

A surreal composite image featuring a cowboy on a brown horse in a desert canyon. The cowboy is wearing a yellow hat and a patterned shirt, swinging a lasso that glows with blue energy. The background is a deep space scene with a large blue planet at the top, a smaller planet, and a UFO on the right emitting a beam of light and gold coins into a treasure chest. The overall color palette is dominated by blues, purples, and oranges.

GA GENERAL ASSEMBLY

A NEW FRONTIER

INSIGHTS FOR
TECH LEADERS
NAVIGATING
AN AI-DRIVEN
ECONOMY

WAKEFIELD

W/A Whiteboard
Advisors



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IS BACK — BUT IT NEVER REALLY LEFT

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GOLD IN THE AGE OF AI

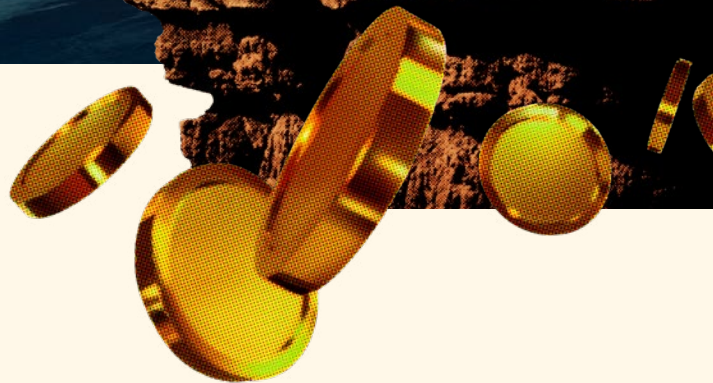
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FOREWORD

BY JOSH BERSIN

When it comes to technology, the only constant is change. Skills we needed to run mainframe data centers have morphed into skills to design and operate cloud platforms. Skills to build COBOL and C++ applications are being replaced with skills to build generative AI applications, machine learning apps, and large data systems. And new domains like cybersecurity, audio and video processing, and advanced data science have appeared like magic.



For you as a CEO, CTO, HR professional, or other tech leader, this means you're always aiming for a moving target. Not only do you have to source, attract, and hire for these new skills, but you also have to build them internally. And as most of us have learned, there's a wide variation in productivity among different engineers and technical professionals. Some are simply brilliant and others are just "pretty good."

How do you manage this never-ending war for talent and skills? Our research shows there are three interlocking issues to consider, and this report helps you understand them — as well as how to successfully tackle them.

First, you have to muscle-up your recruitment. When technologies and methods change, we often need new experts to anchor our approach. This means investing in recruitment, discussing the trending skills you need, and taking the time to understand the culture, fit, and sourcing strategy for experts in these new domains.

Second, you need to muscle-up your internal development. Most technical professionals love to

learn new things — they want their careers to advance but they require your help. This means investing in training programs, capability academies, and external teachers and experts. In today's tight labor market, almost every company I talk with believes internal development is the only way they'll close their skills gap.

Third, it's time to invest in automation and job redesign. Yes, we may still need COBOL programmers in banks and SQL coders in data projects, but more and more of this is now being automated by AI. If you don't use and explore the new copilots and AI-enabled productivity tools in the market, you just may suffer with training and hiring that never keeps up.

Managing and growing a technical team is a critical and strategic role. If you focus on all three parts of the problem and build a culture of growth, your company will stay ahead of the curve regardless of what's next. And that means your products, services, and operations will always remain competitive.

*Josh Bersin, Global Industry Analyst and CEO,
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INTRODUCTION

(STILL) WANTED: SKILLED TECH TALENT

If you're trying to understand the market for tech talent, the broader economic climate is the first place to look. More often than not, tech hiring and layoffs rise and fall in tandem with economic downturns and expansions. Just think of the past few years, when perceived headwinds and tailwinds led the U.S.-based tech titans like Amazon, Microsoft, and Meta to escalate hiring during the pandemic — and then reverse course and announce significant reductions in force.

When the tech titan hiring boom came to a halt, the hard stop wasn't universal — overall demand for tech talent remained steady across industries. Many specialized roles like software engineers were less impacted by layoffs, and knowledge-intensive sectors like financial services and healthcare continued to face considerable tech talent shortages. Our white paper, [**The State of Tech Talent Acquisition 2023**](#), found that despite the headlines, global tech talent recruiters were still struggling to meet their hiring goals.

