

# The World's Top 10 Digital Talent Centres



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# 1

# Introduction



# The tech talent imperative

A backbone of digital talent is a non-negotiable element of business success today. Almost every company needs talented developers, designers, analysts and project managers, particularly as AI continues to transform working practices. But these high-demand roles come at a premium.

Workers in AI-exposed roles commanded a **56%** average wage premium in 2024, more than double the 25% premium seen in 2023. But a parallel trend reveals how businesses are responding to these elevated wage costs. **66%** of US businesses now offshore at least one of their software development functions to less expensive destinations, often in Asia or Eastern Europe.

Offshoring is a complex calculation. Deciding on where to outsource capacities requires companies to consider two things: cost arbitrage and talent density. Lower costs of living in a target country may offer foreign employers relief on compensation. But if it lacks a concentration of workers with digital qualifications (and English proficiency), then you may struggle to find the human capital you need.

However, it's not just offshore companies that are driving demand for international digital talent. Any company with a WiFi connection and a Slack subscription can hire full-time and temporary staff members to work remotely across the globe. Again, the question is: where to look?

Whether you're on the hunt for offshoring partners in strategic destinations or wondering where to find your next star hire, this guide will take you through the most talent-rich countries to focus on in your search.

**We'll classify them in two broad buckets.**



# Factories vs Academies

The most digitally skilled countries globally are either **factories** or **academies**.



**A 'factory' is a low-cost destination** full of highly skilled programmers and developers. Several Eastern European countries, as well as India and China, fall under this category.



**An 'academy' is a high-cost destination,** usually in the West, that prioritises research-intensive deep tech nurtured by world-leading universities. The United States of America, Great Britain, Israel and Switzerland are good examples of this.

Along with cost arbitrage, a country's status as either a factory or an academy is partly informed by its education system. Eastern European countries, for example, prioritise science, technology, engineering and mathematics (STEM) to the detriment of arts and humanities, an inheritance of the Soviet education system — known jokingly in Macedonia as *Руска школа* or 'the Russian school' — which prized mathematics, logic and abstract reasoning.

However, as is the case in China, such education systems may place less emphasis on individual creativity and risk-taking in the same way that the Anglo-American educational model does. This may help explain why Great Britain has 64 leading computer scientists versus China's 92, despite having a population that's only 5% of China's.

Whether you want to hire from a factory or an academy will depend on your objectives. Those seeking labour cost efficiencies will most likely prioritise the former, while companies looking to tap into the most evolved research and innovation ecosystems for genuinely atypical talent may favour established university clusters in the West.



# Methodology

The countries were ranked on several factors: the quality of their research, the quantity of their developers, their work performance, cost, time zones and level of English proficiency.

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**Work performance was based on an aggregate of data from [HackerRank](#), which studied the performance of 1.5 million global programmers, as well as several international programming competitions like [Topcoder](#) and [Google's Code Jam](#).**

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Southeast Asian countries were left out, despite offering many talented programmers. This was due to comparatively low levels of English proficiency among the population and timezone differences that would make it particularly difficult for Western companies to work with them.

Germany was left out, despite having the biggest share of software developers in Europe, because it was neither more innovative than the UK nor more cost-effective than Ukraine, Poland or Romania. Japan, despite being a tech powerhouse, wasn't included owing to the country's specialisation in hardware over software, and its chronic [shortages](#) of developers.





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## Countries and **Their Rankings**

