

A background image of a person's face, slightly blurred, with numerous glowing white and yellow fiber optic lines swirling around them, creating a sense of digital connectivity and movement.

DECODING DIGITAL TALENT

WHAT 27,000 DIGITAL EXPERTS IN
180 COUNTRIES TELL US ABOUT
THEIR MOBILITY AND WORK
PREFERENCES

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ABOUT THEIR MOBILITY AND WORK PREFERENCES

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This report is the latest in the Decoding Global Talent series about workforce changes and skills of the future.

A T A TIME WHEN companies find themselves badly in need of people with expert digital skills, these same people are more willing than those without digital expertise to move to another country to gain work experience or better their careers. This makes for a talent pool that is either extensive or elusive, depending on the country. More than two-thirds of digital experts—the human building blocks of digital transformation—would relocate for work, compared with about half of nonexperts. These insights come from one of the largest ever global surveys of digital experts, which was conducted by Boston Consulting Group and The Network. In it, we analyzed characteristics of 26,806 digital experts from 180 countries; those individuals are a subset of the 366,000 people surveyed for our comprehensive 2018 *Decoding Global Talent* report.

We found that the mobility of people with digital expertise varies greatly depending on where they live. In some countries, well over 70% of people with digital expertise would relocate to improve their prospects. In others, including China, most respondents with expert-level digital talent are content to remain at home. The US is the top destination for digital experts worldwide who are willing to take a work-abroad assignment, followed by Germany and Canada. London is their preferred city for working overseas, followed by New York and Berlin. A good work-life balance and the opportunity to learn and train are the aspects of work that digital experts value most.

Perhaps not surprisingly, people with expert-level digital skills are highly educated. Eighty percent have a college degree. Other characteristics: More than two-thirds are men. Despite the common belief that digital experts

work only in fields such as technology and engineering, our analysis shows that jobs for them exist across industries. And about 14% of digital experts have the

high-level AI skills that are increasingly in demand.

If so many workers with expert-level digital skills are willing to move to advance their careers, it's in the best interest of companies and governments to take steps either to attract them or to keep them happy enough to remain where they are. Both mandates require an in-depth understanding of digital experts and what they value. At the same time, companies and governments must understand their own needs for such talent by undertaking a thorough workforce analysis to identify current and future demand for digital experts and how to meet it, through both retraining and recruiting. Organizations and governments must also increase programs and support to bring people into this still-exclusive group.

Individuals who are not proficient in digital skills at the expert level should seek opportunities for training; otherwise, they risk missing the digital wave.

Who Are the Digital Experts?

Of the 366,139 respondents surveyed for our *Decoding Global Talent* report, we identified 26,806 who qualify as experts in digital skills. (See Exhibit 1.) The skills are:

- Data mining, engineering, and analytics
- Programming and web development, including front- and back-end development
- Digital marketing, including influencer marketing and marketing analytics
- Digital design, including user experience (UX) and user interface (UI) design
- Mobile application development
- Artificial intelligence, including machine learning
- Agile ways of working
- Robotics and automation engineering

The top skills of digital experts are in data mining, programming and web development, digital marketing, and mobile application development.

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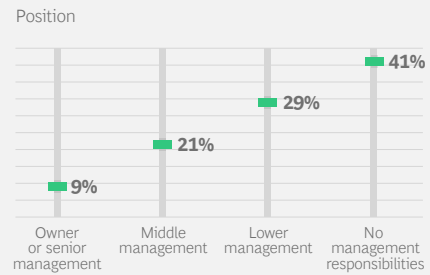
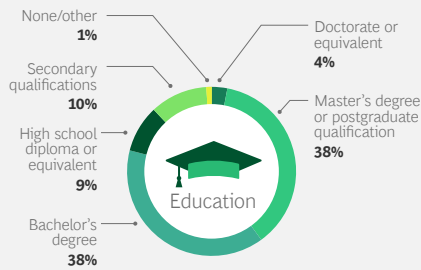
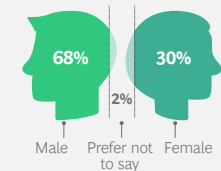
People with expert-level digital skills are highly educated.

