



Important Recommendations

1. Increase your personal DEI expertise.
2. Establish DEI as a business imperative.
3. Support DEI with funding, metrics, strategies, and accountability.
4. Redesign systems, including hiring, retention, and promotion systems, to remove bias.
5. Apply both a DEI framework and an ethical framework to the design of products and services.
6. Support industry-wide DEI reporting standards and share anonymized data.
7. Set public goals.
8. Advocate for computer science (CS) to be required in all schools.
9. Build systems capacity to create more CS teachers at all levels, and invest in CS faculty within colleges of education.
10. Invest in organizations that connect talent from underrepresented groups to tech careers.

Transform pathways into tech for underrepresented talent



American students have unequal access to computer science (CS) education in secondary schools. This is compounded by deep educational inequities that start much earlier: sixth graders (11 to 12-year-olds) in the richest school districts are *four grade levels* ahead of children in the poorest districts.²⁵¹

Economic disadvantage is directly correlated with lower performance in math. The need for early intervention is demonstrated by data showing that most of the math deficit among low-income eighth graders already exists by third grade.²⁵²

Even for those students in public school who perform well, the availability of high-quality CS education is patchy and courses are rarely required. Students and their families are poorly informed about the benefits of choosing CS pathways and often rely on school counselors' uneven knowledge and sometimes outdated beliefs about who is "suited" to CS. Even if students want to choose CS, there is a critical shortage of teachers.

Tech CEOs and companies can:

- **Promote widespread policy change** in U.S. states and school districts to transform pathways for future talent, including by supporting policy changes to make CS education a core subject in K–12 pathways and a requirement to make CS education available at high school.
- **Support education of CS teachers**, particularly teachers who are people of color or from underrepresented groups.

OVERCOMING PREPARATORY PRIVILEGE

One challenge of widening pathways into tech is that the CS college curriculum is currently designed for those who attended well-resourced high schools that provide rigorous CS preparation.²⁵³ This is sometimes called "preparatory privilege." For students who have not had a private education (or public school education in an affluent community, private tutors, or expensive summer camps), additional coursework is often required to bridge considerable knowledge gaps. That means extending time to complete college degrees, holding down jobs to fund tuition, and reducing participation in networking and skill-building extracurricular activities. This situation is most common among first-generation students—the first in their family to attend college.²⁵⁴

Women, Black, and Hispanic/Latinx students who take CS in college often report subtle and not-so-subtle stereotypes and microaggressions that chip away at their confidence. Dropout rates are higher for women and underrepresented students. Those who do drop out are left without a credential, eliminating their employment chances at companies that require a bachelor's degree.

Tech CEOs and leaders can make clear to colleges and universities that their CS education must work for women and underrepresented groups without preparatory privilege.

Tech companies should:

- **Recruit from universities that demonstrate diverse student populations** within their STEM or tech degree programs.
- **Request DEI data and stats from universities** breaking down gender and race participation, including within STEM or tech degree programs.
- **Develop relationships with tech workforce programs**, including apprenticeships and community colleges that provide quality tech training delivered on-the-job in full-time employment, at no cost to the individual.²⁵⁵
- **Encourage universities to integrate ethics** into the CS curricula related to tech products and services. Curriculum should incentivize students to think about ethics and DEI in the code they design and its impact on users.

ACTION 8 →

Advocate for computer science (CS) to be required in all schools.

ACTION 9 →

Build systems capacity to create more CS teachers at all levels, and invest in CS faculty within colleges of education.

ACTION 10 →

Invest in organizations that connect talent from underrepresented groups to tech careers.

HIGH LEVERAGE POINTS FOR TRANSFORMING THE FUTURE PATHWAY OF TECH TALENT

EDUCATION POLICY Make CS a core course in the K–12 pathway, and require access to CS education for all students in the U.S. Start in the states where you operate. Support policy to address wider educational inequity.

CS TEACHERS Work with colleges of education to create more teachers who are well prepared to teach CS, and expand training and credentialing. Update teacher training so all teachers have foundational knowledge of CS.

TALENT ORGANIZATIONS Connect underrepresented talent to tech careers. Invest in organizations and institutions that are already creating new pathways and connecting underrepresented students to tech.

