McKinsey Digital

Tech talent tectonics: Ten new realities for finding, keeping, and developing talent

Large incumbents can compete successfully for tech talent—but only if they're ready to completely rethink their entire HR approach. Tech talent think and act differently.

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Credit: Konstantin Mishchenko/Pexels

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Late last year, Facebook announced plans to hire 10,000 people in Europe to build out its "metaverse," an augmented-reality space.[1] Amazon, meanwhile, announced plans to hire more than 55,000 people for corporate and technology jobs in the United States[2] even as Google is moving to hire thousands of technologists.[3]

Exacerbating this issue is the Great Attrition, which is already being felt in many companies as tech talent streams out the door to pursue better opportunities. Being able to work remotely has made it even easier for people to leave, since geography is less of a barrier to poaching talent.

For many companies, these moves come with a big warning: there is a massive push happening to grab talent, and you may be missing out.

These seismic shifts come at a time when the shortfall for tech talent is already acute. Our analysis shows that significant skill gaps exist in seven areas,[4] and we expect them to become more severe over time (see sidebar, "Tech talent: Skills in demand"). In Germany, for example, 780,000 additional tech specialists are needed by 2026 to meet the economy's demand.[5] Globally, more than three million cybersecurity positions were unfilled as of 2020.[6]

Business leaders are feeling the heat. According to a McKinsey survey of more than 1,500 senior executives globally, some 87 percent say their companies are not adequately prepared to address the skill gap.[7] And according to another McKinsey survey, 61 percent of HR professionals believe hiring developers will be their biggest challenge in the years ahead.[8]

[1] Ryan Browne, "Facebook plans to hire 10,000 people in the EU to build its vision for a 'metaverse,'" CNBC, October 17, 2021.
[2] Jeffrey Dastin, "Amazon CEO unveils 55,0000 tech jobs in his first hiring push," Reuters, September 1, 2021.
[3] Sheryl Estrada, "Google has hired like crazy for tech talent," *Fortune*, February 2, 2022.
[4] Matthias Daub, Ranja Reda Kouba, Kate Smaje, and Anna Wiesinger, "How companies can win in the seven tech-talent battlegrounds," McKinsey, October 19, 2020.
[5] "Die Lücke wird größer: Bis 2026 fehlen in Deutschland 780.000 Tech-Spezialisten" ["*By 2026, Germany will lack 780,000 tech specialists*"], Stifterverbrand and McKinsey, November 24, 2021.
[6] Steve Morgan "Cybersecurity talent crunch to create 3.5 million unfilled jobs globally by 2021," Cybersecurity Ventures, October 24, 2019.
[7] According to a survey conducted in November 2017 with ~1,550 respondents, split equally between the United States, Europe, and the rest of world and including ~1,100 from companies with revenues of $100 million or more.
[8] Bryan Hancock and Bill Schaninger, "HR says talent is crucial for performance—and the pandemic proves it," McKinsey, July 27, 2020.

Tech talent: Skills in demand

With new technologies and demands on IT emerging, companies need to expand their tech capabilities. McKinsey analysis shows that the following skill areas are most in demand:

— *DevOps:* agile product-life-cycle management, scrum management, agile coaching, continuous integration and continuous delivery (CI/CD)

— *Platforms and products:* product ownership, life-cycle management across platform layers, Industrial Internet of Things (IIoT)

— *Automation:* cognitive AI, robotic-process-automation (RPA) technologies, AI-enabled analytics

— *Customer experience:* design thinking, user research, journey mapping, test-and-learn at scale, prototyping