EXHIBIT 1

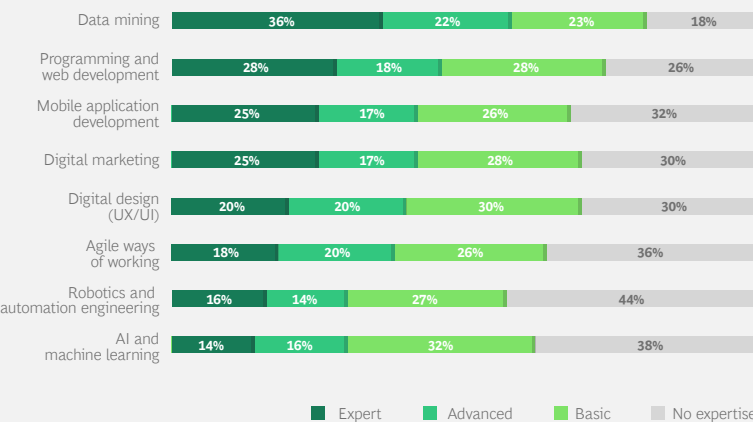
Demographics of Digital Experts

26,806

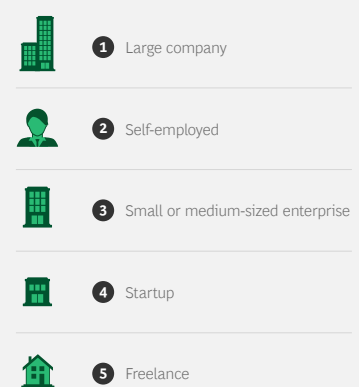
Digital expert respondents



Top skills



Preferred employer



Source: BCG/The Network proprietary web survey and analysis.
Note: Of the 366,139 people originally surveyed for the *Decoding Global Talent* report, we identified 26,806 who qualify as digital experts. Percentages may not total 100 because of rounding.

Smaller proportions of people have expertise in certain digital skills for which we see significant, urgent demand: AI and agile ways of working.

Popular wisdom associates digital experts with startups. But our analysis found that digital experts' preferred employer is a large company, followed by being self-employed and then by working for a small or medium-sized enterprise, working for a startup, or freelancing, in that order.

People with digital expertise are highly educated. Eighty percent have a college degree. In comparison, 67% of people without the same level of digital skill have a college degree. Of digital experts, 38% have a bachelor's degree, 38% have a master's degree or post-graduate qualification, and 4% have a doctorate or equivalent.

Forty-one percent of digital experts work in jobs that have no management responsibilities; of the rest, the largest group works in lower management (29%), followed by middle (21%) and upper management (9%).

Men represent more than two-thirds (68%) of people with high-level digital skills. By comparison, men and women are equally represented in the group of survey participants who are not digital experts.

Digital Experts Would Move to Advance Their Careers

Our investigation shows that digital experts are more willing than nonexperts to leave home to improve their careers. The trend is strongest for residents of developing economies, who would move to countries that offer better opportunities to advance in their jobs.

“The top destination worldwide for those willing to relocate for work is the US.

Also popular are regional moves and relocating to an area with a common language or culture.

In all, two-thirds (67%) of digital experts in our survey would relocate outside of their home country for work, compared with 55% of non-

experts. (See Exhibit 2.) Digital experts who live in India and Brazil are especially willing to move to a different country for the right job; more than 75% of digital experts in those countries are open to relocating. In other parts of the world, people with digital expertise would rather remain where they are. For example, just 38% of digital experts in China would relocate to another country for work.

Regardless of skill or expertise areas, the US is the top destination worldwide for those willing to relocate for work; the country is even more popular among digital experts. (See Exhibit 3.)

Germany, Canada, Australia, and the UK round out the five most attractive work destinations for digital experts, just as they did for the overall global workforce. They are followed by Spain, France, Switzerland, Italy, and Japan as assignments for working abroad, all of which are also among the ten most attractive destinations for the overall workforce.

