MIT Technology Review

Insights

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HCLTech

Early-career programs enable tech companies to invest in the future workforce via upskilling and education

New approaches to the tech talent shortage

We live in a tech-enabled world, but for organizations to advance world-changing innovations, they need skilled people who can build, install, and maintain the systems that underlie them. Finding that talent is one of the biggest ongoing problems — and opportunities — in tech.

The IT staffing shortages brought on by covid-19 and the Great Resignation are still affecting companies today. In a poll of 250 global executives conducted by MIT Technology Review Insights, 64% of respondents say candidates for their IT and tech jobs lack necessary skills or experience. Another 56% cite an overall shortage of candidates as a concern.

A **2021 Gartner survey** of IT executives shows that a majority — 64% — believe the ongoing tech talent shortage is the most significant barrier to the adoption of emerging technologies. By 2030, more than 85 million jobs might go unfilled, "because there aren't enough skilled people to take them," **according to Korn Ferry**. Without that talented workforce, companies could lose out on $8.5 trillion in annual revenue.

Methodology

In January and February 2023, MIT Technology Review Insights surveyed business leaders about their experience recruiting IT employees. Of the 250 respondents, 83% were C-suite executives, directors, or managers. They represented a broad range of industries, from retail and financial services to manufacturing and health care. Responses were global in scope, representing North America (32%), Europe (24%), Latin America (14%), Asia-Pacific (18%), and the Middle East and Africa (12%), and companies represented ranged from less than $50 million in annual revenue to more than $5 billion.

Key takeaways

1 In the face of ongoing staffing shortages, finding and retaining IT and tech talent is a great challenge — and a competitive opportunity.

2 Targeting early-career candidates, including those who have not yet completed their secondary education, helps employers identify new talent while chalking out new career paths.

3 Technology apprenticeships and educational partnerships are growing more common, as employers realize that helping candidates learn on the job results in improved skills matches, better retention, and a more diverse workforce.

Companies are all looking for ways to address this talent shortage in the short term. As the Great Resignation has given way to a Great Reshuffle, with tech employees — including those affected by the tech layoffs of late 2022 and early 2023 — seeking new roles that meet their needs for flexibility, work-life balance, and career growth, some employers have seen the opportunity to differentiate themselves with their career offerings. They compete fiercely to offer the best salaries, benefits, and working conditions; court freshly minted university graduates as well as experienced talent; and bring on contract and temporary workers to bridge the gap.

"We see that candidates actually self-select out. They don't see themselves represented in this field."

Derek Darch, Senior Director of Employer Engagement, NPower Canada

Top challenges in recruiting tech employees

Which of these challenges do you encounter in recruiting IT/tech employees?

Candidates lack necessary skills or experience
64%

Overall shortage of candidates
56%

Difficulty meeting candidates' salary expectations
54%

Candidates lack necessary credentials
31%

Difficulty meeting candidates' nonsalary expectations
30%

Candidates are not a good fit for our organization
29%

Source: MIT Technology Review Insights poll, 2023

But tech doesn't just need short-term bridges. It needs long-term solutions. That's why some companies are looking earlier in the pipeline — and even building their own pipeline. Innovative tech leaders have begun targeting less traditionally qualified candidates, including those who have just finished secondary school, and they are cultivating that future potential through new early-career programs.

A new approach to early-career candidates

For many people, the traditional path from education to career has followed a linear trajectory: Graduate high school. Go to college, university, or trade school. Get a job. But that approach has its risks — both for students and for potential future employers.

For students, the cost of a university degree can be reason enough to pursue a different path. The **College Board** reports the average U.S. in-state student pays $10,740 per year for tuition at a public, four-year college (plus an average of $11,950 per year for room and board). According to the same data, the average student will take out $30,000 in loans to earn a bachelor's degree.

Those prohibitively high costs have impacted diversity within the tech industry. Students who can't afford a tech degree don't go to school, and then they don't join the industry. Further down the line, when future students don't see tech leaders who come from backgrounds similar to their own, they may opt for a different path.

"We see that candidates actually self-select out," says Derek Darch, senior director of employer engagement at NPower Canada, a workforce development nonprofit that provides technical training and job placement services. "They don't see themselves represented in this field and therefore think it might not necessarily be for them."

