



THE
Equation
FOR *Equality*

WOMEN OF COLOR IN TECH



WITH SUPPORT AND STEWARDSHIP FROM

Citi Foundation



AUTHORS

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Foreword

As the tech industry continues to see a high-demand for positions while also being plagued with skill shortages, there is no excuse for women of color to not be part of the conversation or be in consideration for these roles—especially with so many still looking for work and with many more already using powerful, transferable digital skills in their day-to-day work.

Today's tech industry, even through the ongoing pandemic and related economic recovery, is booming. An analysis from the Bureau of Labor Statistics found that tech-related hiring contributed to the national growth of 467,000 jobs in Jan 2022 compared to Dec 2021. Plus, a new study from human resources consulting firm Robert Half revealed that 52% of tech employers are adding new positions in 2022—creating new opportunities for those looking for new work or to make a change in their career paths to join a stable, well-paying, and in-demand field.

Yet women of color, who account for 20% of the U.S. population, are less likely to run into a familiar face in the tech sector than in almost any other corridor of work—or be considered for this in-demand work in the first place. Not only because the diversity in the tech sector is overwhelmingly low—with Black, Latinx, and American Indian women accounting for only 5% of the tech workforce—but also because the pandemic forced so many women of color out of the workforce.

In December 2020, all 140,000 jobs lost in the economy were by women, and disproportionately, by women of color. And now, even more than a year later, there is not much of a difference in job recovery. The most recent February 2022 jobs report found that, even though the national unemployment rate continues to decline, it continues to see an uptick for Black women, now at 6.1% from 5.8% in the previous month.

And while there are many incredible efforts underway to expand the number of women of color in tech, such as increasing digital literacy in K-12 classrooms, boosting enrollment in tech training and postsecondary programs, and implementing changes around Diversity, Equity, and Inclusion in the C-suites and boardrooms of large companies, ***there is an opportunity to expand the tech sector with diverse talent from skill-similar occupations where the incumbent workforce needs only bridge skills and last-mile skills to make the transition into tech roles that continue to show high levels of demand. These incumbent workers, many of whom are women of color, are hiding in plain sight.***

For instance, we found that more than 300,000 Black, Latinx and American Indian women are currently working as Customer Service Representatives, where they commonly use customer relationship management (CRM) software and digital productivity tools. This is just one example of the ways in which the skills developed outside of the tech sector can set up women of color for success in tech roles, where they would enjoy greater pay, increased job security, and more chances at upward mobility. All that is needed to facilitate transitions into technology jobs from skill-similar occupations is last-mile instruction that enables the emerging talent to apply their skills in their new roles.

Our hope is that this report will encourage tech leaders to shift how they invest in processes, people, and partnerships.

At the start, we must **shift hiring and recruitment processes** to recognize the talent pool that is right in front of us—workers who have developed many of the foundational skills for success in tech jobs. Doing so will open the door to the women of color who are concentrated in these roles. It will also offer companies (who suffer for lack of access to tech talent) new sources of workers who bring critical skills and the ability to further develop.

Next, we must **shift investments in training** to include partnerships with organizations that can upskill workers from skill-similar jobs with training in the bridge skills that set them up for success in tech specific roles. All the better if these organizations have experience working with and supporting underrepresented populations.

Once organizations are connected with skill-similar talent, we can then **shift onboarding procedures** to pick up where the training in bridge skills left off, with last-mile instruction that puts to work the skills developed in training and celebrates the skills developed earlier in the careers of new hires. While our research puts forward this powerful vision for equality in the tech sector, we also propose a tool that can be used to measure our collective progress towards that vision: **the Equation for Equality.**

The Equation is a simple formula that employers, industry leaders, and policymakers can use to benchmark the representation of women of color in tech against what their representation *should be*—as well represented in the tech roles as it is in the skills-similar workforce. When the tech industry reaches parity with the skills-similar talent pool, we will know that our investments in equitable recruitment, hiring, training, and onboarding have been successful.



We think the Equation for Equality can become the gold standard in DEI benchmarking, goal-setting, and accountability. By basing our analysis in the *overlap* of knowledge, skills, and abilities between the tech jobs where women of color are under-represented and the non-tech jobs where they are concentrated today, our measuring stick becomes a call to action.

And we're just getting started. Fueled by our research insights and our vision for the future outlined by the Equation for Equality, ***our Command Shift coalition has begun a journey toward an ambitious goal—to double the presence of women of color in the tech industry from its current 5 percent, to 10 percent, over the next 10 years.***

This ambitious effort will require a commanding shift across the entire tech industry. We hope that the Equation for Equality and this research awakens the collective effort needed from nonprofit organizations, policymakers, and tech industry leadership to see this goal become a reality. To double the representation of women of color in tech, women in non-tech roles will need to be connected to tech jobs via advocacy, active recruitment, encouragement, with an emphasis on the foundational skills that they already have, and training for the bridge skills that they need to enter the industry. This work will require support and partnership with training programs like NPower, which provide technical training, career counseling, coaching, support, and professional networks to women of color, as well as award certifications and credentials that signal tech readiness. In addition to the important work of organizations like NPower, the corporate sector, from executive leaders to HR professionals, will need to alter recruitment, hiring, onboarding, employee development, and management processes to become more inclusive, fair, and supportive.

We believe that many women of color already possess the necessary skills needed for success in the tech sector, far more than are typically acknowledged. We need to recognize and celebrate the skills they have and translate them into technology roles with intentional training that will set them up for long-term career success.

***That's how we hope to see real change in the tech industry—for years to come.
We hope you'll follow along on our journey.***

Signed,



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***The State of the
Diversity in Tech***



Why Tech and Why Now?

The Mutually Reinforcing Benefits for Underrepresented Women of Color to Pursue Tech Careers

According to CompTIA, **the tech sector grew by 34 percent between 2010 to 2019, compared to 19 percent for the overall workforce.** Even during the height of the Covid-19 pandemic between 2020 and 2021, the tech sector added 71,000 new jobs, while overall employment shrunk by four percent—and the growth doesn't stop there. According to the Bureau of Labor Statistics, **the tech sector is projected to grow at twice the rate of the overall workforce, adding 14 percent more jobs compared to 7 percent for the overall workforce over the next decade.**