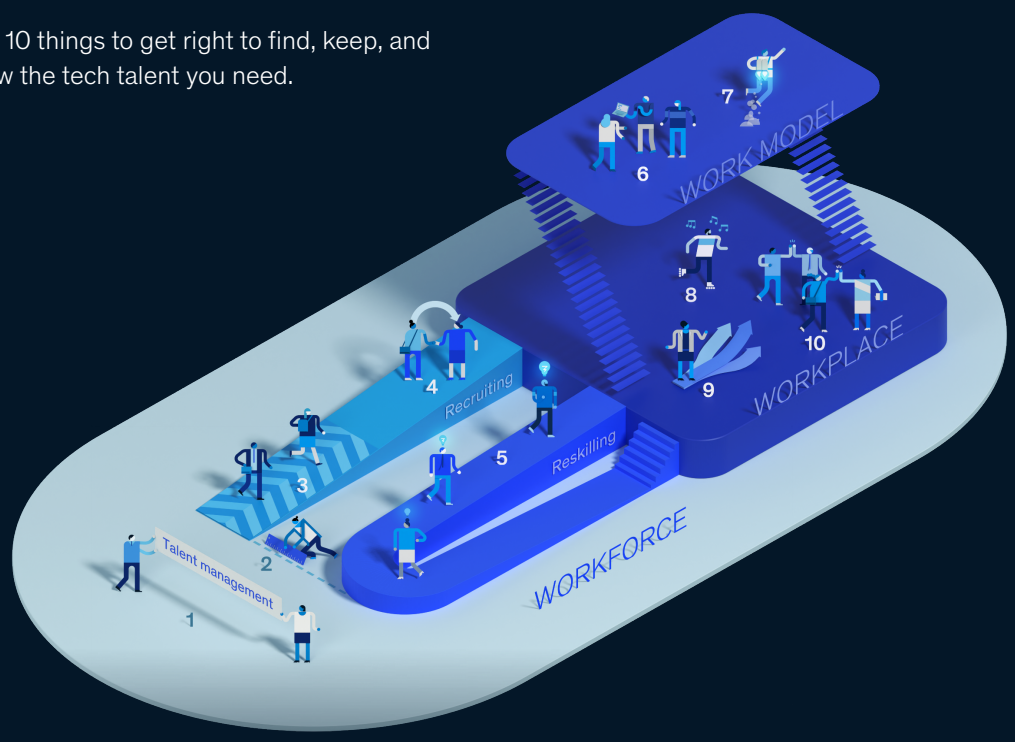
— *Cybersecurity and privacy:* data-protection laws and practices, shift-left security

— *Data management:* analytics, data science, data engineering, use-case life-cycle management, automated machine learning

— *Cloud:* multicloud and hybrid-cloud architecture, smart distribution/metering

Tech talent

Top 10 things to get right to find, keep, and grow the tech talent you need.



1 Talent management

Talent management is a complete "hire to retire" program. You can't be good at just one aspect of talent management and expect to succeed.

2 Talent gap

Be clear about the talent you need and the talent you have—your talent gap is wider than you think.

3 Candidate experience

Instead of a "recruiting process," put yourself in the shoes of the recruit and create a great candidate experience.

4 Employee value proposition

Understand what your talent really cares about. Top talent is interviewing you, not the other way around.

5 Skill building

You can't hire or outsource your way out of your talent problems. Much of your talent will have to come from within, so ramp up your reskilling and upskilling capabilities.

6 Empowered teams

Give your teams the freedom to work by building small, empowered teams with a clear mission, and then letting them execute.

7 Craft

Eliminate meaningless toil and bad practices—top talent won't put up with it. Focus on eliminating barriers so your talent can focus on the important work.

8 Developer experience

Create an environment that delights and inspires your developers. Productivity and performance will follow.

9 Career path

More than two-thirds of developers don't want to become managers. Create career paths for engineers to grow and build on their craft.

10 Diversity

Diversity, equity, and inclusion (DEI) are strategic necessities. Create a diverse work environment—tech talent increasingly expects it, and it brings better results.

Despite the formidable challenges in finding tech talent, incumbent companies cannot expect to succeed in the digital world without being technologically strong, which is simply not possible without a deep bench of tech talent. In fact, developing robust people and talent strategies are among the highest-value actions a business can take.[9] Tech talent, therefore, should be a CEO's top priority.

Based on our work on more than 80 technology-talent transformations, we have identified a set of ten realities companies need to face and what they can do to address them.

1. You can't be good at just one aspect of talent management and expect to succeed

Fulfilling your tech-talent needs is increasingly a multifaceted contest. Finding great talent doesn't help if the talent doesn't want to work for you, and hiring great talent doesn't matter if the talent leaves quickly. Companies have to invest simultaneously across the entire "hire to retire" life cycle.

That starts with developing a digital-talent engine, a focused team dedicated to managing the entire employee experience, from hiring and onboarding to creating new career paths and continuously building skills. One large agricultural company established a digital-talent engine, which focused on modernizing talent sourcing by using contract-to-hire agreements and leveraging new digital channels (such as Topcoder), including coding exercises in candidate interviews, and implementing a candidate-tracking system to manage the hiring journey.

The key activities of this more holistic approach to talent can be broken down into three areas:

— *Workforce:* Develop a clear and surgical understanding of your talent gaps, a practical plan to fill them, and a hiring approach centered on candidate experience.