APPRENTICESHIP PROGRAMS Invest in apprenticeship programs to accelerate early career talent development and develop the skills of underrepresented groups without degrees. Support talent in building the technical and digital skills, leadership skills, and social capital they will need to advance their careers in tech.²⁵⁶

CONTEXT (ROOT CAUSES AND THE WHY)

Computer science (CS) education is not integrated into the priorities, policies, or metrics of the public education system in most U.S. states and school districts. Integrating CS education into the heart of education will:

- Address technical talent shortages facing U.S. businesses.
- Improve global competitiveness and drive innovation in the tech sector.²⁵⁷
- Prepare young people for a digital-first future.

Even when CS education is available, many students opt out of CS. They may lack meaningful exposure to the subject or face a cultural narrative that they don't belong in CS, and subsequently lose interest. However, occupational choice is linked to identity, confidence, and belonging, as well as stereotypes and subtle social cues—not just interest.²⁵⁸ Unsurprisingly, studying science and math in high school correlates with studying those subjects later in college.²⁵⁹

WHAT'S THE PROBLEM?

- **Well-prepared CS teachers are in critically short supply.** We need more teachers educated in CS and qualified to teach it—both integrated in the K–8 pathway and as stand-alone high school courses.
- **Currently, few CS certification programs are available** in colleges of education, and only a handful of institutions have CS education faculty.
- **Gender and racial stereotypes about who belongs in CS** and who doesn't are repeated and reinforced every day by parents, teachers, school counselors, other kids, social media, radio, film, and television. In the absence of curricular requirements to study CS, underrepresented students are most likely to skip CS courses that lead to CS-related careers—or even that prepare students for those CS careers.
- **Teachers who become skilled in CS are likely to leave teaching** for more lucrative careers elsewhere, as teaching salaries are far below private sector salaries.

WHAT'S THE SOLUTION?

- The solution is to include CS as a core subject and require CS education for all students, in the same way they are required to study math or English. We also call on the tech industry collectively, ideally under the auspices of the Tech Equity Accountability Mechanism (TEAM), to call for a comprehensive review of solutions to retain CS teachers in public schools.

ACTION 8

Advocate for computer science (CS) to be required in all schools.

Push to establish CS as a core K–12 subject. Use your collective voice as industry leaders to join with, champion, and financially support the states and school districts that are seeking to improve K–12 provision of CS education. Advocate for increased funding for public education generally, and push states and the federal government to reduce wider educational inequities.

HIGH LEVERAGE POINTS

EDUCATION POLICY

CS TEACHERS

CHANGE AGENTS



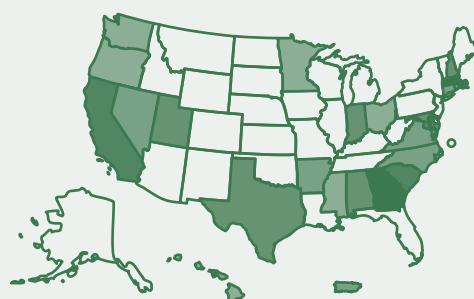
IN SUMMARY

- 8.1.** Partner with the Expanding Computing Education Pathways (ECEP) Alliance²⁶⁰ to initiate and support state and district-based policy reform to improve CS education.
- 8.2.** Encourage increased local, state, and federal investment in educational equity, CS educational policies, and well-prepared teachers.
- 8.3.** Leverage site selection for business expansion to drive investment in K–12 CS funding.

ECEP: EXPANDING COMPUTING EDUCATION PATHWAYS ALLIANCE

ECEP is a 23-state alliance sharing best practices to increase the number and diversity of students in the CS talent pipeline through state-level educational reforms. Only 47% of high schools in the U.S. offer a CS course, and only a small subset requires CS for graduation.

In other words, most high school students in the U.S. never have to learn computer science—an egregious omission in the 21st century. ECEP supports states and districts in establishing policies to make CS courses fundamental to K–12 education.

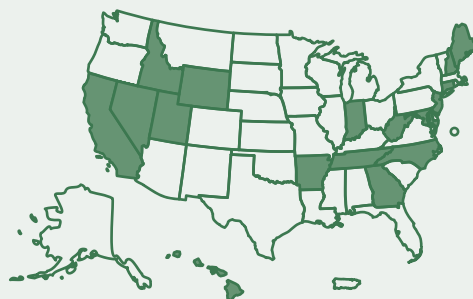


■ ECEP Origin States
■ Phase 1 ■ Phase 2
■ Phase 3 ■ Phase 4

To date, ECEP claims several successes, such as:

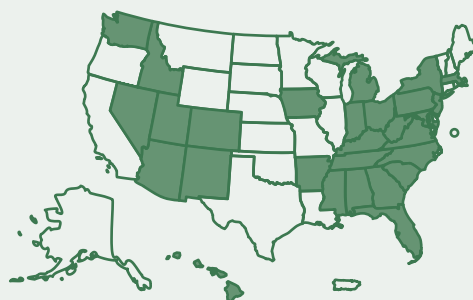
18 states have a plan for K–12 CS education.