On the employer side, companies are finding a mismatch between new grads' education and their ability to do the job. In our poll, 64% of tech leaders say the job candidates they see don't have the right skills and experience. Additionally, 31% say they lack necessary credentials.

And given the rapid pace of technological innovation, there's no guarantee that today's computer science

classes will equip new graduates for tomorrow's technology. "What's being taught in engineering schools is sometimes 10 years behind the current tech landscape," says Subbaraman Balasubramanyan, SVP of strategic initiatives at HCLTech. "We have to spend time getting new grads industry-ready, even if they come out of good college programs."

To overcome these problems, HCLTech has begun investing in young students through early-career programs that provide on-the-job training, while also offering them financial support toward their post-secondary education. The initial goal is to train candidates to become valued contributors to HCLTech. But zooming out, these programs can also play a vital role in building the diverse and highly skilled IT workforce of the future. By removing financial barriers, early-career programs can stimulate much-needed diversity in age, gender, race, educational and class background, experience, and geography.

Our poll, however, found that most tech companies still seek candidates who have already completed a post-secondary degree. Only 17% of respondents said their organization is currently recruiting candidates who have only a secondary school diploma, and only 29% recruit candidates with post-secondary training but no post-secondary degree. This may change as these hiring pressures continue, however: an additional 47% of respondents indicated that they would be open to recruiting candidates with only a secondary school diploma in future.

Bringing diversity to tech

Expanding recruitment and training efforts to nontraditional candidates is an important step toward building a more dynamic workforce and more forward-thinking industry. "With more workplace diversity comes a broader collection of ideas and skill sets, which drives more innovation," says Jagadeshwar Gattu, president of digital foundation services at HCLTech.

Bringing together all those different minds is the raw material. And an early-career program — where collaboration is vital — is the tool to help shape that raw material into creative, world-changing ideas. "Especially nowadays, when a team member's ability to collaborate is almost as important as their skills," Gattu says, "bringing them together early in their career actually helps encourage that collaboration and diversity of thought."
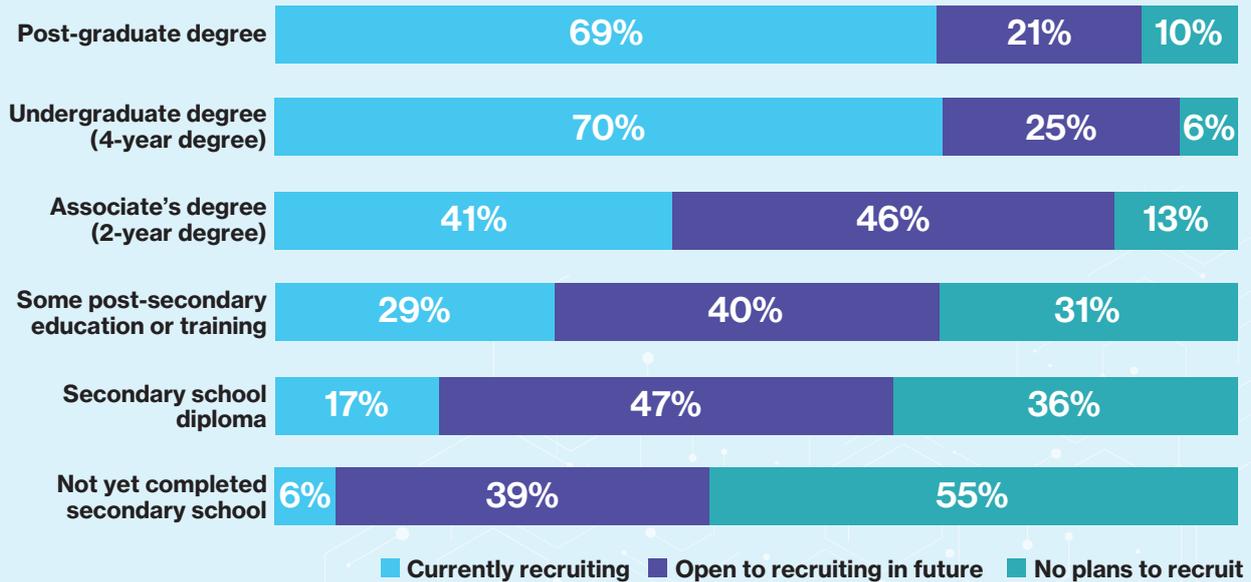
By relying on the same talent pools the tech industry has always drawn from, organizations risk stagnating — and missing out on unrecognized brainpower. That's why early-career programs can make such an impact. Participants in the program, including those from nontraditional backgrounds, can develop the exact skills the tech industry needs to continue to innovate and advance.