On the surface, global willingness to relocate looks expansive. On closer examination, though, in many parts of the world people with expert-level digital skills are most interested in moving to a nearby country or to a place with a shared language or culture. (See Exhibit 4.)

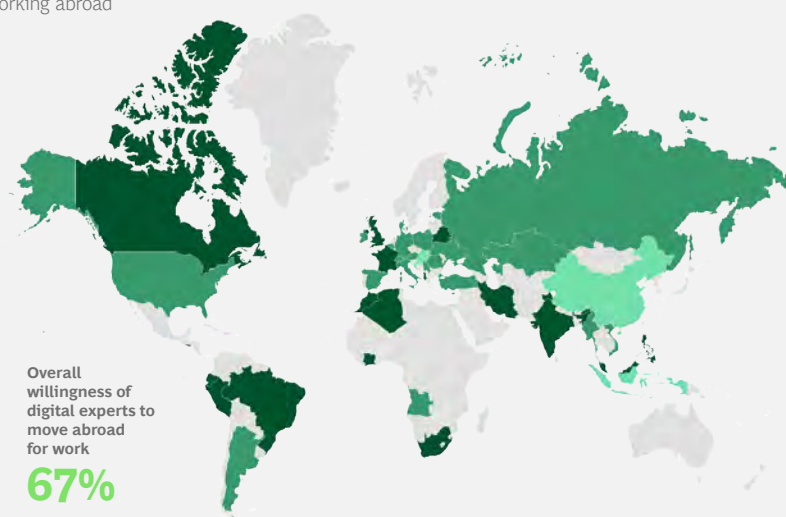
For example, seven of the top ten countries that European digital experts would move to for work are within the region; they include Germany, the UK, and Switzerland. The top-ten work-abroad destinations for digital experts from Latin America include the US, Canada, Argentina, and Brazil, all of which are fairly close geographically, and Spain, which shares a common language. Likewise, half of the top-ten destinations for digital experts in Asia-Pacific are within the region: Australia, Japan, Singapore, Malaysia, and South Korea.

EXHIBIT 2

Willingness of Digital Experts to Move Abroad, by Country

Percentage of respondents who are already working abroad or are willing to move abroad for work

China	Angola	Albania
Croatia	Argentina	Algeria
Hungary	Austria	Belarus
Indonesia	Belgium	Brazil
Israel	Denmark	Canada
Slovakia	Estonia	Cyprus
	Germany	Ecuador
	Ireland	El Salvador
	Italy	France
	Kazakhstan	India
	Myanmar	Iran
	Poland	Ivory Coast
	Romania	Malaysia
	Russia	Morocco
	Serbia	Peru
	Spain	Philippines
	Switzerland	Singapore
	Turkey	South Africa
	Ukraine	UK
	US	
	Vietnam	



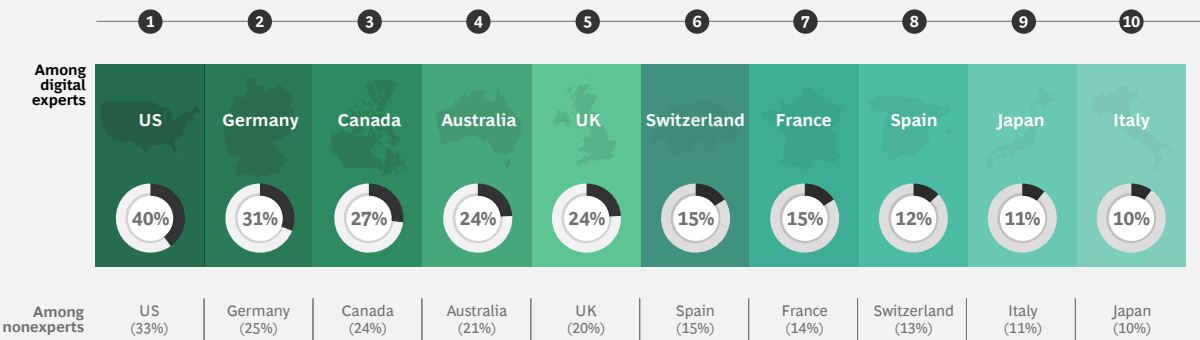
Source: BCG/The Network proprietary web survey and analysis.

