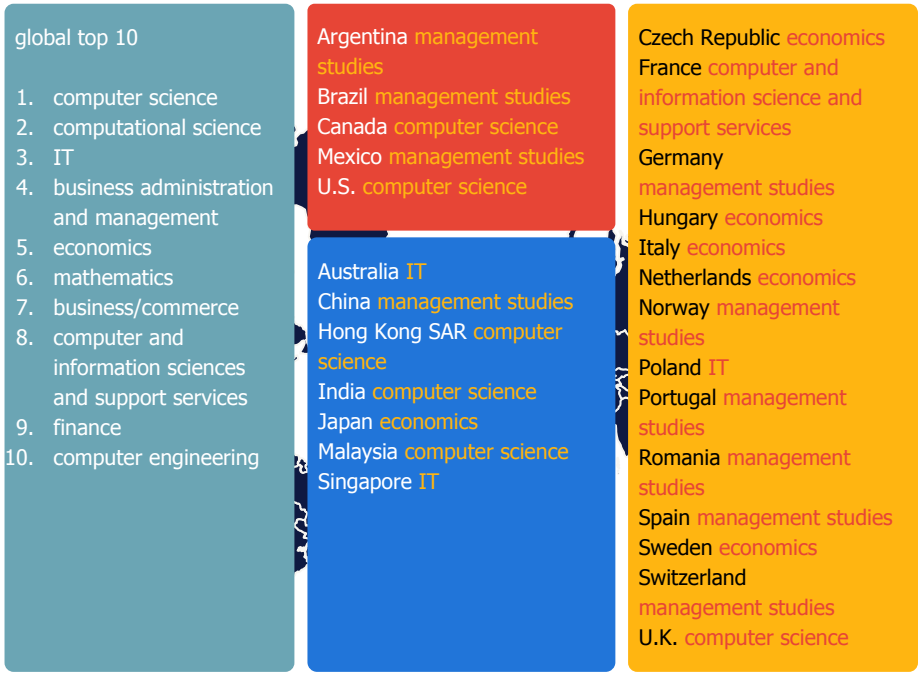
business intelligence & data visualization (BI/DV)

fields of study.

This data represents the most common field of study for professionals who possess BI/DV skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

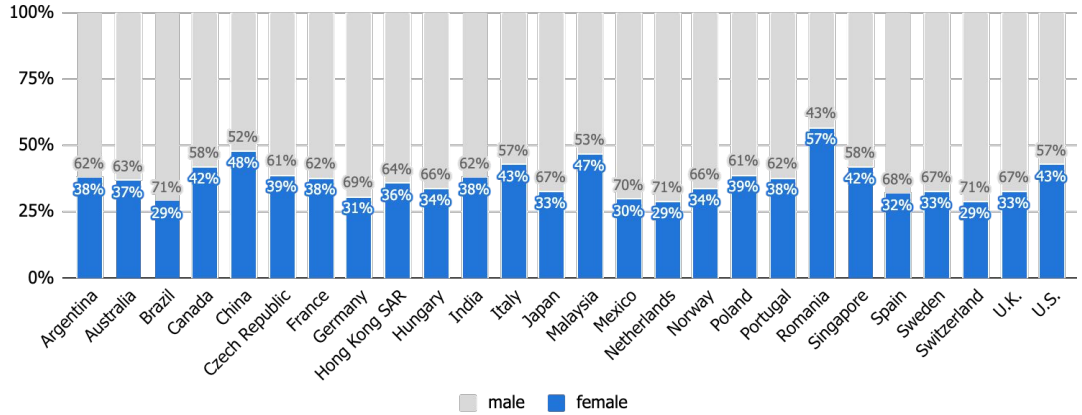
The BI/DV skill cluster has the lowest percentage of talent possessing a tech- or math-related educational background, at 28% compared to 50% to 60% reported in other tech skill clusters.

While these fields are still very common for BI/DV talent, management studies, business administration, finance and economics are also common, showcasing the importance of cross-functional and market knowledge to BI/DV-related roles.



business intelligence & data visualization (BI/DV)

gender diversity.



Gender diversity shows the current balance of male to female employees currently working BI/DV-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources.

The BI/DV skill cluster has the most diverse workforce among those researched here. On average, the ratio of males to females working as BI/DV professionals is 63% to 37%. Romania is the only market with more women (57%) than men (43%) in this field, but China and Malaysia are close to parity as well.

business intelligence & data visualization (BI/DV)

universities.

These tables showcase the most common school that relevant talent attended for the BI/DV skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina University of Buenos Aires
Brazil Fundação Getulio Vargas
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of Phoenix

Czech Republic Prague University of Economics and Business
France Conservatoire National des Arts et Métiers
Germany Technical University of Munich
Hungary Corvinus University of Budapest
Italy Politecnico di Milano
Netherlands Amsterdam University of Applied Sciences
Norway BI Norwegian Business School
Poland SGH Warsaw School of Economics
Portugal Instituto Superior Técnico
Romania Academia de Studii Economice din București
Spain Universidad Complutense de Madrid
Sweden Stockholm University
Switzerland ETH Zürich
U.K. The Open University

Australia Monash University
China Fudan University
Hong Kong SAR City University of Hong Kong
India University of Mumbai
Japan Waseda University
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

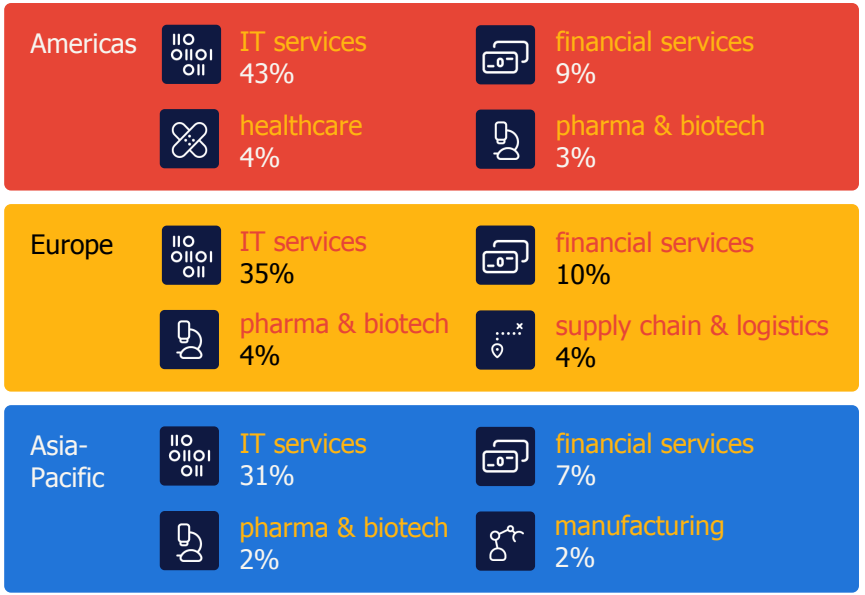
business intelligence & data visualization (BI/DV)

industries.

These charts show the four industries that currently employ the highest volumes of BI/DV professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for BI/DV skills.

In comparison to other skill clusters, BI/DV shows a lower share of candidates working in the IT industry, with the highest percentages recorded in the Asia-Pacific and Europe regions.

Proportionally more specialists with these skills work in financial services, while the general share across the rest of the industries is — in most cases — two times higher than for other tech skills.



user interface & user experience (UI/UX).

1. UI/UX skills have broad applicability across web, desktop and mobile app development roles, as well as marketing and client services functions. Digitization and a focus on user-centricity have increased demand for UI/UX professionals.

2. Skills within the UI/UX cluster consist mostly of front-end technical capabilities, as well as insights on user preferences.

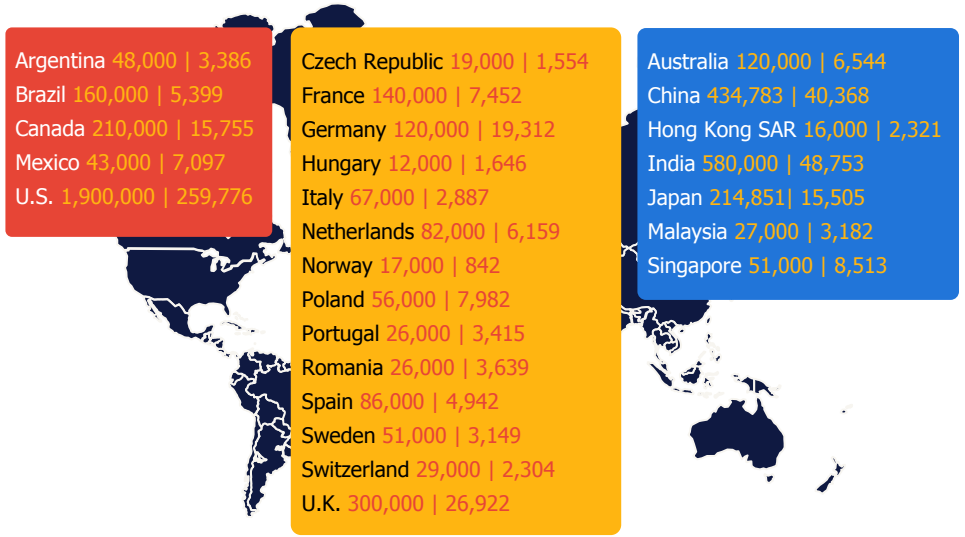
user interface & user experience (UI/UX)

supply & demand.

This data indicates the total number of individuals who have UI/UX skills set against job postings that require UI/UX skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards and career sites. Data is normalized.

The UI/UX talent pool is mostly located in the U.S., India, China, the U.K. and Japan. Demand for UI/UX talent is also driven through the same countries, as well as Germany.

supply | demand



user interface & user experience (UI/UX)

market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring UI/UX skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

The U.S., India, China, the U.K. have high demand for UI/UX professionals, with competitiveness falling in the middle. Mexico, Singapore and Germany, on the other hand, are some of the most competitive markets, given the balance of supply and demand.

Countries with the lowest JVRs are Brazil and Italy, where supply and demand are both lower. Norway, the Czech Republic and Hungary have the smallest talent pool of this skill cluster.

markets	job vacancy rate
Mexico	14%
Germany	14%
Singapore	14%
Hong Kong SAR	13%
U.S.	12%
Poland	12%
Romania	12%
Portugal	12%
Hungary	12%
Malaysia	11%
U.K.	8%
Czechia	8%
India	8%
China	8%
Canada	7%
Argentina	7%
Netherlands	7%
Switzerland	7%
Japan	7%
Sweden	6%
France	5%
Spain	5%
Norway	5%
Australia	5%
Italy	4%
Brazil	3%

user interface & user experience (UI/UX)

remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for UI/UX skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

Employers in Argentina (73%), Brazil (64%) and Mexico (51%) are most open to remote working arrangements for their UI/UX roles — showing the the highest percentages across all skill clusters.

Employers seem to be remote-friendly in places with a low share of remote opportunities in total. What's surprising is that a significant share of UI/UX advertised roles offer this benefit even in markets where remote working is rare, such as Germany (18%) and Italy (29%).

Argentina 73%
Brazil 64%
Mexico 51%
Canada 22%
U.S. 17%

Portugal 35%
Romania 33%
Czech Republic 31%
Spain 30%
Italy 29%
Hungary 28%
Poland 28%
Norway 22%
Germany 18%
Sweden 16%
France 14%
Netherlands 13%
U.K. 12%
Switzerland 10%

Australia 8%
India 5%
Malaysia 5%
Singapore 3%
Hong Kong SAR 2%
China 1%
Japan 1%

user interface & user experience (UI/UX)

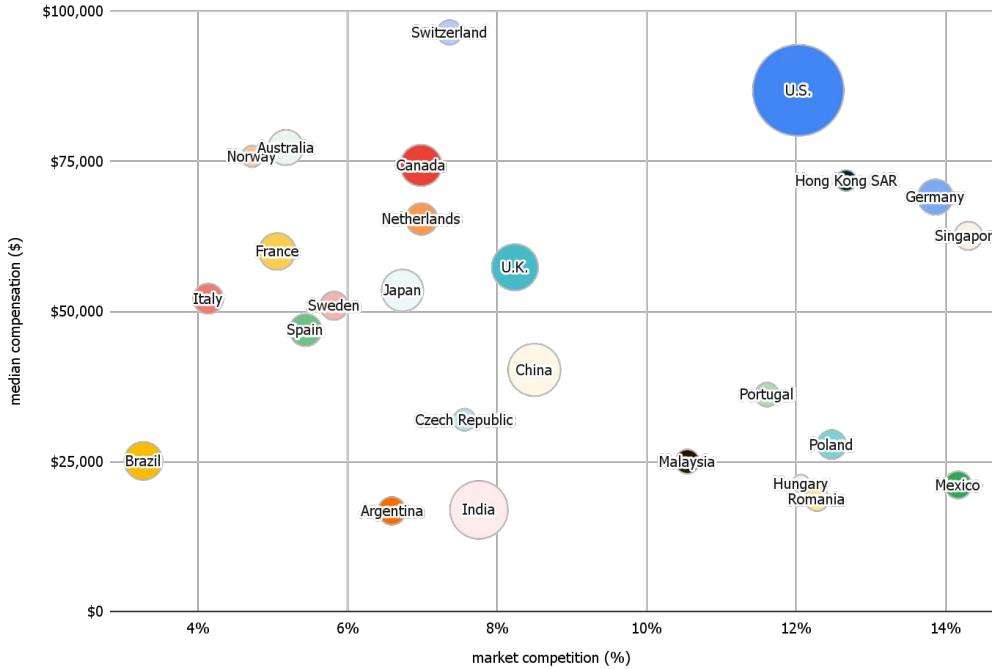
global snapshot.

The graph here represents three factors in each of the 26 markets we researched:

1. the average compensation for UI/UX skills (y-axis)
2. the size of the talent supply pool (size of each dot)
3. market competitiveness for UI/UX skills (x-axis)

UI/UX skills garner lower pay across all countries, possibly making it a less attractive field for new talent. Considering the share of remote roles across this category, employers may be offering non-monetary or more flexible work arrangements to attract UI/UX talent.

While the U.S. market has the largest pool of UI/UX talent, compensation rates are higher and competition is more fierce. India, China and the U.K. also offer sizable talent pools with less competition.



user interface & user experience (UI/UX)

hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the UI/UX skill cluster globally, based on aggregate, normalized job advertisement data.

Employers seeking UI/UX talent also value communication, teamwork, collaboration and problem-solving skills, in addition to increasing demand for technical competencies, such as JavaScript, Tableau and GitHub (collaboration).

top requested hard skills

1. React JavaScript
2. Tableau
3. GitHub

top 3 requested soft skills

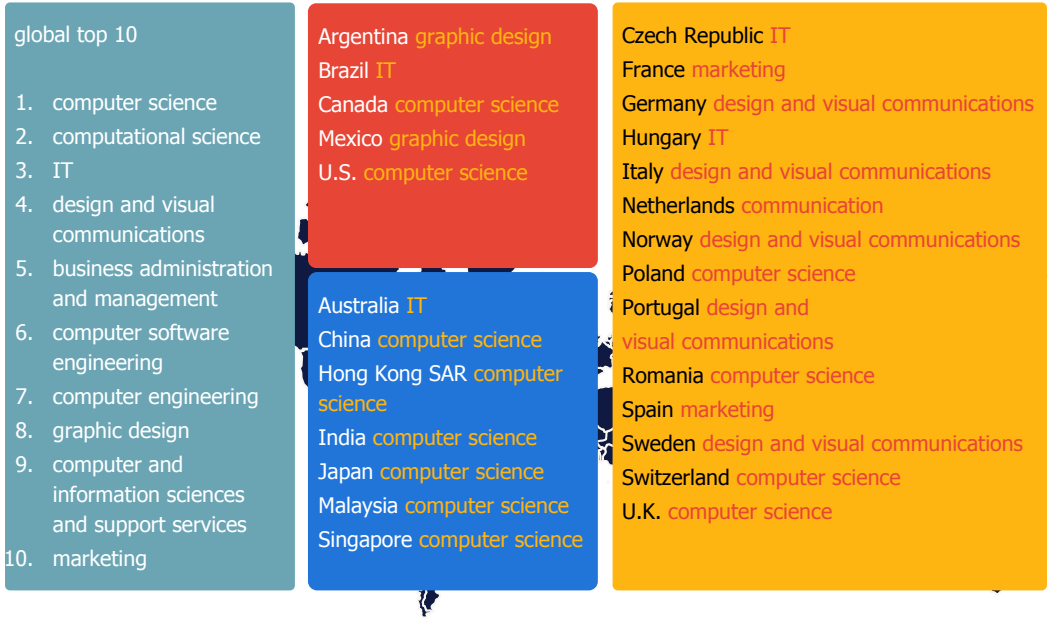
1. communication
2. teamwork/collaboration
3. problem-solving

user interface & user experience (UI/UX)

fields of study.

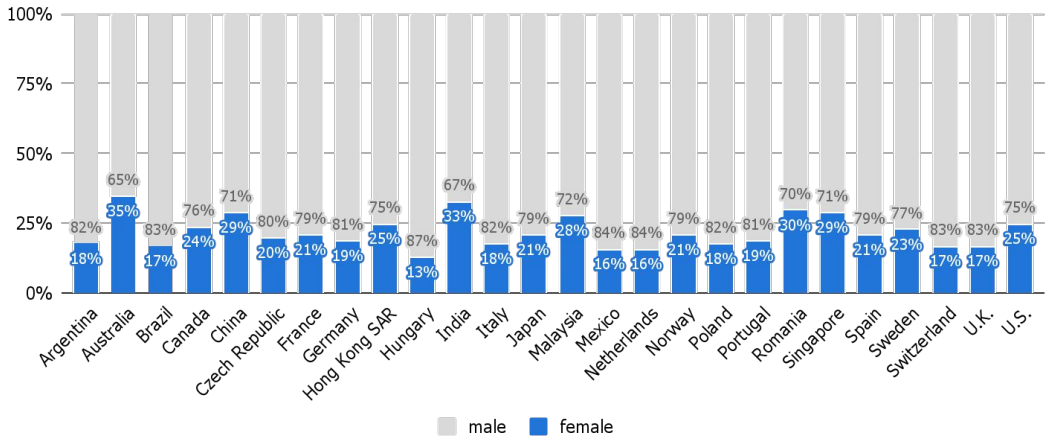
This data represents the most common field of study for professionals who possess UI/UX skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

Nearly half (43%) of UI/UX specialists have IT- or tech-related backgrounds; however, a significant percentage possess graphic and content design training (16%). A notable number also possess marketing and psychology degrees.



user interface & user experience (UI/UX)

gender diversity.



Gender diversity shows the current balance of male to female employees currently working UI/UX-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources.

Gender diversity for the UI/UX skill cluster is similar to others. The country with the most equitable ratio is Australia, where 35% of the UI/UX workforce is female.

user interface & user experience (UI/UX)

universities.