— *Work model:* Put in place a work model that enables small teams of engineers to work on the most interesting problems unfettered by layers of management.

— *Workplace:* Create a work environment that nurtures talent through diversity and a supportive culture, which is especially important within the context of hybrid and remote models. This includes providing different career paths that help talent develop their most valued asset: their skills.

Workforce

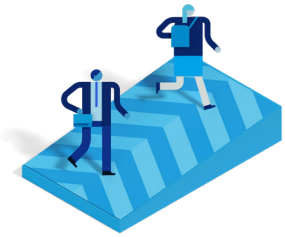
2. Close your talent gap; it's wider than you think

The most effective talent strategies are grounded in a clear view of what capabilities the business needs to generate value compared with those it already has, especially in the area of cloud talent. While 58 percent of organizations analyze their skill gaps,[10] our experience shows that companies typically underestimate their size. That's often because companies' talent analysis stops at the role level rather than probing what skills their people actually have.

When one digital-attacker bank did a detailed assessment of its talent, for example, it was shocked to find that only 35 percent of its senior tech talent had the skills the bank needed, and more than 50 percent of the talent required significant, systematic capability building.

Workforce planning also needs to happen much more frequently than the typical once or twice a year in order to keep pace with changing demands and shifts in the makeup of the organization.

[9] "Seven lessons on how technology transformations can deliver value," McKinsey, March 11, 2021.
[10] "Building workforce skills at scale to thrive during—and after—the COVID-19 crisis," McKinsey, April 30, 2021.



Workforce

3. Think candidate experiences, not recruiting process

To improve recruiting, HR departments and hiring managers tend to focus on improving their recruiting processes and introducing efficiencies. A more effective approach is to "think like a recruit" and focus on the candidate experience. That includes improving the virtual candidate experience, since 70 percent of companies in a recent survey said their recruiting and onboarding was at least half virtual.[11] Ways of doing that include the following:

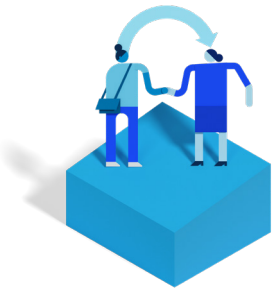
— Tech talent wants to meet other technologists, so make sure that engineers and other relevant roles are part of your interview team. Bring your best people to interviews, online events, and conferences.

— Good candidates are ambitious and have many options. Develop an interview and evaluation approach that can lead to a decision in as little as one day. Before candidates even come through the door, assess their skills with tools such as HackerRank.

— Post and pray is not a strategy. Tech talent isn't just going to job sites, so be active in nontraditional channels, such as hackathons, open-source channels, and specific curated sites for different skills. For some companies, GitHub is their best recruiting channel.

— Top talent is eager to get going, so when new hires show up to start work, make sure there is an onboarding point of contact to help them navigate the company. The onboarding process should be streamlined so that, by the end of week one, developers are able to commit code.

An entertainment company revamped the candidate experience by reducing the steps in the process, creating clarity on the bar for each role, and ensuring that engineers conducted the interviews. These three shifts reduced their "first-touch-to-offer" time from more than 90 days to fewer than ten.



Workforce

4. Top talent is interviewing you, not the other way around

Why would tech rock stars want to work for you? While money is important, top candidates care about working with newer technologies, building up their skills, being part of a culture that values technology, connecting with a purpose they find meaningful, and, most importantly, working on interesting and inspiring problems. The CIO of a leading European online marketplace, in fact, chose Scala over Java because that was tech talent's preference at the time.

The employee value proposition (EVP) is critical in addressing these points. One European public-sector institution was having trouble filling 400 tech roles. It refocused its EVP on its mission to work for the "greater good," such as establishing digital services for all citizens, improving the citizen experience, and making services provided by the administration faster and more reliable. It was able to significantly increase the number of applications received and thus shorten the process to fill positions to a matter of weeks rather than the many months it used to take.

The EVP needs to be backed up "on the ground" with programs and a culture that explicitly deliver on the promise. If talent sees that there is a disconnect between the stated EVP and the reality on the ground, they're quick to leave and, worse, tell others. That can be devastating, because the most common way job seekers learn about companies is by reading company reviews from third-party sites, such as Glassdoor or Blind.[12]

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[11] *The future of work: 2022 global report*, Monster, January 2022.
[12] *Developer survey 2020*, Stack Overflow, May 2020.

