Competence over Credentials: The Rise of Skills-Based Hiring

DECEMBER 11, 2023

By Sagar Goel, Orsolya Kovács-Ondrejkovic, Rucha Vankudre, Scott Bingham, and Julia Nitschke

It's been called the "death of the degree." A static college degree seems less relevant when rapid technological change requires employees to dynamically acquire new and evolving skills—to upskill and reskill, again and again. People looking for employment agree: in a 2022 BCG survey, many job seekers told us they wished employers would look at skills and experience instead of degrees and certificates.

And now, many companies say they are doing just that.

But how much, and how successfully? To better understand the prevalence and impact of skills-based hiring, Lightcast and BCG took a big data approach, examining more than 20 million job postings. (See

"Methodology.")

This article is jointly published by Lightcast and BCG. It relies on Lightcast's review of job-posting data and social profile data and the analysis of that data by Lightcast and BCG.
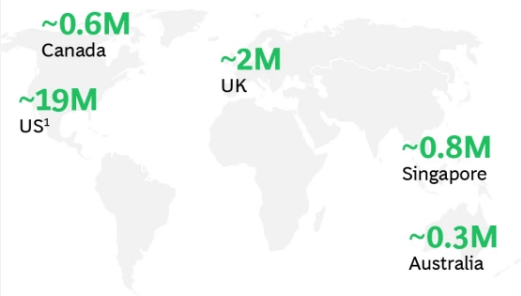
Job-Posting Data

To conduct this analysis, Lightcast mined its dataset of millions of job postings. Lightcast collects postings from more than 65,000 online job sites, aggregating them, removing duplicates, and extracting data from the text to create a comprehensive, current portrait of labor market demand. This includes information on job titles, employers, industries, and regions, as well as required experience, education, and skill. The analysis is based on 22 million job ads across five countries in 2012, 2017, and 2022. We used machine learning to clean and standardize the data. See the exhibit below for more detail.

We examined some 22 million job postings across five countries

Countries
TOTAL JOB POSTINGS FROM 2012, 2017, AND 2022

~0.6M Canada
~2M UK
~19M US[1]
~0.8M Singapore
~0.3M Australia

Career areas
DERIVED FROM DESIGNATED ROLES; % OF TOTAL JOB POSTINGS

Career area	%	Career area	%
Information technology	22%	Education and training	3%
Business management and operations	13%	Community and social services	3%
Finance	11%	Law, compliance, and public safety	2%
Engineering	8%	Clerical and administrative	2%
Sales	7%	Design, media, and writing	2%
Human resources	6%	Construction and architecture	2%
Marketing and public relations	6%	Manufacturing and production	1%
Health care	5%	Hospitality, food, and tourism	1%
Social analysis and planning	5%	Customer and client support	1%
Science and research	3%	Others[3]	<1%

Years of data gathering
TOTAL JOB POSTINGS

4M	6M	12M
2012	2017	2022

Source: Lightcast and BCG analysis of 22 million job postings in five markets, 2023.
[1]US data from 2012, 2017, and 2022. [2]2012 data available only for the US market. [3]Agriculture, maintenance, performing arts, personal services, and transportation.

Lightcast identified occupations that normally require a bachelor's degree or the

equivalent based on job ad data, defined by at least 50% of job ads for the given occupation requiring a bachelor's degree or higher. We then excluded occupations that require specialized education and licensing, where skills-based hiring is not feasible (doctors, lawyers, dentists, and so on). We based our analysis on five markets from different regions, representing a mix of cultures.

The following counts represent the number of occupations analyzed for each country:

- US: 265

- Canada: 242

- UK: 253

- Australia: 227

- Singapore: 170

Then, we looked at the share of job ads for these occupations that required a degree in 2017 versus 2022 and compared these across countries, career areas, and occupations (career areas are aggregations of occupations).

Social Profile Data

Lightcast uses social profile data to understand the supply side of the economy. When people share their career history online, they offer insight into their education, skills, and career trajectory. By collecting aggregated, anonymous data from millions of profiles, Lightcast can measure the supply of talent in a region and provide insight into how skills and jobs develop into career pathways, enabling success and opportunity for workers. The dataset used contains profiles for more than 100 million anonymized individuals and contains information on job titles, companies, skills, and education. As with our analysis of job postings, we used machine-learning algorithms to deduplicate profiles and enrich the raw data contained in each profile—job titles and company names were standardized, skills were extracted, and education information was standardized.