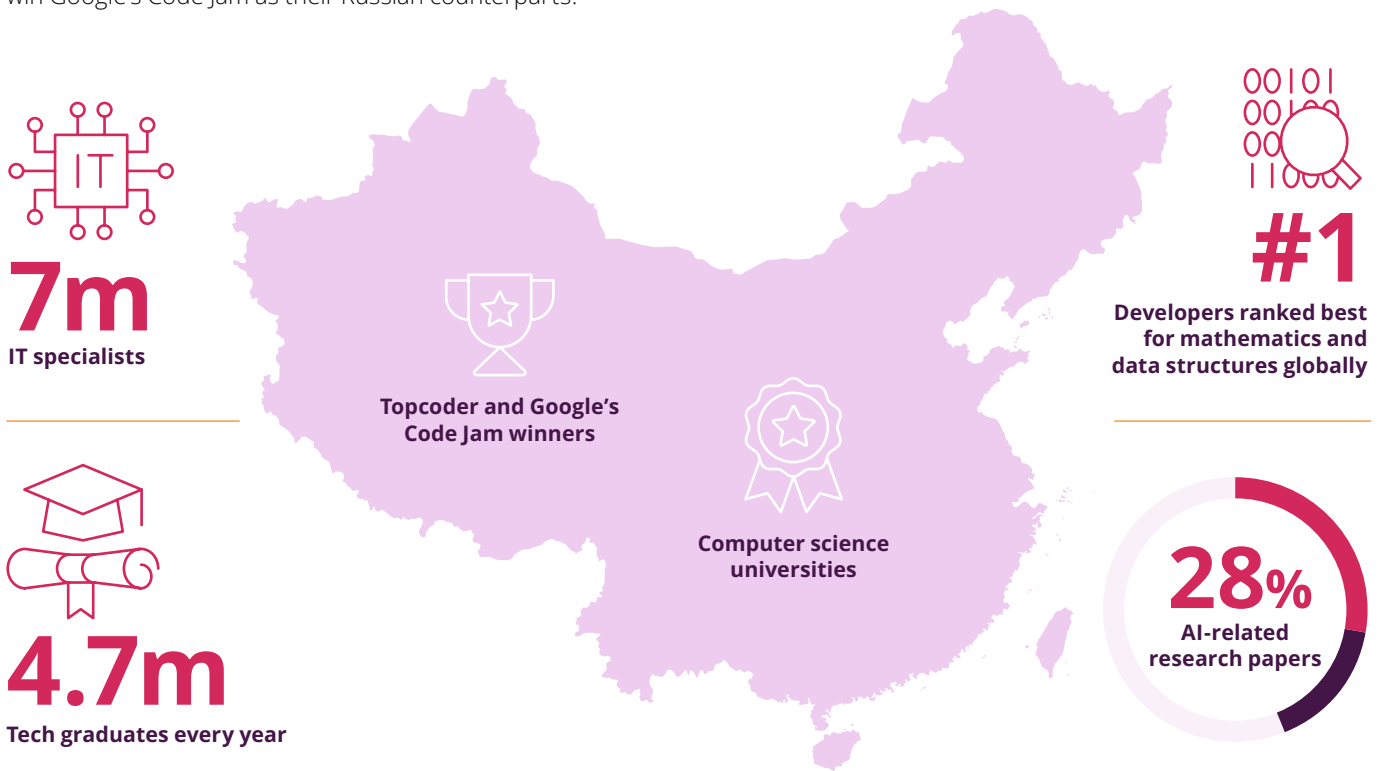
# China

**China is the world's factory**, with 4.7 million tech graduates every year, and 7 million IT specialists in all.

HackerRank data shows Chinese tech workers are particularly adept at mathematics and data structures with their students ranking among the **best** globally.

They make terrific programmers, too. Chinese programmers topped HackerRank's study, regularly won Topcoder, and were just as likely to win Google's Code Jam as their Russian counterparts.

- The world's largest share of IT professionals**
- World-leading programmers**
- Restrictions on hiring for US companies**
- Differences in soft skills**



They are nurtured by a highly competitive STEM-focused education system, **second only** to the US in terms of quality computer science universities.

However, a rule of thumb to keep in mind is **"China leads in output, the US leads in quality."**

While Chinese researchers accounted for **28%** of all AI-related research papers, their US counterparts, with only 16%, had twice the citations per article, suggesting higher-quality research.

While reforms are now in place to change this, the education system has long prized rote memorisation over debate or self-expression. This means today's Chinese graduates may have different communication styles than those Western employers expect. US employers may also face security **restrictions** when hiring Chinese tech workers.



# United States of America (USA)

America is the **academy** of the world, the undisputed **leader** in quality research, and home to tech giants like Amazon, Meta and OpenAI, and 6 million tech workers.

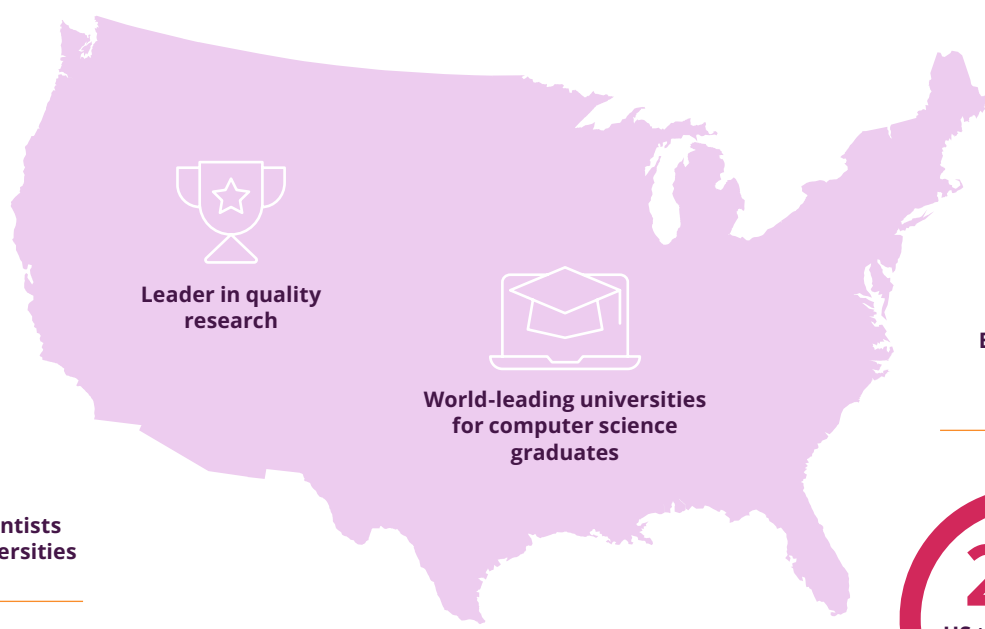
- Most innovative computer scientists and AI researchers globally
- Highly competitive job market
- Highest wages worldwide