Since then, and in spite of media headlines warning of a looming recession over the past year, the U.S. economy has shown resilience and even strengthened. The macroeconomic landscape in the U.S. continues to be

positive as GDP growth hit a robust **2.4 percent in Q2** while unemployment hovered at **3.5 percent** in the same quarter. Against this backdrop, the narrative around tech layoffs has been replaced by a familiar conversation about the need for tech skills — with the looming challenges posed by artificial intelligence layered on top.

While it's indisputable that tech talent underpins the success of nearly all companies, given the growing importance of software in a broad range of industry sectors, too many businesses continue to deploy the cyclical “boom-bust” approach to talent acquisition and development. But while that method has been the industry standard for decades, it's not a sustainable human capital strategy.

“The persistent narrative about tech's skill shortage problem is rooted in confusion about whose job it is to solve that problem,” said Cat Ward, vice president at Jobs for the Future. “Unless businesses recognize the leadership role they need to play in building and maintaining new talent pipelines, we're likely to hear the same conversation about a lack of tech skills for a long time to come.”

The past year has marked an especially pivotal moment as AI becomes both more sophisticated and more ubiquitous, creating demand for an entirely new set of skills and even **entirely new roles**. The continued rise of ChatGPT and generative AI has sparked a frenzy of coverage on the role of AI in the workplace and its potential to disrupt all sectors of the global economy. AI is reshaping the working world and the digital infrastructure that underpins it. **Goldman Sachs** anticipates that “generative AI could substitute up to one-fourth of current work.”

The boom-bust cycle is gaining traction once more as the U.S. market for tech talent grows increasingly bullish. In our latest survey, many tech leaders told us that they’ve found traditional tech skills gaps have worsened while the rise of emerging technologies like AI is exacerbating competition for AI-focused talent. It’s increasingly difficult to source and recruit workers with the requisite skills to succeed on the job. An overwhelming majority of respondents — 85 percent — indicate that open positions requiring specialized skills are hard to fill. The latest boom in demand for specialized skills could be long lived as it’s being fueled by the transformative advances in AI, which are only expected to **accelerate** in the months and years to come.

More and more companies are embarking on an arms race to develop AI-based capabilities. Competition for AI-equipped talent will continue to intensify in the U.S. and worldwide — a **2023 McKinsey global survey** of business leaders, for example, found that 40 percent of organizations will increase their investment in AI after witnessing the recent advances in generative AI capabilities.

Finding sufficient tech headcount will continue to be a persistent and shared challenge for most companies, and the skill gaps that have been a perennial concern for U.S. tech talent recruiters and business line leaders will widen as businesses pursue even more specialized skills that evolve even faster. The exponential growth in AI-enabled applications is and will continue to exacerbate the gap between supply and demand. In this talent marketplace, employers are ill-served by pursuing the reactive “boom-bust” strategies — change is an imperative.



“We’re at an inflection point in the maturity of AI that has unleashed a race for businesses to catalyze digital transformation and adoption of these technologies. Talent development and acquisition strategies aren’t keeping up,” says Shalin Jyotishi, senior advisor for Education, Labor, and the Future of Work at New America. “Employers who are slow to integrate a long-term approach to acquiring and cultivating talent as a pillar of their digital transformation strategy will be beaten by competitors who know that such investments are the vehicle for maximizing competitive edge using AI — not to mention that the laggards will fail to make good on their goals of building a more inclusive tech workforce.”

An effective approach requires executive management, tech leaders, and HR leaders to treat talent as a long-term priority, and to invest accordingly in the strategies to build a better talent pool. This is all the more important as digitization and AI continuously redefine “in-demand skills,” creating a landscape where short-term perspectives on hiring, upskilling, and reskilling are all but doomed to lag behind the pace of change.

As businesses rapidly rethink their future plans to adapt to an age of AI, it’s more important than ever to examine the current demand for tech talent, including AI specialists, in the most advanced tech talent market — the U.S. To provide tech talent leaders a data-driven view of how peers view market trends and are navigating pressing tech and AI skills shortages, General Assembly partnered with Wakefield Research to survey 500 data and software engineering leaders in the U.S. Fielded in June 2023, all respondents are senior leaders (with director being the minimum level of seniority).

KEY FINDINGS

SKILLS AS A CURRENCY: THE TECH TALENT GOLD RUSH INTENSIFIES

A topline finding is that the war for tech talent continues, with skilled tech talent very much still in demand. But the rebound in hiring is only part of the story. Existing tech skills gaps are growing as pursuit of AI-aware talent increases pressure on already limited talent pools.

