



in-demand skills:

what future skills will you need in 2022?

the future of work is here.

See the list of technical skills you can expect to be most in-demand over the next few years.

If the Fourth Industrial Revolution seems to be moving quickly, you only need to consider its impact on the job skills in demand.

In a global analysis of public labor market data across 26 countries, Randstad Sourceright sees shifts in the jobs companies will most need to fill over the next three years, indicating rapidly evolving economies in the immediate future. For your organization, this could have significant implications on talent strategies as transformational efforts accelerate in the next several years.

Knowing this, are you prepared for the inevitable forthcoming changes? Will your organization gain a competitive advantage, or do you risk falling behind?

Being ready with the right skills is absolutely necessary, not only for growth, but for company survival. According to [Fast Company](#), the Fourth Industrial Revolution will put greater pressure on businesses to stay ahead of customer demands.

In 1965, the average tenure of a company listed in the S&P 500 was 33 years. By 2026, it's expected to be 14 years, affirming that companies are challenged to remain among the elite. Talent will be pivotal to your ability to maintain a competitive edge.



which future skills can you expect to recruit for?

Our analysis of public data and skills lists from [LinkedIn](#), [World Economic Forum](#), [Gartner](#) and [ZDnet](#) confirms that the trends driving these predicted shifts all relate to business transformation.

The list of technical skills that were most in demand in 2019 are the skills your company probably now looks for on a daily basis: cloud computing; artificial intelligence (AI) and natural language processing; user interface (UI) and user experience (UX) design; mobile app development; digital/ social media marketing; computer graphic/animation; software testing; data science; cyber security analysis; and business intelligence.

By 2022, however, the most in-demand skills will shift as the need for AI, internet of things (IoT), blockchain and augmented virtual reality (VR) grows.

Top 10 IT and digital skills (global)

2019

1. cloud computing
2. artificial intelligence/
natural language processing
3. UI/UX design
4. mobile application development
5. digital/social media marketing
6. computer graphic/animation
7. software testing
8. data science
9. cyber security analyst
10. business intelligence

sources: LinkedIn, ZDnet (2019)

2022

1. artificial intelligence
2. IoT technology
3. machine learning
4. data science
5. mobile application development
6. cloud computing
7. blockchain
8. augmented and virtual reality
9. cyber security analyst
10. digital/social media marketing

sources: WEF, Gartner (2019)

This suggests that technology shifts — more than any other factor, including demographics, economic cycles or even political trends — will dictate demand in the labor market for the foreseeable future.

Your business and many others around the world will need to closely track these technological developments – which, in turn, affect business developments – within your sector. There will certainly be other mitigating factors, but nearly every industry in the past few years has witnessed some type of digital transformation.

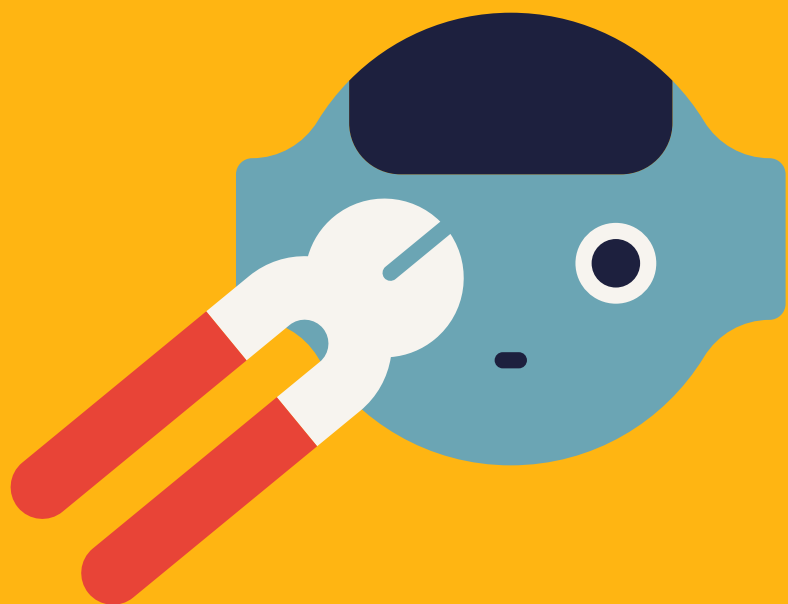
the race to innovate drives demand for future jobs.

These changes are a clear indicator of how business models are evolving in the digital realm. What was novel and unique just a few years ago is now considered table stakes for many products and services. Not long ago, data analytics and AI were hailed as revolutionary features in business software, but today just about every new product in HR technology has this functionality built in. As a result, developers and their users have had to invest in technical and analytical skills to support their use and management of data.

This is just one example. When we see what's happening across all sectors, clearly the race to innovate is shifting the skills that are needed the most. The rise of automation is leading to unprecedented demand for roles such as engineers, analysts and software professionals, and even an acceleration in the creation of new jobs.