**6m**  
Tech workers in the US



**583**  
Top computer scientists at leading US universities



**2x**  
US salaries are double than UK/EU due to intense competition



**86k**      **377k annual job openings**  
No. of computer science graduates that fill ICT jobs

US tech talent is fueled by its world-leading universities, including Stanford, MIT, and Carnegie Mellon. These attract huge **numbers** of computer science graduates yearly, who are taught by **583** of the world's leading computer scientists, with Stanford University sharing the same number as Germany.

US tech talent isn't normally homegrown, however. A recent report found that **two-thirds** of Silicon Valley is foreign-born. This is because the supply of talented tech specialists doesn't meet the demand.

Every year, there are **357,000** ICT-related job openings, but only around **100,000** computer science graduates to fill them. As a result, US tech companies are the among biggest sponsors of H-1B visa holders.

The intense competition for American tech talent has increased salaries, with US tech workers earning twice the amount of their British counterparts and enjoying perks unheard of in Europe, such as equity, egg freezing and IVF.



# Russia

**Russia is a factory.** It produces some of the best programmers, data scientists, and tech specialists, with nearly 2 million tech workers nationwide. This is largely due to the country's education system, which has, since the USSR, prized STEM skills, logic, and abstract reasoning above all else.

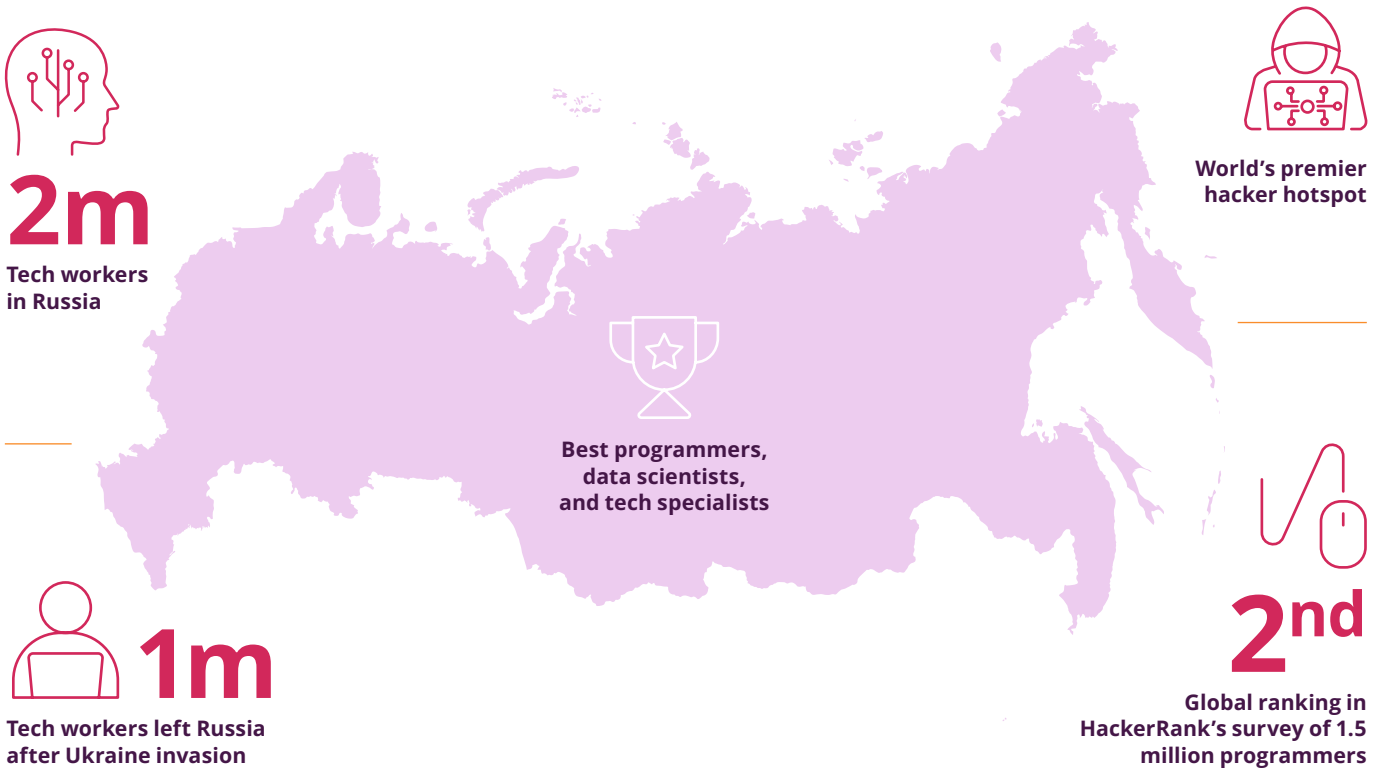
**World-leading programmers**

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**High level of English proficiency**