Note: Listed are the countries from which there were more than 250 respondents; other countries are shown in gray.

EXHIBIT 3

Top Ten Most Attractive Countries for Digital Experts

Ranked by percentage of respondents willing to move to each country for work

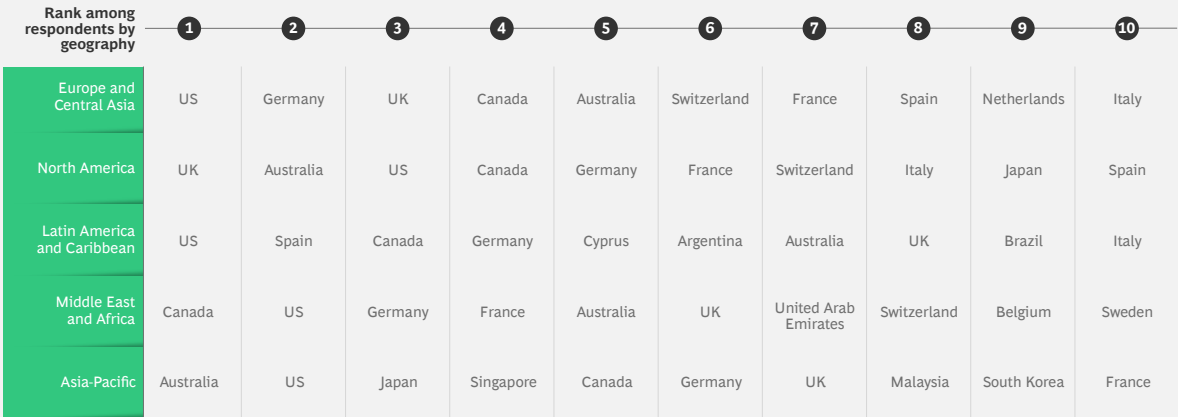


Source: BCG/The Network proprietary web survey and analysis.
Note: Respondents could select multiple countries.

EXHIBIT 4

Top Work Destinations for Digital Experts by Geography

Ranked by percentage of respondents willing to move to each country



Source: BCG/The Network proprietary web survey and analysis.

Other factors that could explain the choices of those willing to work abroad, albeit within their home region, are ample job opportunities in nearby strong economies and jobs with compensation and benefits that rival what they would find elsewhere.

London, the top city globally for people anywhere willing to relocate, is also the top work destination for digital experts. (See Exhibit 5.) New York is second as a desirable work destination for digital experts, equal to its ranking

among nonexperts. Berlin, Amsterdam, and Abu Dhabi also hold slightly more appeal for digital experts than for nonexperts. Based on these findings, it's clear that the appeal of top-ranked cities exceeds their countries' attractiveness among people with digital expertise.