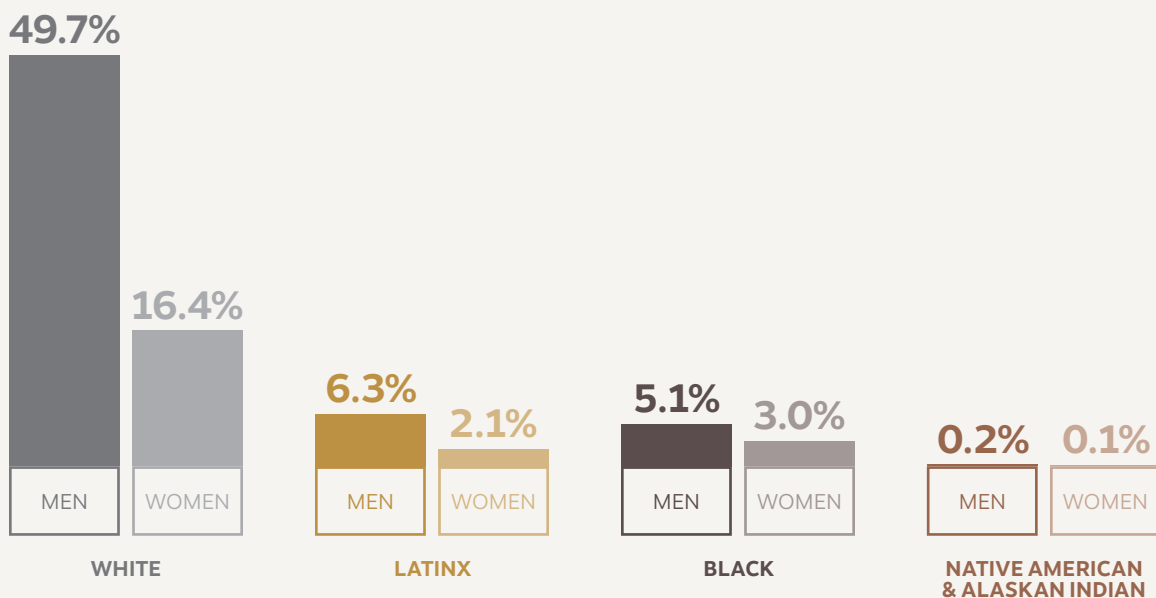
Overall, growth in the tech sector compares favorably to other areas of the economy, outpacing projected employment gains in engineering jobs, legal occupations, and the life and physical sciences, among other occupation groups.

Beyond the attractiveness of growing, in-demand jobs, the tech sector also offers strong compensation. The average tech sector job pays \$90,000. Even entry level jobs, on average pay above the living wage. For instance, the average salary for a Computer Network Support Specialist is \$65,000, and a Computer User Support Specialist typically earns \$53,000. Jobs that leverage digital design skills, such as web developers and digital interface designers, have lower degree requirements than similarly-compensated jobs. For example, the average salary for a Web Developer or Digital Interface Designer is \$71,000, and these jobs typically require no more than an Associate's degree or a work portfolio that can be developed in a training program or internship. In comparison, other occupations that offer similar compensation, such as Auditors, Budget Analysts, or Insurance Underwriters typically come with a Bachelor's degree requirement.

THE MISSING EQUATION: WOMEN OF COLOR

With all of this industry growth, intense need for workers, new tools, and new ways of working, there's no excuse for women of color to not be part of the conversation for these roles. Unsurprisingly, women are underrepresented in tech relative to men, and Black, Latinx, and American Indian workers are underrepresented relative to white workers. Black women comprise only three percent of tech jobs. Latina women only hold two percent of tech jobs, and American Indian women hold a tenth of a percent of tech jobs. In this similar vein, white men hold nearly half of tech jobs, which amounts to three times greater representation than white women, and Latino men also have three times as many tech jobs as Latina women. One of the challenges in measuring representation is establishing a reasonable benchmark: against what yardstick should we assess representation of women of color? Later, this report proposes a solution that simultaneously serves as a call to action.

DIVERSITY IN TECH



THE ROLE OF WORKFORCE DEVELOPMENT

When it comes to activating underrepresented talent pools, workforce development practitioners have many advantages for tapping into this more inclusive, widened talent pool. Some of this advantage is structural: career service providers receive funding that is tied to unemployment, underemployment, and poverty. Public funding, grants, and philanthropic giving is frequently connected to working with marginalized groups. People of color are overrepresented among the unemployed, underemployed, and those facing poverty or life challenges. Workforce development practitioners understand that job training must often be complemented by assistance with housing, transportation, professional dress, access to professional networks, coaching, and other services. Organizations such as NPower assist with these wraparound services. These organizations support clients through job training and placement, and continue assistance as graduates advance through their careers to remove ‘intake’ which sounds medical.

Many workforce development practitioners have seen typical tech workers and underrepresented people find success through skills-based learning modules as opposed to expensive and onerous four-year degree programs in computer science or related fields. There are many reasons for workforce development practitioners to come to this conclusion. For instance, the turnover in the “tech stack”—or the suite of tools, technologies, and programs that workers use—is more rapid in the tech sector than in other sectors. Many of the most popular web design tools, such as Adobe XD and Webflow, are less than ten years old. Online postings for tech jobs referenced cloud-based technologies three times as often in 2021 as they did in 2015, and the specific tools that they mentioned, such as products in the Salesforce and Atlassian suites, have changed significantly over that period. For many of the jobs that use these new and changing tools, the relative agility of skills-based learning modules confers an advantage over traditional degree programs. Workforce development practitioners can design skills-based learning modules rapidly, and they can adjust curricula to match labor market demand far more quickly than academic institutions can.

Another critical element to meeting the demand for tech jobs will be activating latent talent pools: connecting underrepresented populations to training, support, and employment opportunities in the tech sector. The tech sector has a diversity problem, and job training and career services are a key part of the solution. Despite important efforts to diversify higher education, workforce development programs remain a far richer pool of talent that is more representative of the broader population.

Workforce development practitioners are also primed to work with the largest source of potential tech talent: incumbent workers and jobseekers. Workforce development practitioners, such as job training providers and career service providers, are the primary support for working people who are interested in advancing their skills and careers without returning to school for a multi-year degree program. The incumbent workforce is the largest source of potential tech talent. For example, there are 10 million Black women in the US workforce today, compared to three million in high school, college, and graduate or professional school.

There are many forms of workforce development programs that connect incumbent workers to the tech sector. For instance, there are numerous bootcamps for coding, web development, user experience design, digital marketing, and other tech skills (for example, Coding Dogo, Resilient Coders, Fullstack Academy, and others), as well as short IT certificate courses such as those that NPower offers in tech fundamentals, IT support, cybersecurity, and cloud computing. There are also paid apprenticeship and co-op programs that enable incumbent workers to leave underemployment without weathering a drought in pay (for example, Apprenti and Per Scholas, as well as others).