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**Many have left the country since 2022**



Russians regularly outperform their peers in global hackathons. HackerRank data shows Russian developers excel in algorithms and are among the world's top performers. Russians were well-represented in the finalists for the last few editions of Google's Code Jam, and have consistently taken first prize in the international Topcoder competition. And, according to the University of Oxford, Russia is the world's premier hacker hotspot.

However, Russia experienced a brain drain after it invaded Ukraine, with up to 1 million tech workers fleeing between 2022 and 2024. Known in Russia as the *relokanti*, many of them are based in former Soviet countries such as Armenia, Georgia and Kazakhstan.

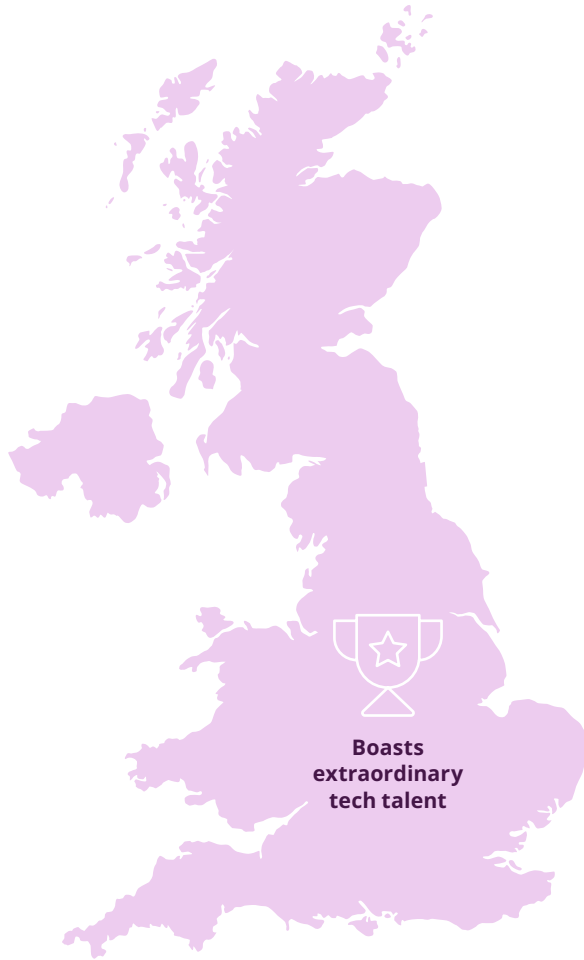
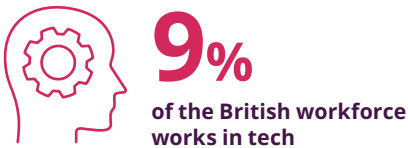
Relokanti have become a prize for Western startup recruiters, owing to their high levels of English proficiency. However, owing to the low starting salary offers, many choose to stay with Russian companies rather than face the repercussions of joining Western startups.



# United Kingdom (UK)

**Great Britain is a world-leading academy.** Partly thanks to its network of universities, its researchers have created companies such as DeepMind and Space Forge.

- World-leading computer science universities
- Strong fintech industry
- Paid less than their American counterparts



Despite a population of only around 70 million, Britain has a **40%** share of the world's best universities and the third-largest share of top-tier computer scientists and AI researchers worldwide.

Britain breeds great software developers. Despite fielding few candidates in Google's Code Jam (2021), the candidates overall had a 1.6% conversion rate for the third round, better than India's 0.26%.

Nearly **9%** of the British population works in tech — that's nearly three million tech specialists. Britain is particularly adept at scaling fintech solutions. It is home to **3,300** fintech companies that employ 362,000 people.

However, while the UK boasts extraordinary tech talent, British tech workers are underpaid compared to their American counterparts. This has hastened the rise of 'Britshoring', whereby US firms outsource certain white-collar functions to their UK subsidiaries.

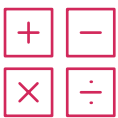
# Poland

**Poland is a factory.** It's a favoured outsourcing destination for tech companies, all drawn by its disproportionately large workforce of over 600,000 highly skilled tech professionals, and the yearly graduate pool of nearly 20,000 STEM specialists.