These tables showcase the most common school that relevant talent attended for the UI/UX skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina University of Buenos Aires
Brazil Fundação Getulio Vargas
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of Phoenix

Czech Republic Prague University of Economics and Business
France Conservatoire National des Arts et Métiers
Germany Technical University of Munich
Hungary Corvinus University of Budapest
Italy Politecnico di Milano
Netherlands Amsterdam University of Applied Sciences
Norway BI Norwegian Business School
Poland SGH Warsaw School of Economics
Portugal Instituto Superior Técnico
Romania Academia de Studii Economice din București
Spain Universidad Complutense de Madrid
Sweden Stockholm University
Switzerland ETH Zürich
U.K. The Open University

Australia Monash University
China Fudan University
Hong Kong SAR City University of Hong Kong
India University of Mumbai
Japan Waseda University
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

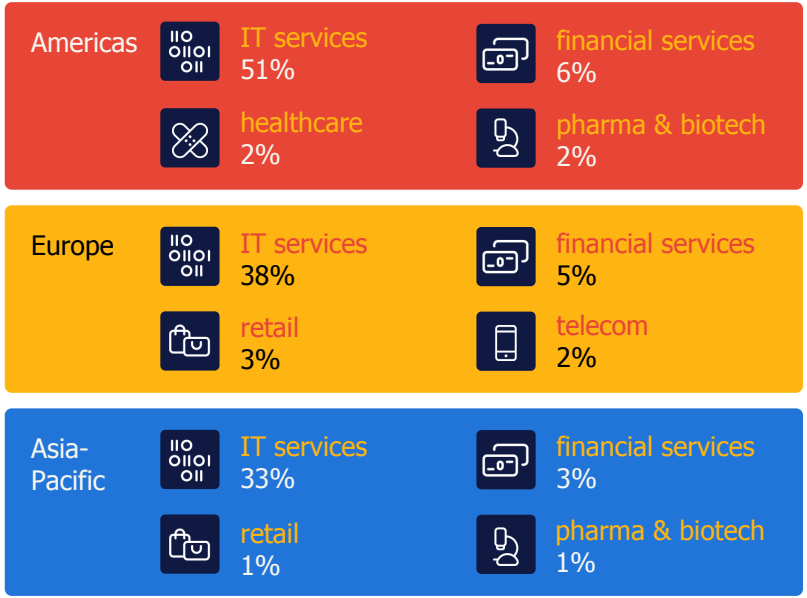
user interface & user experience (UI/UX)

industries.

These charts show the four industries that currently employ the highest volumes of UI/UX professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for UI/UX skills.

The IT industry in the Americas employs more UI/UX specialists than any other sector or market. Employment of these specialists is more evenly dispersed among different sectors.

In the Asia-Pacific region, the sector employing the most number of these workers is IT, with 33% of the roles seeking this type of skill. Notably, financial services, the industry with the second highest percentage, only has 3% of jobs posted mentioning UI/UX in Asia-Pacific.



mobile app development.

1 Mobile app development is a relatively broad talent group, considering the vast amount of applicable technology today. Mobile development intersects with other IT categories quite heavily, as Java, Python, JavaScript and even visualization apps are all part of mobile development frameworks.

2 Considering the rapid growth of app usage, continuously evolving technologies (e.g., 5G, augmented reality, virtual reality, IoT and blockchain), and rising expectations for better app functionality, this skill cluster requires continuous training and development to stay current with the ever-evolving world of mobile apps.

3 One notable segment within mobile development is gaming, where there is a shared need for specialists who understand platforms such as Unreal Engine, a standard PC game design platform.

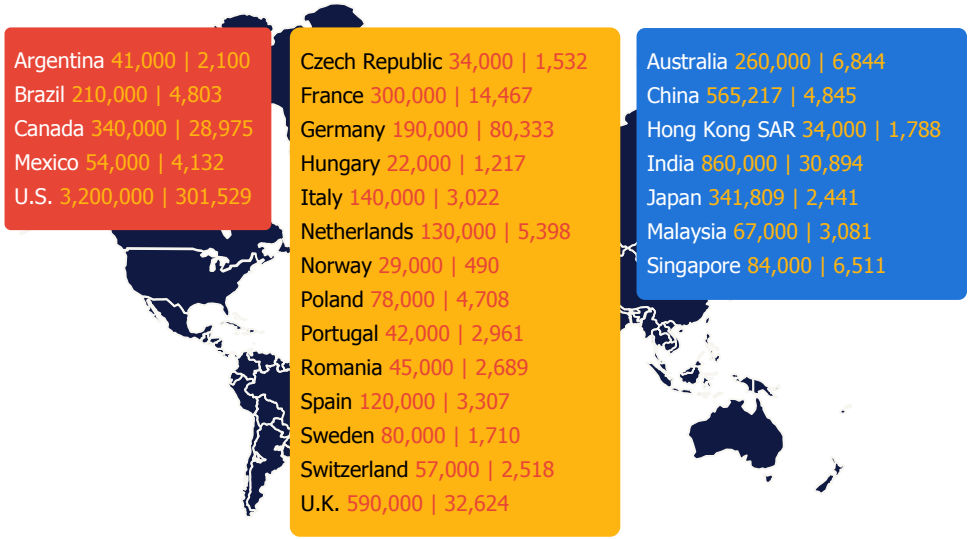
mobile app development
supply & demand.

This data indicates the total number of individuals who have mobile app development skills set against job postings that require mobile app development skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards and career sites. Data is normalized.

The top markets for mobile app development talent supply are the U.S., India and the United Kingdom. The other significant markets are China, Canada, Japan, France and Brazil.

Hungary, Norway and Czech Republic have the lowest representation of talent supply, also being relatively low on total demand. In Norway there are just 490 mobile app development job openings, 1,200 in Hungary and 1,500 in the Czech Republic.

supply | demand



mobile app development

market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring mobile app development skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

Germany leads all countries in terms of demand for mobile app development skills, accounting for around 14% of global demand; however, filling these roles has been challenging for employers there, where JVR is 30%. The average for all other markets examined is just 5.3%.

Hiring mobile app specialists appears less competitive in Japan and China (where talent supply is substantial), which have JVRs around 1%.

markets	job vacancy rate
Germany	30%
U.S.	9%
Canada	8%
Mexico	7%
Portugal	7%
Singapore	7%
Poland	6%
Romania	6%
Argentina	5%
U.K.	5%
France	5%
Hungary	5%
Hong Kong SAR	5%
Netherlands	4%
Switzerland	4%
Czech Republic	4%
Malaysia	4%
Spain	3%
India	3%
Australia	3%
Brazil	2%
Italy	2%
Sweden	2%
Norway	2%
China	1%
Japan	1%

mobile app development

remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for mobile app development skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

The mobile app development skill cluster offers more opportunity for remote working compared with other technical clusters, especially in Latin America, where a majority of job postings in Argentina (73%), Mexico (54%) and Brazil (51%) mention remote working arrangements.

A significant number of ads in Europe (30%) offer remote work, but in France just 7% do. In Germany, where competition is fierce, employers can offer remote working to attract candidates. Employers in Asia-Pacific are less likely to offer off-site schedules; markets we surveyed in the region average 6% for mobile app development roles.

Argentina 73%	Hungary 38%	China 9%
Mexico 54%	Spain 38%	Japan 9%
Brazil 51%	Poland 33%	India 8%
Canada 24%	Norway 32%	Australia 6%
U.S. 12%	Portugal 32%	Malaysia 6%
	Romania 32%	Singapore 4%
	Sweden 28%	Hong Kong SAR 4%
	Czech Republic 27%	
	Italy 24%	
	Netherlands 13%	
	Switzerland 10%	
	U.K. 8%	
	France 7%	
	Germany 4%	

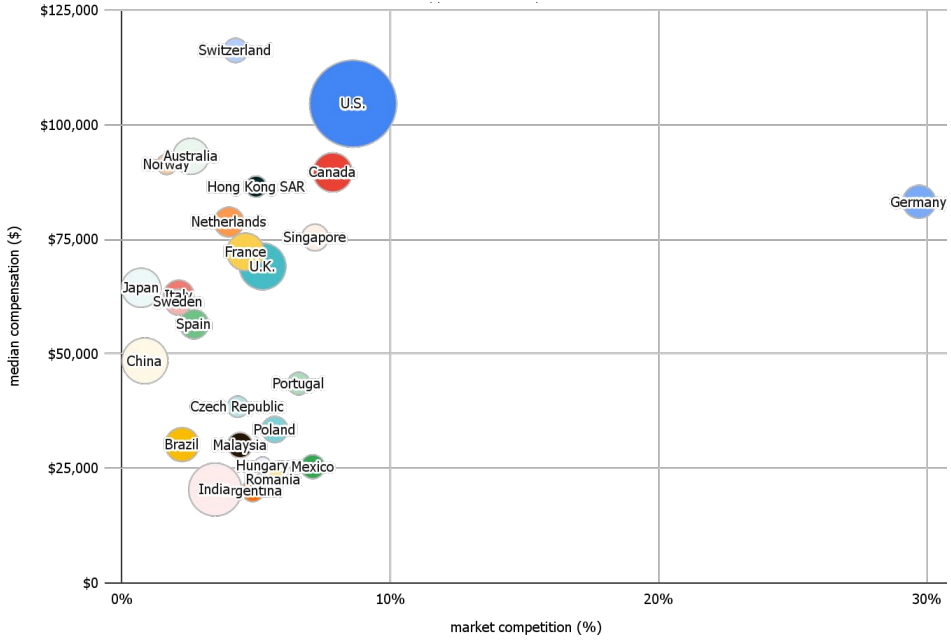
mobile app development
global snapshot.

The graph here represents three factors in each of the 26 markets we researched:

1. the average compensation for mobile app development skills (y-axis)
2. the size of the talent supply pool (size of each dot)
3. market competitiveness for mobile app development skills (x-axis)

The mobile app development skill cluster is near the median of all tech skills when it comes to compensation.

While talent supply is substantially located in the U.S., compensation rates are among the highest there. Talent supply is also significant in the U.K., Japan, India and China where market competitiveness is lower, as are compensation rates.



mobile app development

hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the mobile app development skill cluster globally, based on aggregate, normalized job advertisement data.

Employers are seeking mobile app development talent with communication, teamwork, collaboration and creativity skills — which are crucial to success in these roles.

This is in addition to increasing demand for technical capabilities that cover a broad spectrum of areas, such as Docker Software, Microsoft Azure and JavaScript, as well as data visualization tools like, Microsoft Power BI and Tableau.

top requested hard skills

1. Docker Software
2. Microsoft Azure
3. React JavaScript
4. continuous integration
5. internet of things (IoT)
6. Amazon Web Services
7. Spring Boot
8. Tableau
9. Microsoft Power BI
10. microservices
11. Ansible

top 3 requested soft skills

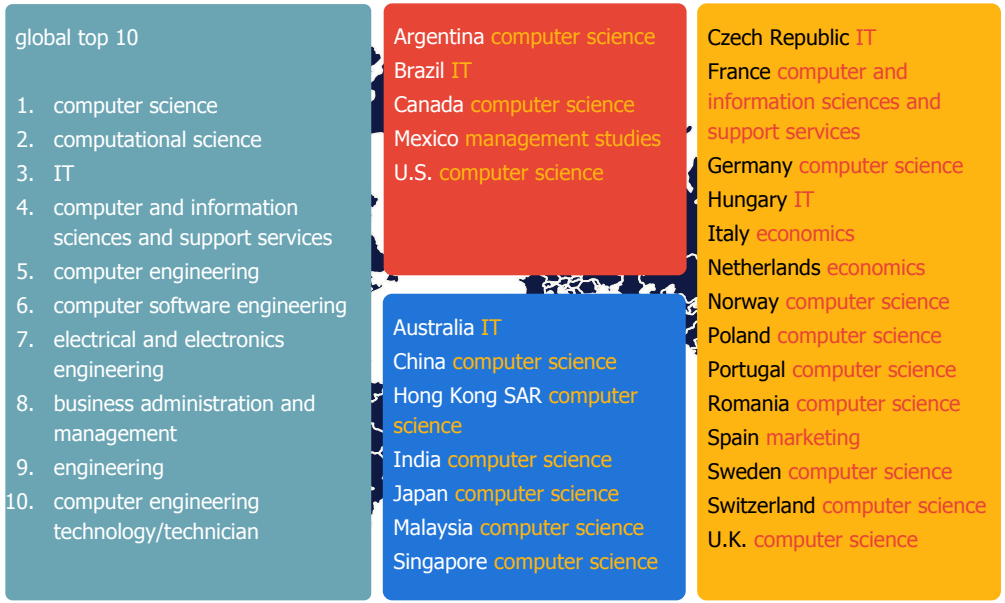
1. communication
2. teamwork/collaboration
3. creativity

mobile app development
fields of study.

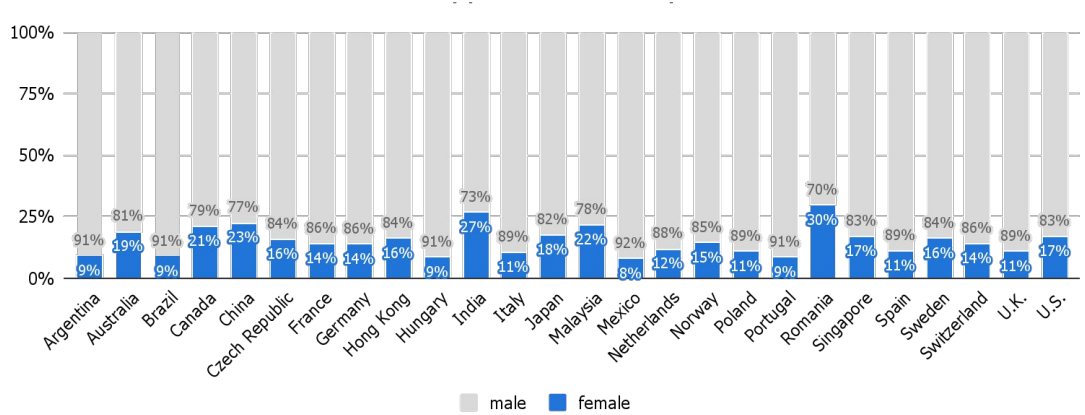
This data represents the most common field of study for professionals who possess mobile app development skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

One-third (34%) of mobile app development talent has an educational background tied to IT or engineering.

Similar to UI/UX talent, there is significant representation of other fields of study, including marketing, general management and economics.



mobile app development
gender diversity.



Gender diversity shows the current balance of male to female employees currently working mobile app development-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources.

Mobile app development is the least gender-diverse skill cluster among these high-demand skill clusters, with cybersecurity ranking just higher. On average, only 15% of the talent are females, with Romania (30%) and India (27%) leading all markets. Mexico is the least diverse, with just 8% female representation in mobile app development roles.

mobile app development universities.

These tables showcase the most common school that relevant talent attended for the mobile app development skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina Coderhouse
Brazil Fundação Getulio Vargas
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of Washington

Czech Republic Prague University of Economics and Business
France Université Paris Cité
Germany Technical University of Munich
Hungary Budapest University of Technology and Economics
Italy Politecnico di Milano
Netherlands Amsterdam University of Applied Sciences
Norway Norwegian University of Science and Technology
Poland University of Warsaw
Portugal EDIT. — Disruptive Digital Education
Romania University POLITEHNICA of Bucharest
Spain Universidad Complutense de Madrid
Sweden Stockholm University
Switzerland ETH Zürich
U.K. University of the Arts London

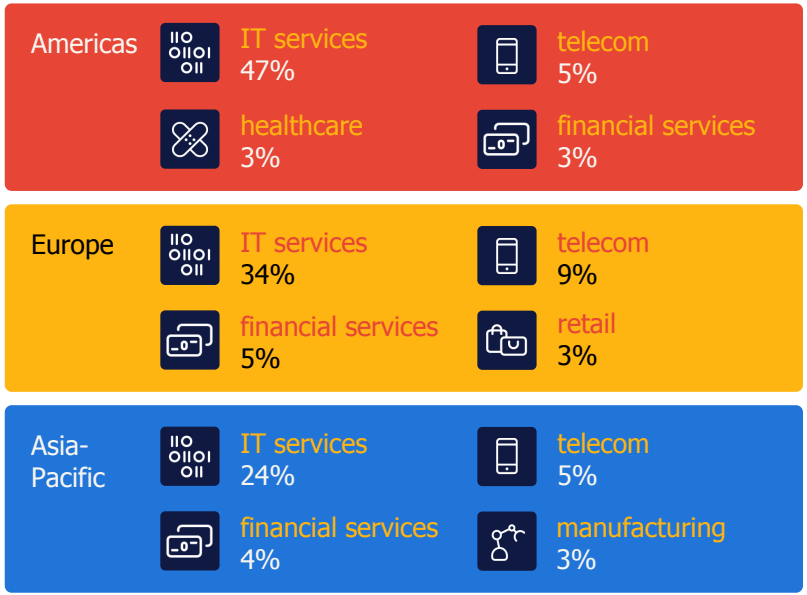
Australia RMIT University
China Shanghai Jiao Tong University
Hong Kong SAR Hong Kong Polytechnic University
India Kendriya Vidyalaya
Japan Keio University
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

mobile app development industries.

These charts show the four industries that currently employ the highest volumes of mobile app development professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for mobile app development skills.

Mobile app development talent is most commonly represented in the IT services sector, with varying splits otherwise regionally.
The IT services industry in the Americas has 47% of mobile app development talent, while there is just 34% in Europe and 24% in Asia-Pacific. This indicates a greater industry split across those regions.

The telecom industry is the second largest employer of mobile app specialists, with the highest numbers in Europe (9%) and Asia-Pacific (5%).



cybersecurity.

1. Cybersecurity talent has always been a very important function at the enterprise level and has became ever-more relevant. Cybersecurity specialists work various roles, from incident analysis to network security, system architecture and many others.

2. Cybersecurity is one of the most specialized and best-paid categories among all skill clusters analyzed in this research.

3. With new technologies developing rapidly, cybersecurity workers face new challenges and need constant upskilling. The proliferation of cloud, AI and data science creates new opportunities to specialize and develop a new and unique career path. One of the more interesting examples is automotive cybersecurity, whose growth is driven by a significant jump in systems sophistication.

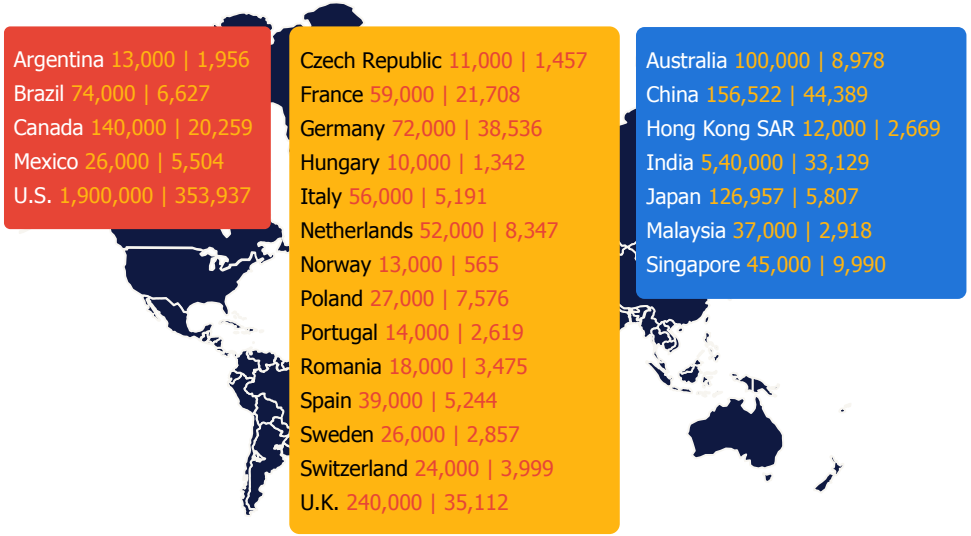
cybersecurity
supply & demand.