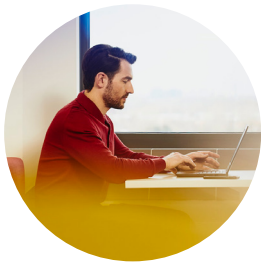
Robotic process automation (RPA), autonomous vehicles and data management are just some of the areas driving the need. And, RPA bots are expected to increase by 50% over the next two years, according to research conducted by IDC.

So how can your organization better prepare for the challenges of digital transformation, while ensuring you have access to the skills needed to make your journey successful? A closer look at the most in-demand skills from our analysis shows where the talent is most abundantly available by country and median salary.



a closer look at the most in-demand skills.

In the analysis that follows for each of the 10 job categories, “availability of talent” is defined as the number of professionals on LinkedIn who indicate they are open to a new job opportunity as a percentage of the overall talent pool. The “median salary” is calculated by analyzing all salaries offered for roles seeking those skills, and are represented here in U.S. dollars (USD).



1. cloud solutions engineer

Among all countries we analyzed, India offers the highest percentage of active candidates at 31.7%. Notably, its median salary is also the lowest, which is consistent with a strong supply of cloud computing talent. Finding this kind of skill is most difficult in the Netherlands, where just 10.3% of cloud professionals are actively looking for jobs.

Last year, [Euractiv reported](#) that the Dutch market is among EU countries most affected by the skills gap. Despite this scarcity, the Netherlands doesn't claim to have the highest salaries for these roles. The highest median belongs to Germany, where a cloud engineer could expect to make \$111,496.

2. AI/natural language processing (NLP) engineer

With various market forecasts predicting the AI/NLP software market will grow anywhere from [33%](#) to more than [50%](#), it's no surprise that demand for specialists in the field is exploding. For employers, it's a double-edged sword because they can expect more students and institutions to focus on this technology; at the same time, growth is so explosive that a skills gap is likely to grow wider.

Our analysis shows that India again has the most active pool of candidates searching for work (38.5%) in this field. It also has the lowest median labor costs among the countries we studied.

At the other end of the spectrum, the U.K. has the least active pool of AI/NLP professionals with just 11.8% looking for work. With Brexit now completed, how much of an impact will its break from the EU have on access to talent? This remains to be seen, since changes to immigration policies are still being assessed.

As for salaries, India is again the low-cost leader, with median salaries at less than 10% (\$9,496) of the highest wage levels (\$100,700 in Germany).



3. UI/UX developer



Building a more engaging experience is the goal of just about every product and service provider these days, and many companies are increasingly recognizing the importance of a robust UI/UX team. In fact, growth in these jobs over the next 10 years is expected to be 14.9%, according to [Dice](#).

Although there are indications that this type of work will increasingly become automated, some aspects such as creativity and emotional attachment probably won't be. For this reason, the job category may fall off the global list of top 10 future jobs by 2022. For now, however, the demand remains high.

In China, just 7.3% of professionals with this background are actively seeking work (the lowest percentage we found), while in India 17.6% (the highest percentage) are active. UI/UX developers in the U.S. earn the highest median salary at \$75,077, while those in India earn \$6,948.

4. mobile application developer

With more than five billion mobile phones in the world and millions of apps available, the demand for app development skills is unrelenting.

In South Korea, 100% of the population is believed to own a mobile phone, according to [Pew Research](#). Most industrialized nations see ownership rates of 90% or more. This is leading to an ever growing base of new apps for consumers and businesses alike. It's no surprise that developers are difficult to come by in many countries.



In Norway, just 6.7% of mobile app developers are actively seeking employment (the lowest ratio tracked). In Canada, however, where cell phone ownership rates are the lowest among industrialized nations, that figure is 20.4%. Switzerland offers the highest median income for these skilled workers, while India offers just a \$6,015 median salary.

5. digital/social media marketing specialist

Growing at double-digital rates year over year, digital marketing spend – specifically advertising – was estimated to have risen 17% to \$333 billion worldwide last year, according to [emarketer.com](#).



For many companies today, marketing is mostly digital, and specialists who are experts in search engine optimization (SEO), search engine marketing (SEM) and email campaigns are in high demand. Similarly social media specialists are playing a greater role in their companies' overall brand-building and lead generation efforts.

Among all countries we assessed, Japan has the least active job seekers in this specialty, with just 12.8% looking for work. In Malaysia, which had the highest percentage, 35.3% are open to new opportunities. In Switzerland, digital specialists earn a median salary of \$79,029, the highest of all markets studied. In India, the median pay is a fraction at \$5,174.

6. computer/graphic animator

Although still a hot skill, demand for computer/graphic animators may decrease by 2022. This may be due to the growing influence of AI and automation in the creation of imagery and video.

According to [Adobe](#), an emerging class of technologies is aimed at reducing tedious, repetitive work that animators currently perform. Doing so helps to speed up the creation process but doesn't lessen the importance of the creator.

Animators looking to maximize their income may consider working in Germany, where the highest median salary for this skill is highest at \$77,572. The pay is currently lowest in Romania at \$3,540.

The country with the lowest percentage of job seekers in this field is Japan at 4.5%, while China, with the highest percentage, has an active pool of 26.8%.