TAPPING INTO NEW TALENT: THE ROLES OF UNDERREPRESENTED WOMEN OF COLOR FOR A MORE DIVERSE, FUNCTIONAL TECH SECTOR

As referenced above, the tech sector will need to tap into underrepresented talent pools in order to meet the demand for tech jobs. In January 2022, there were 850,000 available job postings listed online for tech jobs in the US. Across the full year 2021, there were more than 4 million job postings in the tech sector. Many of these job postings will be filled by tech workers moving between companies, which can be disruptive to employers, providing additional incentive to collaborate with workforce development practitioners to expand the talent pool to fill vacancies. ***Additionally, there will be close to half a million new tech jobs created each year for the next decade.*** Two-year and four-year degree programs in the US confer fewer than 150,000 degrees in Computer and Information Sciences and Support Services annually, so reskilling incumbent workers or jobseekers with skills-based learning modules is an efficient way to meet the demand for new tech workers.



Emphasizing diversity and inclusion is also a talent retention strategy. Increasing the presence and voice of underrepresented women of color will create networks inside of a business that make employment stickier. There is also a business case for diversity in tech that revolves around innovation and productive capacity. A survey highlights studies that show that gender diversity leads to radical innovation¹ and value creation².

Tech skills are proliferating into non-tech jobs, and non-tech skills are becoming increasingly important to tech companies. Data management skills are critical in many non-tech jobs, from Customer Service Representatives to Enrollment Specialists to Healthcare Analysts. Digital design skills are core to Fashion Design, Public Relations Specialists, Content Marketing, and many other occupations. These non-tech occupations are increasingly an important source of critical tech skills, and Black, Latina, and American Indian women comprise a greater proportion of these occupations than tech occupations. Further, tech employers are increasingly looking to develop skills from the service sector. Since 2015, the share of tech jobs looking for basic customer service skills is up 17 percent, the share of tech jobs looking for sales skills is up 17 percent, and the share looking for administrative skills is up 29 percent. Workers of color are overrepresented in the service sector jobs with which these skills are most commonly associated.

Overall, women of color entering the tech sector from non-traditional backgrounds could bring new perspectives and new types of work experience that could be extremely valuable to tech employers.

¹ <https://hbr.org/2016/11/why-diverse-teams-are-smarter>

² <https://www.mckinsey.com/business-functions/people-and-organizational-performance/our-insights/delivering-through-diversity>

Rethinking How to Measure Underrepresentation of Women of Color in Tech

Black, Latinx, and American Indian women hold only 5% of tech jobs today, and their representation is even lower among the largest and most recognizable tech jobs, such as Software Developers (2%), Network Architects (2%), Chief Technology Officers (4%).

So, how many women of color should be in the tech sector? Finding this point of comparison is important for setting meaningful goals, adopting the right strategies, and holding stakeholders accountable.

THE PAST

One strategy is to benchmark against the past. A 2020 report by Accenture and Girls Who Code, “Resetting Tech Culture,” found that the share of women in tech has declined over the past three decades. The authors note that this trend is alarming, especially given recent efforts to encourage women and girls to enter tech. Tracking representation over time is an important way to measure progress—or the lack thereof—but it is silent on what equality in the tech sector looks like.

Three common ways to measure the equity gap are by comparing against the region, the sector itself, or the academic pipeline.

REGION BY REGION

Benchmarking against the region overall is helpful because it shows a high-level summary of occupational segregation. However, regional comparisons are too broad to be actionable. Who is responsible for resolving the underrepresentation of women of color among cyber security engineers? Is it a pipeline issue? An issue with hiring discrimination? With promotion and advancement? By comparing occupational diversity against the region overall, we size the problem, but we obscure the actions we need to take and the identification of who can most effectively act to decrease the gap.



MEASURING AGAINST THE SECTOR

Benchmarking against the sector is helpful because the comparison centers the issue on sector participants. For example, even within the tech sector in Phoenix, AZ, network architects are 1.4 times more white than the tech sector overall. If the tech sector overall is more diverse than network architects, then stakeholders in the tech sector can take meaningful steps to rectify underrepresentation: internal training programs and career ladders into network architecture, affinity groups among those interested in network architecture, mentorship for employees of color led by the comparatively few people of color working in network architecture today. However, this comparison is too narrow to rise to the challenge of occupational segregation. In Phoenix, the tech sector is 50% white men, even though the region overall is only 31% white men. Therefore, the set of solutions must involve bringing women of color into the tech sector, not just moving tech workers between occupations.

THE ACADEMIC PIPELINE

Benchmarking against the academic pipeline is incredibly important, as is getting girls and young women interested in tech at an age where most are students. Given the rising importance of a college degree over the last few decades, it is imperative to review equity in the educational system. Further, it is straightforward to identify who should act and which actions they should take when there is lower enrollment for women of color in postsecondary institutions, lower completion rates, or less interest in the programs that lead to prosperous jobs in the tech sector. Postsecondary institutions have many ways to curb underrepresentation: scholarships, outreach and marketing, application assistance, academic counseling, student services, and other means. There are also important equity considerations at the primary and secondary school levels. Increasing minority representation in tech will involve resolving the digital divide in access to high-speed internet and home computing, boosting awareness of tech careers, and funding computer literacy courses in the disinvested communities where people of color have been concentrated due to racist public policy. However, our research is focused on women in the workforce today, for whom improvements in the education system are too distant. For millions of workers, existing responsibilities prevent a return to school.



***A New Benchmark
for Diversity in Tech***



As demonstrated in the previous section, one size does not fit all when it comes to developing benchmarks to measure our work and when it comes to increasing the number of underrepresented women of color in the tech sector. ***Therefore, to center our solutions around women of color in the workforce today, our analysis should take the advantages of the broad regional comparison and combine them with the advantages of the specific sector and pipeline comparisons. The skills-based assessment of tech talent breaks occupations down into the key knowledge, skills, and abilities required for each role and examines who in the workforce today has some or all of these skills.***

For both practical and timely action, the ideal benchmark for diversity in the tech sector is *against the population that should reasonably be eligible for tech sector jobs*. This population includes all workers with skillsets that overlap substantially with tech sector jobs and who only need short, targeted training in the bridge skills and last-mile skills that define the roles they would be entering.

The Role of Skill Similarity for Inclusive Hiring

Skill similarity is the overlap in knowledge, skills, and abilities between two jobs. When it comes to skill similarity between tech and non-tech jobs, some of the overlapping skills are tech skills and some are not. For example, Electronic Medical Records Specialists develop tech skills such as information system management, technical support, and data entry. They also develop skills that are not explicitly tech skills but have value in tech jobs, such as process improvement and quality assurance and control. In some cases, most of the skill similarity between two occupations comes from non-tech skills, such as a Call Center Manager who can apply their skills in supervision, performance management, budgeting, and customer contact to a role as a Technical Support Supervisor.