■ With plan
□ With no plan



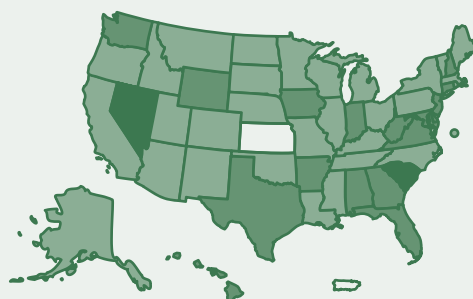
29 states fund professional development for CS teachers, though most recently cut funding because of the COVID-19 pandemic.

■ Fund professional development
□ Don't fund



20 states established a requirement for all high schools to offer CS, and 48 states allow CS to meet a high school graduation requirement. But only two states, Nevada and South Carolina, require CS for graduation.

■ Require CS for graduation
■ Require HS to offer CS
■ Allow CS to meet a HS grad requirement



Want to know how the states where your company operates are doing? Read the 2020 ECEP report.²⁶¹

How to do it

8.1. PARTNER WITH THE EXPANDING COMPUTING EDUCATION PATHWAYS (ECEP) ALLIANCE TO INITIATE AND SUPPORT STATE AND DISTRICT-BASED POLICY REFORM TO IMPROVE CS EDUCATION.

CEOs can leverage ECEP's extensive experience to encourage policy reform. CEOs should:

- A. Join forces with existing ECEP initiatives in 23 states.** Find out whether a U.S. state or territory in which you are interested is an ECEP state alliance member,²⁶² how many and which CS policies each state has implemented, and the quality of their CS professional-development programs. Talk to state ECEP leaders to find out what support is most needed, such as funding or advocacy.
- B. Facilitate ECEP involvement in states that are not yet members.** Every state and territory has a unique policy environment. Consult with ECEP to find out how they can support your efforts to increase diversity in CS.²⁶³
- C. Advocate for a State Summit for establishing CS education policies.** Leverage ECEP's experience with their State Summit Toolkit.²⁶⁴
- D. Advocate for state data systems to share CS course data disaggregated** by race, gender, ethnicity, socioeconomic status, and disability status of enrolled students. Many states cannot accurately answer questions about where CS is being taught or who is enrolled.

8.2. ENCOURAGE INCREASED LOCAL, STATE, AND FEDERAL INVESTMENT IN EDUCATIONAL EQUITY, CS EDUCATIONAL POLICIES, AND WELL-PREPARED TEACHERS.

- A. Let state legislatures know that CEOs care** about CS educational policy for K–12 students. Advocate for standards-based CS education.²⁶⁵
- B. Encourage increased state, local, and federal investment** in public education and policies that increase educational equity.
- C. Look for a balance between national and local approaches**, e.g., work through national organizations like the Computer Science Teachers Association (CSTA) to support community-generated standards at scale, while creating local partnerships for career and technical education programs.
- D. Partner with locally led CS education initiatives** to advocate for and fund K–12 policy and teacher preparation, and identify local high-priority items that need support. Don't reinvent the wheel. Many states and cities have community-driven CS education organizations, such as CS4ALLCPS in Chicago, CSforPGH in Pittsburgh, or CSforMA in Massachusetts, CSforCA in California, CS4RI in Rhode Island, Code Virginia, and more.

8.3. LEVERAGE SITE SELECTION FOR BUSINESS EXPANSION TO DRIVE INVESTMENT IN K–12 CS FUNDING.

Companies can leverage and extend site strategy by including equity-based selection criteria when deciding where to open new offices. These selection criteria to support greater educational equity include consideration of:

- A.** K–12 CS educational policy environment.
- B.** Availability of CS in schools.
- C.** CS educational capacity within colleges of education.
- D.** School desegregation efforts.
- E.** Equitable school funding.
- F.** Teacher professionalization.
- G.** Universal broadband access.

ACTION 9

Build systems capacity to create more CS teachers at all levels, and invest in CS faculty within colleges of education.