Specifically:

- Lightcast analyzed 13 million US profiles to understand how skills-based hires differ from other hires in their career progression.

- First, this involved identifying skills-based hires: those who have worked in a role that usually require a bachelor's degree or higher but do not possess a bachelor's degree.

- We also identified traditional hires: those who are working in a role that generally requires a bachelor's degree or higher and do possess a bachelor's degree.

- Then, we looked at the role and company the person started at most recently, in the 2014-to-2017 period, and calculated tenure at that company in that role and in other roles, as well as promotions that they had at that company. We looked at jobs held through end of 2022.

- We divided the population into skills-based hires versus traditional hires to understand how career outcomes differ.

In addition, we have interviewed more than 15 experts from leading companies on their current skills-based hiring practices, their future plans, and the challenges they face.

What's Tearing Down the Paper Ceiling?

The answer lies in these trends:

- As noted, technology is driving a constant need for new skills, especially given the advent of AI and generative AI. But according to Pearson Business School research, only 13% of college graduates have the skills needed to start a job right away. Further, 54% of college graduates don't work in their original field of study, and the jobs that will be available in five to ten years might not even exist today. For all of these reasons, the value of a traditional degree has come into question.

- At the same time, organizations are struggling to find the talent they need. Unemployment remains remarkably low, the workforce is aging, and open positions remain unfilled.

- Moreover, employees' expectations have evolved. Workers are increasingly mobile. They seek flexibility. And they hold the power in a market where there's greater competition for talent than ever before.

- Meanwhile, candidates who are self-taught or who gained their skills through experience are becoming a major force on the labor market: in the US alone, 70 million people can be categorized as "STARs"—workers without bachelor's degrees who are "skilled through alternative routes."

In the ensuing tug-of-war for skilled individuals, organizations must rethink their approach to recruitment. They must widen their recruitment lens to capture the diverse skills and experiences of a changing workforce. They need to shift from "degree and pedigree" to "will and skill." By embracing skills-based hiring, they will tear down the paper ceiling that has kept individuals without degrees from entering certain occupations and advancing once there. As one CEO we interviewed told us, "A person's educational credentials are not the only indicators of success, so we advanced our approach to hiring to focus on skills, experiences, and potential."
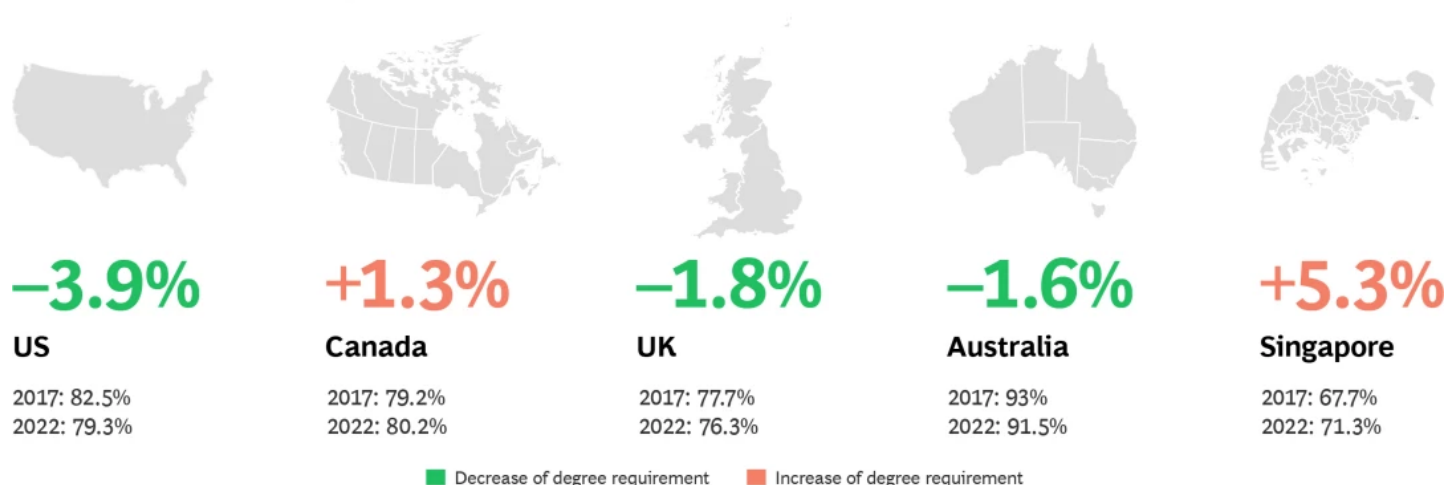
Where Is Skills-Based Hiring Taking Hold?