COMPONENTS OF SKILL-SIMILAR JOB PAIRS

Possibility

- / Knowledge, skill, ability (KSA) overlap between occupations
- / Augment skill data with O*NET KSA data

Feasibility

- / Similar education, credential, and experience requirements
- / Stable or growing demand for next-step occupation

Desirability

- / Next-step occupation offers a higher wage

This report uses a measure called the skill similarity score to express the overlap between a job pair's requirements, such as education, experience, training, skills and knowledge, as a numeric value between 0 and 1. Job pairs that have a similarity score of 1 share the exact same requirements, while job pairs with a similarity score of 0 have no requirements in common. To arrive at the concept of a numerical similarity score, Emsi Burning Glass combines data from job postings with data from job-characteristic survey results in the O*NET database. The methodology for the skill similarity score is detailed in a report titled *Towards a Reskilling Revolution*³.

The skill similarity score measures the possibility of transitioning from one occupation to another. It is also important to consider whether that transition is feasible given the education, credential, and experience requirements of the transitioning worker, and whether they would desire to transition into the destination occupation because it offers a higher salary, greater upward mobility, greater stability, or other positive characteristics. The transitions in this report only include ones in which the destination occupation has a higher average salary than the origin occupation.

³ https://www3.weforum.org/docs/WEF_FOW_Reskilling_Revolution.pdf

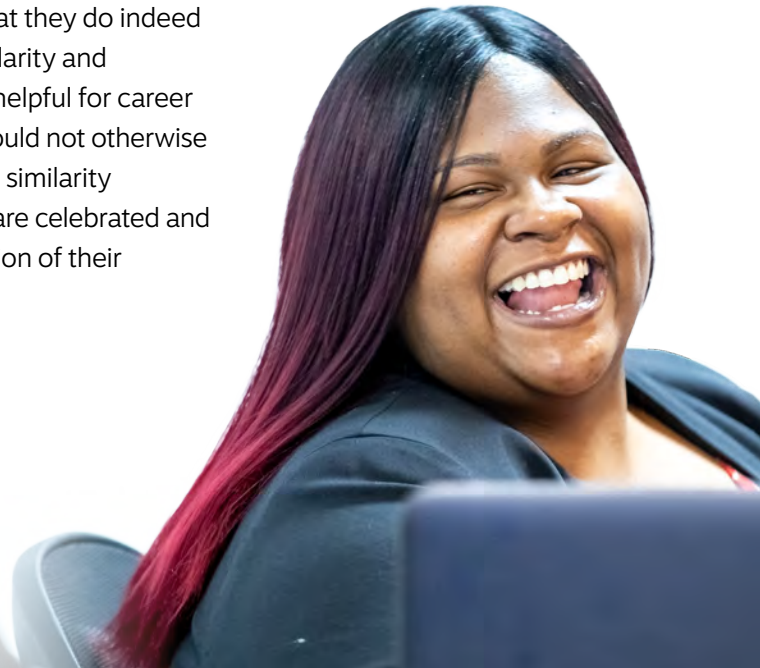
SIMILAR JOB PAIRS THAT TRANSITION INTO THE TECH SECTOR

SOURCE (NON-TECH SECTOR)			DESTINATION (TECH SECTOR)			
OCCUPATION	WOC	SALARY		OCCUPATION	WOC	SALARY
Data Entry Clerk	26%	\$28,127	›	Computer Support Specialist	9%	\$49,664
Data Entry Clerk	26%	\$28,127	›	IT Administrator	2%	\$69,673
Compensation / Benefits Specialist	25%	\$49,879	›	Business / Systems Analyst	10%	\$83,871
Compensation / Benefits Specialist	25%	\$49,879	›	Technical Consultant / Analyst	8%	\$89,902
Risk Analyst	21%	\$79,328	›	Cyber Security Analyst	6%	\$85,483
Healthcare Analyst	20%	\$76,447	›	Programmer / Analyst	4%	\$82,915
Healthcare Analyst	20%	\$76,447	›	Business / Systems Analyst	10%	\$83,871
Healthcare Analyst	20%	\$76,447	›	SAS Programmer	4%	\$98,961
Healthcare Analyst	20%	\$76,447	›	Business Intelligence Developer / Architect	4%	\$99,068
Quality Assurance Specialist	19%	\$54,993	›	Software QA Analyst	12%	\$69,806
Operations Analyst (General)	19%	\$60,705	›	Cyber Security Analyst	6%	\$85,483
Clinical Documentation Specialist	18%	\$69,562	›	Business / Systems Analyst	10%	\$83,871
Clinical Data Specialist	18%	\$78,630	›	Programmer / Analyst	4%	\$82,915
Clinical Data Specialist	18%	\$78,630	›	SAS Programmer	4%	\$98,961
Healthcare Program Manager	18%	\$77,219	›	Technical Consultant / Analyst	8%	\$89,902
Clinical Data Analyst	16%	\$69,079	›	Programmer / Analyst	4%	\$82,915
Clinical Data Analyst	16%	\$69,079	›	Business / Systems Analyst	10%	\$83,871

SOURCE (NON-TECH SECTOR)		
OCCUPATION	WOC	SALARY
Clinical Data Analyst	16%	\$69,079
Clinical Data Analyst	16%	\$69,079
Quality Inspector	16%	\$38,005
Customer Experience Manager	16%	\$69,559
Senior Accountant	14%	\$65,758
Risk Consultant	13%	\$92,942
Quality Control Analyst	13%	\$48,045
Controller (General)	12%	\$89,985
Logistician	12%	\$60,909
Program Analyst	12%	\$75,489
Program Analyst	12%	\$75,489
Research Associate	10%	\$62,677

DESTINATION (TECH SECTOR)		
OCCUPATION	WOC	SALARY
SAS Programmer	4%	\$98,961
Business Intelligence Developer / Architect	4%	\$99,068
Software QA Analyst	12%	\$69,806
User Experience (UX) Researcher	7%	\$102,522
SQL Developer	6%	\$92,466
Vulnerability Analyst / Penetration Tester	3%	\$101,313
Software QA Analyst	12%	\$69,806
Cyber Security Administrator	5%	\$101,253
Network Administrator	1%	\$72,310
Business / Systems Analyst	10%	\$83,871
Cyber Security Analyst	6%	\$85,483
Computer Scientist / Researcher	5%	\$92,711

Areas where women of color are already woefully underrepresented, emphasizing skill similarity is a way to demonstrate that they do indeed belong in those tech occupations. Reviewing skill similarity and recognizing areas of overlap between occupations is helpful for career coaching, to make the case to women of color who would not otherwise consider tech jobs that they have a future in tech. Skill similarity also helps with student attraction, since existing skills are celebrated and reinforced, and new training feels more like an extension of their previous career as opposed to starting over entirely.