This data indicates the total number of individuals who have cybersecurity skills set against job postings that require cybersecurity skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards, and career sites. Data is normalized.

Cybersecurity professionals are the second smallest talent pool we examined, following big data. The U.S., India, the U.K. and China have the largest supply of this talent, although significant numbers also exist in Japan, Australia, Brazil and Germany.

Demand for cybersecurity professionals ranks just below AI/ML and cloud computing skill clusters. This demand is mostly generated by the U.S., China, Germany, the U.K. and India.

supply | demand



cybersecurity

market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring cybersecurity skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

Germany is the most competitive market for cybersecurity skills, with a JVR of 35%, the highest among all markets and skills. Also competitive are France, Poland and China, where the JVRs are above 20%.

The average JVR for cybersecurity skills is about 14%, placing this skill cluster as the second most difficult to fill, following cloud computing. Japan and Norway (4% each) see less competition for these skills. The talent pool in Norway is one of the smallest among all markets analyzed, but general demand doesn't create competitive pressure.

markets	job vacancy rate
Germany	35%
France	27%
Poland	22%
China	22%
Singapore	18%
Hong Kong SAR	18%
Mexico	17%
U.S.	16%
Romania	16%
Portugal	16%
Netherlands	14%
Switzerland	14%
Canada	13%
Argentina	13%
U.K.	13%
Spain	12%
Czechia	12%
Hungary	12%
Sweden	10%
Brazil	8%
Italy	8%
Australia	8%
Malaysia	7%
India	6%
Norway	4%
Japan	4%

cybersecurity

remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for cybersecurity skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

Due to its sensitive nature, it's understandable cybersecurity roles are more likely to require on-site presence; however, the average for these roles across all markets is 16%.

Argentina offers the most flexibility, at 39%. Romania (35%), Mexico (33%), Czech Republic (29%) and Portugal (27%) have a relatively high share of remote openings, while China and Hong Kong SAR offer the fewest remote opportunities at 2% or less.

Employers recruiting in France and Germany, where competition is high, should consider offering remote work to attract talent.

Argentina 39%
Mexico 33%
Brazil 23%
U.S. 20%
Canada 18%

Romania 35%
Czech Republic 29%
Portugal 27%
Hungary 26%
Poland 22%
Norway 21%
Spain 20%
Italy 14%
Sweden 14%
Netherlands 10%
U.K. 10%
Germany 7%
Switzerland 7%
France 4%

Australia 7%
India 6%
Japan 4%
Malaysia 4%
Singapore 3%
Hong Kong SAR 2%
China 0%

cybersecurity

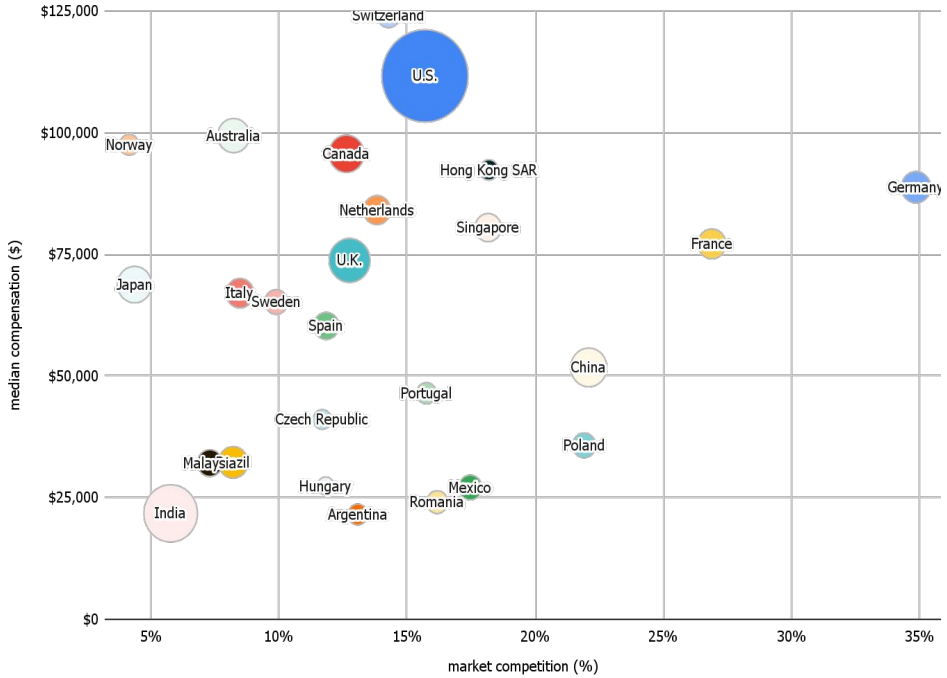
global snapshot.

The graph here represents three factors in each of the 26 markets we researched:

1. the average compensation for cybersecurity skills (y-axis)
2. the size of the talent supply pool (size of each dot)
3. market competitiveness for cybersecurity skills (x-axis)

Cybersecurity professionals are among the highest-paid for these high-demand skill sets. Earnings are highest in Switzerland, the U.S., Australia, Norway and Canada.

Employers in Germany and France may want to consider recruiting from alternate markets, such as Japan, Brazil and India, where compensation is comparable or lower, and competition is less fierce.



cybersecurity

hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the cybersecurity skill cluster globally, based on aggregate, normalized job advertisement data.

Employers are seeking professionals who also possess communication, collaboration and problem-solving skills — all of which are critical for cybersecurity professionals. Increasing demand for technical capabilities includes DevSecOps, Kubernetes, Docker Software and IoT skills, among others.

top requested hard skills

1. DevSecOps
2. Kubernetes
3. Docker Software
4. internet of things (IoT)
5. Python
6. Ansible
7. Splunk
8. Amazon Web Services
9. Apache Kafka
10. Tableau

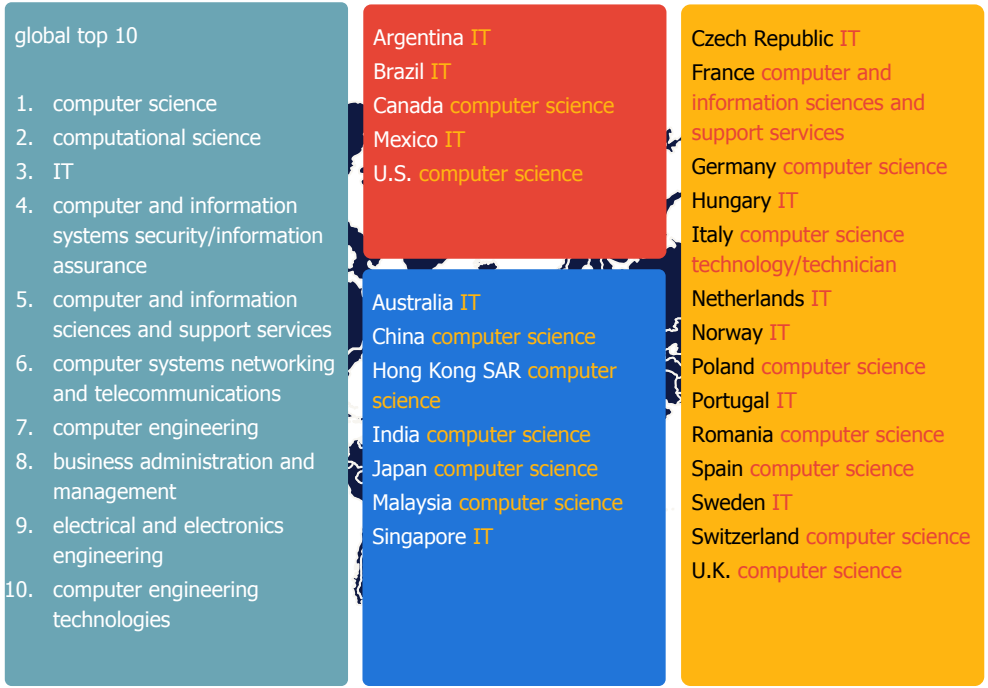
top 3 requested soft skills

1. communication
2. teamwork/collaboration
3. problem-solving

cybersecurity
fields of study.

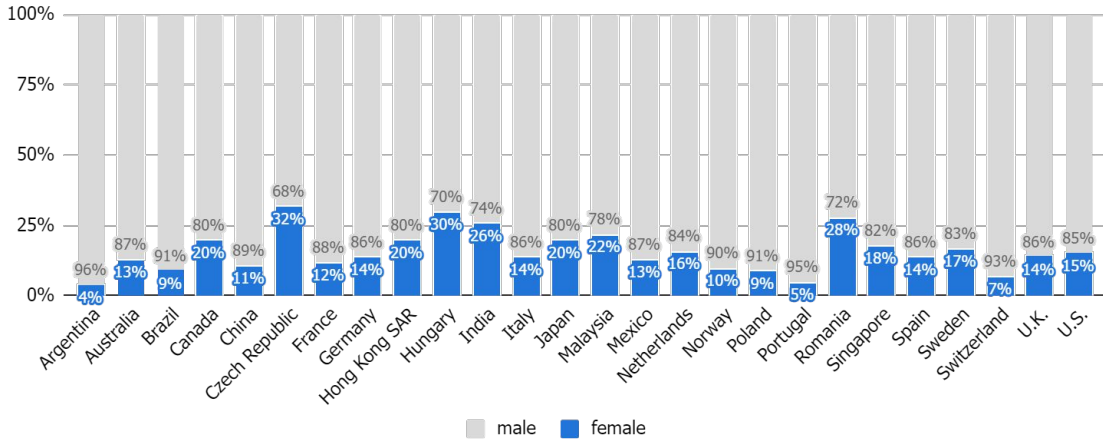
This data represents the most common field of study for professionals who possess cybersecurity skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

More than half (59%) of cybersecurity talent have a tech- or IT-related educational background — a relatively high share on its own. While other skill clusters show more diverse fields of study such as marketing in their top 10, this is not true for cybersecurity professionals, where nine out of the top 10 are IT- or engineering-related.



cybersecurity

gender diversity.



Gender diversity shows the current balance of male to female employees currently working cybersecurity-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources.

Cybersecurity talent is one of the least gender diverse high-demand skills examined. On average, only 16% of all cybersecurity talent is female, with the Czech Republic (32%) and Hungary (30%) leading in this field.

cybersecurity universities.

These tables showcase the most common school that relevant talent attended for the cybersecurity skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina Universidad Tecnológica Nacional
Brazil Estácio
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of Maryland Global Campus

Czech Republic Czech Technical University in Prague
France Conservatoire National des Arts et Métiers
Germany Technical University of Munich
Hungary Budapest University of Technology and Economics
Italy Sapienza Università di Roma
Netherlands De Haagse Hogeschool
Norway Norwegian University of Science and Technology
Poland Warsaw University of Technology
Portugal Instituto Superior Técnico
Romania University POLITEHNICA of Bucharest
Spain Universidad Politécnica de Madrid
Sweden KTH Royal Institute of Technology
Switzerland ETH Zürich
U.K. The Open University

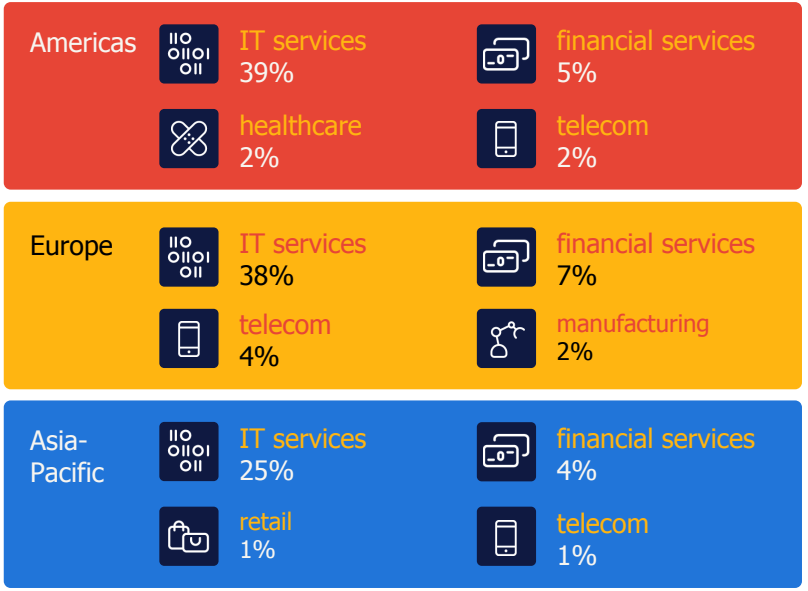
Australia TAFE NSW
China Shanghai Jiao Tong University
Hong Kong SAR City University of Hong Kong
India University of Mumbai
Japan Waseda University
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

cybersecurity industries.

These charts show the four industries that currently employ the highest volumes of cybersecurity professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for cybersecurity skills.

Most cybersecurity talent works in the IT services industry, but the remainder is split relatively even across other industries.

The financial services industry, healthcare and telecom employers also employ high numbers of cybersecurity professionals, unsurprisingly, due to the sensitive nature of their business.



customer service.

1. With the dynamic growth of services and an emphasis on customer-centricity, many companies are focused on delivering a better experience. The pandemic and the rise of e-commerce accelerated the trend further.

2. Data for this particular skill cluster is broad and identifies all jobs that mention this particular skill requirement.

3. Over the past few years, trends such as the Great Resignation have taken a major toll on customer service talent supply and market competitiveness, with talent in this area pursuing other opportunities. Employers will need to consider ways to remain competitive to source and retain great customer service professionals.

customer service

supply & demand.

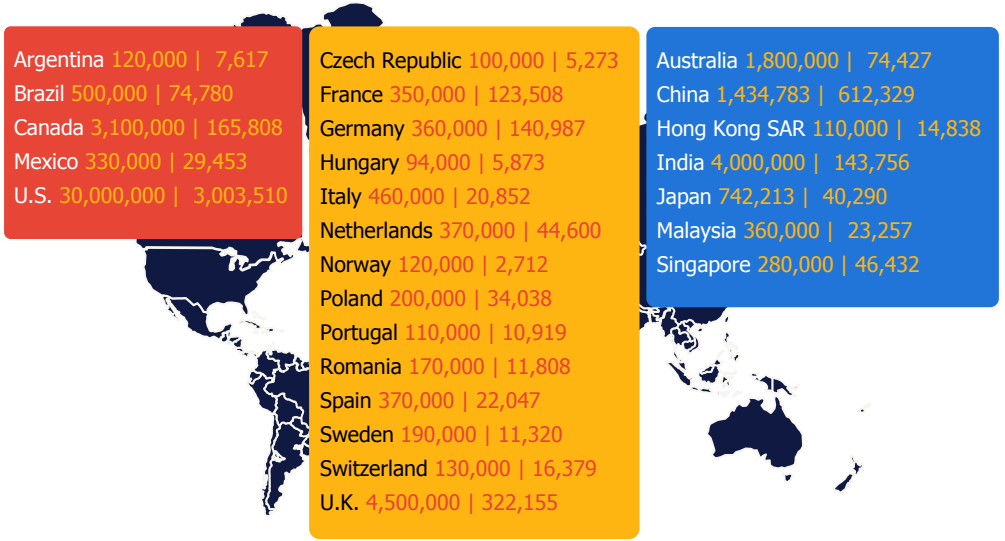
This data indicates the total number of individuals who have customer service skills set against job postings that require customer service skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards and career sites. Data is normalized.

We identified more than 50 million profiles globally mentioning customer service as a core skill. Out of 26 markets, more than five million openings require customer service skills, ranging from cashiers to customer success managers and sales representatives.

Despite the economic slowdown, the number of job openings is surging. Over the past 12 months in the U.S. (September 2021 to August 2022), more than 15 million advertised openings for jobs requiring customer service skills have been posted. An unprecedented need for digital customer service has led to strong demand as companies moved more of their business online.

The U.S. leads all markets in demand, with over three million job openings posted, followed by China with 612,000 openings.

supply | demand



customer service

market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring customer service skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

The average JVR for this skill cluster is 11.7%, driven by jobs within retail or face-to-face customer service.

Given the complexity of this skill cluster, defining detailed JVR is extremely complex. Based on current numbers, however, it is most challenging to hire for these skills in China (30%), Germany (28%) and France (26%).

The markets with the least hiring complexity are Norway (2%), India (3%), Italy (4%) and Australia (4%).

markets	job vacancy rate
China	30%
Germany	28%
France	26%
Poland	15%
Singapore	14%
Brazil	13%
Hong Kong SAR	12%
Netherlands	11%
Switzerland	11%
U.S.	9%

Portugal	9%
Mexico	8%
U.K.	7%
Argentina	6%
Spain	6%
Sweden	6%
Romania	6%
Hungary	6%
Malaysia	6%
Canada	5%
Czech Republic	5%
Japan	5%
Italy	4%
Australia	4%
India	3%
Norway	2%

customer service

remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for customer service skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

The availability of remote work is highest in Argentina (30%), Romania (28%), Portugal (26%), Czech Republic (24%) and Mexico (24%).

Remote working has a big impact on a major part of this skill cluster: call center employees. Currently, remote work is one of the most often mentioned benefits for this type of role. For those in call center support, the remote working ratio is typically more than 50%. In the Czech Republic, more than 60%.

Argentina 30%
Mexico 24%
Canada 9%
U.S. 9%
Brazil 6%

Romania 28%
Portugal 26%
Czech Republic 24%
Hungary 22%
Poland 22%
Norway 18%
Spain 17%
Sweden 13%
Italy 10%
Germany 7%
Netherlands 6%
Switzerland 6%
U.K. 5%
France 3%

India 5%
Australia 3%
Malaysia 3%
Japan 2%
Singapore 2%
Hong Kong SAR 1%
China 0%

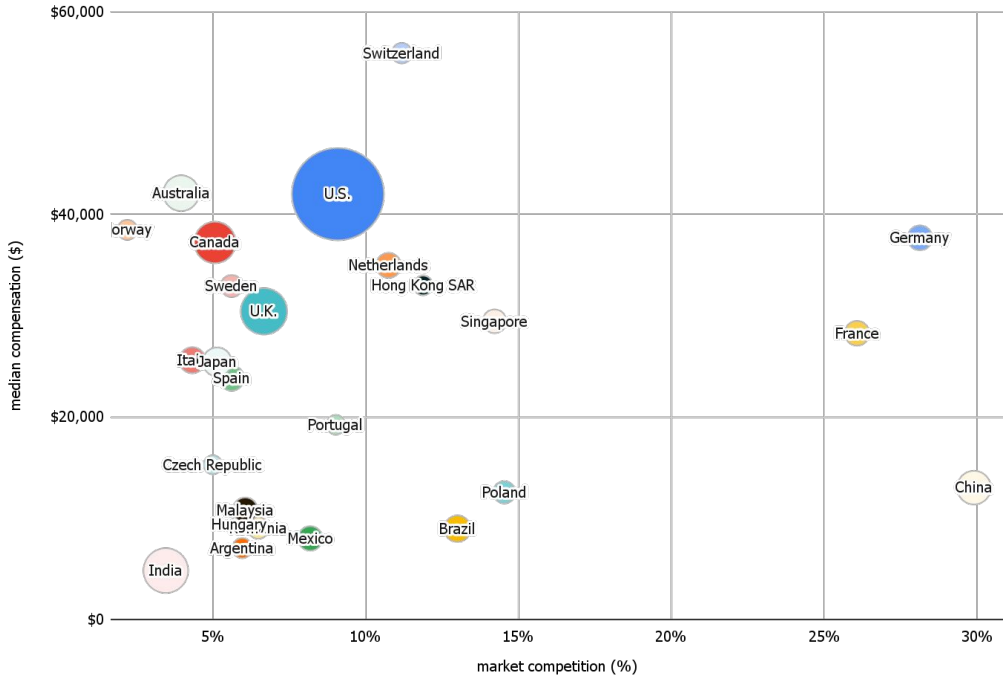
customer service

global snapshot.