**Talented IT specialists  
(particularly for enterprise  
software development)**

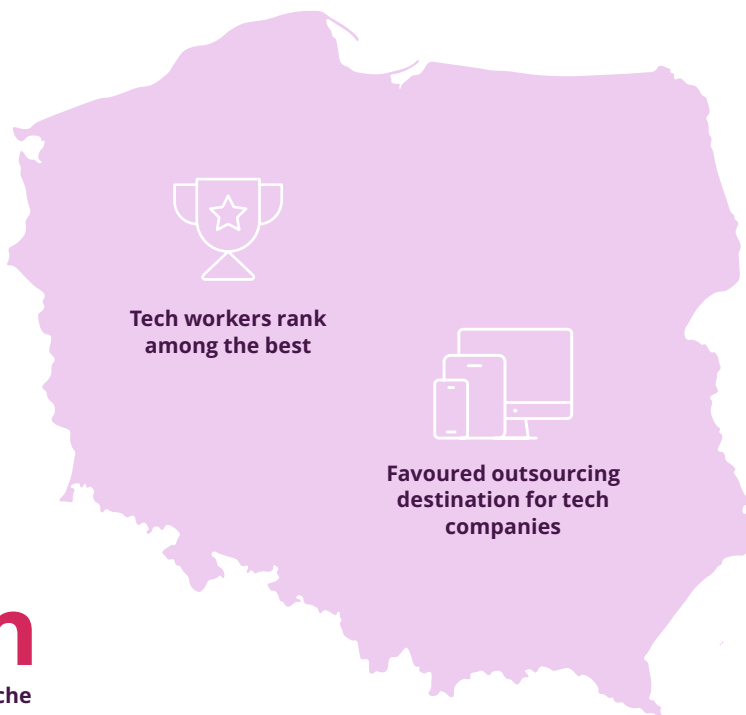
**High level of English proficiency**

**Favourable tax incentives  
for employers**



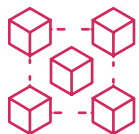
**10<sup>th</sup>**

Polish ten-year-olds rank for maths proficiency globally



**<50%**

the cost of American software engineers



**\$2.5bn**

Software development niche



**60k**

Tech companies

Like other ex-communist nations, Polish education prioritises STEM subjects, particularly numeracy. Polish ten-year-olds rank 10<sup>th</sup> worldwide for maths proficiency. Polish tech workers rank among the best. HackerRank placed them third in 2016, consistently won Topcoder, and they performed incredibly well in the Google Code Jam.

Poland is widely seen as a source of cost-effective talent, particularly for enterprise software development, its \$2.5 billion niche.

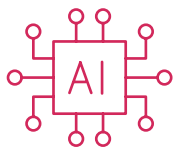
First, Polish software engineers earn roughly half of what their US counterparts make. Second, the government offers favourable tax incentives for businesses employing Polish contractors.

However, wages are increasing yearly owing to the saturation of the market by 60,000 tech companies, including Google, Apple, IBM and Fujitsu. Poland's tech workers may be reasonably cheap now, but they won't be for long.

# Switzerland

**Switzerland is an academy.** It is a global deep tech hub nurtured by a superb education system, which takes a **two-thirds** share of Europe's best IT universities.

- Research-led startup culture
- Strong STEM education
- High levels of AI talent concentration



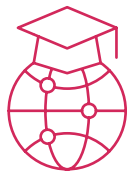
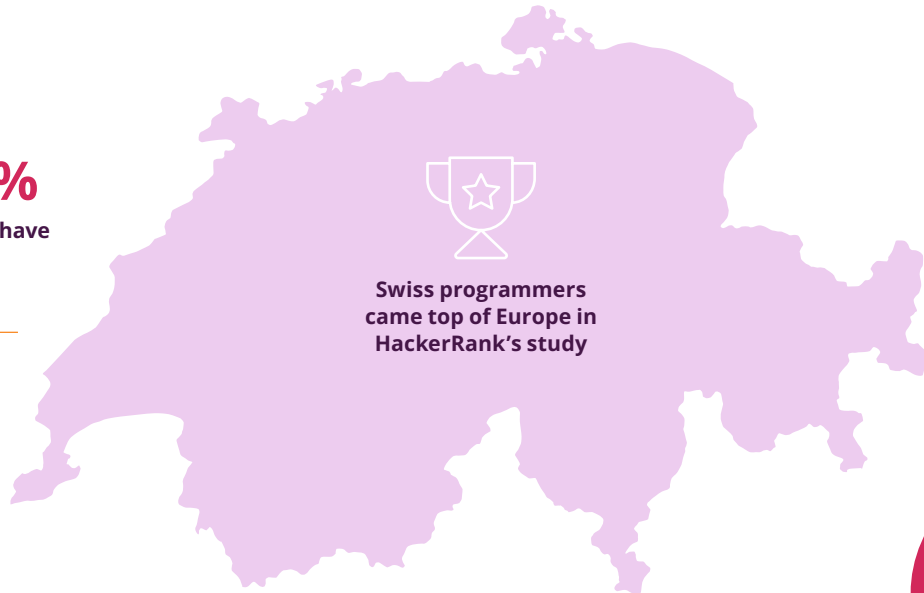
**1.16%**