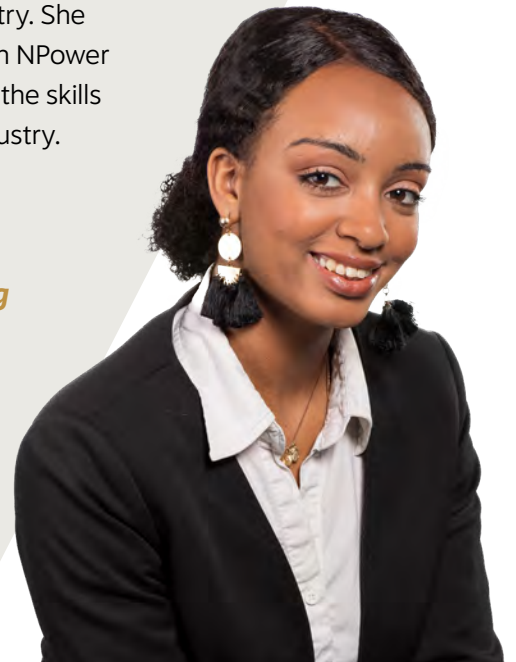


THE EQUATION IN ACTION

Retail Cashier › Tech

Quster was a young mother working as a cashier to make ends meet for her family. When that wasn't enough, she found herself in a vicious loop of retail and security jobs. She had developed an interest in technology and had begun self-studying for her CompTIA A+ certification. Her pursuit of a tech career came to a pause due to an unexpected pregnancy and she became unsure of how to connect the pieces to turn her interest into a viable career path. After working as a cashier for over six years, she knew that her son deserved better and that she had the potential to offer him more. After discovering NPower through a Craigslist ad, she decided to take a blind leap of faith and give it a try. She reflects on that one decision being the best she ever made. Through NPower she gained a better understanding of how she could utilize some of the skills she had gained in the retail industry and leverage them in the IT industry.

After graduating and securing her IT certifications, she obtained a life-changing opportunity with Verizon as a Full Stack Developer/ UX Designer and since joining the company has showcased her skills as a Developer, Scrum Master & Network Engineer. She was recently promoted to a MTS2 (Member of Technical Staff) Systems Engineer and has had a 108% wage increase after joining NPower.



“I always knew I had a passion for technology but didn't know how to pursue a career in it. I feel much more confident about my career and my future.”

Quster Bicar

NPower New Jersey Graduate

MTS2 (Member of Technical Staff)
Systems Engineer at Verizon

Bridge Skills and Last-Mile Skills

Bridge skills are the skills that constitute the gap between the skills that a worker has now and the skills that they will need in their target job. As the similarity score between two occupations increases, the number of bridge skills between the occupations decreases. Bridge skills include many of the defining skills for an occupation. The skillsets that overlap between two occupations are often necessary to the occupations but insufficient to fully carry out the range of responsibilities that either entail. If two occupations shared the same set of defining skills and requirements, there would in fact be the same occupation.

All tech jobs require non-tech skills, whether customer service, business acumen, design sensibility, staff management, project management, time management, or any number of other skills. By taking advantage of skill similarity, we look for occupations where these non-tech skills are already developed, and we match them with tech occupations where they are also needed. This process results in bridge skills that are almost always tech skills, which empowers training providers to lean into specialized learning.



OVERLAPPING SKILLS AND BRIDGE SKILLS

Overlapping Skills in High Demand

- / Project Management
- / Customer Service
- / Business Process
- / Scheduling
- / Quality Assurance and Control
- / Budgeting
- / Repair, Data Analysis
- / Salesforce
- / Customer Contact
- / Business Analysis
- / Change Management
- / Tableau

Bridge Skills in High Demand

- / SQL
- / Software Development
- / Java
- / Python
- / JavaScript
- / DevOps
- / Scrum
- / Technical Support
- / Unit Testing
- / Agile Development
- / AngularJS
- / Debugging
- / React JavaScript
- / Atlassian JIRA
- / Web Application Development
- / Information Security
- / System Administration
- / Help Desk Support

Job training that focuses on bridge skills can be effective and scalable. Skills-based learning modules can provide incumbent workers or job seekers the training that they need to transition into the tech sector. Training and development can scale more quickly at career service providers that are working with many employers than it can at each individual employer. And connecting the large skill-similar talent pool to relevant training mitigates both the worker shortage that leads to costly unfilled vacancies and the pains of bad matches where the skill fit was not there.

Employers can pool resources to support these training programs and take advantage of their scale. They can build their recruitment, hiring, and onboarding around these training programs, thereby sharing and reducing some of the costs of acquiring talent. Employer partnerships with career service providers can also result in internships, apprenticeships, work-based learning, and professional networking, all of which sustain the job training efforts.

Career service providers can set women of color up for success by enabling them to signal competency in their new skillset to the labor market. Strong labor market signals could include in-demand credentials, industry-recognized certifications, work portfolios, or recommendations. As career service providers work more closely with employers, the organization can become more involved in job placement and continued support as their graduates advance within their place of employment. Finally, last-mile skills are skills that are specific to a particular employer, team, or role and can be developed through onboarding. For example, the graduate of a technical support program will be able to use a variety of helpdesk support systems, but they may need onboarding to become familiar with the particular software used at the employer or the specific troubleshooting workflows used on the team. Instruction in last-mile skills can come from employers or be incorporated into partnerships between employers and training providers.



TOP CREDENTIALS IN THE TECH SECTOR

CERTIFICATION NAME	TOTAL JOB POSTINGS, 2021
Certified Information Systems Security Professional (CISSP)	85,568
IT Infrastructure Library (ITIL) Certification	83,837
Project Management Certification	81,321
CompTIA Security+	66,461
Cisco Certified Network Associate (CCNA)	51,459
Project Management Professional (PMP)	50,339
Certified A+ Technician	40,292
SANS/GIAC Certification	40,259
Certified Information Systems Auditor (CISA)	34,276
Certified Information Security Manager (CISM)	31,031
Cisco Certified Network Professional (CCNP)	30,032
CompTIA Network+	29,194
Certified ScrumMaster (CSM)	27,160
Microsoft Certified Solutions Associate (MCSA)	17,907
Information Systems Certification	17,336
Microsoft Certified Solutions Expert (MCSE)	14,091
Cisco Certified Internetwork Expert (CCIE)	13,775
Microsoft Certified Professional (MCP)	13,646
GIAC Security Essentials Certification	13,319
Certified Scrum Trainer (CST)	12,632
Systems Security Certified Practitioner (SSCP)	12,353
Cisco Certified Security Professional	10,157
GIAC Certified Incident Handler (GCIH)	9,028
Certified in Risk and Information Systems Control	8,598
Agile Certification	8,231

CERTIFICATION NAME	TOTAL JOB POSTINGS, 2021
Certified Salesforce Administrator	7,479
Certified Salesforce Platform Developer	7,437
Certified Scrum Professional (CSP)	7,097
ITIL Foundation	6,766

Finally, last-mile skills are skills that are specific to a particular employer, team, or role and can be developed through onboarding. For example, the graduate of a technical support program will be able to use a variety of helpdesk support systems, but they may need onboarding to become familiar with the particular software used at the employer or the specific troubleshooting workflows used on the team. Instruction in last-mile skills can come from employers or be incorporated into partnerships between employers and training providers.