7. software testing engineer

According to [Market Research Future's report on the global enterprise software market](#), growth is projected to reach 8% annually by 2023, and figured to be worth \$634 billion in that time period. This is just one portion of the overall global software market, but it shows the rapid growth of these digital products.

This translates into a high demand for testing engineers who ensure application quality and enhancements. Another skill that is at risk from automation, it likely will not be among the top in-demand skills by 2022.

For now, it is still a skill many companies are seeking. The highest median wages are found in the U.S. at \$60,479. In India, however, the median salary is \$5,273.

Recruiting is likely most challenging in Portugal, where just 5.7% of testing engineers are actively seeking work. In Singapore, where the talent pool percentage is highest, 31.5% of testing engineers are active job seekers.



8. data science engineer

With "massive" growth in data science-related jobs in a variety of industries (according to [Wharton Business School](#)), very few specialists in this field are going unemployed. This poses a challenge for many organizations that view successful management of business data a critical piece of their overall business strategy.

Japan has the lowest percentage of active candidates at 10.2%. And it's no surprise that the Netherlands, which in recent years has become a hub for software and ITC development, follows just after at 10.2%. Malaysia, on the other hand, has the highest percentage at 33.5%.

According to [TechRepublic](#), in 2019, data scientists were ranked the best roles by both LinkedIn and Glassdoor. But for talent in India, the median salary is only \$12,117 – the lowest among all the markets we tracked. In Switzerland, median wages are highest at \$110,612.





9. cyber security engineer

Companies around the globe have paid hundreds of millions of dollars in fines for data breaches as a result of data breaches. With cyber attacks on the rise, organizations everywhere are investing in security measures to protect their systems and data. This is why cyber security engineers are in great demand as companies rush to protect their infrastructures against data hacks, ransomware and new viruses.

Our research uncovered that companies are willing to pay six-digit salaries for these skills, with the highest median salary found in China at \$113,801. The lowest wages are in India, where the median is \$10,207.

The scarcity of active job candidates is highest in Germany, where only 10.8% of cyber security engineers are open to job opportunities. In India, 25.2% are seeking new positions.

10. business intelligence (BI) developer

Focused on results that produce revenue, the collection and use of business intelligence can be the difference between accelerated growth and ordinary performance. And like many other functions, innovation is quickly transforming the service.

According to Forbes, the adoption of dashboards, data integration, advanced visualization and self service are helping companies better use insights. Recognizing this potential, many companies are seeking to hire BI developers and are driving demand higher than ever before.

Switzerland leads all markets with a median salary of \$100,451 for BI developers. In India the median is \$7,094.

Swiss salaries may be high due to the smaller pool of active BI job seekers. At 14.5% Switzerland's available talent pool is the lowest of all countries studied. In Malaysia, the country with the highest rate, that figure is more than twice as high at 35.1%.



recruit for and develop

digital skills.

Looking ahead, many of these technical skills may become normalized, so finding workers that match your needs may also become easier. At the same time, it's certain that your business will also need skills that are just emerging or haven't even been invented.

You will have to be proactive — not only recruiting for these future skills, but also training and upskilling your existing workforce to remain relevant to your evolving business and the global workforce.



want to learn more about available future in demand skills?

The insights provided here are based on publicly available data that was aggregated, synthesized and analyzed by Randstad's Market Insights team. You can take a deeper dive into this research to help prepare your organization for the future of work.

Request a meeting to discuss demand by region, country or role.

[contact us](#)

or visit

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what contributes to our global in-demand skills research.

Our global in-demand skills report is based on desk/secondary research.

global future in-demand skills research 2019-2022

The research was conducted across three regions in 26 markets.

Regions include: Americas, Europe, Asia Pacific

Markets include: Argentina, Australia, Brazil, Canada, China, Czech Republic, France, Germany, Hong Kong, Hungary, India, Italy, Japan, Malaysia, Mexico, Netherlands, Norway, Poland, Portugal, Romania, Singapore, Spain, Sweden, Switzerland, U.K. and the U.S.



approach/metodhology

The top 10 in-demand skills for 2019 and 2022 were shortlisted from in-demand skills information listed in World Economic Forum (WEF), ZDnet, Gartner and LinkedIn.

"Active candidate" was calculated by sourcing "candidate open to new opportunities" and "total available candidate pool" from LinkedIn Recruiter.

Top company postings by skill were sourced from LinkedIn Recruiter.

Salary information by skill for 26 markets were mainly sourced from Payscale, Glassdoor and Economic Research Institute (ERI).

Market trends by skill were obtained from Forbes, Gartner, IDC and Statista, as well as other sources.



about Randstad Sourceright

Randstad Sourceright is a global talent solutions leader, driving the talent acquisition and human capital management strategies for the world's most successful employers. We empower these companies by leveraging a Human Forward strategy that balances the use of innovative technologies with expert insights, supporting both organizations and people in realizing their true potential.

As an operating company of Randstad N.V. — the world's leading global provider of HR services — Randstad Sourceright continuously builds and evolves talent solutions through recruitment process outsourcing (RPO), managed services programs (MSP) and total talent strategies.

Read more at randstadsourceright.com.