Teachers well-prepared in CS are in critically short supply. Supporting the professional development of CS teachers is essential for meeting educational policy requiring CS for all students.

HIGH LEVERAGE POINTS

EDUCATION POLICY

CS TEACHERS

CHANGE AGENTS



IN SUMMARY

- 9.1.** Create CS education capacity in the schools that prepare teachers.
- 9.2.** Advocate for and support teacher certification in colleges of education.
- 9.3.** Prepare existing teachers to teach CS.
- 9.4.** Work at an industry level to retain CS teachers.

How to do it

9.1. CREATE CS EDUCATION CAPACITY IN THE SCHOOLS THAT PREPARE TEACHERS.

Promote and invest in CS education in schools and colleges of education. This can be done by funding faculty and programs that specialize in CS education. Such investments are prestigious, and signal the importance of CS at an institutional level. These investments won't only build capacity at an institution, they'll also create a pipeline of PhD students to fill similar roles at other institutions as demand for CS education faculty grows. Prioritize investing in institutions that prepare significant numbers of teachers of color and teachers that serve in underrepresented communities. Most universities and colleges provide guidance for endowing positions and levels of funding required, usually ranging from \$2 million to \$5 million.

- A. Establish a center of excellence for CS education** through a multiyear grant investment. That would enable an institution to immediately start a program and fund faculty positions and graduate students, while establishing the research, teaching, and projects that would draw additional funding to the center.
- B. Endow a chair or faculty member with specific research, teaching, and service responsibilities in CS** in a preservice program at a college of education. Collaborate with the institution to ensure that the position works toward a goal of establishing or advancing a CS preservice program, and that the position is officially connected with colleagues in the CS department.
- C. Provide a short-term gift to fund term chairs or professorships** to support a faculty member for a specific number of years.

STRATEGIC INVESTMENT IN PRESERVICE TEACHER PREPARATION IN CS

Every teacher at every level should have a foundational understanding of computer science. At Michigan State University, for example, Dr. Aman Yadav transformed the educational technology course for new teachers to include foundational learning in CS and computational thinking. To increase CS education access for students with disabilities, he integrated CS and computational thinking into two required courses for special-education teachers. Yet very few colleges of education have faculty dedicated to the preparation of teachers in CS. Meanwhile, the bulk of K-12 CS education research is taking place in colleges of engineering and computer science, which are often disconnected from colleges of education.

Investing in CS education capacity within schools of education ensures that new teachers graduate prepared in CS, builds the field of CS education research in the colleges that prepare teachers, and incubates a pipeline of PhD candidates to populate other colleges of education. Further, directing these investments to institutions that prepare high percentages of teachers of color will seed the next generation of CS education leaders with teachers of color—a critical need—as well as rapidly graduate large numbers of teachers prepared to teach CS in all classrooms. Contact CSforED@csforall.org to get started.

9.2. ADVOCATE FOR AND SUPPORT TEACHER CERTIFICATION IN COLLEGES OF EDUCATION.

Find out if a state in which you are interested has a program to certify teachers in CS (i.e., preservice teachers).²⁶⁶

- A. If your state does not have a sufficient number of CS preservice teacher programs, connect with the state legislature** and a college of education to let them know that your company will support their efforts to establish new programs.
- B. Provide scholarships and fellowships for aspiring teachers** who will commit to completing the certification and teaching in schools, especially in districts heavily populated by underrepresented racial/ethnic communities.
- C. Fund internships and apprenticeships for preservice teachers**, so they can be paid to work in real classrooms with experienced CS teachers.
- D. Encourage in-depth coverage of ethics in computing**, and help faculty see the value of ethics as part of CS education so this topic can both be taught independently and woven into other courses.

9.3. PREPARE EXISTING TEACHERS TO TEACH CS.

Corporations can partner with states, local educational agencies, and school districts to fund preparation of experienced teachers from other disciplines to teach CS. Teachers should learn CS as well as CS pedagogical content knowledge (PCK).²⁶⁷ Understanding CS PCK is critical, since computational thinking²⁶⁸ is new for most students (and likely for these teachers). Multiple evidence-based curricula and teacher professional programs already exist for in-service teacher preparation in CS.