Detailed Demographic Information and How it's Calculated

The research also generated job-title level estimates for employment by race/ethnicity and gender cohort. These granular estimates help in the subsequent stage of scoping equity-building career pathways.



THE EQUATION IN ACTION

Food Service Industry > Tech

Jade was working as a line cook at a local fast-food chain focused on one day running her own restaurant. After receiving a phone call from a family member who had seen a commercial about NPower, she recalled how she had learned IT basics in high school and that perhaps tech was a new field that she should explore. Once she joined NPower, she quickly realized that the technical training would challenge her and expose her to a whole new world of IT. While learning through the pandemic wasn't easy, she never felt defeated with the support of the staff, especially the after-class tutoring sessions with the instructors. Pursuing certifications and sharpening her tech skills was a welcome outlet for Jade during the quarantine. While there were times she wanted to give up, she reflects that with NPower in her corner she was able to push through and upon graduating from the program had three offers lined up.

She joined Corteva Agriscience as a Quality Assurance Test Analyst Apprentice, recently transitioned into a new role as an Assistant Agile Delivery Lead, and is already seen as the go-to-person in her team and learning each day.

As a NPower ambassador she continues to pay it forward, serving as a guest speaker for new NPower classes and especially encouraging Black young women to fight for their spot in tech, sharing the importance of not only surviving but thriving in the tech space while continuing to advocate for themselves and never giving up.



“[Opportunities will come] you always have to have your mitt out ready to catch anything”

Jade Vinson

NPower Maryland Graduate

Assistant Agile Delivery Lead at
Corteva Agriscience

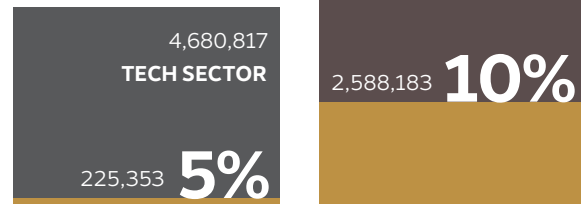


***The Skill Similar
Talent Pool for Tech***

The Talent Pool Becomes Larger and More Diverse When Job Matches Focus on the Skills Required for the Job

Black, Latinx, and American Indian women hold 5% of tech jobs but represent 10% of the “skill-similar” workforce—jobs that employ knowledge, skills, and abilities commonly sought in the tech sector. What’s more, the tech-eligible workforce is more than four times the size of the tech workforce, so there are more than 10 times as many women of color in the tech-eligible workforce than in the tech workforce.

By comparing the representation of women of color in the tech-eligible workforce to their representation in the tech sector, we can estimate that there are nearly 250,000 women of color missing from tech jobs across metropolitan areas in the United States.



BLACK, LATINX, AND AMERICAN INDIAN WOMEN

BENCHMARKING TECH SECTOR DIVERSITY



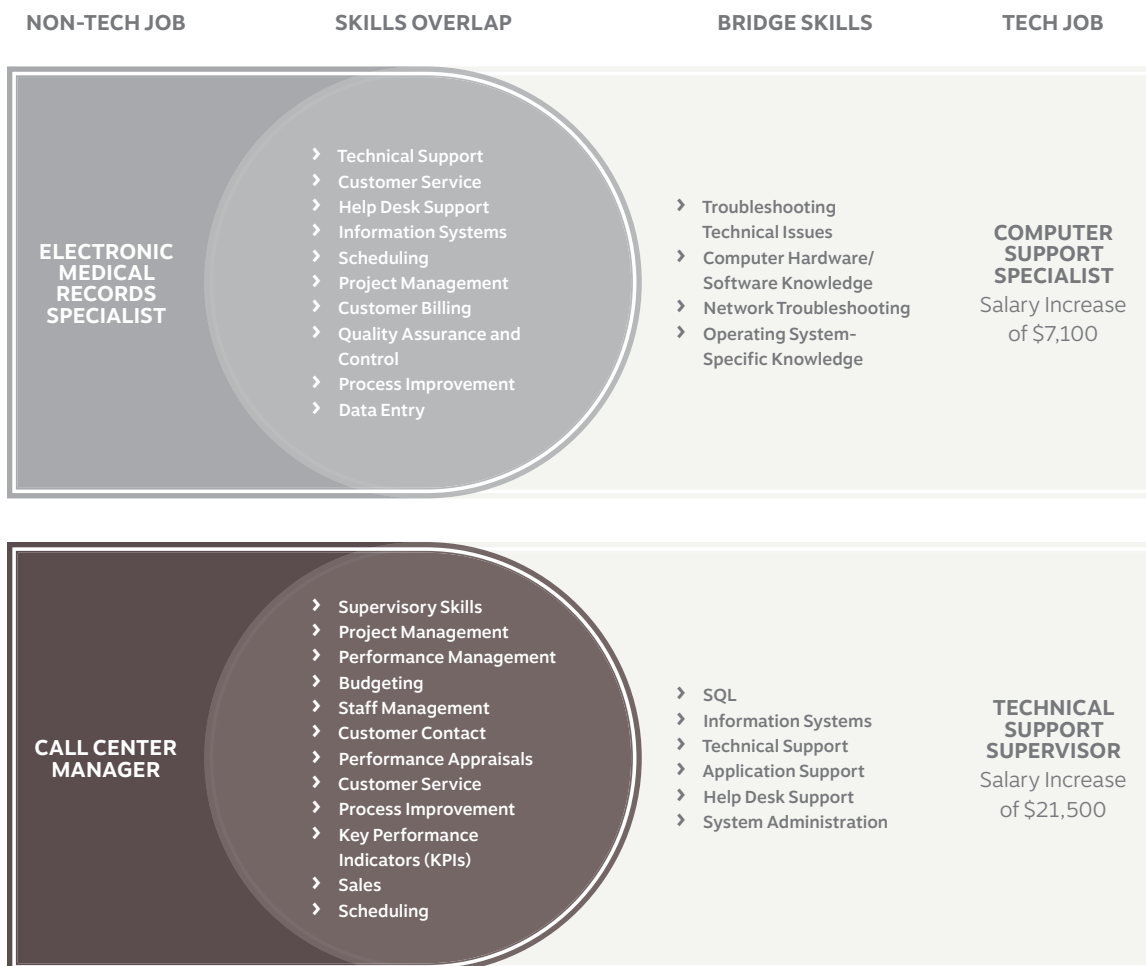


Finding and attracting these women into the tech sector will mean expanding the reach of training programs and reworking company recruitment and hiring practices. Most of the tech-eligible workforce are in roles not traditionally considered as feeders for tech, such as Call Center Managers, Customer Support Representatives, or healthcare jobs. To realize transitions from these jobs into tech, career service providers will have to dramatically expand training in the bridge skills that round out the full requirements for tech jobs. Tech training programs that emphasize skills similarity will have an easier time attracting students, since the training will feel like an extension of students' earlier work experience as opposed to starting an entirely new career. Training programs that emphasize bridge skills will be more efficient, since they will not rehash the skills that students already have. Employers, for their part, will have to connect to these training programs, such as by commissioning their services, partnering with them to offer work-based learning, or providing commitments to hire from them. As more employers support these programs, the advantages of scale will take hold, and training in bridge skills can be developed for people coming from increasingly less similar occupations. Employers can also support skill-similar hiring in other ways, for example by dropping degree requirements, casting a wider net, and replacing traditional match signals like job title, previous employer, university name, and degree with skill assessments and a more holistic review of each candidate.