In many countries and professions, it seems that employers are beginning to embrace skills-based hiring. In our analysis, we looked at jobs that would historically require a college-level degree or equivalent ("college-level jobs") and compared the percentage of job ads that actually asked for one in 2017 versus 2022. On average, we found a slow decrease in the share of job ads that require degrees. However, we found major differences driven by geography and occupations.

Trends by Country. When it comes to a decrease in degree requirements, the five countries we analyzed show very different trends. Labor market conditions don't explain these differences—for instance, lower unemployment does not translate to a trend toward relaxing hiring requirements. Different starting levels for degree requirements could account for some of the difference, but not all. Cultural factors are likely at play: Do employers have an open mindset, for example? Do they see the value of a diverse workforce?

The "paper ceiling" is eroding slowly and to a different extent by market

Change in BA+ degree requirements in job postings for college-level occupations
PERCENTAGE CHANGE BETWEEN 2017 AND 2022

−3.9%	**+1.3%**	**−1.8%**	**−1.6%**	**+5.3%**
US	**Canada**	**UK**	**Australia**	**Singapore**
2017: 82.5%	2017: 79.2%	2017: 77.7%	2017: 93%	2017: 67.7%
2022: 79.3%	2022: 80.2%	2022: 76.3%	2022: 91.5%	2022: 71.3%

■ Decrease of degree requirement   ■ Increase of degree requirement

Source: Lightcast and BCG analysis of 22 million job postings in five markets, 2023.

The US leads the shift to skills-based hiring, across career areas. Many large employers with a sizable US labor force are embracing the trend, among them Dell, Accenture, IBM, and Amazon. The US government is, too: In January 2021, the White House announced limits on the use of educational requirements when hiring for IT positions. Looking predominantly at college degrees, it said, "excludes capable candidates and undermines labor-market efficiencies. Degree-based hiring is especially likely to exclude qualified candidates for jobs related to emerging technologies."

In Canada, the UK, Australia, and Singapore, there is a lesser shift and a different mix of career areas affected. In some areas, the requirement for a degree even increased from 2017 to 2022. This is particularly notable in Singapore, where the emphasis on degrees continues, even though the Singapore Institute of Management stated in March 2023 that "there are 2.5 vacancies for every unemployed person here in Singapore … employers must look to widen the talent pool by going beyond the convention of looking at education qualifications." Nonetheless, the Institute pointed out, one job advertisement seeking a driver of heavy vehicles included a requirement for a bachelor's degree.