of the workforce have AI skills



**#1**

Ranked the world's most innovative country for fourteen consecutive years



**1/4**

of graduates specialised in STEM



ETH Zurich and EPFL have created **more** startups than any other university in Europe, apart from Oxford and Cambridge. It's easy to see why this small Alpine nation has been **ranked** the world's most innovative country for fourteen consecutive years.

This translates into results, with Swiss programmers placing well in Topcoder competitions, and rated top in Europe in HackerRank's study, outperforming their European peers in algorithms, databases and security.

Switzerland's tech talent is partly focused on groundbreaking research into quantum computing, AI, robotics and biotech, with **1.16%** of its workforce possessing AI skills. And it's all done, in part, by Switzerland's steady stream of STEM graduates, who account for **one quarter** of all graduates.

Due to its deep well of tech talent, Google, Meta, OpenAI, and Anthropic are all **operating** in Switzerland.



# India

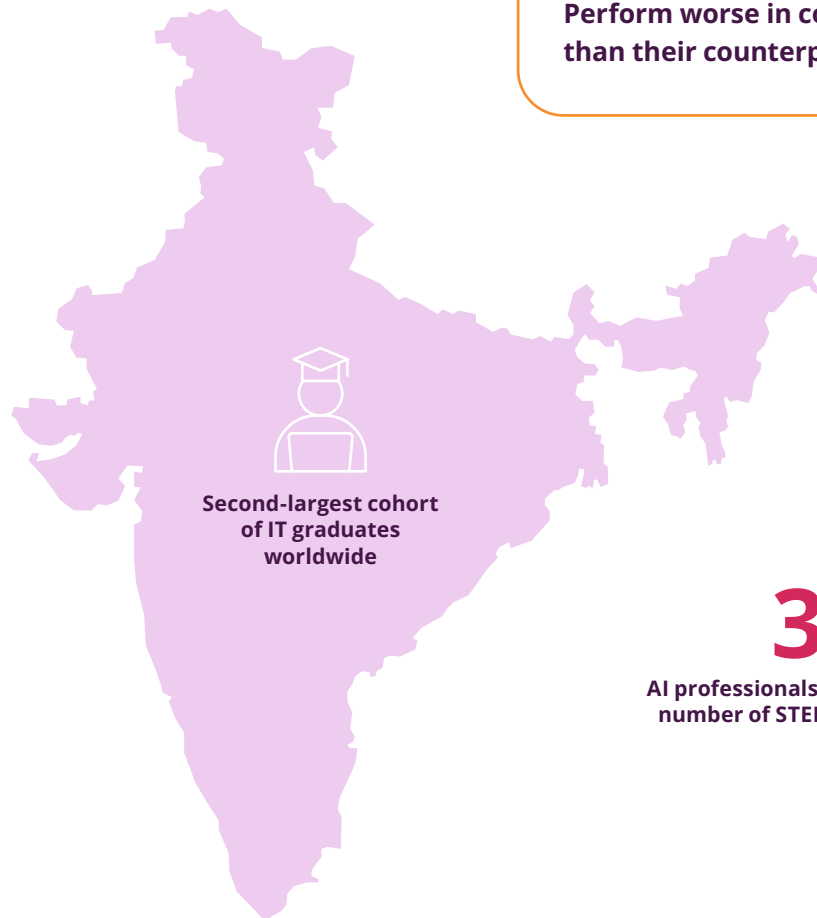
## India is US multinationals' favourite factory.

Indian tech workers are cheap, while its universities produce them in abundance — the second-largest cohort of IT graduates worldwide.

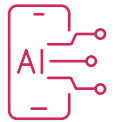


# 5.4m

IT workers



Second-largest cohort of IT graduates worldwide



# 375k+

AI professionals and nearly the same number of STEM graduates as China

India's bustling tech hubs like Bengaluru, Delhi-Gurugram, Hyderabad and Mumbai all contribute to a national workforce of over **5.4 million**, many of whom are proficient English speakers.

However, while the subcontinent boasts **375,000** AI professionals, not a single Indian university features in the CWTS Leiden **rankings** of top universities for science. Similarly, despite fielding half of all the candidates in Google's 2021 Code Jam, not a single Indian programmer got to the final round.

Moreover, in HackerRank's study of 1.5 million programmers, India was in the bottom half worldwide, despite having as much tech talent as the USA. Indian programmers in that study were among the **most likely** to give up a difficult task.