Organizations like NPower, which provide technical training, support services and career counseling, can scale the skills-based approach. NPower serves women of color, takes stock of their skills, counsels women on viable career paths, provides training on the skills they need to succeed in the destination job, and awards credentials that signal readiness for the new career.

Coalitions like Command Shift and organizations like NPower are instrumental to explaining these benefits to employers in a way that creates change. NPower and other technical training organizations can develop and share practices to inventory the skills that individuals have and match them with the training that they need, so they fill the jobs that need those skills. NPower and similar organizations can also scale the training and development in the bridge skills that prepare women from non-traditional backgrounds to enter the tech industry.

OVERLAP OF KNOWLEDGE, SKILLS, AND ABILITIES BETWEEN TECH AND NON-TECH JOBS



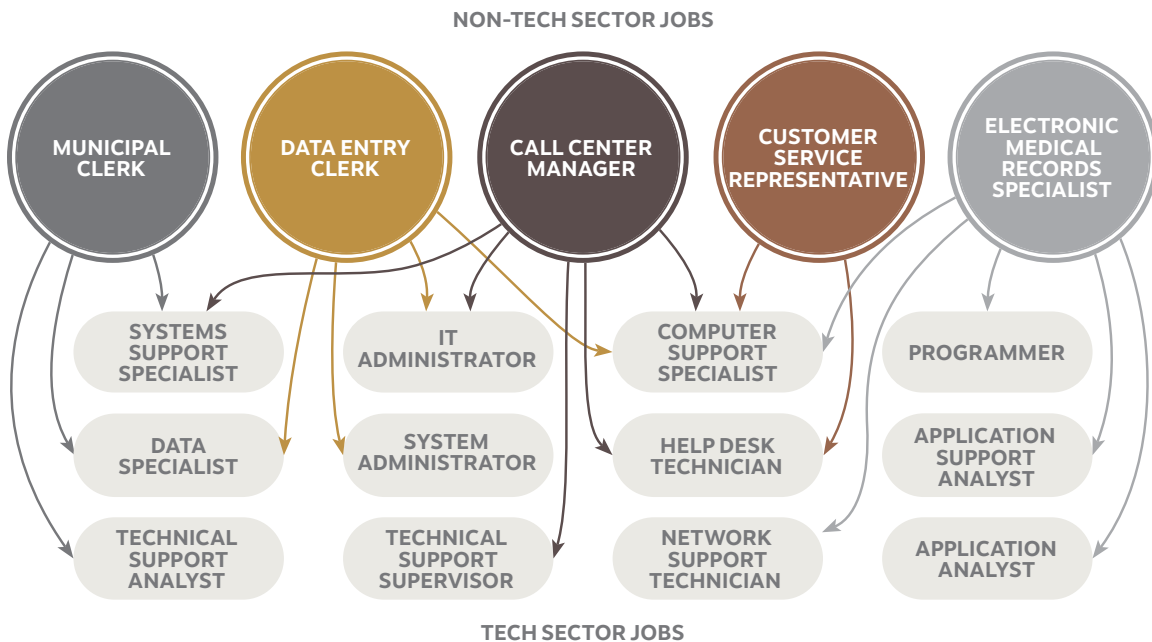
Hundreds of Transitions into the Tech Sector Are Feasible for Women of Color Currently in Non-Tech Jobs

Emsi Burning Glass identified close to 500 feasible transitions into the tech sector between non-tech jobs where women of color comprise at least 10% of the workforce and tech jobs where they represent a smaller share. Facilitating employment transitions between these occupations will be key to resolving the occupational segregation of the tech sector.

The tech industry is a source of high paying jobs with the potential for upward trajectory and career growth. Other appealing benefits of transitioning into roles within tech include its steadiness in the job market, the ability for its required skills to have relevance in other industries, and its remote working and flexible scheduling possibilities.

Neither employers nor jobseekers may appreciate some of the skills that connect tech jobs to workers outside of the sector. For example, a Municipal Clerk is a custodian of digital records, the human interface between city data and internal or external clients, and an expert in documenting proceedings. With these skills, a Municipal Clerk is a good match for a job as a Technical Support Analyst, Systems Support Specialist, or Data Specialist.

EQUITY-BUILDING JOB TRANSITIONS INTO THE TECH SECTOR



THE EQUATION IN ACTION

Retail Operations › Tech

Flower's journey into tech was far from traditional and filled with significant hurdles. Facing homelessness and having to put pursuing a college degree on pause after discovering she was pregnant, she started working as a security specialist at a big box general merchandise retailer to provide for her family. After learning about NPower through a friend, Flower decided this was the chance to change her life and to show her children that giving up wasn't an option. She credits NPower for providing her access to professional and mentorship opportunities and helping her build and showcase a robust set of technical skills.

Flower has come a long way in her tech journey from joining NPower and securing an IT internship with Citi to advancing as an Application Development Associate Apprentice at Accenture and has increased her salary by 82%.



Flower Aviles

NPower New York Graduate

Application Development
Associate Apprentice at Accenture

Currently, employers seldom think to look outside of their sector, but by considering skill-similar transitions into the tech field, employers would be able to compete less with other companies for the same workers. Instead, tech companies would be able to alleviate worker supply shortages by reallocating time and resources toward hiring and training workers from skill-similar positions—growing the size of the tech talent pool.

Additionally, job seekers often have relevant skills that they do not think to advertise. Career coaching programs, online application sites, and individual employers can make improvements to the ways that they prompt candidates to list relevant skills as another method to increase the size of a diverse, tech talent pool.