The US leads the way in skills-b

PERCENTAGE CHANGE IN BA+ DEGREE REQUIREMENTS IN JOB

Country view

⊗ ↓ −3.9%
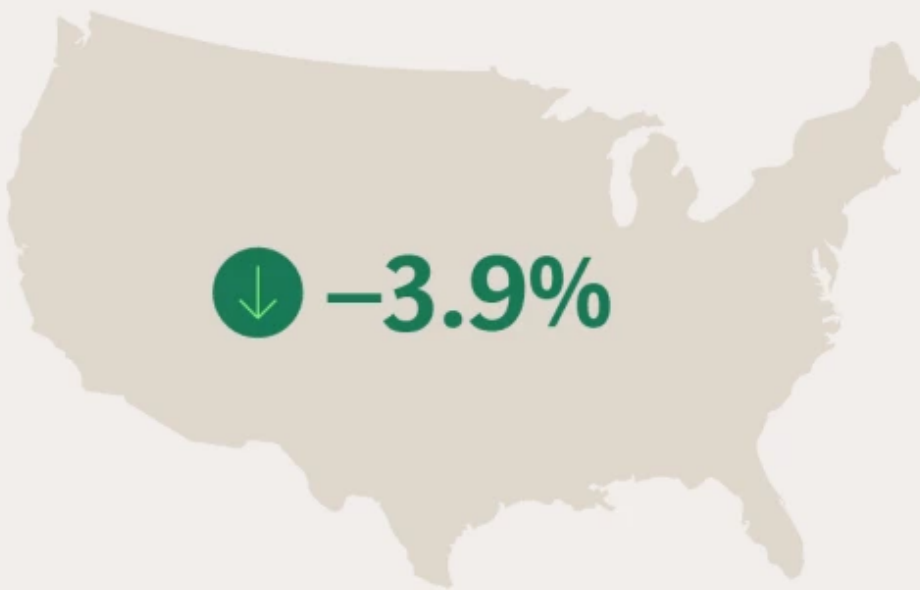
Source: Lightcast and BCG analysis of 22 million job postings in five markets, 2023.

Trends by Career Area. Not surprisingly, the nature of a job has a significant impact on degree requirements. What *is* surprising? The large differences we see across markets even within a single career area, such as IT, business management, and marketing.

Trends in degree requirements differ across career areas

PERCENTAGE CHANGE IN BA+ DEGREE REQUIREMENTS IN JOB POSTINGS FOR COLLEGE-LEVEL OCCUPATIONS, 2017 VS. 2022

	US	Canada	UK	Australia	Singapore
Agriculture, horticulture, and the outdoors	−18.9	−8.1	−11.8	N.A.	N.A.
Business management and operations	−4.7	1.0	−0.8	−1.3	11.3
Clerical and administrative	−6.7	12.9	−28.5	−6.6	N.A.
Community and social services ⊘	−4.7	−1.2	−39.3	−3.5	−11.8
Construction, extraction, and architecture ⊘	−10.3	6.3	−0.4	−0.3	−3.5
Customer and client support	−0.3	−12.3	1.3	−5.4	N.A.
Design, media, and writing	−3.7	4.4	2.0	1.1	−15.4
Education and training ⊘	−6.7	−8.4	−2.5	−6.6	6.8
Engineering	−0.5	1.2	3.1	0.4	6.2
Finance	−7.6	−3.6	0.2	−0.9	4.1
Health care ⊘	−4.4	−3.5	−0.5	−1.5	−3.8
Hospitality, food, and tourism ⊘	−2.6	−2.8	−0.3	−10.2	−34.1
Human resources ⊘	−2.4	8.1	−3.7	−1.2	−1.6
Information technology	−2.7	3.0	2.9	−0.2	10.8
Law, compliance, and public safety ⊘	−14.4	−5.9	−3.5	−2.0	11.4
Maintenance, repair, and installation	N.A.	−12.8	N.A.	N.A.	N.A.
Manufacturing and production	−10.3	6.6	2.1	−4.1	6.7
Marketing and public relations	−3.0	2.4	−0.7	−1.2	9.6
Performing arts	−9.8	N.A.	−16.5	N.A.	−13.7
Personal services	N.A.	−27.9	N.A.	N.A.	−25.7
Sales	−3.0	3.9	2.0	−0.3	18.2
Science and research	−1.2	N.A.	−0.9	−0.5	6.6
Social analysis and planning	−3.2	0.9	−3.2	−2.0	11.8
Transportation	−11.7	2.7	N.A.	N.A.	N.A.

Source: Lightcast and BCG analysis of 22 million job postings in five markets, 2023.
Note: N.A. = Not available.

⊘ Decrease in all markets   ⊘ Decrease in four markets

For some occupations, the need for degrees is decreasing across all five countries: in community and social services (for example, counselors and case workers), in health care (for example, support roles, such as lab technicians, hospital staff, and medical practice managers), and in hospitality, food, and tourism (for example, event planners and entertainment managers). Because the developed world faces major talent shortages in all three of these areas, it's not surprising that employers are relaxing their expectations.

In several areas, degree requirements are also decreasing in at least in four of the five countries. Among them:

- **Education and training roles**—which do not necessarily mean teachers. The greatest shift is in support roles, such as college and university administrators, school directors, and instructional designers.