The graph here represents three factors in each of the 26 markets we researched:

1. the average compensation for customer service skills (y-axis)
2. the size of the talent supply pool (size of each dot)
3. market competitiveness for customer service skills (x-axis)

The cost of talent for the customer service skill cluster varies significantly. Starting roles in customer service are notably low, with India at the bottom ($4,833 on average), followed by Argentina ($7,050) and Mexico ($8,006). The highest pay among all markets is Switzerland at $55,931.



customer service

hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the customer service skill cluster globally, based on aggregate, normalized job advertisement data.

Employers hiring for customer service roles are seeking individuals with strong communication, organizational and collaboration skills. Technical capabilities increasingly requested include Tableau, as it is one of the most common visualization platforms used across the business services. Technical capabilities are rarely requested in job advertisements for roles in this skill cluster.

top requested hard skill

1. Tableau

top 3 requested soft skills

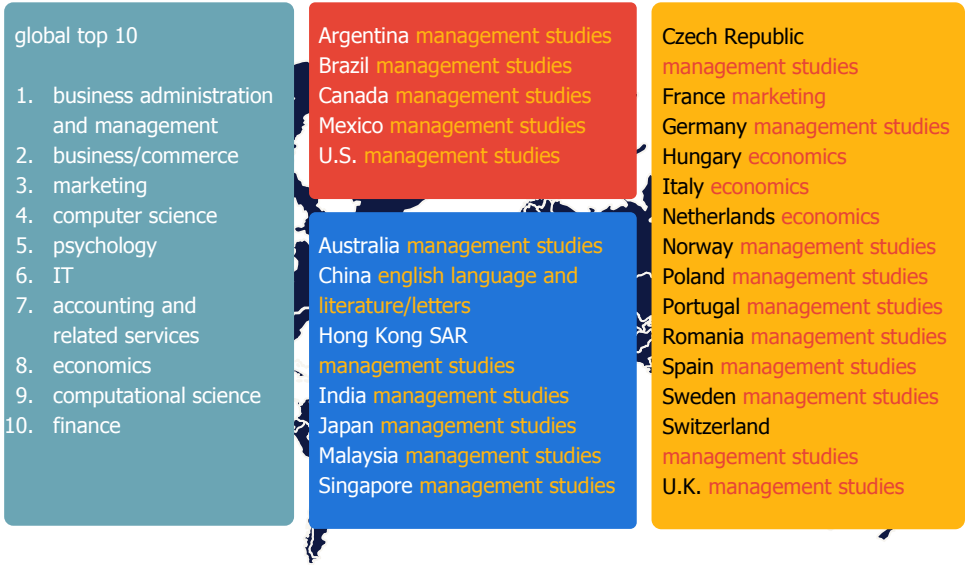
1. communication
2. organization
3. teamwork/collaboration

customer service

fields of study.

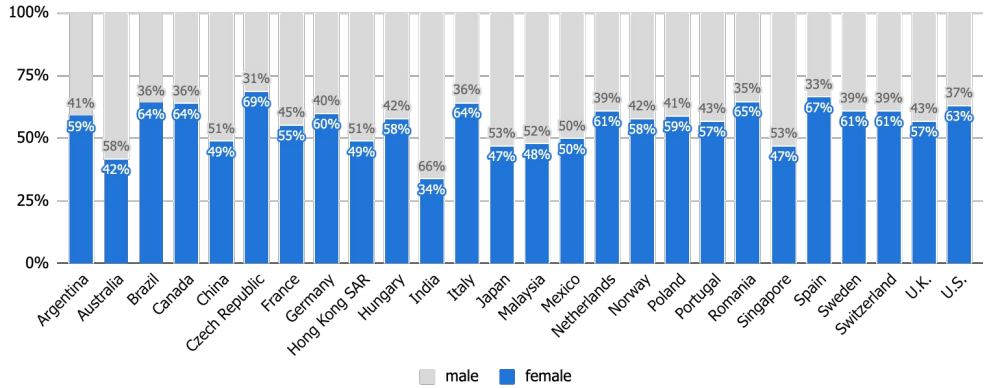
This data represents the most common field of study for professionals who possess customer service skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

Fields of study are highly diversified for talent with customer service skills.



customer service

gender diversity.



Gender diversity shows the current balance of male to female employees currently working customer service-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources. Diversity for the customer service skill cluster sees a closer split than in the high-demand tech skill clusters, with male workers accounting for 44% of the talent pool and females accounting for 56%.

Hungary (58%) and Spain (67%) have the highest share of females in the workforce, while India (66%) and Australia (58%) have the highest share of males. This lower-paying, service-oriented skill cluster is the only high-demand skill for which women take the lead. With this in mind, employers seeking to improve parity should ensure fair compensation and look for reskilling opportunities to help close gaps here and within other high-demand skills.

customer service universities.

These tables showcase the most common school that relevant talent attended for the customer service skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina University of Buenos Aires
Brazil Fundação Getulio Vargas
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of Phoenix

Czech Republic Prague University of Economics and Business
France Conservatoire National des Arts et Métiers
Germany Technical University of Munich
Hungary Corvinus University of Budapest
Italy Università degli Studi di Milano
Netherlands Amsterdam University of Applied Sciences
Norway BI Norwegian Business School
Poland University of Warsaw
Portugal Universidade do Porto
Romania Academia de Studii Economice din București
Spain Universidad Complutense de Madrid
Sweden Stockholm University
Switzerland University of Zurich
U.K. The Open University

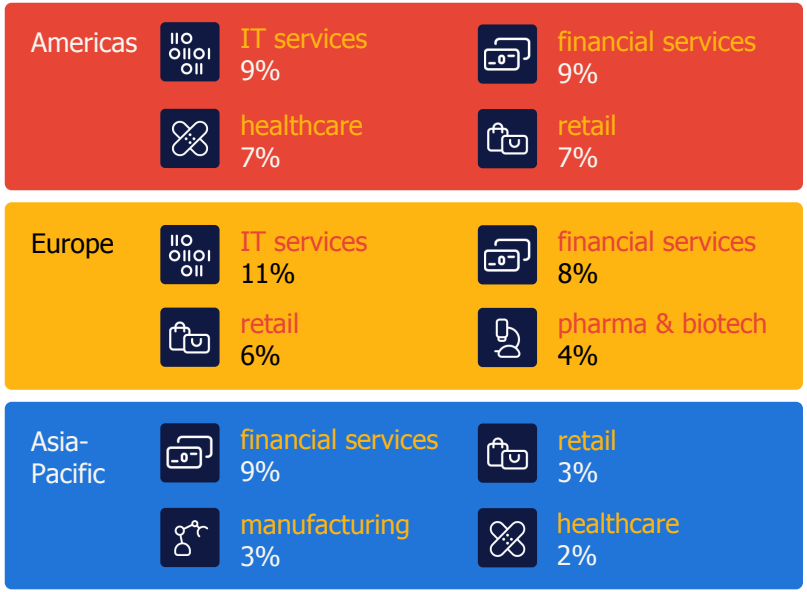
Australia TAFE NSW
China Shanghai Jiao Tong University
Hong Kong SAR Hong Kong Polytechnic University
India Delhi University
Japan Waseda University
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

customer service industries.

These charts show the four industries that currently employ the highest volumes of customer service professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for customer service skills.

In contrast to the high-demand tech skill clusters, customer service roles are more dispersed across multiple industries, with financial services, IT and retail among those most in need.

In Asia-Pacific, IT accounts for only 1% of the total customer service talent pool, in comparison to Europe (11%) and the Americas (9%).



sales & business development (BD).

1. A significant portion of talent with sales skills also possess customer services skill sets.

2. Sales and BD roles often require a Swiss Army knife of various skill sets including an understanding of finance, math and communication, as well as excellent customer interaction, industry knowledge and technical capabilities.

3. Similar to other non-IT high-demand skill clusters, sales and BD includes a mix of multiple secondary technical capabilities that are centered around data analysis.

sales & business development (BD)

supply & demand.

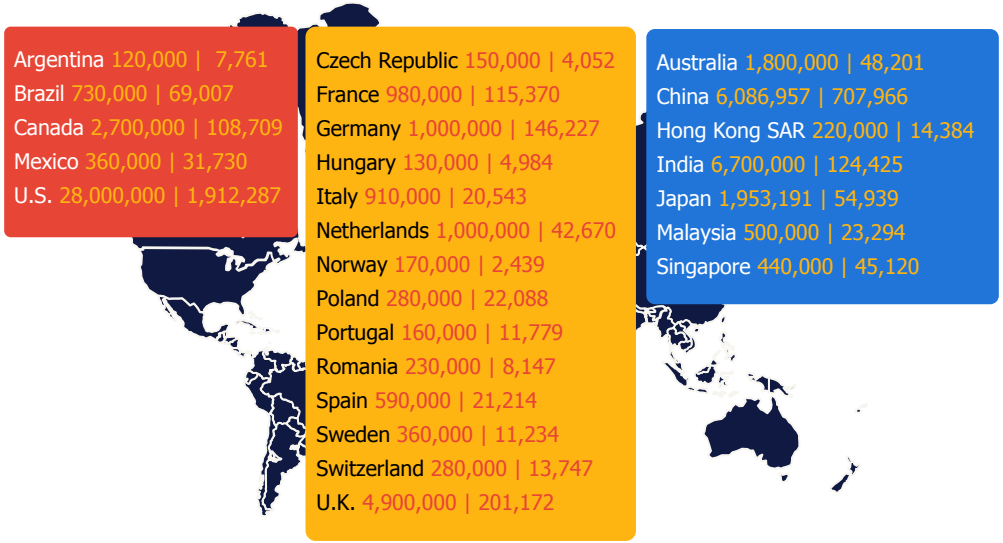
This data indicates the total number of individuals who have sales and BD skills set against job postings that require sales and BD skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards and career sites. Data is normalized.

Sales and BD has the biggest representation of talent out of all 10 skill clusters, with more than 60 million for all markets. Demand for sales skills is high — with 3.8 million roles advertised — but not as extensive as for customer services.

The markets with the largest talent pools include the U.S., India and China. China has more than six million self-declared sales professionals — almost four times the number of customer support specialists in that market. The only market with a higher ratio of sales to customer service professionals is Canada.

The U.S. and China account for 69% of overall demand for sales and BD roles. Far behind, yet still significant, are the U.K., Germany and India.

supply | demand



sales & business development (BD)

market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring sales and BD skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

Sales and BD is one of the groups with the second lowest overall JVR at 5.4%. This is, in part, attributed to a broad spectrum of roles falling into this category.

On par with other skill clusters findings, Germany has the highest JVR at 13%. The most competitive for sales and BD skills, this market has almost three times the number of people declaring sales skills than those with customer service competencies.

markets	job vacancy rate
Germany	13%
France	11%
China	10%
Brazil	9%
Singapore	9%
Mexico	8%
Poland	7%
Portugal	7%
U.S.	6%
Argentina	6%

Hong Kong SAR	6%
Switzerland	5%
Canada	4%
U.K.	4%
Netherlands	4%
Hungary	4%
Malaysia	4%
Spain	3%
Sweden	3%
Romania	3%
Czech Republic	3%
Australia	3%
Japan	3%
Italy	2%
India	2%
Norway	1%

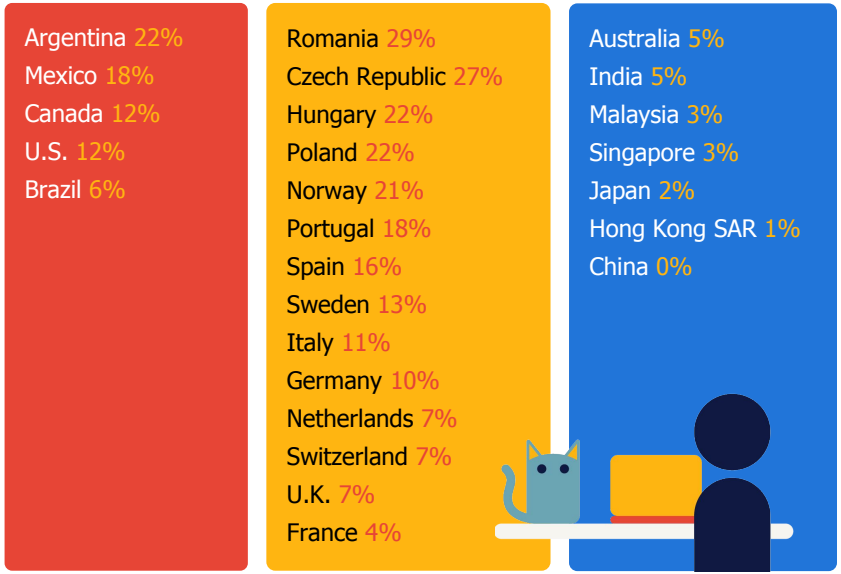
sales & business development (BD)

remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for sales and BD skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

Remote work offers for sales and BD professionals is similar to that of customer service roles, with 11.7% of jobs posted offering this benefit. Markets leading this category include Romania (29%), the Czech Republic (27%), Argentina (22%), Poland (22%) and Hungary (22%).

Surprisingly, Germany, which tends to offer less remote work for high-demand skills, includes this benefit in 10% of its job advertisements. This rate is even 1% higher than the average for all high-demand skill clusters examined in this report.



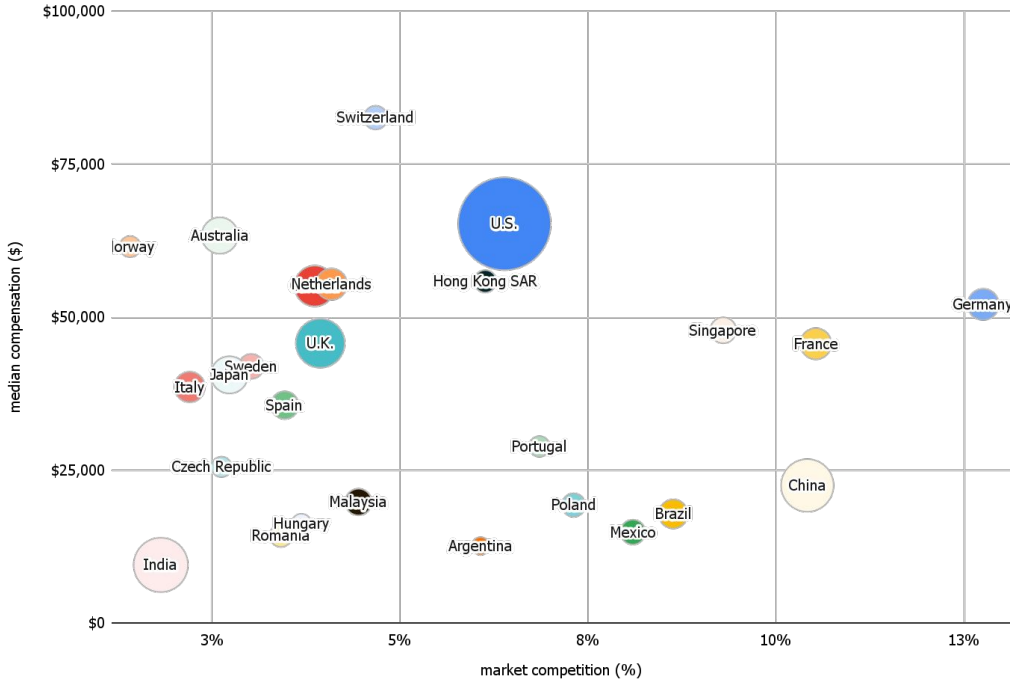
sales & business development (BD)

global snapshot.

The graph here represents three factors in each of the 26 markets we researched:

1. the average compensation for sales and BD skills (y-axis)
2. the size of the talent supply pool (size of each dot)
3. market competitiveness for sales and BD skills (x-axis)

The average labor cost for sales and BD talent is more than 50% higher than it is for customer service, with relatively the same cost distribution across markets. Compared with customer service, the average compensation for sales professionals in India is almost twice the rate for customer service specialists.



sales & business development (BD)

hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the sales and BD skill cluster globally, based on aggregate, normalized job advertisement data.

Employers hiring sales and BD professionals are seeking individuals with strong communication, collaboration and problem-solving skills. Desired growing technical capabilities include Python and Tableau, which suggests an expectation for data processing and visualization capabilities for these roles.

top requested hard skills

1. Python
2. Tableau

top 3 requested soft skills

1. communication
2. teamwork/collaboration
3. problem-solving

sales & business development (BD)

fields of study.

This data represents the most common field of study for professionals who possess sales and BD skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

Much like the customer service skill cluster, fields of study for sales and BD professionals are highly diversified. Economic- and business-related studies, however, are common to about 19% of all sales and BD talent.

global top 10

1. business administration and management
2. marketing
3. business/commerce
4. economics
5. finance
6. computer science
7. accounting and related services
8. accounting
9. computational science
10. psychology

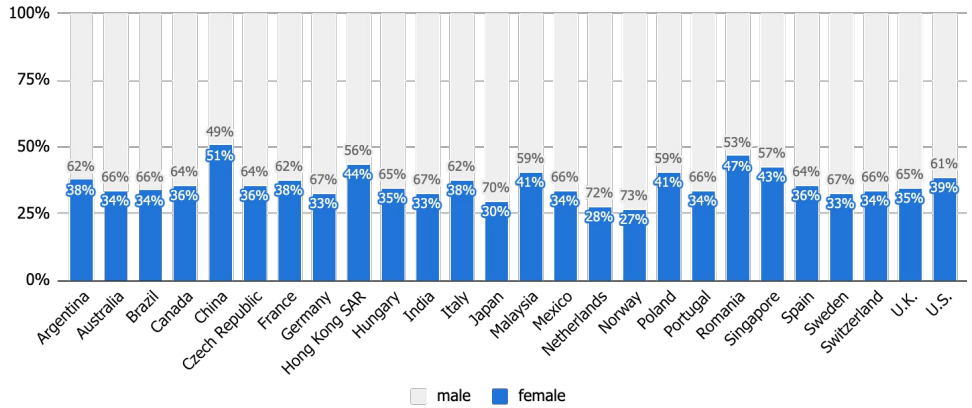
Argentina business administration and management
Brazil business administration and management
Canada business administration and management
Mexico business administration and management
U.S. business administration and management

Australia business administration and management
China english language and literature/letters
Hong Kong SAR business administration and management
India marketing
Japan economics
Malaysia business administration and management
Singapore business administration and management

Czech Republic economics
France marketing
Germany business administration and management
Hungary economics
Italy economics
Netherlands economics
Norway economics
Poland business administration and management
Portugal business administration and management
Romania business administration and management
Spain business administration and management
Sweden economics
Switzerland business administration and management
U.K. business/commerce

sales & business development (BD)

gender diversity.



Gender diversity shows the current balance of male to female employees currently working sales- and BD-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources.