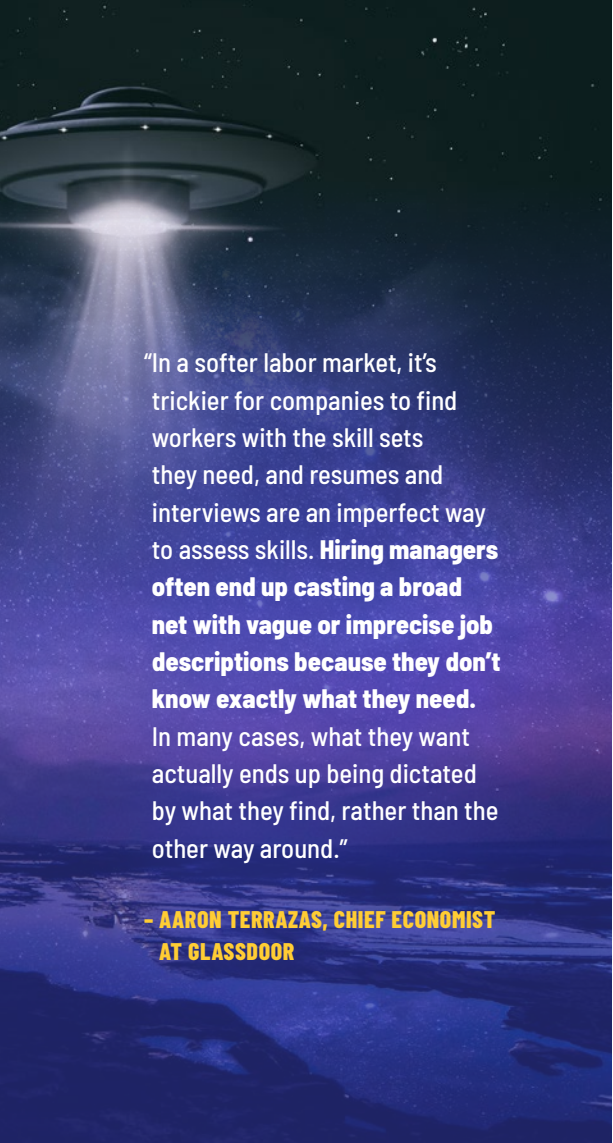


★ TECH LEADERS ARE BULLISH ON HIRING TRENDS GOING INTO 2024

What do you think will happen to the job market for tech workers in the next 6 months?



55% OF TECH LEADERS PREDICT
TECH TALENT HIRING WILL PICK BACK UP
IN THE NEXT 6 MONTHS.



"In a softer labor market, it's trickier for companies to find workers with the skill sets they need, and resumes and interviews are an imperfect way to assess skills. **Hiring managers often end up casting a broad net with vague or imprecise job descriptions because they don't know exactly what they need.** In many cases, what they want actually ends up being dictated by what they find, rather than the other way around."

**- AARON TERRAZAS, CHIEF ECONOMIST
AT GLASSDOOR**

★ MINING FOR TALENT FROM THE SAME SPOT

HOW MUCH DO YOU AGREE OR DISAGREE
WITH THE FOLLOWING STATEMENT?

**It seems all organizations are recruiting
from the same talent pool, limiting our
options to fill needed positions.**



85% **AGREE STRONGLY
OR SOMEWHAT AGREE** THAT
ALL ORGANIZATIONS ARE
SEEMINGLY RECRUITING FROM
THE SAME TALENT POOL AND
REDUCING THEIR OPTIONS
TO FILL OPEN POSITIONS.

★ IN A HYPER-SPECIALIZED WORLD, SKILLS GAPS MATTER EVEN MORE

HOW MUCH DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENT?

**Open positions for my company are hard to fill because the skills and
proficiencies candidates need to be successful in these roles are too specialized.**



85% **STRONGLY OR SOMEWHAT AGREE** THAT OPEN
POSITIONS AT THEIR COMPANY ARE HARD TO FILL BECAUSE
THE SKILLS AND PROFICIENCIES CANDIDATES NEED TO BE
SUCCESSFUL IN THESE ROLES ARE TOO SPECIALIZED.

CORRALLING SKILLS: TECHNICAL SKILLS ARE HARDEST TO HIRE FOR

Which tech skills pose the biggest hiring challenges for your organization?