- **College-level occupations in the construction, extraction, and architecture career area,** such as architects, landscape designers, and construction managers; this is another area well known for labor shortages.

In several career areas, the picture is mixed. These include sales, marketing, manufacturing, and—interestingly, given the high demand for talent—IT. (See "Do IT Workers Need Degrees?") Although the US shows a decreasing degree requirement in IT fields, other markets often think differently.

DO IT WORKERS NEED DEGREES? ⎯

Whither IT, when it comes to degrees?

Given the speed of digitalization and technological change, IT and digital talent remain a hot commodity, and demand outweighs supply. Meanwhile, with the democratization of education and the many online courses available, self-learning is becoming a completely legit way to pick up computer science and web development skills. Shouldn't this prompt employers to be less picky about degrees?

Breaking down our data to focus on a select set of specific occupations, we see an unmistakable change: companies are rethinking their expectations when it comes to IT roles.

A few examples:

- In the UK, only 51% of job ads for mobile application developers listed a bachelor's degree as a requirement in 2022, 23% lower than in 2017.

- In the US, only 69% of 2022 ads for computer programmer or computer scientist roles asked for a degree, down 14% from 2017.

See the exhibit below for more findings.

Do IT workers really need degrees? Employers in the US, the UK, and Canada are rethinking their expectations

PERCENTAGE CHANGE IN BA+ DEGREE REQUIREMENTS IN JOB POSTINGS FOR COLLEGE-LEVEL OCCUPATIONS, 2017 VS. 2022

	Computer programmer / Computer scientist			Webmaster / Administrator			Network / Systems administrator			Mobile applications developer		
	2017		2022	2017		2022	2017		2022	2017		2022
US	80%	−14%	69%	87%	−17%	72%	82%	−8%	75%	96%	−1%	95%
Canada	80%	+4%	83%		N.A.		68%	−3%	66%	91%	−8%	84%
UK	97%	−3%	95%	74%	−10%	67%	64%	−13%	56%	67%	−23%	51%
Australia	97%	−3%	94%		N.A.		94%	−1%	94%	91%	+6%	96%
Singapore	82%	−11%	91%		N.A.			N.A.		72%	−14%	82%

Source: Lightcast and BCG analysis of 22 million job postings in five markets, 2023.
Note: N.A. = Not available. Numbers reflect rounding.

■ Major shift

Engineering is the only field where the paper ceiling remains in place: employers in four out of five countries have increased the demand for degrees in this field. This may have to do with safety concerns and regulations affecting such roles, as well as the highly specialized nature of engineering jobs; shorter courses and on-the-job learning may not easily replace complete degrees.

Is Hiring Based on Skills Worthwhile?

In a word, yes.

According to a 2022 study published in the American Psychological Association's *Psychological Bulletin*, "Hiring for skills is five times more predictive of job performance than hiring for education and more than two times more predictive than hiring for work experience."

For our analysis, we looked at promotion rate and tenure at companies, using the US as an example. (The US is a pioneer in skills-based hiring, and data is widely available.)
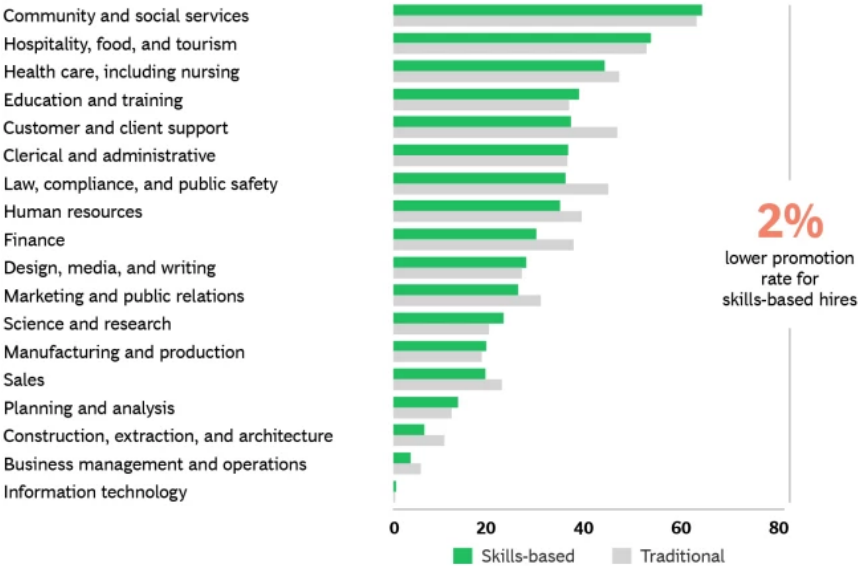
Promotion Rate. Generally, those hired on the basis of skills get promoted at a rate comparable to that of traditional hires. They were only 2% less likely, on average, to be promoted in the same period as their traditionally hired peers.