The diversity ratio of sales and BD roles leans toward men, who account for 63% of talent within this skill cluster. Some of the markets where there are smaller gender gaps include China (51% female), Romania (47% female), Hong Kong (44% female) and Singapore (43% female). In Norway, the Netherlands and Japan, men account for more than 70% of the sales and BD talent pool, indicating much opportunity for greater parity.

sales & business development (BD)

universities.

These tables showcase the most common school that relevant talent attended for the sales and BD skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina University of Buenos Aires
Brazil Fundação Getulio Vargas
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of Phoenix

Czech Republic Prague University of Economics and Business
France HEC Paris
Germany FOM University of Applied Sciences for Economics and Management
Hungary Corvinus University of Budapest
Italy Università degli Studi di Milano
Netherlands Amsterdam University of Applied Sciences
Norway BI Norwegian Business School
Poland SGH Warsaw School of Economics
Portugal Universidade Católica Portuguesa
Romania Academia de Studii Economice din București
Spain Universidad Complutense de Madrid
Sweden Stockholm University
Switzerland University of St.Gallen
U.K. The Open University

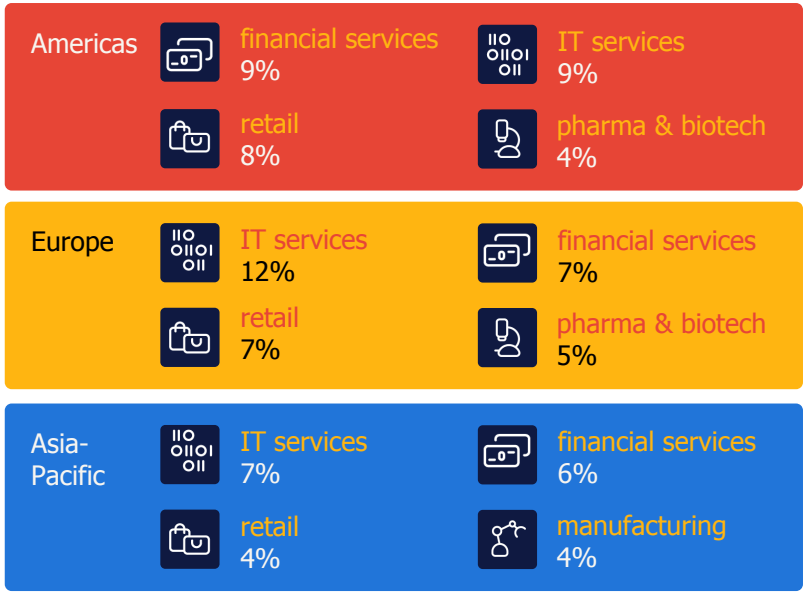
Australia TAFE NSW
China Shanghai Jiao Tong University
Hong Kong SAR Hong Kong Polytechnic University
India Delhi University
Japan Waseda University
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

sales & business development (BD)
industries.

These charts show the four industries that currently employ the highest volumes of sales and BD professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for sales and BD skills.

Similar to the customer service skill cluster, sales and BD talent are widely deployed across all industries, with the highest percentages in IT services, financial services, retail and pharma.

These roles are dispersed more evenly across regions than those in customer service.



financial management/ budgeting & accounting.

1. Automation and AI-powered software have made financial management roles more challenging as new skills are needed to stay current with business needs.

2. The ability to perform work remotely in financial management roles is increasing and enables workers to enjoy more flexible schedules. At the same time, this also means greater potential for companies to hire talent around the globe for more of these jobs.

3. On an enterprise level, global finance fluency and innovation are becoming far more important due to ongoing digital transformation.

financial management/budgeting & accounting

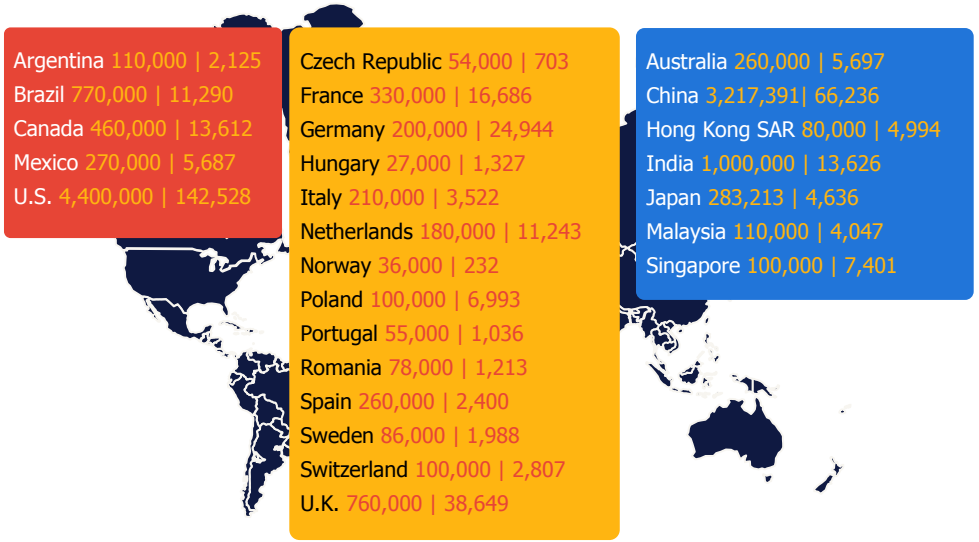
supply & demand.

This data indicates the total number of individuals who have financial management skills set against job postings that require financial management skills in each of the 26 markets we researched, based on a combination of verified labor market data by market and granular, skill-based data sourced from professional networks, job boards and career sites. Data is normalized.

Financial management skills are the third most represented among all high-demand skill clusters examined, with a total of 13.5 million workers. The U.S., China, India and Brazil have the largest numbers of specialists in the field, and account for 75% of the total global supply.

The greatest demand for these workers comes from the U.S., China and the U.K., which account for 62% of the roles posted.

supply | demand



financial management/budgeting & accounting

market competitiveness.

Market competitiveness shows the job vacancy rate (JVR), expressed as the percentage of jobs requiring financial management skills that are likely going unfilled in each of the 26 markets researched, based on talent supply and demand data. The higher the JVR percentage, the more competitive the market is perceived to be.

On average, the JVR for financial management skills is 3.3%, the lowest of all high-demand skill clusters examined here. Germany (11%), Singapore (7%) and Poland (7%) face the greatest difficulty in acquiring these specialists.

The reverse is true for India, Spain, Norway, the Czech Republic and Brazil, which all have a JVR of around 1%.

markets	job vacancy rate
Germany	11%
Poland	7%
Singapore	7%
Netherlands	6%
Hong Kong SAR	6%
U.K.	5%
France	5%
Hungary	5%
Malaysia	4%
U.S.	3%
Canada	3%
Switzerland	3%
Mexico	2%
Argentina	2%
Italy	2%
Sweden	2%
Romania	2%
Portugal	2%
China	2%
Australia	2%
Japan	2%
Brazil	1%
Spain	1%
Norway	1%
Czech Republic	1%
India	1%

financial management/budgeting & accounting

remote working.

Remote working shows the percentage of job postings that offer candidates remote or hybrid work for financial management skill-related jobs in each of the 26 markets researched, listed from highest to lowest in each region, based on job advertisement data. It is estimated that the actual share of remote opportunities is higher than advertised online.

Remote working is more slowly adopted for financial management roles. On average, advertisements offering off-site schedules only totaled 4.6%. This may be due to the need for greater data security, or a higher instance of roles in more conservative industries, such as financial services.

Markets that offer the greatest number of remote roles include the U.S. (20%), Romania (12%) and Poland (10%). In Argentina and Mexico, where remote working for technical roles is considerable, financial management roles offer few off-site opportunities — just 3% of the jobs posted.

U.S. 20%
Canada 6%
Argentina 3%
Mexico 3%
Brazil 2%

Romania 12%
Poland 10%
Norway 9%
Czech Republic 8%
Portugal 8%
Spain 8%
Hungary 6%
Germany 3%
Italy 3%
Sweden 3%
U.K. 3%
Switzerland 2%
France 1%
Netherlands 1%

Malaysia 3%
Japan 2%
Australia 1%
Hong Kong SAR 1%
India 1%
Singapore 1%
China 0%

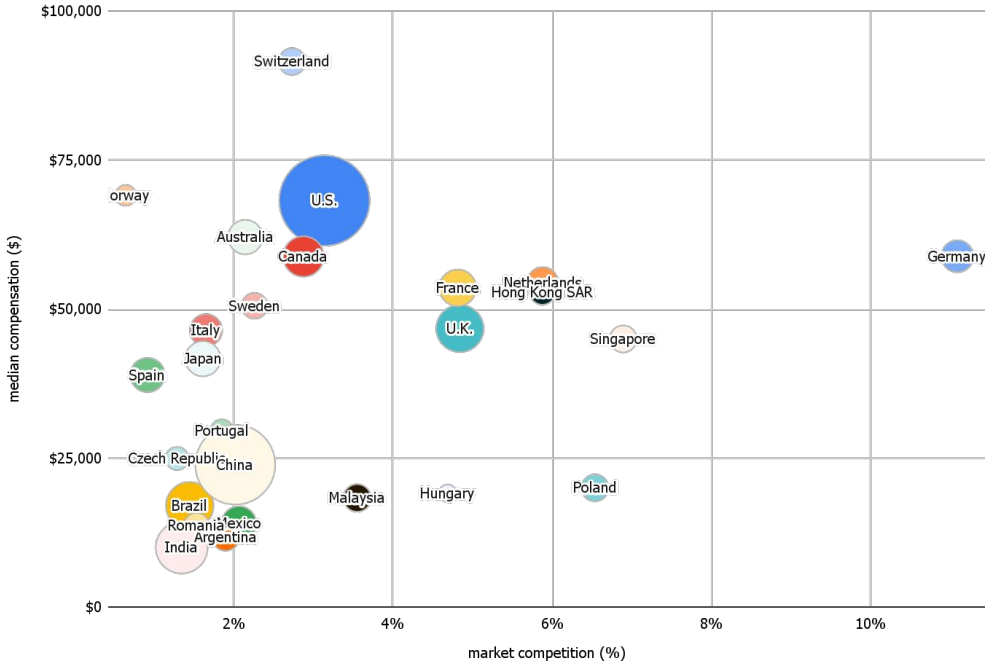
financial management/budgeting & accounting

global snapshot.

The graph here represents three factors in each of the 26 markets we researched:

1. the average compensation for financial management skills (y-axis)
2. the size of the talent supply pool (size of each dot)
3. market competitiveness for financial management skills (x-axis)

Financial management roles offer the highest compensation rates of non-IT high-demand roles examined in this research. For example, customer service professionals in India earn about $4,800 USD, whereas financial management talent in the same market earn almost $10,000 USD on average.



financial management/budgeting & accounting

hard & soft skills.

This data set shows the most-requested, growing hard skills and top three soft skills for the financial management skill cluster globally, based on aggregate, normalized job advertisement data.

Employers hiring for financial management skills are looking for individuals with strong communication, collaboration and problem-solving skills, similar to those in the sales and BD skill cluster. Growing requested technical capabilities include data visualization tools, such as Microsoft Power BI and Tableau.

top requested hard skills

1. Microsoft Power BI
2. Tableau

top 3 requested soft skills

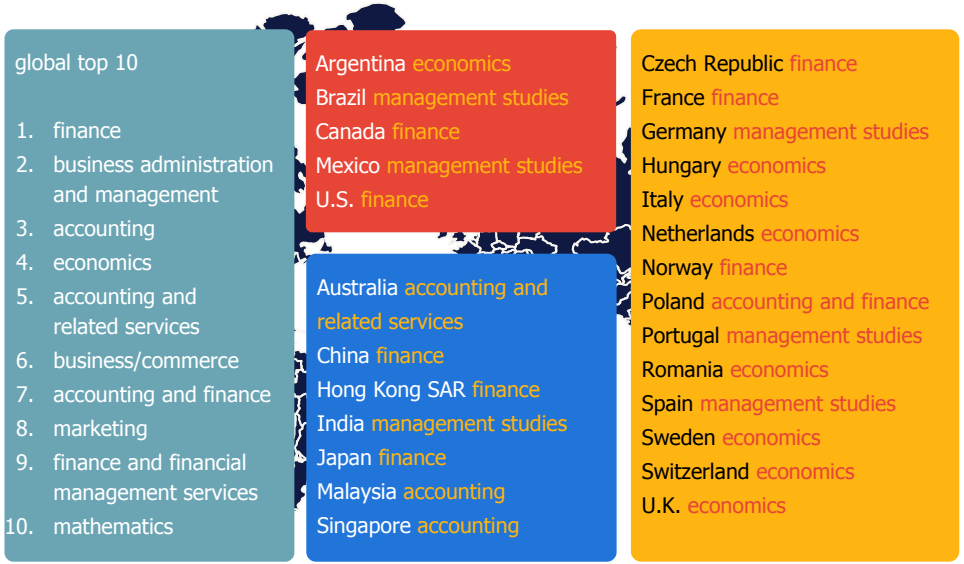
1. communication
2. teamwork/collaboration
3. problem-solving

financial management/budgeting & accounting

fields of study.

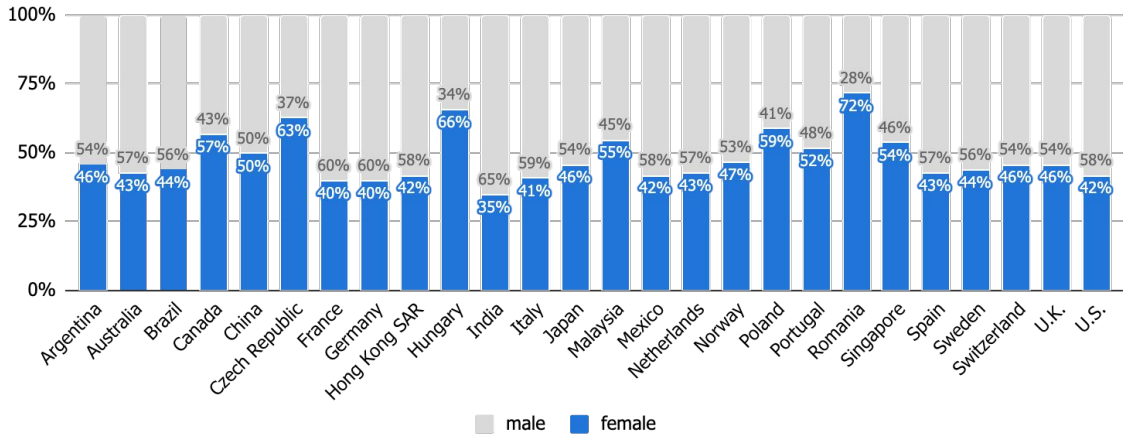
This data represents the most common field of study for professionals who possess financial management skills in each of the 26 markets that we researched. These findings are based on normalized professional network data. Included here are the 10 most common fields globally when aggregated, as well as the most common field for each market.

The vast majority of financial management talent comes from a specialized finance-related background, with a small minority trained in business management and marketing.



financial management/budgeting & accounting

gender diversity.



Gender diversity shows the current balance of male to female employees currently working financial management-related roles in each of the 26 markets researched, based on self-identified, normalized data from talent supply data sources.

The pool of financial management workers is one of the most balanced in terms of gender diversity, with 52% of the population male and 48% female. Some exceptions include Romania (72% female), Hungary (66% female), the Czech Republic (63% female), and India (65% male).

financial management/budgeting & accounting
universities.

These tables showcase the most common school that relevant talent attended for the financial management skill cluster in each of the 26 markets, based on professional networking sites and CV data. Data is inclusive of those who attended university only.

Argentina University of Buenos Aires
Brazil Fundação Getulio Vargas
Canada University of Toronto
Mexico Tecnológico de Monterrey
U.S. University of Phoenix

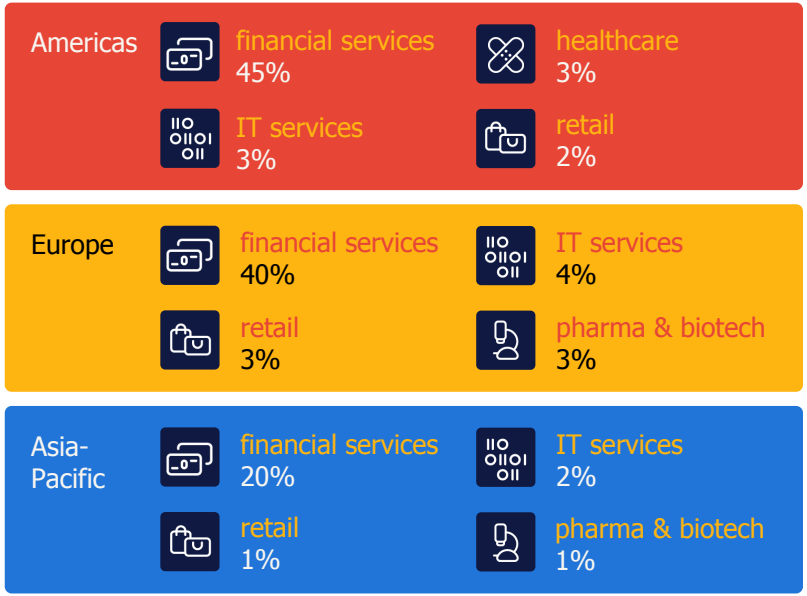
Czech Republic Prague University of Economics and Business
France Université Paris Dauphine
Germany Frankfurt School of Finance & Management
Hungary Corvinus University of Budapest
Italy Università Bocconi
Netherlands University of Amsterdam
Norway BI Norwegian Business School
Poland SGH Warsaw School of Economics
Portugal Instituto Universitário de Lisboa
Romania Academia de Studii Economice din București
Spain Universidad Complutense de Madrid
Sweden Stockholm University
Switzerland University of St.Gallen
U.K. ACCA

Australia Chartered Accountants Australia and New Zealand
China Shanghai University of Finance and Economics
Hong Kong SAR University of Hong Kong
India Institute of Chartered Accountants of India
Japan Keio University
Malaysia Universiti Teknologi MARA
Singapore National University of Singapore

financial management/budgeting & accounting industries.

These charts show the four industries that currently employ the highest volumes of financial management professionals in each region researched, based on normalized professional network and employment data. These industries should be considered both your competition and a source of talent when recruiting for financial management skills.

Most financial management talent is centralized in the financial services industry, with high rates across all regions. The industry with the second greatest demand for financial management experts is IT services.



what's next?

discuss these findings

> book a meeting

take a deeper dive into global digital skills demand

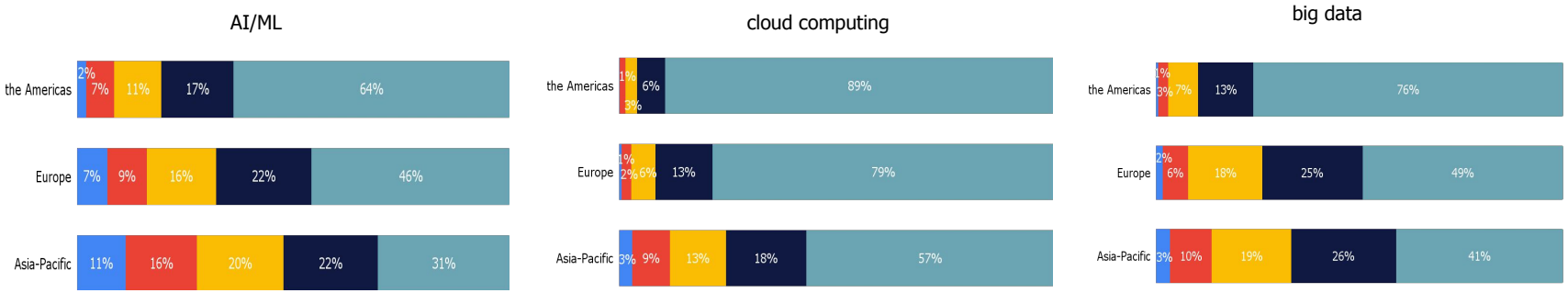
> get the OECD findings

check out additional articles, news and research

> explore insights

appendices.