In the US, they are also hard to sponsor owing to the backlogs they face.

Nonetheless, a high-density of digital competency at a competitive payscale makes India a perennial favourite for offshoring and remote hiring.

**The world's second-largest supply of tech workers**

**High level of English proficiency**

**Cost-effective**

**Face H-1B backlogs**

**Perform worse in competitions than their counterparts**

# Romania

**Romania is a factory.** It has more certified ICT specialists per capita than anywhere in Europe — **more** than the USA and Russia, with 192,000 software developers as of 2023, despite its small population of just 20 million.

- Most certified ICT specialists per capita in Europe
- Top performers in programming competitions
- Top global hacking hotspot
- High level of English proficiency



**192k**

Software developers



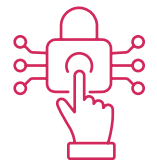
**20%**

STEM-related graduates specialise in engineering



**70%**

less expensive to hire than US programmers



**#6**

in the global hacking hotspots index

Like other post-communist countries, Romania's education system emphasises STEM-related subjects - **20%** of all graduates specialise in engineering.

Romania is a hotbed of tech talent, ranking among the top countries in [Index.dev's 2025](#) study. Meanwhile, in Google Code Jam (2021), Romanian programmers were twelve times more likely to get to the third round than their Indian counterparts.

Romanian tech workers are also highly proficient English speakers. And cost-effective, with software developers earning **70%** less than their American peers.

Romania also ranks in the top ten global hacking hotspots, according to a study by the University of Oxford. After the fall of communism in 1989, many STEM workers were left unemployed and turned to hacking in cities like [Ramnicu Valcea](#). Now, it's home to multiple world-leading cybersecurity companies like Bitdefender, whose software boasts 150 million global users.



# Ukraine

**Ukraine is a factory** — and it's an IT factory dominated by women. **One-third** of Ukrainian IT professionals are women, significantly higher than the global average.

- Top performers in global competitions
- Huge female tech workforce
- Game development specialisation
- High levels of English proficiency



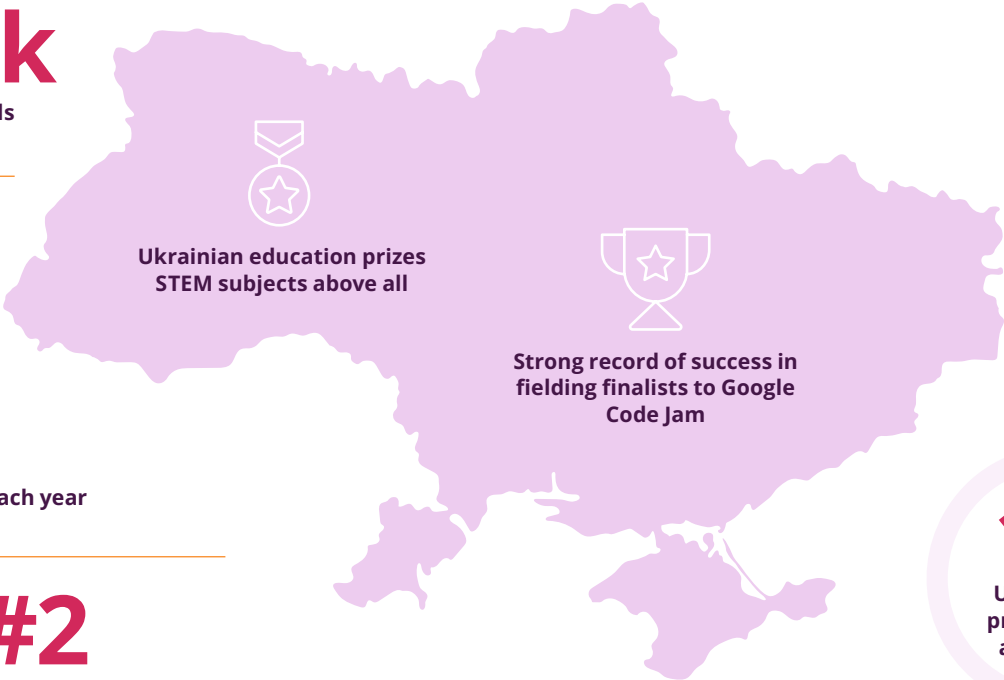
**200k**  
ICT professionals



**18k**  
ICT graduates each year



**#2**  
hacking hotspot in  
Oxford University study



**50%**  
less expensive  
to hire than US  
programmers



Ukraine punches above its weight. It gave the world Grammarly, GitLab, and countless popular video games, with the country hosting **117** game development companies. Being an ex-Soviet country, Ukrainian education prizes STEM subjects above all. It has over 200,000 ICT professionals, producing 18,000 ICT graduates every year.