It follows that in some career areas, employees seem to be promoted more slowly (law, business management, and customer support, for example) and in others, more quickly (social work and call centers). This suggests that skills-based hires perform on a level similar to that of their peers and perhaps need just a bit more time to merit their first promotions.

Skills-based hires get promoted at a similar rate to peers

Promotion rate by career area
(2014-2017 PERIOD COMPARED WITH JOB STARTED MOST RECENTLY IN 2019-2022; %)

Community and social services
Hospitality, food, and tourism
Health care, including nursing
Education and training
Customer and client support
Clerical and administrative
Law, compliance, and public safety
Human resources
Finance
Design, media, and writing
Marketing and public relations
Science and research
Manufacturing and production
Sales
Planning and analysis
Construction, extraction, and architecture
Business management and operations
Information technology

0   20   40   60   80

■ Skills-based   ▨ Traditional

2%
lower promotion rate for skills-based hires

Promotion roles
TOP FIVE ROLES WITH HIGHER PROMOTION RATES FOR SKILLS-BASED HIRES THAN TRADITIONAL HIRES

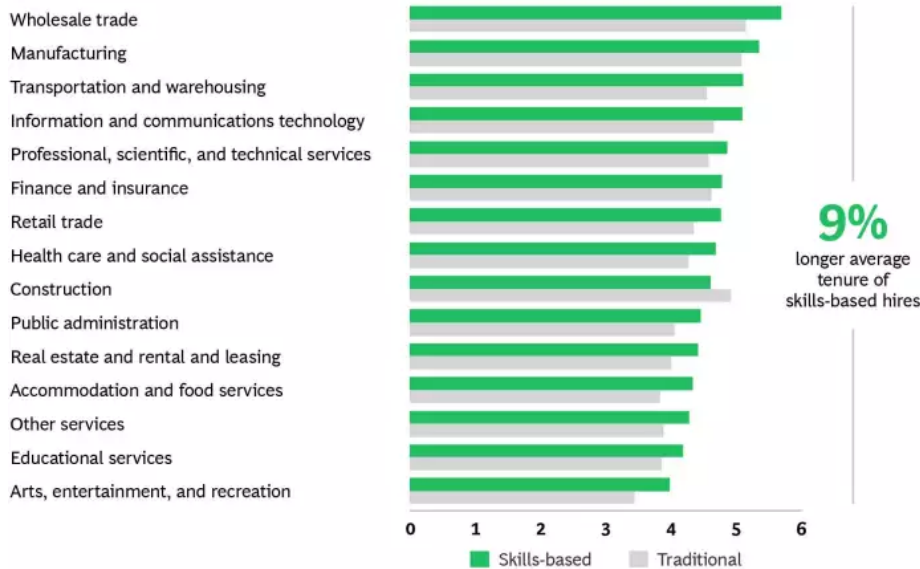|	Job role	difference vs. traditional hires
1	Call center manager	11%
2	Clinical case manager	6%
3	Auditor	6%
4	Account executive	5%
5	Budget analyst	4%

Our expert interviews support this finding. Several interviewees mentioned that skills-based hires work harder and are more motivated. "Hiring managers were surprised by the performance of skills-based hires who had no degree," said a representative of a top US streaming company.

Apart from hard work, skills-based hires also bring with them specific experiences and abilities. During our interviews, presentation skills, problem-solving skills, and overall maturity were highlighted as differentiating factors.

Tenure. We found that skills-based hires are more loyal to their employers. They have a 9% lengthier tenure at their organizations compared with traditional hires.