Corporations can pair CS professionals with teachers in the classroom to engage with students disconnected from tech career opportunities. Fund employees to volunteer with schools for a half to one day a week, leveraging corporate social responsibility (CSR) efforts, Employee Resource Groups (ERGs), and other corporate volunteer program resources. Volunteers learn to teach and teachers learn CS—a win for everyone. See the Microsoft Technology Education and Literacy in Schools (TEALS) program for an example of this in practice.²⁶⁹

9.4 WORK AT AN INDUSTRY LEVEL TO RETAIN CS TEACHERS.

The teaching profession offers far less competitive pay than industry, and 55% of public school teachers say they are not satisfied with their salary.²⁷⁰

The disparity in salaries between teaching jobs and tech jobs is vast, and the pay gap between being a programmer and teaching programming is greater still.²⁷¹

As a consequence, many CS teachers leave the teaching profession for well-paid jobs in business, further exacerbating the critical shortage of CS teachers in public schools.

There is an urgent need to find new innovative approaches to incentivize teachers to stay in CS.²⁷² We therefore call on the tech industry to convene a working group—for example, through the newly proposed TEAM organization outlined in section three—to develop an industry solution for keeping CS teachers in the classroom.

ACTION 10

Invest in organizations that connect talent from underrepresented groups to tech careers.

Many organizations are already working to advance high-quality postsecondary CS education at every level. CEOs do not have to reinvent the wheel, but can fund and partner with experienced providers and consultants.

HIGH LEVERAGE POINTS

TALENT ORGANIZATIONS

APPRENTICESHIP PROGRAMS

CHANGE AGENTS



IN SUMMARY

- 10.1.** Increase support for building technical talent pools for your workforce by promoting systemic reform and funding students from underrepresented groups at institutions of higher education.
- 10.2.** Establish relationships with institutions that graduate Native American, Black, and Hispanic/Latinx students. Promote opportunities for paid internships, “sprinternships,” and apprenticeships with your company.
- 10.3.** Fund intermediary programs and organizations to help build pathways into tech for students from underrepresented groups.

How to do it

10.1. INCREASE SUPPORT FOR BUILDING TECHNICAL TALENT POOLS FOR YOUR WORKFORCE BY PROMOTING SYSTEMIC REFORM AND FUNDING STUDENTS FROM UNDERREPRESENTED GROUPS AT INSTITUTIONS OF HIGHER EDUCATION.

Make your commitment to diversity and inclusion known to the schools where you recruit, and invest in their ability to recruit and retain CS undergraduate and graduate students from underrepresented groups through graduation. Most Black and Hispanic/Latinx students attend majority institutions and can experience micro-inequities that push them out of majors where they don't feel welcome.²⁷³

Signal to colleges and universities that corporations want to attract tech talent from many backgrounds. Support CS departments that seek to institutionalize change with programs like NCWIT Extension Services for Undergraduate and Graduate Programs.²⁷⁴ A small investment supports customized consultation to plan, implement, and evaluate sustainable recruiting and retention efforts for a program that feeds a corporation's tech talent pool.

Fund generous undergraduate scholarships for underrepresented students. Many first-generation college students have to earn income, reducing their ability to take advantage of extracurricular opportunities. Grant models like the Last Mile Education Fund can help level the playing field for these students.²⁷⁵ Offer opportunities specific to undergraduate students who participated in or completed career and technical education (CTE) programs in high school. Provide graduate fellowships to allow master's and PhD programs to attract and retain students from underrepresented groups. Fellowships allow students more freedom to conduct important research that can be relevant to your corporate goals. Offering summer internships can cement a relationship with those future researchers.

CS@MINES BRIDGE

Master's degrees in CS almost always require an undergraduate degree in CS for entry. Yet professionals from underrepresented groups who are interested in switching to a tech career are unlikely to have the prerequisite degree. Bridge programs can provide needed preparation.

The CS@Mines Bridge teaches fundamental skills and computing principles through hands-on projects and real-world applications. The two-semester program takes place through online and in-person classes, and students have the full support of college services. Students can then advance into the Colorado School of Mines CS master's program. With support from Chevron, students are provided scholarships.²⁷⁶

PROMOTING SYSTEMIC CHANGE FOR UNDERGRADUATE AND GRADUATE PROGRAMS IN COMPUTING FIELDS: NCWIT EXTENSION SERVICES

The National Center for Women & Information Technology (NCWIT) Extension Services for Undergraduate and Graduate Programs²⁷⁷ are initiatives for addressing the severe gender imbalance in computer science. The undergraduate intervention model has been successfully deployed in 135 computing departments, while the graduate program is in its pilot phase, partnering with two large computer and information science colleges. Each provides a research-based model of strategic systemic reform and customized consultation, taking into account local policies and conditions. The programs have demonstrated positive outcomes for attracting and retaining women in computing.