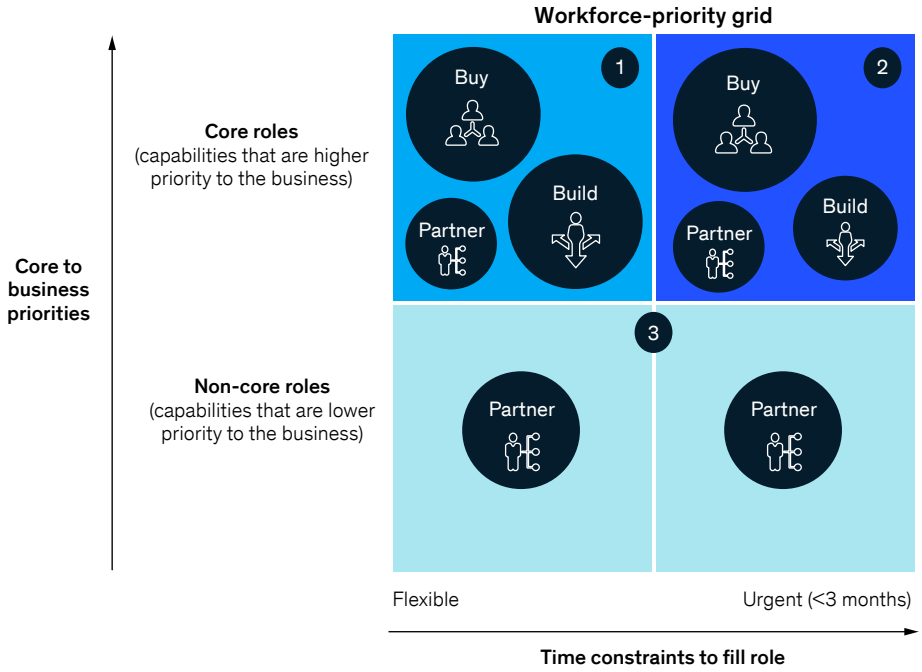
Workforce

5. You can't hire or outsource your way out of your talent problems

The problem with relying on hiring is that often there is a significant lag time before someone becomes productive as well as there being a general shortfall of qualified talent. Similarly, core capabilities need to remain in house to enable the business to move quickly, so outsourcing can't be the main answer either. The reality is that much of the talent you need will have to come from within the organization. Your workforce planning should identify the appropriate balance between building skills internally, hiring externally, and outsourcing (Exhibit 1).

Exhibit 1

Develop a workforce-priority grid to identify what roles to build, buy, and partner within the organization.



Description	Action	Typical roles
1 A **core** role with **flexible** time constraints	**Hire** these roles (eg, machine-learning engineers may be difficult to hire and can take months) Continue to invest in the organization by identifying employees to **upskill/reskill** (eg, product owners) **Partner** on niche roles that are too expensive to hire and take too long to upskill/reskill	Full-stack engineer Machine-learning engineer Product owner
2 A **core** role with **urgent** time constraints	**Accelerate hiring** as much as possible to keep core roles internal Identify employees in the organization who can be **reskilled/upskilled** as a longer-term solution **Partner** in the **short term** if roles cannot be immediately filled through hiring or reskilling/upskilling	Front-end/back-end engineer Scrum master Agile coach Data scientist
3 All **non-core roles**	**Partner** with vendors or build partnerships	Designer Full-stack engineer

To build up skills internally, top companies move past traditional and subscale programs to make training both continuous (through ongoing learning journeys) and tailored (with learning programs created for specific roles and job families); see Exhibit 2 for an example of such a learning journey. They place an emphasis on building experience rather than simply providing certifications. Effective reskilling is based on a clear understanding of what existing skills will best translate into new skills. For example, project managers don't tend to make good scrum masters, while a motivated mainframe engineer can often learn new technology stacks and languages.

Work model

6. Build small, empowered teams with a clear mission, and let them execute

An expert developer is more than ten times more productive than a novice.[13] But many of these top engineers can't work in traditional organizations where a surfeit of managers and bureaucratic processes inhibit them from doing good work at pace. In many organizations, the ratio of engineers to management and coordination and support people is 30:70; that needs to be flipped.