While Ukrainian software developers' salaries are half of what their American counterparts are paid, the country boasts a strong record of success in fielding finalists to Google Code Jam throughout the 2010s and early 2020s. Ukrainians were also competitive in the Topcoder challenge league tables, and have high levels of English proficiency.

And they're talented, too. According to HackerRank, Ukrainian developers rank among the top five countries for programming, excelling at mathematics, security and distributed systems. This might be why Ukraine is ranked as one of the world's **biggest** hacking hotspots by the University of Oxford.



# Israel

**Israel is an academy.** It's long been called a 'startup nation', but in fact, it's a fully-fledged cyber nation, widely recognised as having the best cybersecurity industry in the world.

**The world's top cybersecurity nation**

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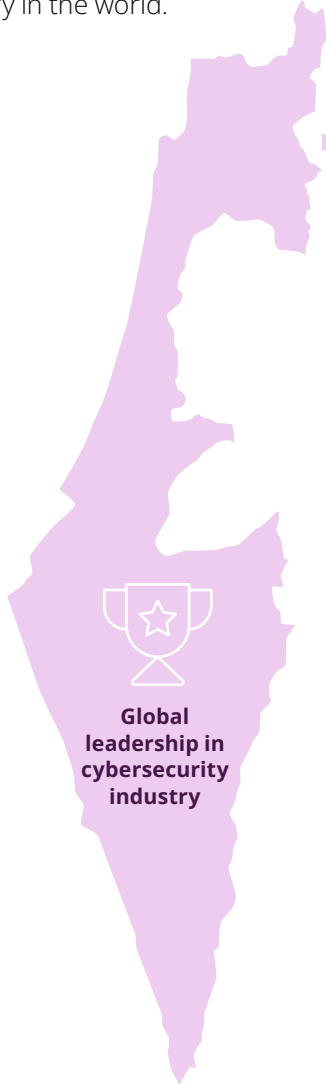
**Developers with military experience**

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**The biggest concentration of AI talent globally**

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**Not as cost-effective as Romania, India or Ukraine**




 **400k**  
Tech professionals

**20%**  
less expensive to hire than US tech professionals 

 **2%**  
of population has AI skills

**500**  
Cybersecurity startups companies 

 **\$\$\$**  
Spends more on R&D than any country

**16**  
Leading computer scientists at its universities 

Israel's cybersecurity specialism is the joint venture of its military, private sector, and higher education institutions. Many of Israel's 500 cybersecurity startups were founded by former members of Israel's cybersecurity intelligence arm of the Israel Defence Forces (IDF), Unit 8200. These startups employ over 16,000 specialists, the vast majority of whom have been on active duty owing to the country's compulsory military service.

The Israeli government spends more on R&D per capita than any other country on earth.

Naturally, Israel has the highest concentration of AI talent globally, comprising nearly 2% of the population, 400,000 people employed in tech, and 16 leading computer scientists at its universities. While many Israeli tech workers speak English, they are generally less expensive to hire than their American counterparts.

As a result of this synergy between Israel's military and universities, Israeli computer scientists have access to extraordinary amounts of capital dedicated wholly to R&D.



3

# Conclusion





## The global tech talent war

**In today's job market, digital skills have become the most valuable currency of all.**

US Big Tech sees talent acquisition as such a high priority that Mark Zuckerberg takes it upon himself to email top AI researchers at other companies personally, to try and poach them for Meta.

Tech recruitment has become an arms race, not only between companies but between nations. The Chinese and American governments know that digital capacity is a strategic issue. That's why China's Thousand Talents Plan offers lucrative packages for Chinese scientists and engineers working overseas to return home.

For companies looking to cost-effectively outsource routine IT capabilities or hire from abroad for mid-level roles, these geopolitical power struggles may seem beside the point. However, the tug-of-war still can't be ignored. Demand for elite skills has a tendency to cascade downwards. In such a hot market, even lower-grade engineers and analysts with skills in machine learning can command higher compensation.



**With AI adoption kickstarting a new round of corporate digital transformation programs, countless companies are realising they need to beef up their digital infrastructures.**

Backed by all-powerful governments, these companies are fighting over a relatively shallow pool of graduates worldwide. This degree of competition can send standard hourly rates spiking unpredictably.

When companies are looking to fill senior or executive positions, the bidding wars can reach extreme levels. Google DeepMind has started offering up to \$20 million per year in compensation for high-calibre candidates.

In this climate, companies without the firepower of a Google or Meta need to think very carefully about how - and where - they look for talent. We hope this guide gives you a framework for making that calculation.

# Tap into a **world of talent**

If you need additional advice and support on your global people operations, our experts have decades of experience helping top companies solve cross-border problems.

Whether you're planning a strategic expansion into a talent-dense jurisdiction, need to relocate a new hire or want support onboarding remote employees abroad, we're ready to help you reach across borders to build a futureproof team.



Get in touch to find out more