Johnson & Johnson funded NCWIT Extension Services for Undergraduate Programs to support a computer science department from which it regularly hires tech talent. In its first four years of change efforts, the department increased the percentage of CS bachelor's degrees awarded to women from 14% to 19%.

Google funded the development of the NCWIT Extension Services for Graduate Programs²⁷⁸ and supported the pilot program with two large PhD programs located in colleges of computing. Pilot institutions are examining what's working to recruit and retain students from underrepresented groups, as well as identifying barriers to admission and retention through graduation. Data and analysis will support strategic plans for institutionalizing change.

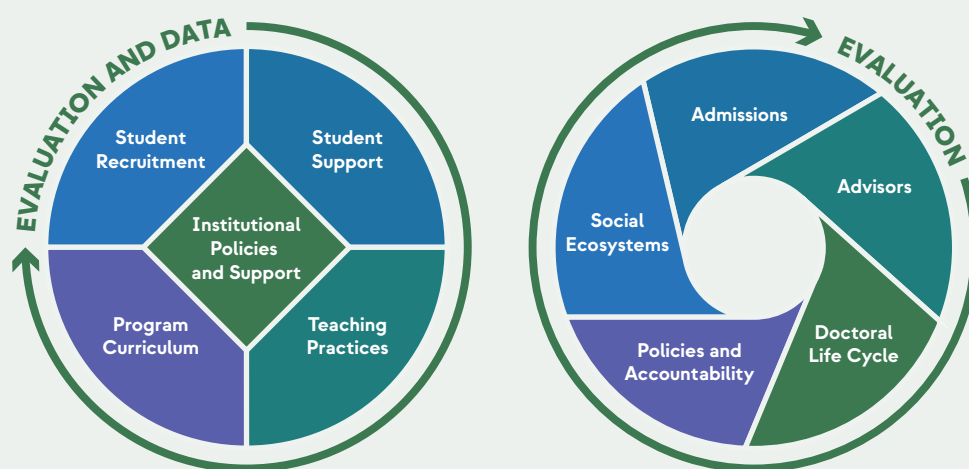


IMAGE SOURCE:
NCWIT Extension Services
for Undergraduate
and Graduate Programs.

10.2. ESTABLISH RELATIONSHIPS WITH INSTITUTIONS THAT GRADUATE NATIVE AMERICAN, BLACK, AND HISPANIC/LATINX STUDENTS. PROMOTE OPPORTUNITIES FOR PAID INTERNSHIPS, “SPRINTERNSHIPS,” AND APPRENTICESHIPS WITH YOUR COMPANY.

- A.** Many tech companies have strong relationships with elite colleges and universities, but not with Hispanic-serving institutions, historically black colleges and universities, and tribal colleges. **Building relationships with institutions serving underrepresented groups** provides a pipeline of highly educated, creative talent. Learn best practices for recruiting through building strong relationships.²⁷⁹
- B.** **In addition to internships, consider creating a “sprinternship” program** for students with little experience where they can acquire experience and skills in short, intensive programs. Learn from the Break Through Tech Sprinternship Program.²⁸⁰
- C.** **Establish or fund a co-op program that employs CS undergraduates from underrepresented groups** during the academic year. Co-op programs give students authentic experiences and greatly improve their ability to be hired upon graduation. Learn how to build a successful co-op program.²⁸¹

10.3. FUND INTERMEDIARY PROGRAMS AND ORGANIZATIONS TO HELP BUILD PATHWAYS INTO TECH FOR STUDENTS FROM UNDERREPRESENTED GROUPS.

- A.** **Develop and fund bridge programs** for incoming undergraduates whose high school preparation must be augmented in order to succeed in a CS bachelor’s degree program. Begin recruiting juniors from high schools that serve Black and Latinx students. By paying the students and funding the organizational resources needed, your company will demonstrate a deep and serious commitment to expanding pathways for students who are underrepresented in computing.
- B.** **Many organizations are actively preparing the tech talent of the future.** Get involved with groups that are already experienced and knowledgeable about the space, and invest in growing their impact (SEE TOOL KIT: JOIN, LEARN FROM, AND INVEST IN EXISTING INITIATIVES).
- C.** **Sponsor CS service learning** and other projects for undergraduates at your company. Such projects provide students with real-world experience, while allowing employees to see firsthand the talents of students whom they may not encounter in the typical recruiting process.