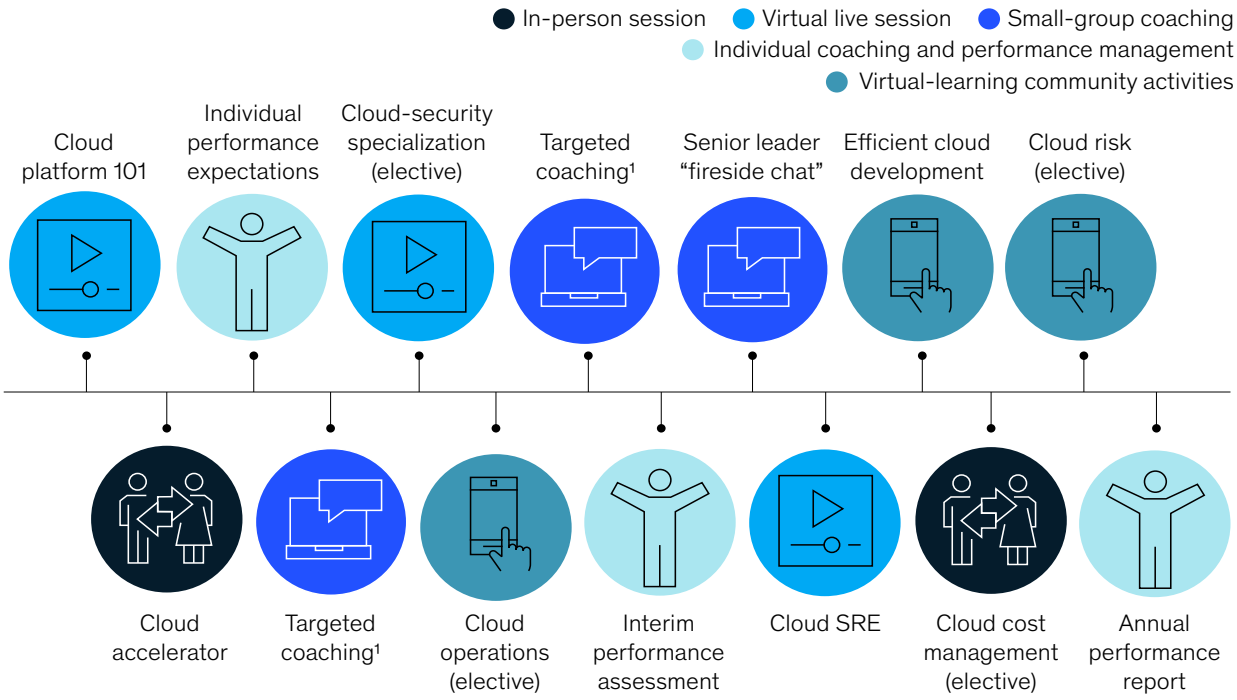
Tech leaders reshape their IT organizations around small squads to create highly motivated, self-managing, agile teams. Instead of managing the team day to day or simply telling them what to do, successful leaders focus on clearing organizational roadblocks, enabling team-level decision making, and setting vision and direction.

One group insurer struggling to modernize how it onboarded new clients, decided to build a small, autonomous team with a core of its best engineering talent. It gave the team a broad charter to reinvent the onboarding process and protected them from most of the red tape. The team designed a compelling

[13] Peter Jacobs, Klemens Hjartar, Eric Lamarre, and Lars Vinter, "It's time to reset the IT talent model," *MIT Sloan Management Review*, March 5, 2020.

Exhibit 2

An experienced app developer new to cloud will need to go through a tailored learning journey.



[1]In addition to day-to-day, on-the-job coaching from leaders and peers.
Source: McKinsey analysis

client journey and developed a groundbreaking technology that connected to each client's human-resource information system (HRIS). It uploaded employee information, automatically determined insurability, and onboarded employees into the new plan. This approach helped the insurer close its first multimillion-dollar sale only four months after it was launched. In addition, the team members embraced the experience and became champions of the new way of working.

Work model

7. Eliminate meaningless toil and bad practices—top talent won't put up with it

You can't hire virtuoso jazz pianists and have them just practice scales all day. In the same way, top tech talent needs a work environment where they can fully practice their craft. Leading organizations focus on eliminating as many barriers as possible for their top coders. They invest, for example, in developing high-quality, reusable code and provide world-class planning and development tools to make engineers' work lives easier. They strive to make more than 80 percent of testing automated and continuous—with development done only after test cases are written.[14]

State-of-the-art production and preproduction environments are well integrated with development and testing environments, while best practices, such as continuous integration and continuous delivery (CI/CD) and working in the cloud, are the norm.

Leading companies are also investing in low-code and no-code platforms that enable the average business user to develop applications without any software experience, freeing up seasoned developers to focus on the most challenging tasks. One pharmaceutical company grew its low-code platform base from eight users to 1,400 in just one year.[15]

One model to consider is the site-reliability-engineering (SRE) approach, where specific champions are entrusted with, and accountable for, eliminating toil for developers.