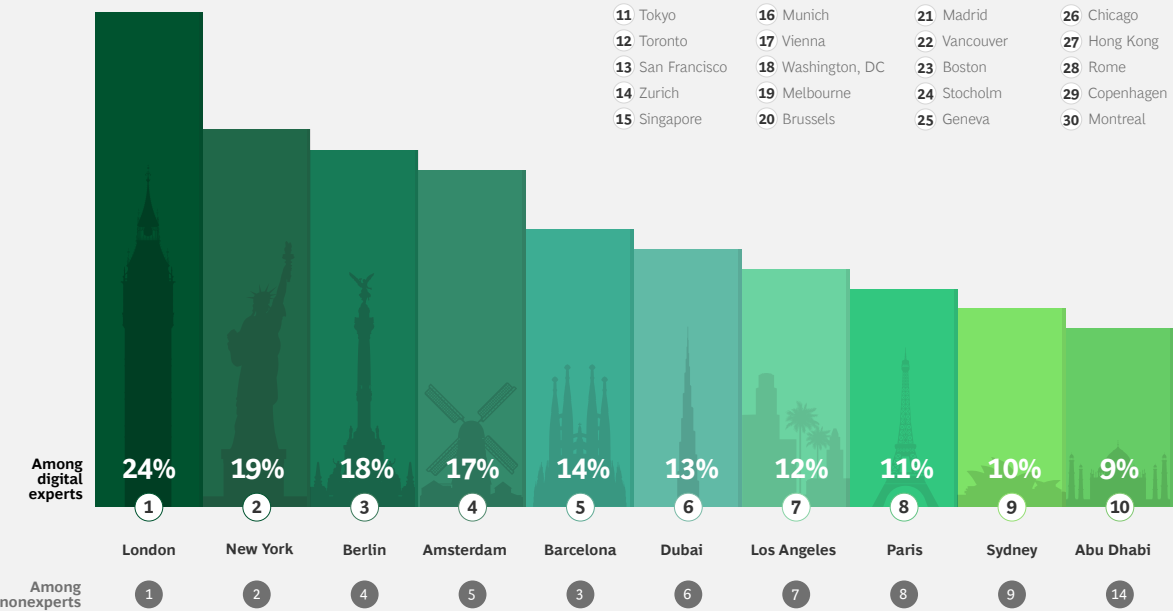
What Digital Experts Value on the Job

People who are digital experts value a good balance between work and the rest of their

EXHIBIT 5

Top Ten Most Attractive Cities for Digital Experts

Ranked by percentage of respondents willing to move to each city for work



Source: BCG/The Network proprietary web survey and analysis.
Note: Respondents could select multiple cities.

lives, and they love to learn. Of 26 important job factors that respondents could choose in our survey, digital experts put work-life balance and learning and training at the top of their list. (See Exhibit 6.) Those work preferences are closely followed by opportunities for career development and maintaining good relationships with colleagues.

Zoltan Fuzesi, a freelance IT services provider and entrepreneur in Budapest, relies on a variety of training to keep up his digital skills, but he also does it for fun. “I do a lot of online trainings. I read magazines. I watch YouTube,” Fuzesi said. “I try to develop myself, because it’s necessary and I enjoy it.”

Digital experts appreciate maintaining a good relationship with their manager. They place a higher value on doing interesting work than people without the same level of digital skill do. In addition, they put feeling appreciated for what they do and working in a creative,

innovative environment among the job factors they appreciate most.

AI and Agile Experts

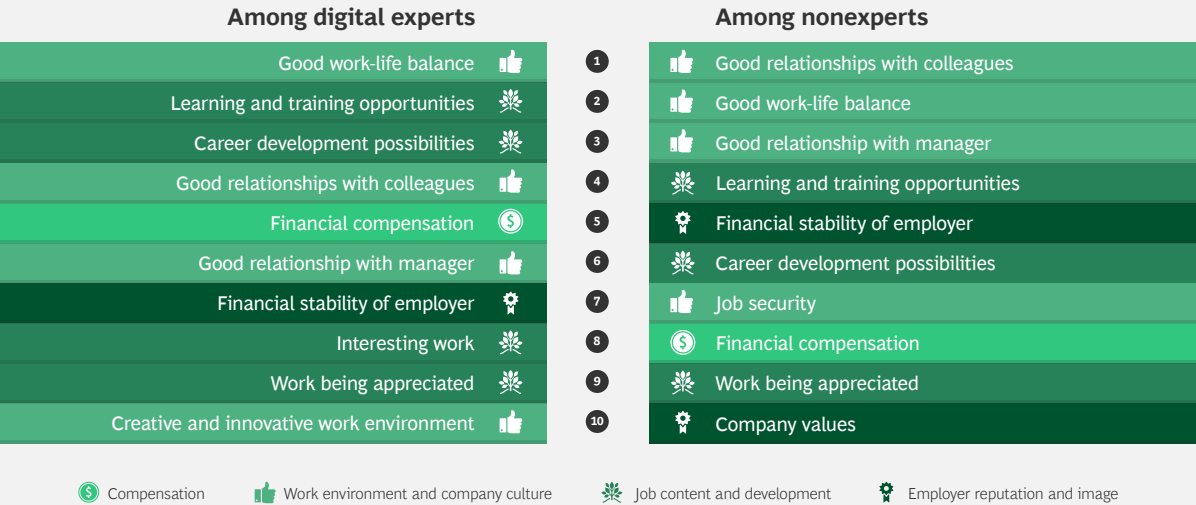
In our survey, we tallied 3,666 people whom we identify as AI experts—that is, people with specialized knowledge of AI skills and the ability to teach what they know. That number puts AI talent at about 14% of our digital expert respondents.