48% IDENTIFY SOFTWARE ENGINEERING AS THE BIGGEST CHALLENGE WITH DATA SCIENCE AND AI BOTH RUNNING A CLOSE SECOND AT **47%** EACH.

PLAYED OUT: HIRING DELAYS MAKE JOB DESCRIPTIONS IRRELEVANT

How often do you find that by the time you begin interviewing candidates, the job description for the role is already obsolete?



96% OF RESPONDENTS SAY A ROLE HAS BECOME OBSOLETE BY THE TIME THEY BEGIN INTERVIEWING CANDIDATES. **31%** REPORT THIS OCCURRING OFTEN OR ALL THE TIME AT THEIR COMPANIES.

THE SHOWDOWN FOR AI TALENT IS JUST BEGINNING

AI-enabled platforms and tools are becoming foundational for data and software engineering teams in nearly every industry. This development, coupled with the continuous innovation within AI, is fueling demand for new specialized skill sets.

★ YOUR AI TALENT FORECAST: DEMAND IS GROWING

In the next 12 months, will your organization's focus on hiring talent with AI skills increase or decrease compared to the last 12 months?



84% FORESEE A SOMEWHAT OR SIGNIFICANT INCREASE IN HIRING TALENT WITH AI SKILLS IN THE COMING YEAR. **23%** BELIEVE IT WILL BE A SIGNIFICANT INCREASE.

Among tech leaders who predict hiring will pick up in the next 6 months, **93% forecast more focus on AI hiring.**

"The rise of AI has sparked a stunningly fast shift in the way businesses think about tech skills. As the pace of technological change continues to pick up, **the only certainty about tomorrow's world of work is that it'll be different in ways we're only beginning to understand.** That's why it's so important for businesses to start thinking about the long term even as they work to address the talent gaps they're already facing."

- ALEX ALONSO, CHIEF KNOWLEDGE OFFICER, SOCIETY FOR HUMAN RESOURCE MANAGEMENT

★ A NEW SHERIFF IN TOWN: UPSKILLING JUNIOR EMPLOYEES FOR AI

Has your company invested in formal AI training for junior staff to upskill talent?



84% OFFER FORMAL AI TRAINING AND THE REMAINING **16%** PLAN TO OFFER TRAINING SOON.

NONTRADITIONAL TALENT POOLS INCREASINGLY KEY AS SKILLS OVERRIDE CREDENTIALS

Tech leaders have positions to fill, and continue to express dissatisfaction with their HR team's struggles to source qualified candidates in a timely manner. In response, increasing numbers of employers are actively seeking to recruit nontraditional talent.

TIME TO HIRE REMAINS STAGNANT

How long does it typically take to fill a tech worker position with a candidate that meets the requirements your organization is looking for?



72% REPORT THEIR HIRING PROCESS TAKES
A MONTH OR MORE.

72% who hire nontraditional workers see their company take a month or less to hire a tech worker that meets their requirements. At companies who do not recruit nontraditional talent, **only 64% take a month or less** to hire.

IN-DEMAND: NONTRADITIONAL TALENT

Which of the following describes your thoughts when sourcing and hiring nontraditional talent for open roles in your organization?



58% KNOW WHERE TO FIND AND ARE INTERESTED
IN EMPLOYING NONTRADITIONAL WORKERS TO FILL OPEN
POSITIONS; THIS NUMBER RISES TO **71%** FOR LARGE COMPANIES
WITH 1,000+ EMPLOYEES.

33% of technical leaders have no interest in sourcing and hiring nontraditional talent for open roles.

NONTRADITIONAL TECH TALENT PIPELINES PAY DIGITAL TRANSFORMATION DIVIDENDS

HOW MUCH DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENT?
My organization doesn't have the correct tech talent needed to meet our digital transformation goals.



59% AGREE STRONGLY OR SOMEWHAT THAT THEIR ORGANIZATION LACKS THE CORRECT TECH TALENT TO MEET THEIR DIGITAL TRANSFORMATION GOALS.

In companies uninterested in nontraditional talent, **75%** say they lack the correct tech talent to meet their digital transformation goals. **Only 47%** of respondents in companies that hire nontraditional talent say they lack the tech talent.