Workplace

8. Focus on developer happiness, and productivity and performance will follow

Retaining top talent requires an environment where developers are treated like innovators, not code writers, and are active participants in the business. McKinsey's Organizational Health Index research, however, has shown that IT functions overall score well below the average in terms of organizational "health" (the ability to align around and execute strategic goals).

Business leaders can reverse this situation by making the quality of the developer experience a primary metric of success and using data to closely track job satisfaction. Microsoft, for example, turned to calendaring data (among other sources of information), which revealed that in the company's devices unit, management practices related to meetings were reducing engineers' job satisfaction.[16] One of the most important metrics is how many of your developers are recruiting other developers, because it signals how strongly your people believe in your company and its vision. So make referral programs transparent and efficient.

Growth is also essential in building an engineering culture, and it can take many forms. Top engineers don't want to just bang out features; they want to experiment with new code, become better developers, and

[14] Ondrej Burkacky, Johannes Deichmann, Stefan Frank, Dominik Hepp, and André Rocha, "When code is king: Mastering automotive software excellence," McKinsey, February 17, 2021.
[15] Shivam Srivastava, Kartik Trehan, Dilip Wagle, and Jane Wang, "Developer Velocity: How software excellence fuels business performance," McKinsey, April 20, 2020.
[16] Neil Irwin, "The mystery of the miserable employees: How to win in the winner-take-all economy," *New York Times*, June 15, 2019.

follow passion projects, such as reducing tech debt or optimizing systems. Top companies build in extra buffer time to allow engineers to try new languages or tools that aren't necessarily "in scope." By the same token, however, engineers expect clear targets and rapid feedback loops to let them know if they're hitting their marks.

Creating an environment of "psychological safety" (where developers feel safe raising issues quickly, for example) is also an important element of an engineering culture and is the number-one enabler in terms of technology's impact on business performance.[17] Tech leaders can role-model specific behaviors, such as demonstrating concern for team members as individuals rather than just employees and actively soliciting their input.

Workplace

9. Stop turning great engineers into bad managers

Don't expect your engineers to aspire to become people managers. More than two-thirds of developers, in fact, don't want to.[18] These experts instead prefer to keep their craft sharp and pursue ever more sophisticated digital challenges.

For this reason, digital organizations often have both managerial and non-managerial career paths for tech talent. Leading companies use lateral career moves to promote career growth and exciting career options. At Amazon, for example, people are encouraged to move across different products, channels, and/or roles to learn new skills and gain expertise in multiple areas of the business. Similarly, at Salesforce, it is common for engineers to move laterally across multiple products to gain experience. The technical track should be organized around clear "job architectures" and expectations for advancement at each level.

Workplace

10. Diversity, equity, and inclusion (DEI) are strategic necessities, not special initiatives

Gender-diverse companies are 25 percent more likely to financially outperform less diverse companies, while ethnically diverse companies are 36 percent more likely to do so.[19] By the same token, technology talent expects a diverse work environment. We have found, in fact, that prized digital talent will often refuse a job offer or even refuse to apply to companies it perceives as noninclusive. One-third of recruiters say applicants are inquiring about DEI.[20] It's worth asking: Does your leadership team reflect sufficient diversity?

To address this challenge, DEI leaders put structural de-biasing mechanisms in place, such as making sure that DEI is continuously measured and decisions are reviewed—for example, to track gender diversity in recruiting, retention, evaluation, and pay. They also define a clear technical career path and job structure for key talent pools, focusing on a well-structured path to first- and second-level manager positions. Top companies supplement this with setting specific goals for hiring by specifying requirements for candidate pools and working to root out unconscious bias. Some are starting to use AI to help eliminate biased language in evaluation criteria and are building both incentives and metrics for leaders to role-model unbiased behavior.

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[17] "Developer Velocity," April 20, 2020.
[18] *Developer survey 2019*, Stack Overflow, April 2019.
[19] Sundiatu Dixon-Fyle, Kevin Dolan, Vivian Hunt, and Sara Prince, *Diversity wins: How inclusion matters*, McKinsey, May 19, 2020.
[20] Marc Holliday, "16 recruiting trends that are shaping 2021," NetSuite, April 5, 2021.

It is virtually impossible to imagine a business today succeeding without a strong base of tech talent. Only by accepting that overriding reality and making an all-out push to acquire the right tech talent can companies expect to capture the value that digital promises.

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