Like digital experts in general, AI experts prefer to work for large companies. But people with expert-level AI skills differ from other digital experts in several ways. Our analysis found an even larger gender gap, with men accounting for 72% of AI talent, compared with 68% for digital experts in general. (See Exhibit 7.) Although digital experts in general are most likely to work in the IT and technology industries, AI-specific experts are represented almost equally in IT and technology, engineering, and indus-

EXHIBIT 6

What Matters Most on the Job

Top ten work preferences among digital experts



Sources: BCG/The Network proprietary web survey and analysis.
Note: Survey respondents selected their top preferences from among 26 possible job factors.

trial goods and manufacturing. Digital experts in general rank opportunities for learning and training as their second most preferred job factor; for AI-specific experts, those opportunities are number one.

Seventy percent of people with expert-level AI skills are willing to relocate for work, slightly more than other digital experts. AI experts’ preferences for an overseas work destination are similar to those of other digital experts. Their two top choices are the US (38%) and Germany (34%), with New York and Berlin being major tech hubs that offer ample job opportunities for people with the latest skills.

Some of the job factors that AI experts value the most differ on the basis of where they live—as is the case with digital experts in general. AI experts in North America, for example, place the greatest value on opportunities for learning and skills training and good relationships with their manager and co-workers. AI experts in Europe prioritize opportunities for learning and skills training, a good work-life balance, and good relationships with colleagues. And AI experts in Latin

America place the highest value on job factors that help them get ahead, including learning and skills training, career development, and opportunities to lead and take responsibility.

Like AI, agile is an emerging skill defining people who qualify as digital experts. Based on our survey, 18% of digital experts have expert knowledge of agile ways of working.

Agile experts are more likely than AI experts to work in the IT and tech industries. Twenty percent of agile experts work in those industries, compared with 9% of AI experts. People with agile expertise prefer to work for a large company. Like AI experts and digital experts, their top choices for relocating for a work opportunity are the US and Germany.

How Companies, Governments, and Individuals Can Adapt

Digital experts are a hot commodity.

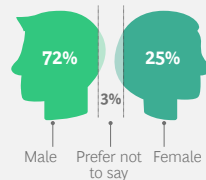
For employers in need of talent with expert digital skills to run or expand their businesses, that means more competition for people