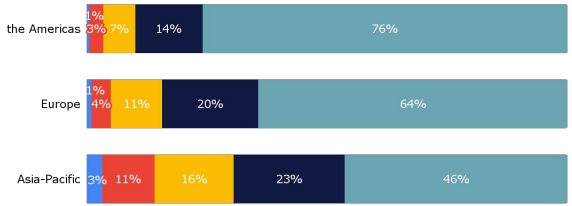
total work experience breakdown.



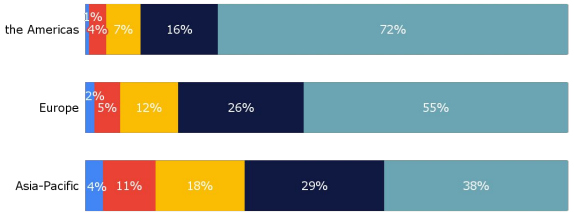
Global experience level data shows that most of the talent in these high-demand skills is very experienced. This is particularly true for IT-related skill clusters, where generally more practical experience is expected for job candidates. This gap may also be attributed to more junior talent being hesitant to advertise their skills in professional profiles earlier in their careers. Here employers have an opportunity to empower junior talent by providing skilling and practical job training opportunities, even as they graduate from university.

Source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

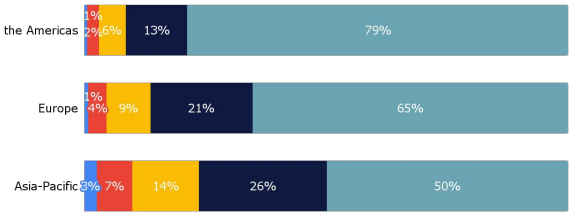
BI/DV



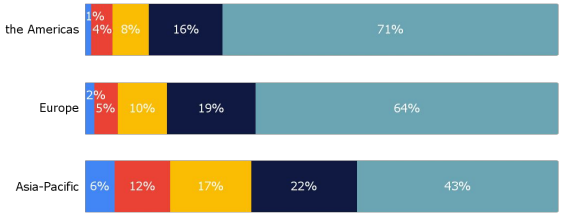
UI/UX



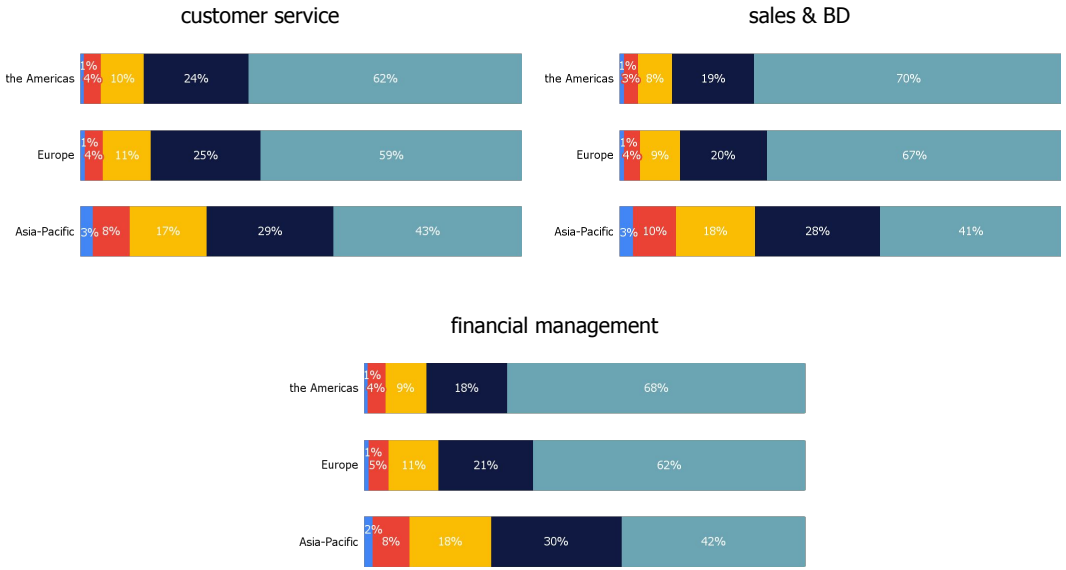
mobile app development



cybersecurity



Source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

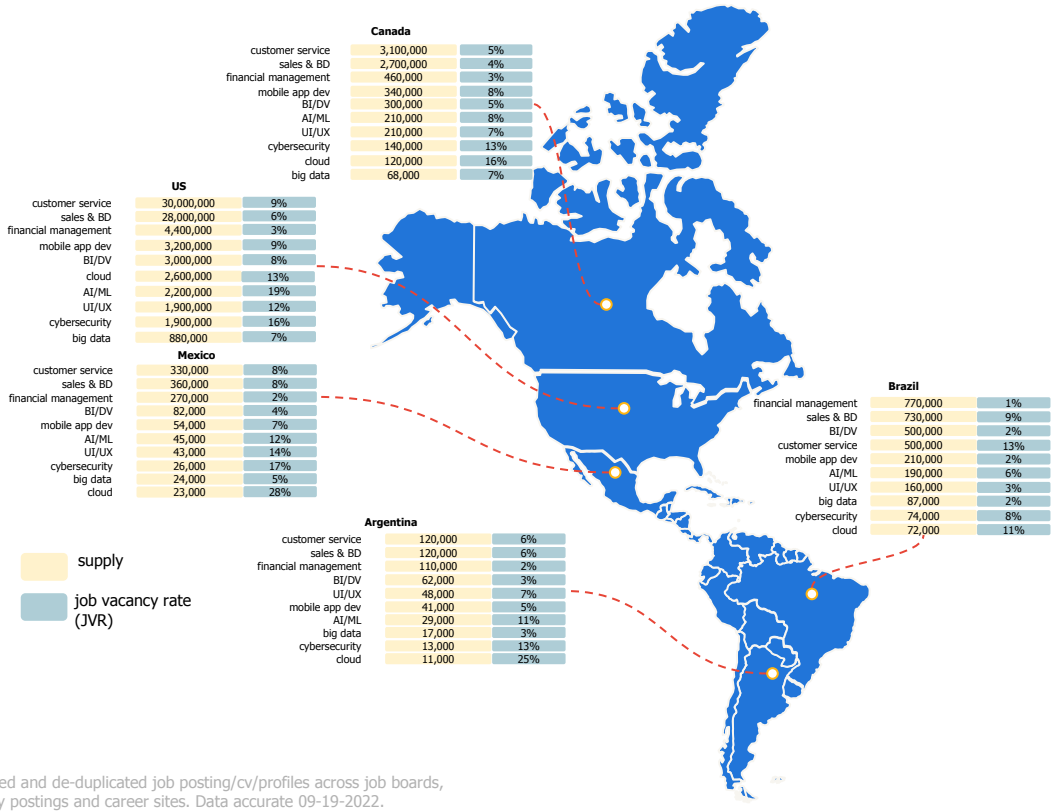


The Americas constitutes 68% of the senior finance talent with 10+ years of experience followed by Europe (62%). Only 42% of the senior financial workforce is in Asia-Pacific.

Source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

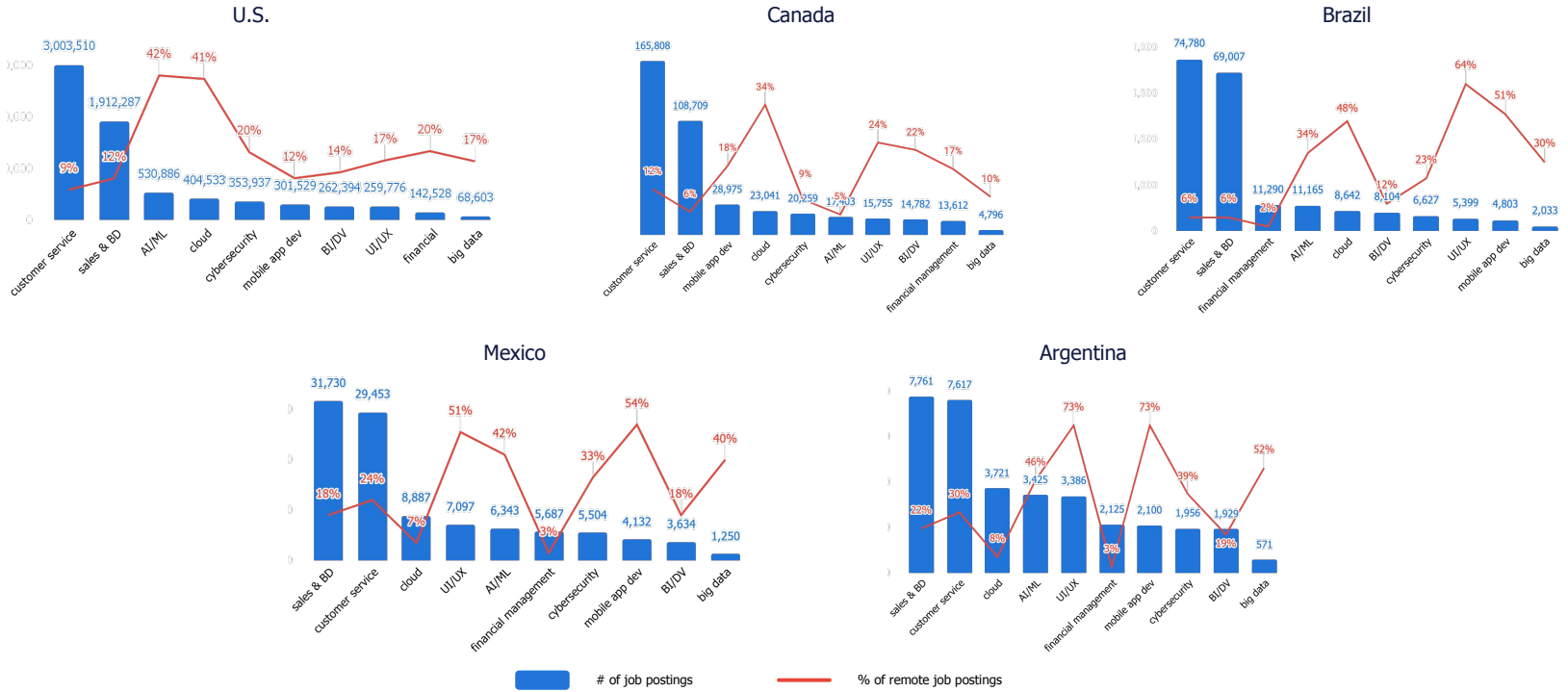
the Americas.

supply & market competitiveness.



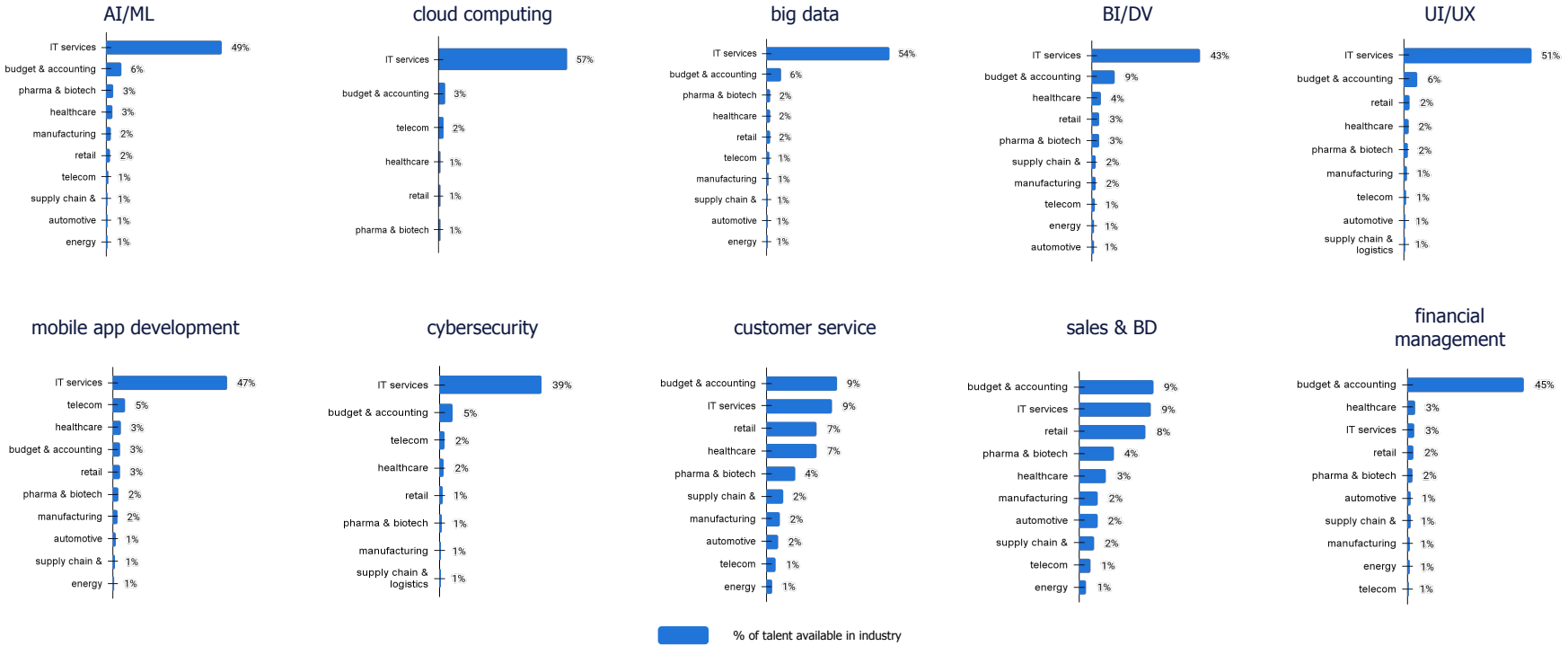
Source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

demand & remote opportunities.



source: demand data modelled from aggregated and de-duplicated job posting data retrieved from job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

industry breakdowns.



source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

fields of study.

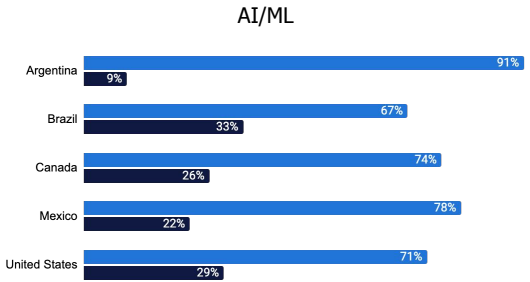
AI/ML	computer science 30%	computational science 28%	management studies 13%	engineering 12%	data science 7%
cloud computing	engineering 28%	computer science 27%	computational science 19%	management studies 16%	IT 7%
big data	computer science 29%	computational science 23%	management studies 20%	engineering 10%	IT 9%
BI/DV	management studies 34%	computer science 21%	finance 16%	computational science 15%	IT 12%
UI/UX	design 27%	computer science 23%	computational science 19%	management studies 16%	engineering 7%

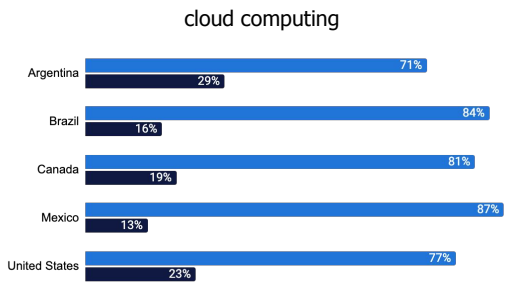
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

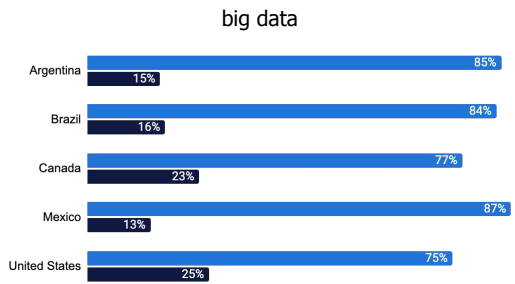
mobile app development	computer science 50%	management studies 33%	IT 7%	engineering 7%	design 1%
cybersecurity	computer science 42%	IT 17%	computational science 16%	management studies 13%	engineering 12%
customer service	management studies 62%	finance 18%	general studies 8%	computer science 7%	computational science 25%
sales & BD	management studies 69%	finance 19%	computer science 6%	general studies 5%	
financial management	finance 50%	management studies 49%	law 1%		

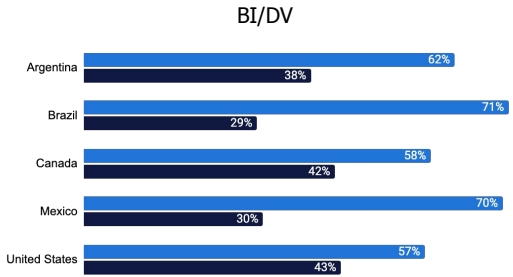
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

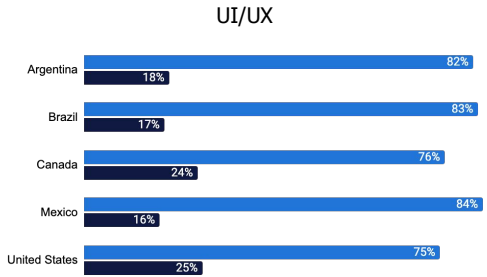
gender diversity.





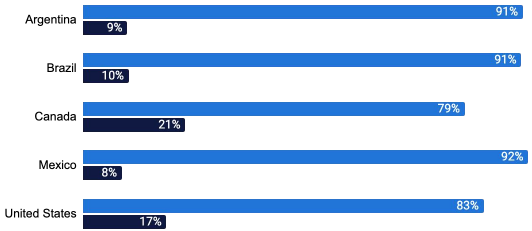




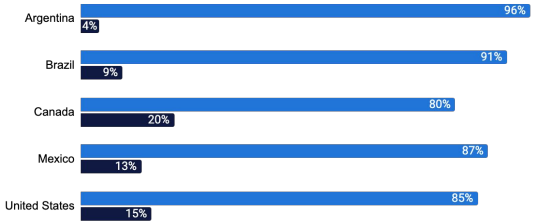


male female

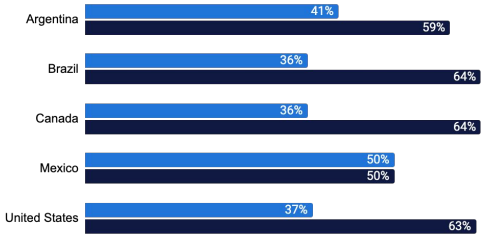
mobile app development



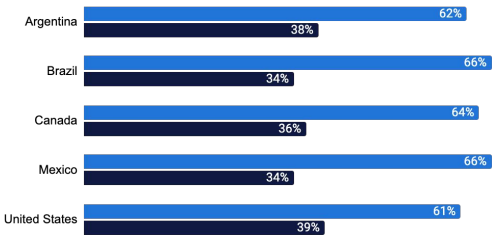
cybersecurity



customer service



sales & BD



financial management

male female

university breakdown.