D. Create and strengthen nontraditional pathways into tech careers. Tech boot camps and bridge programs allow professionals to acquire the knowledge and skills necessary to enter and advance in tech careers. Many college graduates are underemployed or employed in shrinking industries. Corporations can create boot camps for their own employees or make connections with existing organizations to feed their talent pools. For example, JPMorgan recruits through its TechConnect²⁸² program and collaborates with training programs like Zip Code Wilmington.²⁸³ Google offers professional training through its Google Career Certificates²⁸⁴ program.

E. Invest in an apprenticeship program. Apprenticeships expand access to and retention in tech careers to people from underrepresented groups who don't attend traditional four-year colleges, many of whom are Black and Hispanic/Latinx. Leading companies in tech and the Fortune 500 have leveraged apprenticeship programs to train and develop their next generation of tech talent and business leaders. Apprentices develop in-demand skills through applied learning and receive coaching to help them navigate workplace challenges.

CASE STUDY: SPOTIFY'S TECHNOLOGY FELLOWSHIP PROGRAM

Spotify's Technology Fellowship Program²⁸⁵ is aimed at hiring engineers just entering the professional tech field from nontraditional backgrounds. The idea for the program originated at a company-wide hack week in 2016. Spotify engineers noticed that graduates from coding boot camps and other nontraditional educational backgrounds were not getting through programming interviews to receive job offers. They realized that while boot camp graduates received intense coding tutorials, they had not developed the applied engineering experience one needed to succeed in an interview and be hired.

The Fellowship, which launched in New York City, is designed to give candidates the necessary practical experience. For 18 weeks, program participants—about eight engineers—operate as a team within Spotify while receiving mentoring, and personal and professional development from various employees. To identify candidates, the Fellowship partners with NYC Tech Talent Pipeline²⁸⁶ to source talent, focusing on people who are self-taught, attended a coding boot camp, or have degrees from community colleges.

The results have been strong. Spotify has hired 93% of program participants for full-time positions, and they have come from a variety of backgrounds and life experiences. Moreover, the program has given the company's engineers the opportunity to serve as mentors and develop their own leadership skills.

One reason the program has been so successful is that participants are supported at every phase, building high levels of trust. The culture is to acknowledge that the work isn't easy and that failure is an opportunity to learn. Workshops explicitly tackle challenges like imposter syndrome and maintaining a growth mindset. The goal is to make people feel emotionally safe and professionally supported so they can develop their skills without fear or intimidation.

After four successful years in New York, the program is expanding to London and Stockholm (Spotify's headquarters). Over time, the Fellowship will continue to build strong feedback loops with NYC's Tech Talent Pipeline and coding boot camps in order to strengthen CS curricula and create more pathways for engineers from diverse backgrounds.

TOOL KIT: JOIN, LEARN FROM, AND INVEST IN EXISTING INITIATIVES

Many organizations help students get involved in tech, and others have initiatives that support colleges and universities in making their CS programs more inclusive for underserved students. Corporations can sponsor events and initiatives, create and communicate internships and other opportunities, and maintain communication with these organizations to show their interest in diversity. Below are just a few of the organizations corporations can work with:

- **81cents.** Provides affordable, accessible, virtual negotiation support and data for women and other underrepresented minorities.
- **AccessComputing.** Increases the participation of people with disabilities in computing fields.

TOOL KIT (CONTINUED)