Derek Darch of NPower Canada says his workforce development organization works with "individuals from the BIPOC community, people with disabilities, women who are underrepresented in the STEM fields, and members of Indigenous populations." Of this wide range of candidates, he adds, "It's really a wide catchment that brings forth individuals who might not have had access to post-secondary, and so therefore their highest level of education is high school. Or they might be a recent graduate where traditional education really isn't suitable for them based on their learning style, or maybe even their family circumstances."

Through on-the-ground training, students build up their skill sets, of course. But they also build the confidence that they belong in the tech space. And as that workplace diversity increases, it starts to match the diversity of a company's customers. "This is probably one of the most exciting times to be in the tech industry," Darch says. "We really need to make sure we have individuals that have fresh ideas and who are reflective of the populations our organizations are serving."

Most employers remain degree-focused

Are you targeting IT/tech recruitment efforts toward candidates with the following education levels?

Education level	Currently recruiting	Open to recruiting in future	No plans to recruit
Post-graduate degree	69%	21%	10%
Undergraduate degree (4-year degree)	70%	25%	6%
Associate's degree (2-year degree)	41%	46%	13%
Some post-secondary education or training	29%	40%	31%
Secondary school diploma	17%	47%	36%
Not yet completed secondary school	6%	39%	55%

■ Currently recruiting ■ Open to recruiting in future ■ No plans to recruit

Source: MIT Technology Review Insights poll, 2023

The benefits for employers

Early-career programs and on-the-job training are becoming more common across the tech industry. CompTIA, the biggest global IT industry association, offers registered tech apprenticeship programs, funded by the U.S. Department of Labor. Tech giants including Microsoft, Google, IBM, and Airbnb also offer apprenticeship programs. According to our poll, 32% of the organizations surveyed currently have a formal apprenticeship program, while 19% plan on implementing one in the next two years.

Tech organizations have started to recognize what many other sectors throughout history have understood: a better trained young workforce can benefit the entire industry.

Some of the earliest apprenticeships in the U.S. helped carpenters, stonemasons, and shipbuilders gain hands-on skills at the beginning of their careers. Apprenticeships became more available in the 1930s, including in burgeoning sectors like automaking.

"What's being taught in engineering schools is sometimes 10 years behind the current tech landscape."

Subbaraman Balasubramanyan,
SVP of Strategic Initiatives, HCLTech

"The companies that build the best cars and finest manufactured products in the world have interns on their assembly line," says Balasubramanyan. "They learn hands-on skills, then deploy those skills to the company's benefit."
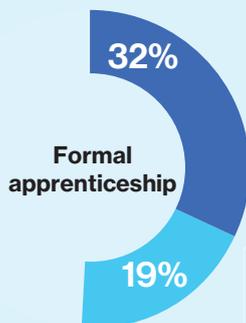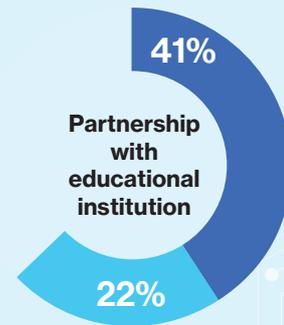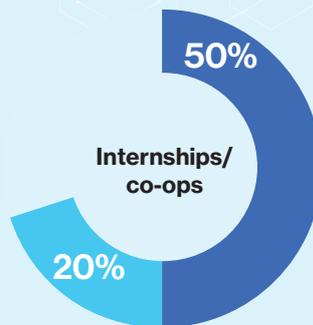
HCLTech's early-career program started in India (as TechBee) and has expanded to the U.S., Australia, and other regions. For 12 months, students are immersed in classroom and on-the-job training and mentored by HCLTech senior leaders. The students learn contemporary software development lifecycles, computer science, coding, security and compliance protocols, and other skills not typically taught in school. They also get "soft skills" training to bolster their professionalism, communication, and understanding of corporate structures. Program participants receive compensation for the one-year training period, then typically transition to full-time employment. At that point, HCLTech's Tuition Assistance Program helps them access or complete post-secondary education.