RECOMMENDATIONS FOR TECH LEADERS FROM TECH LEADERS



“What we’re seeing right now in the tech labor market can perhaps best be described as recovery from whiplash — a return to cautious stabilization after the hiring frenzy and layoffs of the past couple years,” said Glassdoor’s Aaron Terrazas. “The good news is that business leaders, who have a hard time looking more than one step ahead since the pandemic, now have the opportunity to plan more intentionally for the future.”

What should those future plans look like? Based on the survey and additional research, this white paper provides the following recommendations on adopting talent strategies to improve tech talent pipelines — internally and externally — and boost skills acquisition.



PREPARE FOR THE FUTURE NOW.

The demand for skills in AI and other emerging fields isn’t going anywhere, and if anything, it’s going to accelerate. The best thing tech and talent leaders can do to prepare is assess the current state versus the future state of your tech organization, and pinpoint the headcount, roles, and skill profiles needed to set your team and company up for success. The more groundwork that can be laid now, the easier it will be to navigate a rapidly changing marketplace.



FILL NEW SKILLS GAPS BY RECRUITING NONTRADITIONAL TALENT.

As the evolution in tech skills accelerates, the disparities between supply and demand will continue to worsen. A growing movement of businesses and state governments is adopting skills-first approaches to hiring that recognize candidates for what they can do — competencies and skills — not what credentials they’ve earned. As the nonprofit Opportunity@Work has shared through its research, removing degrees from job descriptions opens up opportunities for more than 70 million workers (half the U.S. labor force) who would otherwise have been screened out. To harness the full power of nontraditional talent, companies must go beyond just the hiring process — and invest in ongoing training and development programs that nurture their capabilities.



EMBRACE THE POTENTIAL OF HIRE-TRAIN-DEPLOY (HTD) TO ACCESS TALENT WHO CAN PERFORM ON DAY ONE.

Growing in popularity among employers across industries, HTD models enable employers to access often-untapped pools of talent by looking beyond the traditional hiring methods. HTD models like General Assembly’s enable talent leaders to not just source potential candidates but also train them in the required tech skills and platforms and place them in the roles they need. The goal is to help employers rethink the “build versus buy” paradigm for tech talent development — by identifying workers with the soft skills to navigate the world of work and helping them master the technical skills needed to succeed on the job.

STRIKING TECH TALENT GOLD IN THE AGE OF AI



“Our current education and workforce systems were built for a different time. Businesses are starting to realize that the dynamic labor market we have now calls for a different approach if we want to deliver results that benefit employers, educators, and most importantly, students and workers,” said Jaimie Francis, VP of Policy and Programs at the U.S. Chamber of Commerce Foundation. “Change across the technological landscape may be the catalyst that employers need to make longer-term, more lasting changes to how they hire, train, and retain — and build a stronger and more resilient economy in the process.”


As long as technology continues to govern nearly every facet of business and society, employers will need people who can harness and navigate that technology. Until now, that’s been accomplished by playing a perpetual game of catch-up, which has left talent leaders scrambling to recruit from an ever-shrinking pool of skilled talent. What will it take for tomorrow’s world of work to look different?

The businesses that win the war for talent in the age of AI will be those that recognize it’s time to look past the short term. The best way to prepare for a marketplace where skill shortages are persistent and ever evolving is to start addressing them now. As the competition for talent continues to intensify, employers need to think differently in order to both close their immediate-term skill gaps and lay the foundation for success in the months and years to come. Taking a long-term perspective is the first step — evaluate your company’s strategic and business objectives and map them to the platforms and employee capabilities your tech group has and needs to support these objectives. Tried and trusted talent acquisition approaches play a role, but a skills- and future-focused analysis proves that investing in upskilling and reskilling existing employees, and tapping nontraditional talent pools, are the best ways to set businesses up for success.



ABOUT GENERAL ASSEMBLY

Since 2011, General Assembly (GA) has launched the technology careers of tens of thousands of diverse individuals and cultivated emerging tech talent pipelines for hundreds of the world's leading employers. As featured in *The Economist*, *Wired*, and *The New York Times*, GA offers bootcamps, digital upskilling, apprenticeships, and other career onramps into today's most in-demand jobs in web development, data, design, and more. Part of global HR solutions giant The Adecco Group, GA has become a leading provider of world-class technical training, equitable job opportunity, and social impact. GA has been recognized as one of Deloitte's Technology Fast 500 and a Fast Company World-Changing Idea, as well as the #1 Most Innovative Company in Education.



INTERESTED IN LEARNING HOW GA CAN HELP YOU BUILD YOUR TEAM OF THE FUTURE?

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