- **American Indian Science and Engineering Society (AISES).** Focuses on substantially increasing the representation of Indigenous peoples in science, technology, engineering, and math (STEM).
- **AnitaB.org.** Connects, inspires, and guides women in computing and in organizations that view technology innovation as a strategic imperative.
- **Association for Computing Machinery (ACM and ACM-W).** Advances computing as a science and profession, with more than 680 student chapters around the world.
- **Bitwise Industries.** Helps upskill students and people typically left out of the tech industry, which transforms the economies of each city Bitwise serves.
- **Black Girls Code.** Builds pathways for young women of color by introducing them to skills in computer programming and technology.
- **Black Girls Do Engineer Corporation.** Develops Black American girls and young women in all areas of STEM through leadership, mentorship, critical thinking projects, STEM design and experiments, and life skills.
- **BlackcomputHER.** Supports computer and tech education and workforce development for Black women and girls.
- **Break Through Tech.** Removes obstacles that keep women from the tech talent pipeline.
- **BridgeUP STEM.** Provides opportunities for girls, women, and gender non-conforming individuals of all backgrounds to learn the skills of computer science and research methodology within a research university setting.
- **Center for Minorities and People With Disabilities in IT (CMDiT).** Offers resources, programming and leadership initiatives, and national scale projects to foster innovation through inclusion.
- **Code with Google.** Connects students from underrepresented groups to computer science education and the tools they need to build skills for the future.
- **CodeHouse.** Focuses on cultivating a strong pipeline between students of color and industry-leading technology companies to build the next generation of diverse tech leadership.
- **CodePath.** Transforms college computer science education for underrepresented minorities and underserved populations in order to eliminate educational inequity in technical careers.
- **Code.org.** Expands access to computer science in schools and increases participation by young women and students from other underrepresented groups.
- **ColorStack.** Offers community building, academic support, and career development for Black and Latinx college CS students.
- **Computer Science Teachers Association.** Community of computer science teachers that prepares teachers to offer high-quality classroom experiences.
- **Computing Alliance of Hispanic-Serving Institutions (CAHSI).** Addresses the low representation of Hispanics in computing in both higher education and the workforce.
- **Computing Research Association.** Joins with industry, government, and academia to strengthen research and advanced education in computing.
- **CSforALL.** Connects providers, schools and districts, funders, and researchers working toward the goal of providing quality CS education to every child in the United States.
- **Diversity Lab.** Incubator for innovative ideas and solutions that boost diversity and inclusion in law.
- **Girls Who Code.** Building the world's largest pipeline of future female engineers.

TOOL KIT (CONTINUED)

- **Institute for Women's Policy Research.** National think tank that builds evidence for policies that grow women's power and influence, close inequality gaps, and improve the economic well-being of families.
- **Internet Association.** Trade association that exclusively represents leading global internet companies on matters of public policy.
- **Kapor Center.** Family of organizations that pursue innovative strategies to leverage capital, talent, and technology for positive social impact.
- **Last Mile Education Fund.** Increases diversity in tech and engineering fields by addressing critical gaps in financial support for low-income, underrepresented students within four semesters of graduation.
- **LA-Tech.org.** Aims to bring the tech community together around common civic goals and to bring economic opportunities to LA's underserved communities through four pillars: educate, mobilize, connect, and amplify.
- **Management Leadership for Tomorrow.** Supports a pipeline of Black, Latinx, and Native American undergraduate, graduate, and management-level talent through its playbook, coaching, and networking programming.
- **Multiverse.** Customizes apprenticeship programs to train entry-level talent and upskill existing employees according to company needs.
- **Natives Rising.** Bridges the gap between tech and Indigenous communities by providing community, networking, and career coaching.
- **NCWIT Aspirations in Computing.** A program that supports girls and women in getting into the field of computing—and staying there.
- **NSBE.** Supports and promotes the aspirations of collegiate and precollegiate Black engineer students and technical professionals in engineering and technology.
- **oStem.** Professional association for LGBTQ+ people in the STEM community offering scholarship, leadership, and mentorship programming, as well as an annual conference.
- **PledgeLA.** A collective of 215+ LA-based tech companies and VC firms working to increase equity and accountability in the local ecosystem, a partnership by the Annenberg Foundation and the City of LA.
- **Reboot Representation.** Coalition of tech companies committed to doubling the number of Black, Latina, and Native American women graduating with computing degrees by 2025.
- **SHPE/MAES.** Fosters Hispanic leadership in the STEM field through mentorship, webinars, resource groups, networking opportunities, and more.
- **Society of Women Engineers.** Empowers women to succeed and advance in engineering and be recognized for their life-changing contributions as engineers and leaders.
- **STARS Computing Corps.** Broadens participation of underrepresented groups in computing within institutions of higher education.
- **TECHNOOchicas.** National initiative of NCWIT and Televisa Foundation designed to raise awareness among young Latinas and their families about opportunities and careers in technology.
- **WiCyS.** Brings talented women together to celebrate and foster their passion and drive for cybersecurity.
- **WorkingNation.** Seeks to galvanize the public will and mobilize critical resources to mitigate the growing employability gap in America.

Find many other initiatives among the [CSforAll](#) membership.

The ACT Report
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THE CATALYZE TECH WORKING GROUP

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