AI/ML

market	universities
U.S.	University of California, Berkeley
U.S.	Georgia Institute of Technology
U.S.	Stanford University
U.S.	Massachusetts Institute of Technology
U.S.	University of Illinois Urbana-Champaign
U.S.	Columbia University in the City of New York
U.S.	University of Washington
U.S.	University of Southern California
U.S.	Carnegie Mellon University
U.S.	The University of Texas at Austin

cloud computing

market	universities
U.S.	University of Phoenix
U.S.	University of California, Berkeley
U.S.	Stanford University
U.S.	San Jose State University
U.S.	The University of Texas at Austin
U.S.	University of Washington
U.S.	Georgia Institute of Technology
U.S.	University of Maryland
U.S.	Northeastern University
U.S.	Penn State University

UI/UX

market	universities
U.S.	University of Washington
U.S.	University of California, Berkeley
U.S.	The Art Institutes
U.S.	New York University
U.S.	San Jose State University
U.S.	The University of Texas at Austin
U.S.	Georgia Institute of Technology
U.S.	Stanford University
U.S.	University of Southern California
Canada	University of Toronto

big data

market	universities
Brazil	FGV – Fundação Getulio Vargas
U.S.	University of California, Berkeley
U.S.	Georgia Institute of Technology
U.S.	Stanford University
Brazil	Universidade de São Paulo
U.S.	Massachusetts Institute of Technology
U.S.	University of Illinois Urbana-Champaign
U.S.	Northeastern University
Brazil	Estácio
Brazil	FIAP

BI/DV

market	universities
Brazil	FGV - Fundação Getulio Vargas
U.S.	University of Phoenix
Brazil	Estácio
Brazil	Universidade Paulista
U.S.	Penn State University
U.S.	University of California, Berkeley
U.S.	University of Washington
Brazil	Universidade de São Paulo
U.S.	The University of Texas at Austin
U.S.	Georgia Institute of Technology

customer service

market	universities
U.S.	University of Phoenix
U.S.	Arizona State University
U.S.	Penn State University
U.S.	University of Central Florida
U.S.	DeVry University
U.S.	The Ohio State University
U.S.	Southern New Hampshire University
U.S.	Texas A&M University
U.S.	Western Governors University
U.S.	Michigan State University

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

mobile app development

market	universities
U.S.	University of Phoenix
U.S.	University of California, Berkeley
U.S.	University of Washington
U.S.	University of Southern California
U.S.	University of California, Los Angeles
U.S.	The University of Texas at Austin
U.S.	Stanford University
U.S.	New York University
U.S.	Penn State University
U.S.	San Jose State University

cybersecurity

market	universities
U.S.	University of Maryland Global Campus
U.S.	University of Phoenix
U.S.	Western Governors University
U.S.	Community College of the Air Force
U.S.	DeVry University
U.S.	University of Maryland
U.S.	Penn State University
U.S.	George Mason University
U.S.	Georgia Institute of Technology
U.S.	Strayer University

sales & BD

market	universities
U.S.	University of Phoenix
U.S.	Penn State University
U.S.	Arizona State University
U.S.	The University of Texas at Austin
U.S.	The Ohio State University
U.S.	Texas A&M University
U.S.	Michigan State University
U.S.	New York University
U.S.	Indiana University Bloomington
U.S.	University of California, Los Angeles

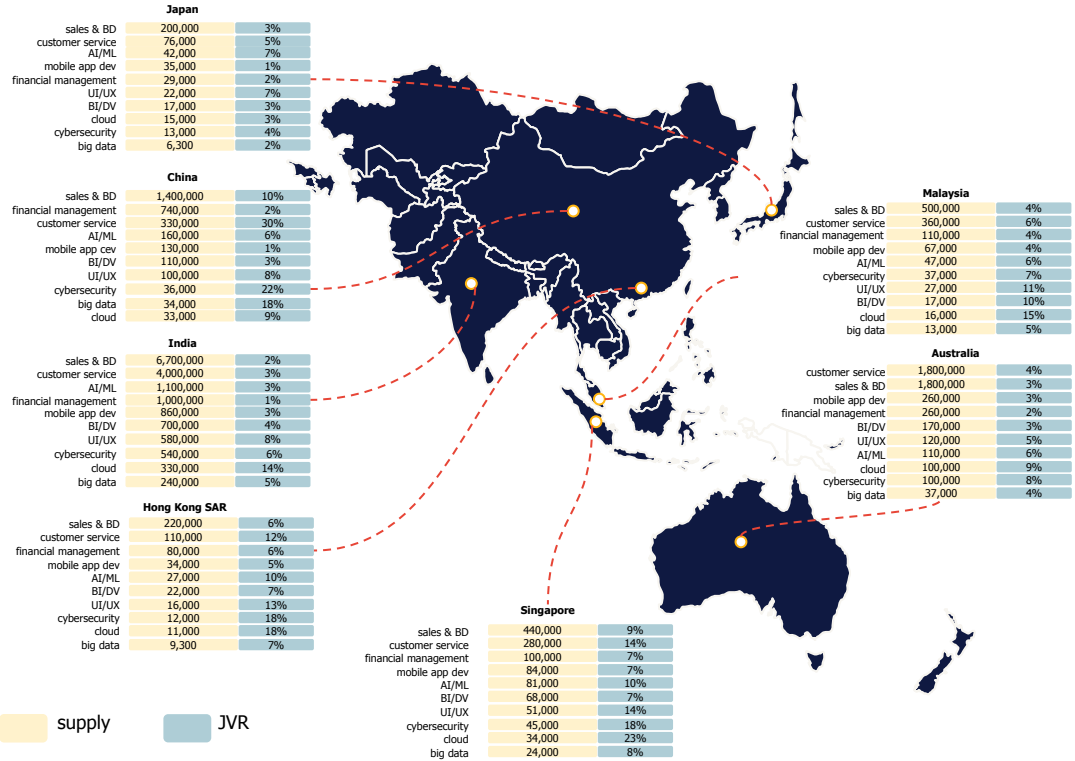
financial management

market	universities
U.S.	University of Phoenix
Brazil	FGV – Fundação Getulio Vargas
U.S.	Penn State University
Brazil	Universidade Paulista
Brazil	Estácio
Argentina	University of Buenos Aires
U.S.	Arizona State University
Canada	University of Toronto
U.S.	The University of Texas at Austin
Brazil	Anhanguera Educacional

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

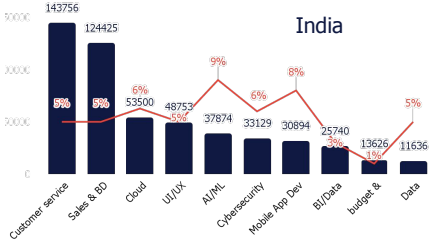
Asia-Pacific.

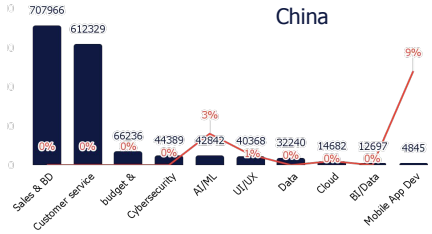
supply & market competitiveness.

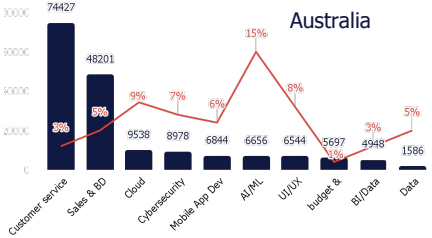


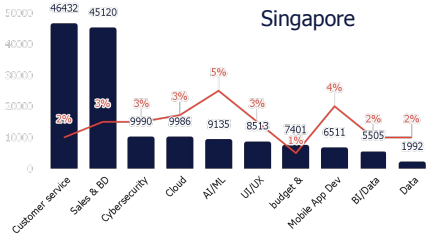
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

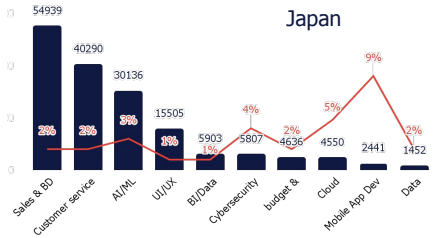
demand & remote opportunities.

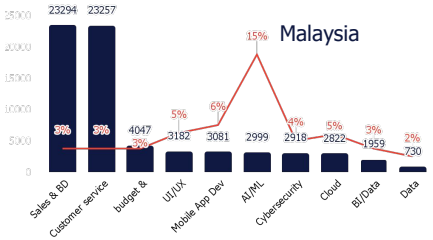


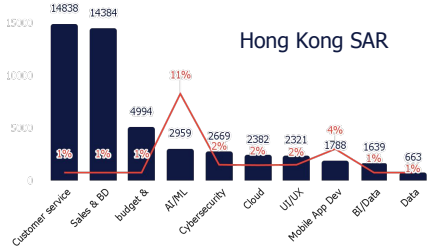






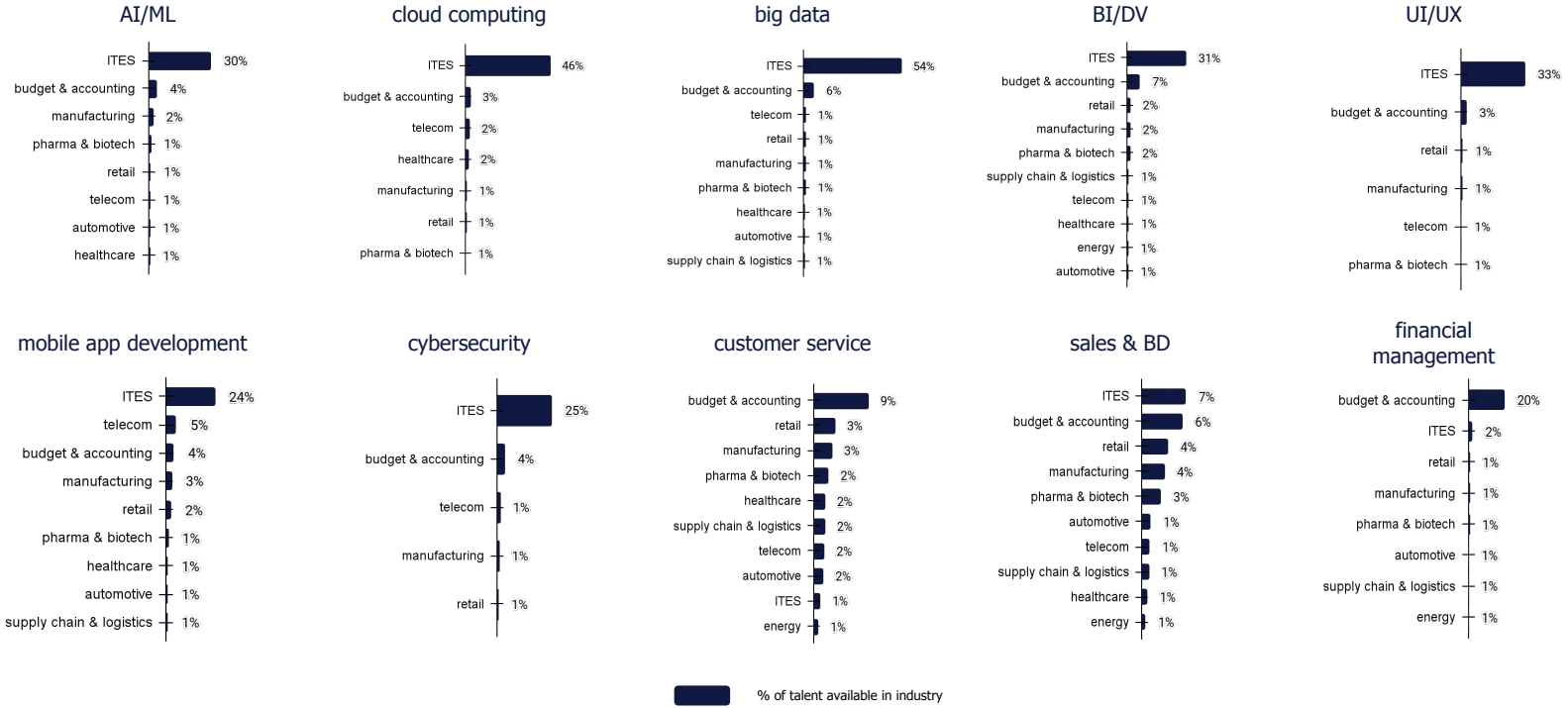






source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

industry breakdowns.



source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

fields of study.

AI/ML	computational science 25%	engineering 22%	computer science 22%	AI/DS 12%	IT 9%
cloud computing	engineering 28%	computational science 25%	computer science 24%	IT 15%	management studies 4%
big data	computational science 26%	engineering 26%	computer science 23%	IT 11%	management studies 6%
BI/DV	computational science 22%	engineering 20%	computer science 19%	IT 13%	management studies 13%
UI/UX	engineering 25%	computational science 23%	computer science 23%	IT 13%	design 6%

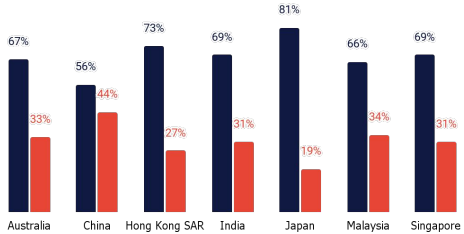
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

mobile app development	computer science 22%	computational science 21%	engineering 20%	management studies 18%	IT 12%
cybersecurity	computer science 30%	engineering 27%	computational science 22%	IT 15%	physical sciences 3%
customer service	management studies 45%	finance 12%	engineering 12%	computer science 9%	IT 8%
sales & BD	management studies 52%	finance 13%	engineering 10%	computer science 6%	computational science 5%
financial management	finance 61%	management studies 33%	computer science 3%	computational science 2%	law 1%

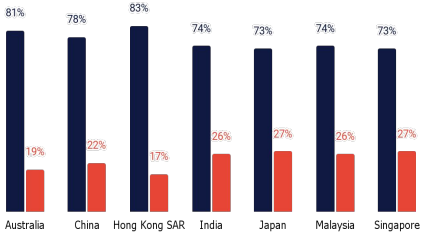
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

gender diversity.

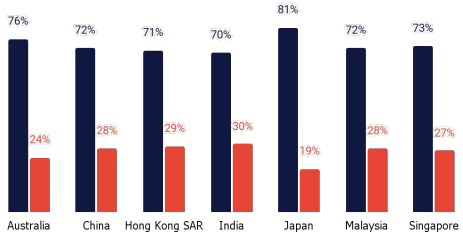
AI/ML



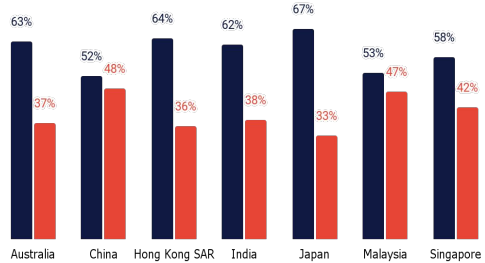
cloud computing



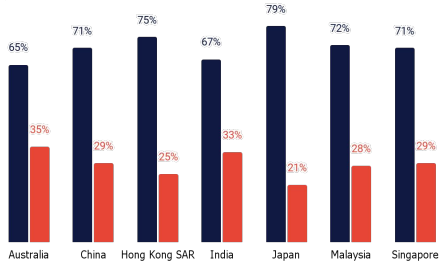
big data



BI/DV



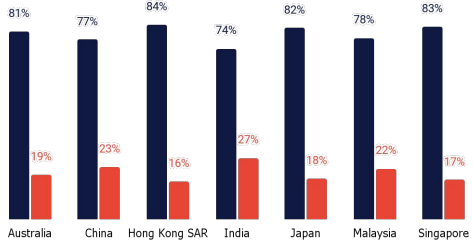
UI/UX



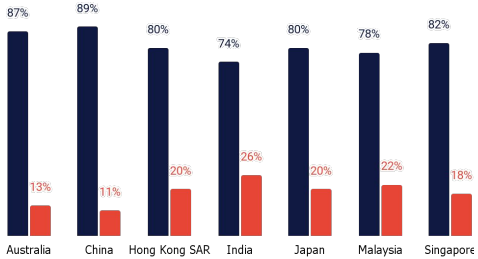
male female

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

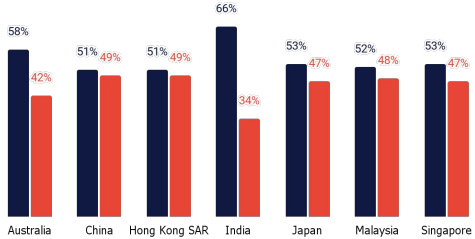
mobile app development



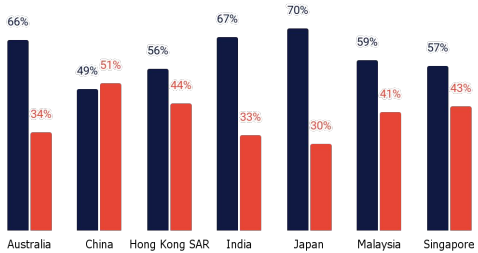
cybersecurity



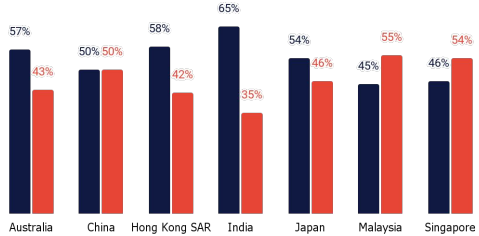
customer service



sales & BD



financial management



male female

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

university breakdown.