The benefits to early-career students are obvious — and often life-changing. But organizations that enact these early-career programs also experience many advantages. For one, employers who design early career programs, or that partner with organizations that do, can customize the training their candidates or employees receive to match their specific needs. "By being able to consult on the skills they are needing," Darch says, "employers are able to influence the curriculum, which then provides a better pipeline of talent for them. We are asking employers, what are the skills you need right now?"

Alternative recruitment and training strategies are gaining popularity

Which of the following strategies are you using to recruit or train early career IT/tech employees, or do you plan to implement in the next two years?

On-the-job training: 69%, 13%
Internships/co-ops: 50%, 20%
Partnership with educational institution: 41%, 22%
Formal apprenticeship: 32%, 19%
Partnership with workforce development organization: 20%, 22%

■ Currently using
■ Plan to implement

Source: MIT Technology Review Insights poll, 2023

In addition, attrition decreases when candidates can embed with an organization early, receive robust training and onboarding, continue their education, and grow alongside the company. "Once a person joins HCLTech, they often choose to stay six or seven years or longer," says Jagadeshwar Gattu, president of digital foundation services at HCLTech. "That alone helps the program pay for itself, compared to the cost of attrition, rehiring, and retraining."

But early-career programs are not just about building up entry-level talent. That young talent often evolves into an organization's next leadership class. They learn the organization, industry, and customers. Not only does that create a layer of stronger managers, but those managers create more long-term innovation and value for customers.

Early-career programs also open the door to a wider range of candidates for open positions. With access to the opportunity, education, and connections that early-career programs can provide, candidates are less likely to self-select out of the recruitment process. "Everybody assumes the only place to look for talent is engineering and STEM programs," says Gattu. "But there are brilliant students who can't afford a four-year degree. So we saw an opportunity to create a win-win, where students get educated and, at the same time, become strong, integral parts of HCLTech."

A new generation of talent

As Gen Z and future generations start to join the workforce, it's more important than ever to understand what these younger employees want—and how early-career programs can meet those needs.

According to a **Deloitte study**, employers need "robust training and leadership programs, with a real and tangible focus on diversity" if they hope to attract and retain Gen Z employees. Early-career programs can check all those boxes.

Not only do they give workers the education and training that will make them better (and happier) employees, but they also offer the job security that Gen Z—who has grown up in a turbulent era—craves. Early-career programs can give them skills training that stays relevant with the times.

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Jagadeshwar Gattu, President of Digital Foundation Services, HCLTech

At HCLTech, leaders also hope early-career programs can satisfy the "curiosity index" for Gen Z'ers: giving them access to a range of projects and opportunities instead of keeping them siloed in one sector. With that increased exposure to new challenges and different projects, plus visibility into future opportunities, Gen Z employees are more bought-in and engaged.

"You have to show them how their role and career path will progress," Gattu says. "They're always asking, 'Hey, when will I get a new project? When will I learn a new technology?' From that perspective, we're helping to define a career path for anyone in the program, so they clearly know what they'll do in the next five years."

With change happening so rapidly in the tech world, it can be tempting to think in the short term—focusing only on highly experienced workers who have the skills *now* to drive technological advancement or falling back on tried-and-true hiring practices. But organizations that think long-term, build tomorrow's pipeline of skilled employees, and increase diversity within their ranks will be the ones who see the most success—and drive the whole world forward.

"All of this is done with the spirit of helping humanity progress," says Balasubramanyan. "That's the ultimate goal. Through partnerships and a structured formal program, we can identify gems from every corner of the world that traditional hiring paths don't find."

"New approaches to the tech talent shortage" is an executive briefing paper by MIT Technology Review Insights. We would like to thank all participants as well as the sponsor, HCLTech. MIT Technology Review Insights has collected and reported on all findings contained in this paper independently, regardless of participation or sponsorship. Teresa Elsey was the editor of this report, and Nicola Crepaldi was the publisher.

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