EXHIBIT 7

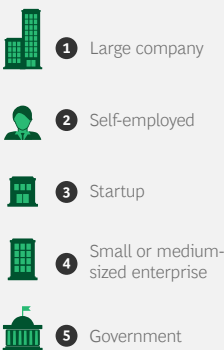
A Snapshot of AI Experts

3,666

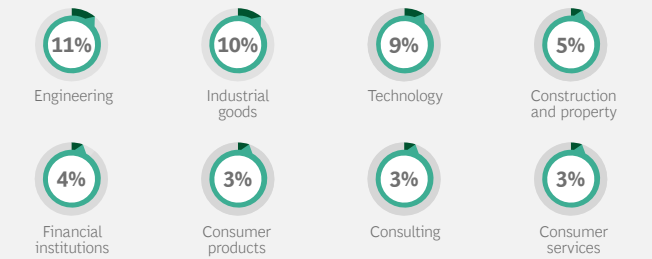
AI expert respondents



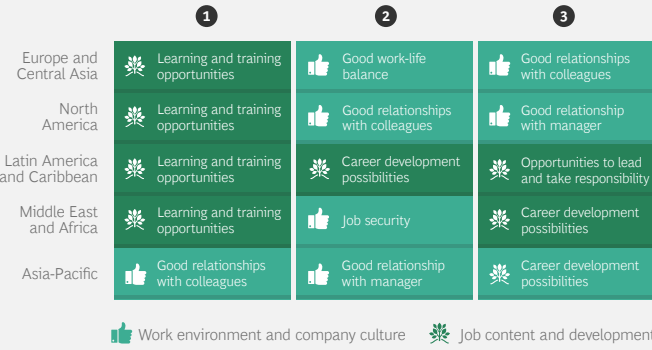
Preferred employer



Top industries
Share of talent with expert AI skills



Work preferences



Mobility

Willingness to work abroad



Respondents who do not have expertise in any digital skills



Top ten countries AI experts would move to for work¹

- 1 US (38%)
- 2 Germany (34%)
- 3 Canada (26%)
- 4 Australia (25%)
- 5 UK (19%)
- 6 France (17%)
- 7 Japan (14%)
- 8 Switzerland (13%)
- 9 Spain (9%)
- 10 Italy (9%)

Source: BCG/The Network proprietary web survey and analysis.
Note: AI expertise encompasses skills in either AI or machine learning.
¹ Respondents could select multiple countries.

with that digital expertise. For countries, it creates a need to provide welcoming job environments that will attract and retain digital experts and to support initiatives that will foster digital expertise among a greater number of native residents. And for the digital experts themselves, who are in the enviable position of having knowledge that makes them sought-after workers, it opens opportunities to advance in their careers. (See the sidebar.)

People who aren't digital experts need to find ways to build up in-demand skills in order to become more attractive job candidates.

IMPLICATIONS FOR COMPANIES

Before companies do anything, they must understand the impact that digital trends such as AI, robotics, and automation will have on their workforce and how to upskill current employees or recruit digital experts to fill potential gaps.

Identify workforce gaps and surpluses and create a strategic workforce plan to forecast needs for specific job functions. Companies can begin by segmenting their current workforce, by job function, and researching relevant new job types that could require digital expertise.

As part of this effort, they can run simulations of workforce supply, considering factors such as attrition rate. They also can run simulations of workforce demand, to determine the capacities and skills that will be instrumental to carrying out current and future business strategies.

The resulting workforce plan can be used as the basis for HR initiatives to fill gaps through recruiting, training, outsourcing, and hiring freelance or contract help. If necessary, it can also be used to reduce workforce surpluses through downsizing.



Nahin Jardines

“There Are Jobs for Me”

Nahin Jardines was already working in his chosen field—IT—but jumped at an offer to transfer from his home country of Mexico to work in Spain, which is the second most popular destination for digital experts from Latin America and the sixth most attractive for people with expert-level digital skills worldwide.

Jardines earned a computer-engineering degree and taught that subject at a university in Mexico before landing an IT systems job with the Mexican branch of a Spanish bank. A year later, the bank offered to move him to Madrid. “I came because at the time I wanted to understand the Spanish culture,” Jardines said.

Since then, he’s switched jobs, but he’s still in Spain and now works as a senior developer and programmer for a financial services company based in North America.

“Right now, there is a lot of demand for IT technologies, but Spain doesn’t have enough computer engineers,” Jardines said. “That’s the reason I’m still here. Because there are jobs for me.”

Close digital talent gaps through upskilling, reskilling, and recruiting. After completing a workforce plan, companies can determine whether they can meet digital-skill requirements for specific positions by upskilling or re-skilling current employees or need to recruit from outside the organization to fill positions. Upskilling and reskilling programs should focus on turning existing workers into digital experts, and digital training and qualifications should be aligned with specific business needs. Recruiting efforts should focus on finding digital experts with profiles and skills that match the company’s overall strategic goals.

Using freelancers and independent contractors, who can be hired on a temporary or as-needed basis, provides additional flexibility in staffing roles that require expert digital skills.

Regardless of the ultimate specific plan, companies should map out costs and schedules

and put in place the means to measure success in reaching stated goals.

Attract and retain digital experts by offering things that they want and value. Many digital experts aren’t in management—and may not aspire to be. Companies need to appeal to this nonetheless valuable population by creating non-management career tracks that include recognition and compensation for other accomplishments, such as teaching what they know.

Because digital experts appreciate opportunities for learning and training more than almost any other aspect of work, companies must offer plenty of chances for them to get those things, such as being assigned to short-term projects where they could pick up or improve on a digital skill.