Skills-based hires tend to stay longer at the same company

Tenure at the same company by industry
(YEARS)

Industry	
Wholesale trade	
Manufacturing	
Transportation and warehousing	
Information and communications technology	
Professional, scientific, and technical services	
Finance and insurance	
Retail trade	
Health care and social assistance	
Construction	
Public administration	
Real estate and rental and leasing	
Accommodation and food services	
Other services	
Educational services	
Arts, entertainment, and recreation	

0 1 2 3 4 5 6

■ Skills-based ▢ Traditional

9%
longer average
tenure of
skills-based hires

Average tenure at the same company
(YEARS)

Skills-based hires	Traditional hires
4.7	4.3
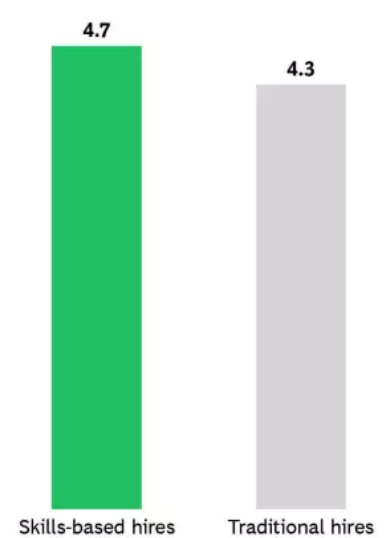
Source: Lightcast and BCG analysis of 22 million job postings in five markets, 2023.
Note: US-specific findings.

This trend is true across most industries and professions but is especially pronounced in trade, transportation, and food services as well as public administration, information and communication technology, and professional services.

Our expert interviews underscored the trend. "Skills-based hires have better problem-solving skills and in general are more interested in exploring the firm," said an interviewee from a US-based multinational e-commerce company. And an expert from a US-based multinational tech company noted, "Skills-based hires demonstrate high engagement and motivation."

How Can Organizations Succeed with Skills-Based Hiring?

We collected insights on what makes skills-based hiring successful. Here are five practical tips for employers seeking to widen their hiring lens.

Challenge the biases in your talent strategy. Be more open-minded. Is a degree really required for a specific job? Our data indicates that the paper ceiling is vanishing even in jobs that traditionally called for a degree. Tradition can be hard to overcome, of course. So employers must ask themselves, If this job seeker has the skills we need, does it matter how they acquired those skills? As an example, Goldman Sachs recently shifted to what it calls a "skillset recruiting" approach. Through the company's new online platform, candidates don't apply for jobs—they apply to specific skill areas, then participate in skill testing and get referred for the most relevant jobs based on their skillsets.

Know the skills you need. Our research shows that skills-based job ads include a higher number of skills than traditional job ads. Traditional data-scientist job ads, for example, list approximately 28 needed skills, whereas skills-based ads for the same role will list as many as 37. Skills-based ads especially overindex on transferrable skills, such as collaboration and communication, which can be a foundation for success in any job. So employers hiring on the basis of skills must have a deep understanding of those skills and advertise for them. This involves being able to dynamically forecast skill needs as well as a deep understanding of current and future skill profiles.

Up your skill assessment game. The big risk when hiring based on skills rather than a degree, especially a degree from a tried-and-true institution, is the lack of "proxy proof" of candidates' qualifications. Instead, employers have to obtain that proof by assessing and testing candidates' skills, which they often aren't prepared to do or don't know how to do efficiently. They can look at other proxies: microcredentials (learning badges from short, often digital, courses), completion of online courses, recommendations, or the results of specific projects. They can also test candidates by asking them to demonstrate skills: writing code, participating in a trial period, or playing a game-based simulation that will test skills, for example. New tools leveraging GenAI are able to simulate real interactions to a high degree with little effort required on the employer's end; they can be a useful way to efficiently assess thousands of candidates.

Support integration and an inclusive culture. Sometimes, the main barrier to skills-based hiring is cultural. Managers want to hire people who went to the same schools they did. Recruiters don't want to take a risk on people from nontraditional backgrounds. Many company leaders followed traditional routes and expect their successors to do the same. In such an environment, skills-based hires may feel discriminated against or just not welcome.