AI/ML

market	universities
India	Kendriya Vidyalaya
India	Savitribai Phule Pune University
Singapore	National University of Singapore
India	Vellore Institute of Technology
India	University of Mumbai
India	Birla Institute of Technology Science, Pilani
India	Delhi University
Singapore	Nanyang Technological University
India	SRM University
India	IIIT Bangalore

cloud computing

market	universities
India	Kendriya Vidyalaya
India	Savitribai Phule Pune University
India	University of Mumbai
India	Birla Institute of Technology Science, Pilani
India	Visvesvaraya Technological University
India	Anna University
Australia	TAFE NSW
Singapore	National University of Singapore
India	Jawaharlal Nehru Technological University
Australia	RMIT University

UI/UX

market	universities
India	Kendriya Vidyalaya
India	Savitribai Phule Pune University
India	University of Mumbai
India	Visvesvaraya Technological University
India	Anna University
Australia	RMIT University
Singapore	National University of Singapore
India	Delhi University
Australia	Monash University
India	Jawaharlal Nehru Technological University

big data

market	universities
India	Kendriya Vidyalaya
India	Savitribai Phule Pune University
Singapore	National University of Singapore
India	University of Mumbai
India	Birla Institute of Technology Science, Pilani
India	Anna University
India	Visvesvaraya Technological University
India	Vellore Institute of Technology
India	Jawaharlal Nehru Technological University
Singapore	Nanyang Technological University

BI/DV

market	universities
India	University of Mumbai
India	Savitribai Phule Pune University
India	Kendriya Vidyalaya
India	Delhi University
Singapore	National University of Singapore
Australia	Monash University
India	Anna University
India	Institute of Chartered Accountants of India
India	Visvesvaraya Technological University
Singapore	Nanyang Technological University

customer service

market	universities
Australia	TAFE NSW
India	Delhi University
India	University of Mumbai
Australia	RMIT University
India	Savitribai Phule Pune University
Australia	Monash University
India	Kendriya Vidyalaya
Australia	Deakin University
India	Indira Gandhi National Open University
Australia	Swinburne University of Technology

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

mobile app development

market	universities
India	University of Mumbai
Australia	TAFE NSW
India	Kendriya Vidyalaya
India	Savitribai Phule Pune University
India	Delhi University
India	Anna University
Singapore	National University of Singapore
India	Visvesvaraya Technological University
India	Indira Gandhi National Open University
Australia	RMIT University

cybersecurity

market	universities
India	University of Mumbai
India	Kendriya Vidyalaya
India	Savitribai Phule Pune University
India	Anna University
Australia	TAFE NSW
India	Indira Gandhi National Open University
India	Delhi University
India	Visvesvaraya Technological University
Singapore	National University of Singapore
India	University of Madras

sales & BD

market	universities
India	Delhi University
India	University of Mumbai
Australia	TAFE NSW
India	Savitribai Phule Pune University
India	Kendriya Vidyalaya
Australia	RMIT University
India	Indira Gandhi National Open University
Australia	Monash University
India	Institute of Chartered Accountants of India
Australia	University of Technology Sydney

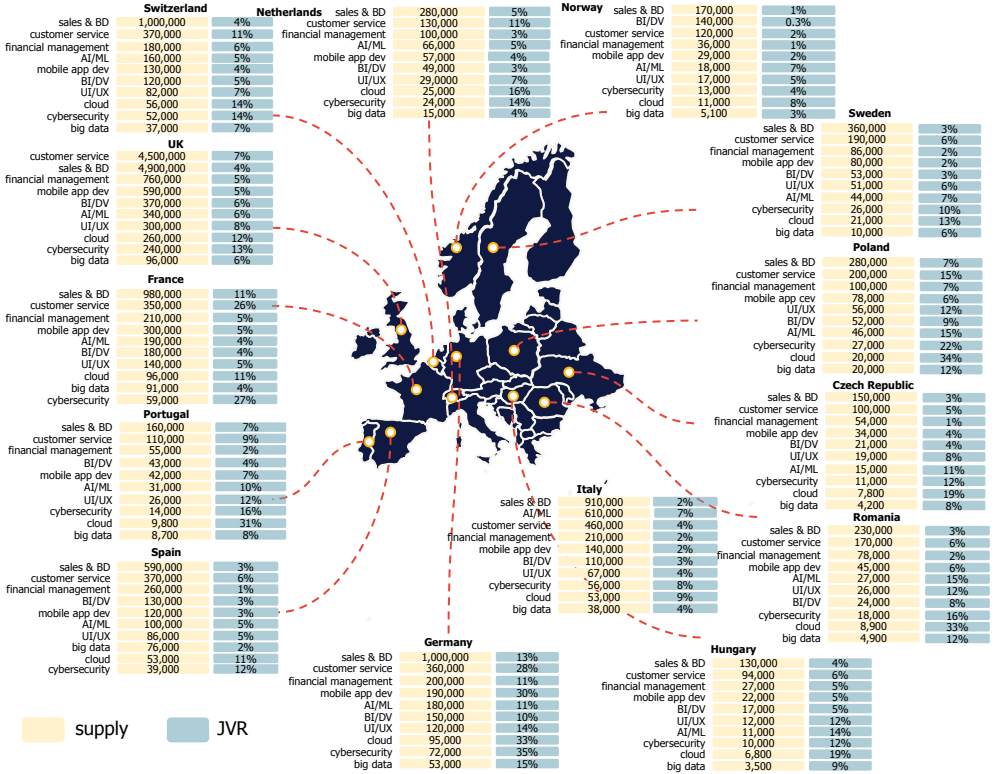
financial management

market	universities
India	Institute of Chartered Accountants of India
India	Delhi University
India	University of Mumbai
Australia	Chartered Accountants Australia and New Zealand
India	Savitribai Phule Pune University
India	Institute of Cost Accountants of India
Australia	Monash University
Australia	UNSW
Singapore	National University of Singapore
India	Institute of Company Secretaries of India

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

Europe.

supply & market competitiveness.



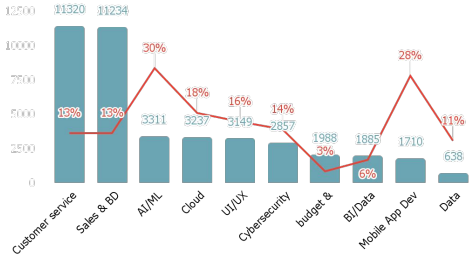
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

demand & remote opportunities.

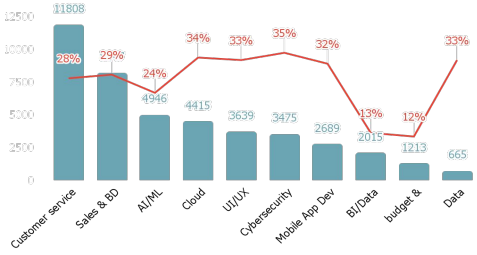
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

demand & remote opportunities.

Sweden

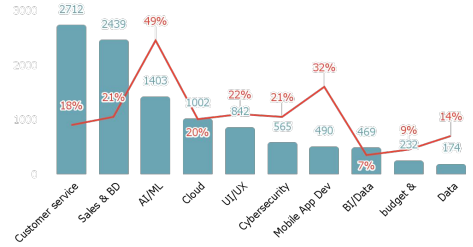


Romania

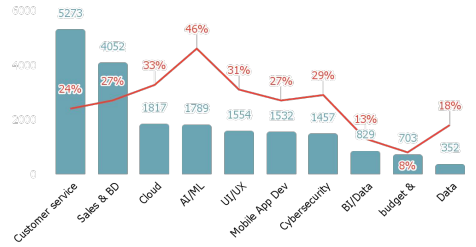


Portugal

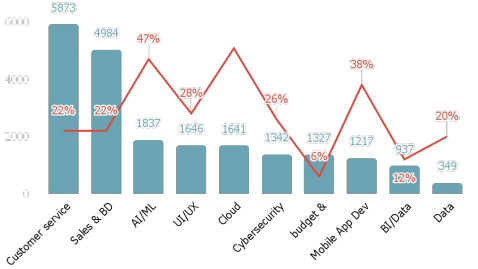
Norway



Czech Republic



Hungary



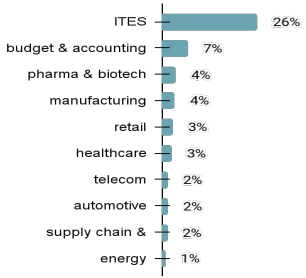
# of job postings

% of remote job postings

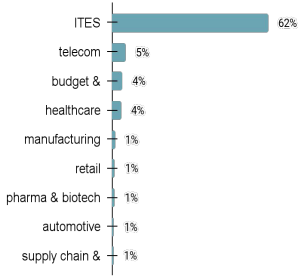
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

industry breakdowns.

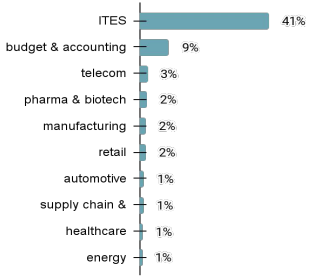
AI/ML



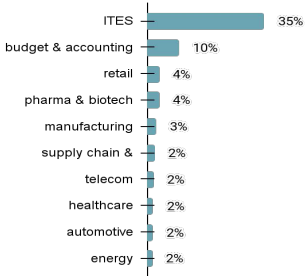
cloud computing



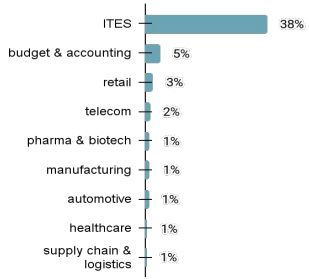
big data



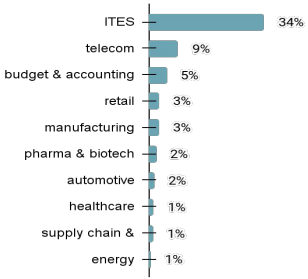
BI/DV



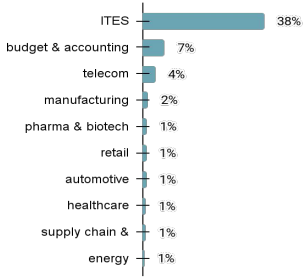
UI/UX



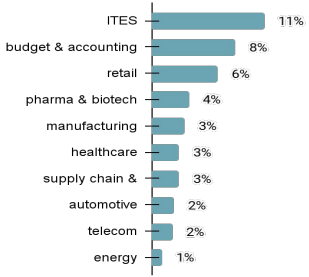
mobile app development



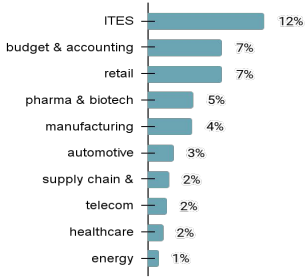
cybersecurity



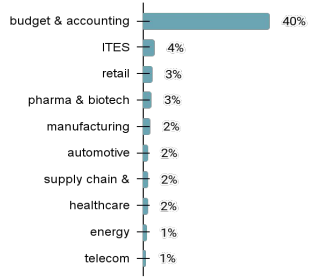
customer service



sales & BD



financial management



source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

fields of study.

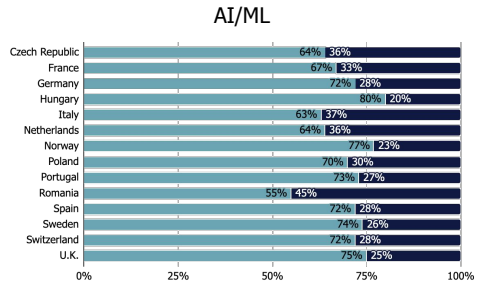
AI/ML	computer science 36%	computational science 25%	management studies 15%	IT 9%	engineering 8%
cloud computing	computer science 38%	computational science 19%	IT 17%	management studies 16%	engineering 9%
big data	computer science 32%	management studies 21%	computational science 15%	data science 10%	IT 8%
BI/DV	management studies 38%	computer science 25%	IT 18%	computational science 17%	engineering 2%
UI/UX	design 33%	computer science 28%	computational science 17%	management studies 13%	IT 9%

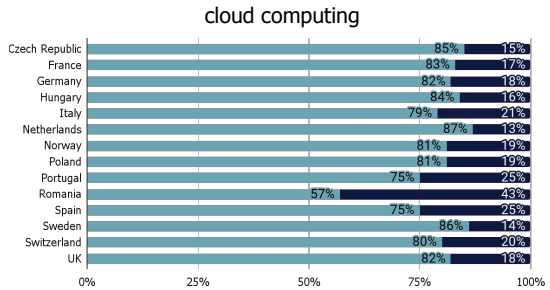
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

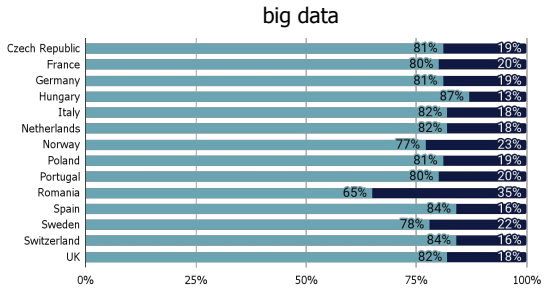
mobile app development	computer science 36%	management studies 21%	computational science 18%	IT 12%	engineering 8%
cybersecurity	computer science 44%	IT 20%	computational science 16%	management studies 14%	engineering 6%
customer service	management studies 69%	communication 11%	mathematics 7%	IT 6%	law 4%
sales & BD	management studies 81%	communication 7%	mathematics 5%	IT 4%	law 3%
financial management	management studies 51%	finance 37%	law 6%	mathematics 5%	

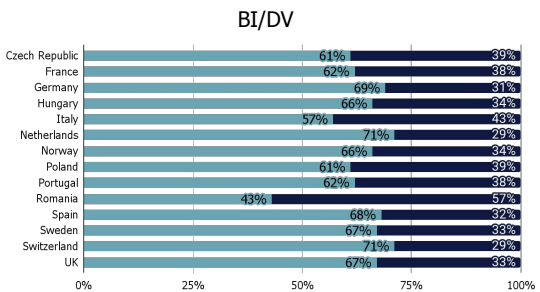
source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

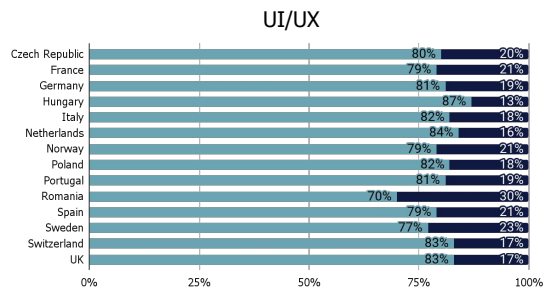
gender diversity.







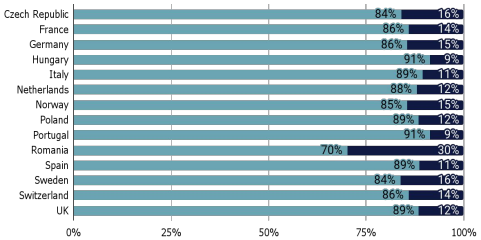




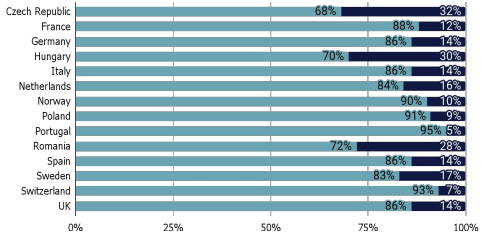
male female

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

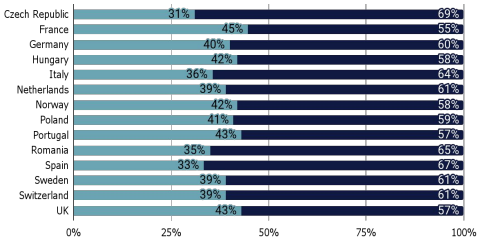
mobile app development



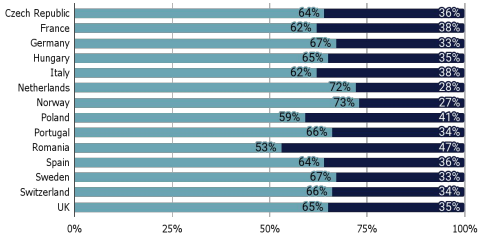
cybersecurity



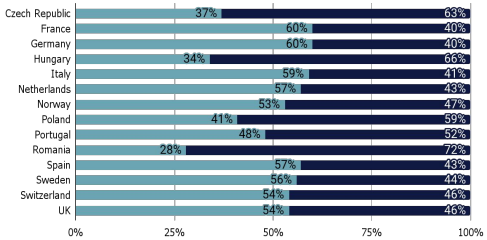
customer service



sales & BD



financial management



male female

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

university breakdown.

AI/ML

market	universities
Italy	Sapienza Università di Roma
Italy	Istituto Europeo di Design
Italy	Alma Mater Studiorum – Università di Bologna
Italy	Università degli Studi di Milano
Italy	Università degli Studi di Padova
Italy	Politecnico di Milano
Italy	Università degli Studi di Torino
Italy	Università Cattolica del Sacro Cuore
Italy	Università degli Studi di Napoli Federico II
Portugal	Instituto Superior Técnico

cloud computing

market	universities
Spain	Universidad Politécnica de Madrid
UK	The Open University
Italy	Sapienza Università di Roma
France	Conservatoire National des Arts et Métiers
Italy	Politecnico di Milano
UK	The University of Manchester
Spain	Universidad Complutense de Madrid
Spain	Universitat Politècnica de Catalunya
Netherlands	Amsterdam University of Applied Sciences
Germany	Technical University of Munich

UI/UX

market	universities
UK	University of the Arts London
Italy	Politecnico di Milano
Spain	Universidad Complutense de Madrid
UK	The Open University
Netherlands	Amsterdam University of Applied Sciences
Sweden	Stockholm University
UK	UCL
Italy	Istituto Europeo di Design
UK	The University of Manchester
Netherlands	Technische Universiteit Delft

big data

market	universities
Spain	Universidad Complutense de Madrid
Spain	Universidad Politécnica de Madrid
Spain	Universitat Oberta de Catalunya
Spain	Universidad Nacional de Educación a Distancia
Spain	Universidad Autónoma de Madrid
Spain	Universitat Politècnica de Catalunya
Italy	Sapienza Università di Roma
Spain	Universidad Carlos III de Madrid
Poland	SGH Warsaw School of Economics
Netherlands	University of Amsterdam

BI/DV

market	universities
Norway	BI Norwegian Business School
Norway	University of Oslo (UiO)
Spain	Universidad Complutense de Madrid
Spain	Universidad Politécnica de Madrid
Norway	Norwegian University of Science and Technology (NTNU)
UK	The Open University
Italy	Politecnico di Milano
Italy	Sapienza Università di Roma
Netherlands	Amsterdam University of Applied Sciences
Netherlands	University of Amsterdam

customer service

market	universities
UK	The Open University
UK	The Manchester Metropolitan University
UK	Nottingham Trent University
UK	University of Leeds
UK	The University of Manchester
UK	Sheffield Hallam University
UK	University of Birmingham
UK	University of Portsmouth
UK	University of Westminster
UK	Coventry University

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

mobile app development

market	universities
UK	The Open University
Italy	Sapienza Università di Roma
Italy	Politecnico di Milano
Spain	Universidad Politécnica de Madrid
Spain	Universidad Complutense de Madrid
Sweden	KTH Royal Institute of Technology
UK	The University of Manchester
France	Conservatoire National des Arts et Métiers
Netherlands	Amsterdam University of Applied Sciences
Sweden	Stockholm University

cybersecurity

market	universities
UK	The Open University
Italy	Sapienza Università di Roma
Spain	Universidad Politécnica de Madrid
Netherlands	De Haagse Hogeschool / The Hague University of Applied Sciences
Romania	University POLITEHNICA of Bucharest
UK	Royal Holloway
Italy	Università degli Studi di Milano
Netherlands	Amsterdam University of Applied Sciences
Sweden	KTH Royal Institute of Technology
UK	University of Hertfordshire

sales & BD

market	universities
UK	FGV - Fundação Getulio Vargas
Netherlands	University of Phoenix
UK	Estácio
UK	Universidade Paulista
UK	Penn State University
Norway	University of California, Berkeley
UK	University of Washington
Spain	Universidade de São Paulo
UK	The University of Texas at Austin
UK	Georgia Institute of Technology

financial management

market	universities
Spain	Universidad Complutense de Madrid
UK	ACCA
France	Université Paris Dauphine - PSL
Italy	Università Bocconi
Romania	Academia de Studii Economice din București
UK	ICAEW
UK	The Chartered Institute of Management Accountants
UK	The London School of Economics and Political Science (LSE)
UK	The University of Manchester
Italy	Università Cattolica del Sacro Cuore

source: data modelled from aggregated and de-duplicated job posting/cv/profiles across job boards, networking sites, social media, agency postings and career sites. Data accurate 09-19-2022.

randstad sourceright

human forward.