If companies need to recruit digital experts

from outside their existing workforce, they should consider looking beyond traditional geographical boundaries. External hiring efforts should focus primarily on countries that are nearby or that share a common language or other cultural bonds, given that many people with digital skills decide where they would take a job based on those preferences.

IMPLICATIONS FOR GOVERNMENTS

Bringing individuals with high-level digital skills into the workforce increases a country's economic success and can help it be a front-runner in digital development. So, governments must take steps to create attractive work destinations, whether in cities or across entire countries. That way, they can retain residents with digital skills who might otherwise leave for a better opportunity elsewhere, attract and keep similar people from other places, and encourage former residents to return.

Conduct a country-wide strategic workforce plan. Just as companies undertake workforce plans, governments can make geographical workforce plans. They can start by building a quantitative model of the country's demand for and supply of digital experts. This model will reveal gaps and surpluses of digital talent across the area; a gap analysis using digital trends can show likely changes over time. The results of this analysis can help governments develop strategies to become a hub for digital experts.

Close digital talent gaps. Governments can increase their countries' overall population of digital experts by supporting education programs, including programs to train women, who remain underrepresented in the population of workers with digital expertise.

“Attracting individuals with digital expertise increases economic success.”

Potential measures could include building digital-skills training into the curricula at all education levels and subsidizing boot camps and classes. Partnerships between public- and private-sector groups could yield solutions such as university programs sponsored by private industry.

Create a national employment “brand” to support in-bound mobility. Areas that are popular work destinations for digital experts can take advantage of that standing and play up their attractiveness in image campaigns that include advertising, publications, and other forms of communication.

At the same time, countries should create pathways that make it easier for highly skilled individuals to immigrate for work, including programs to bring back residents who have moved away for work.

Avoid becoming an “education only” country. It's not enough for governments to produce programs to attract international students to relocate to study in the country. Industries that need digital experts to flourish count on those individuals to stay once they are done in the classroom. Governments can support them by making it easier to receive a work permit so that they can find work where they can apply those newly earned skills.

IMPLICATIONS FOR INDIVIDUALS

People with digital expertise are in demand.

To become one of those people, individuals should seek opportunities for training. They must think outside the box about both training and job prospects, including being open to moving somewhere else. They must accept the fact that if they want to acquire and hone expert-level digital skills, learning will be a lifelong endeavor.

Build up digital skills. With the appropriate retraining or upskilling, nonexperts can achieve higher-level and even expert-level skills—and, in the process, they can become more attractive job candidates. People who can combine expert-level digital skills with industry-specific knowledge are especially attractive as job candidates because of the breadth of their talents. While acquiring

some digital skills requires a degree, obtaining others is much simpler. For example, it's possible to become certified as an agile scrum master without going to school full-time. Individuals can also add to their existing skills through their day-to-day work by, for example, steering required training toward digital skills.

Be flexible. Job hunters should not limit the scope of their search. Widespread digitization and innovation are creating positions that require digital skills not just in IT and engineering but also in such fields as finance and health care. Likewise, the best opportunities for advancement may exist outside of a person's homeland, if they are willing to make a move. For people who are in the middle or later stages of their careers and who have deep industry expertise, adding digital skills to an existing knowledge base can be a way to improve their prospects in a job search.

Realize that keeping skills current is a career-long endeavor. Technology is constantly evolving, making it crucial to continue learning to stay abreast of what's

new. Individuals should steer learning toward digital skills that are witnessing strong surges in demand, such as AI and agile. They should use opportunities provided by employers to gain skills on the job, and take advantage of different types of training, including online courses, to broaden their knowledge.

PEOPLE with superior digital skills are in demand all over the world. Our research clearly shows that people with digital expertise are more willing than nonexperts to move for a job opportunity. By studying this group, we also now understand the aspects of work that they value most, such as learning and training, and why they would take a new opportunity. If companies, cities, and countries want to become magnets for digital experts, they must act on these findings or risk losing out to faster-acting competitors.

NOTE TO THE READER

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