Just as employers are increasingly conscious of their diversity, equity, and inclusion agenda with regard to gender, race, and more, they might also aim for diversity in employees' educational and career backgrounds. Some practices to consider would be ensuring that members of recruiting panels have diverse educational backgrounds, information regarding degrees from candidate CVs, training managers on avoiding unconscious bias, or even setting targets for alternatively skilled candidates.

Keep being skills-based—it's not just about hiring. After they've brought skills-based hires onto their teams, employers should continue to support those employees' career progression. Promotions should be based on skills, as should other internal moves and talent decisions. Several talent marketplace tools help to facilitate this. Novartis's AI-powered internal talent marketplace uses information on employees' skills and goals to predict, match, and offer roles and projects, for example.

However, a move like this requires a significant mindset shift in the organization—from "talent hoarding" to "talent sharing." Managers as well as the HR function need to get comfortable with

enabling skills-based, flexible career paths, and senior leaders have a major part to play as role models.

The insights and outlooks of employers and employees are converging.

One executive said: "We're always looking for ways to bring broad and diverse perspectives into our workforce." According to another: "It's really important to us that we are drawing from all different backgrounds."

And one job hunter seeking a role in education shared: "Sometimes experienced employees outwork and outshine a degree." Said another: "I wish they would focus less on education and more on skills, experience, and examples of what you can do as a future employee."

Given the need for more employees, given the need for evolving skills, and given the makeup of the potential workforce, the doors to less traditional hires are opening. Employers must welcome and nurture the applicants who have the skills and the will to step in and do the job.

ABOUT LIGHTCAST

Lightcast is the world's leading authority on job skills, workforce talent, and labor market dynamics, providing expertise that empowers businesses, education providers, and governments to find the skills and talent they need and enables workers to unlock new career opportunities. With engineers and data specialists continually collecting and analyzing data from thousands of job boards, company websites, online resumes, employee profiles, and traditional government sources, the company produces the most comprehensive, upto-date picture of the labor market available. Lightcast market research, analytical software, and data expertise is used by companies across the globe to better understand their own workforce and identify skilled and diverse talent for future growth. The company also guides colleges and universities in connecting their programs to the needs of the local labor market and advises government entities in creating more effective programs for economic prosperity. Headquartered in Boston, Massachusetts, and Moscow, Idaho, Lightcast is active in more than 30 countries and has offices in the United Kingdom, Italy, New Zealand, Canada, and India. The company is backed by global private equity leader KKR.

Authors

Sagar Goel

MANAGING DIRECTOR & PARTNER, PEOPLE STRATEGY & RESKILLING FELLOW, BCG HENDERSON INSTITUTE, SINGAPORE

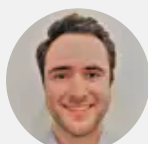Singapore

---

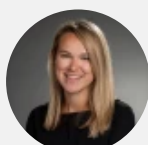**Orsolya Kovács-Ondrejkovic**

ASSOCIATE DIRECTOR

Zurich

Rucha Vankudre

SENIOR ECONOMIST AND RESEARCH DIRECTOR, LIGHTCAST

Scott Bingham

RESEARCH ANALYST, LIGHTCAST

Julia Nitschke

SENIOR RESEARCH ANALYST, ECONOMICS TEAM, LIGHTCAST

ABOUT BOSTON CONSULTING GROUP

Boston Consulting Group partners with leaders in business and society to tackle their most important challenges and capture their greatest opportunities. BCG was the pioneer in business strategy when it was founded in 1963. Today, we work closely with clients to embrace a transformational approach aimed at benefiting all stakeholders—empowering organizations to grow, build sustainable competitive advantage, and drive positive societal impact.

Our diverse, global teams bring deep industry and functional expertise and a range of perspectives that question the status quo and spark change. BCG delivers solutions through leading-edge management consulting, technology and design, and corporate and digital ventures. We work in a uniquely collaborative model across the firm and throughout all levels of the client organization, fueled by the goal of helping our clients thrive and enabling them to make the world a better place.

For information or permission to reprint, please contact BCG at permissions@bcg.com. To find the latest BCG content and register to receive e-alerts on this topic or others, please visit bcg.com. Follow Boston Consulting Group on Facebook and X (formerly Twitter).