SAMPLE EQUITY-BUILDING JOB TRANSITIONS INTO THE TECH SECTOR

SOURCE (NON-TECH SECTOR)			DESTINATION (TECH SECTOR)			SKILL OVERLAP
OCCUPATION	WOC	SALARY	OCCUPATION	WOC	SALARY	
Office Technician / Typist	27%	\$37,724	Data Specialist	14%	\$74,139	Customer Service, Data Entry, Scheduling
Office Manager (General)	16%	\$47,822	Telecommunications Specialist / Engineer	4%	\$71,766	Budgeting, Customer Billing, Customer Service, Project Management, Repair, Scheduling
Administrative Supervisor	20%	\$38,942	IT Project Analyst	13%	\$81,235	Budgeting, Customer Contact, Customer Service, Scheduling
Call Center Representative	31%	\$29,755	Computer Support Specialist	9%	\$49,664	Customer Contact, Customer Service
Retail Sales Associate (General)	15%	\$29,053	Computer Repair Technician	7%	\$35,605	Customer Contact, Customer Service, Lifting Ability
Restaurant / Food Service Supervisor	22%	\$32,671	Systems Support Specialist	7%	\$52,377	Customer Service, Scheduling
Payroll Accountant	20%	\$54,790	Peoplesoft Developer / Administrator	5%	\$93,536	Customer Service, Enterprise Resource Planning (ERP), Scheduling
Telesales Representative	30%	\$36,165	Computer Support Specialist	9%	\$44,664	Customer Contact, Customer Service, Hardware and Software Installation
Human Resources Assistant	29%	\$36,760	IT Administrator	2%	\$69,673	Customer Service, Human Resource Information System (HRIS), Onboarding, Scheduling
Financial Aid Counselor / Specialist	27%	\$36,818	Business / Systems Analyst	10%	\$83,871	Budgeting, Customer Service, Scheduling



***The Equation for
Equality in Tech***

THE *Equation* FOR *Equality*

We can use the Skills-Based Approach to Advance Equity and Benchmark Tech Diversity

Our research debuts a tool called The Equation for Equality that employers, industry leaders, and policymakers can utilize to measure the distance between status quo and equity in the tech sector.

THE EQUATION FOR EQUALITY IN THE TECH SECTOR

In our Equation for Equality, the index will be **1** when Black, Latinx, and American Indian women are as well represented in the tech industry as they are in the full talent pool for tech, which includes both tech jobs and the skill-similar workforce. When this happens, we will know that our collective investments in equitable training and development, recruitment, and hiring will have been successful, and that women of color interested in and capable of pursuing a career in tech are able to do so.

The Equation for Equality Index

**This reflects the current imbalance of women of color in tech roles based on the current pool of viable skill-similar candidates.*

$$\frac{\text{\% Women of Color in the Tech Sector and Skill-similar Roles (i.e. the full talent pool)}}{\text{\% Women of Color in Tech Sector}} = \frac{10\% \text{ Nationwide}}{5\% \text{ Nationwide}} = 2$$

How many women of color would be working in tech roles today if we had equality in the tech sector?

There are 5 million tech workers today. If women of color could take advantage of their skill similarity with buy-in from career service providers and employers, they should represent 10% of the tech workforce, since they make up 10% of the full talent pool (tech sector + skill-similar workforce). **Today, however, women of color only make up 5% of the tech sector workforce.**

We can also apply this equation regionally to precisely measure how close or far a region is from achieving tech equity. The next table details these findings. For instance, in the New York City Metropolitan area, the equity gap is large: the tech sector is shy 22,000 women of color who are strong candidates for employment in tech. The measurement is also sensitive to regional workforce dynamics, such as in the Atlanta Metropolitan area, where the tech sector appears diverse at 11% women of color until it is compared to the 19% of skill-similar, tech-eligible workers who are women of color. Individual employers could also apply the equation for a specific job title.

With Equality & Skill-Similarity
470,000
WOMEN OF COLOR

Where We Are Today
225,000
WOMEN OF COLOR

Equality Gap
245,000
WOMEN OF COLOR



REGIONAL TECH EQUITY TABLE

REGION	TECH SECTOR			SKILL-SIMILAR, TECH-ELIGIBLE TALENT POOL <i>Exclusive of Tech Workers</i>			EQUITY INDEX AND GAP		
	# WOC	# WORKERS OVERALL	% WOC	# WOC	# WORKERS OVERALL	% WOC	% WOC IN FULL TALENT POOL	SKILL-SIMILAR EQUITY INDEX	SKILL-SIMILAR EQUITY GAP
Baltimore-Columbia-Towson, MD	6,369	73,195	8.7%	35,526	249,987	14.2%	13.0%	1.5	3,120
Atlanta-Sandy Springs-Roswell, GA	14,199	133,208	10.7%	93,784	505,548	18.6%	16.9%	1.6	8,320
Charlotte-Concord-Gastonia, NC-SC	3,669	47,982	7.6%	26,289	204,148	12.9%	11.9%	1.6	2,032
Detroit-Warren-Dearborn, MI	3,745	67,309	5.6%	32,551	342,947	9.5%	8.8%	1.6	2,210
St. Louis, MO-IL	2,379	54,093	4.4%	19,700	217,373	9.1%	8.1%	1.8	2,021
Jacksonville, FL	1,608	24,032	6.7%	15,172	110,709	13.7%	12.5%	1.9	1,385
Dallas-Fort Worth-Arlington, TX	9,834	162,958	6.0%	89,409	611,272	14.6%	12.8%	2.1	11,054
New York-Newark-Jersey City, NY-NJ-PA	16,555	340,755	4.9%	212,247	1,669,332	12.7%	11.4%	2.3	22,232
San Francisco-Oakland-Hayward, CA	4,340	179,491	2.4%	37,912	499,838	7.6%	6.2%	2.6	6,824
Los Angeles-Long Beach-Anaheim, CA	8,534	180,137	4.7%	168,511	1,115,214	15.1%	13.7%	2.9	16,086
TOTAL ACROSS 10 REGIONS	71,233	1,263,161	5.6%	731,100	5,526,368	13.2%	11.8%	2.1	78,038

Calculating the figures in the table above annually can provide a crucial overview of the equity gap in tech, as well as the continuous increase in the number of tech-eligible women of color due to workforce digitalization. For example, if the representation of women of color in tech increases by 10 percentage points, but their representation among tech-eligible jobs increases by 20 percentage points, women of color will be falling behind despite their apparent progress. It will be important for companies and tech training organizations to continuously monitor the equity gap according to the equation for equality.

THE EQUATION IN ACTION

Healthcare (Home Health Aide) › Tech

During the pandemic, Nneke became uncertain of what her future career would look like and found herself as she calls it “serial applying”. As her number one priority was getting a job, she jumped at the opportunity to become a home health aide but quickly discovered that this was not a long-term solution for her. She was drawn to NPower with the prospect of receiving free tech training and securing in-demand IT certifications. Nneke describes her training as holistic, noting that it not only developed her technical acumen but also gave her the confidence as a young woman of color to showcase her newly acquired technical skills and show up as her authentic self.

Nneke now works as an Information Technology Apprentice with the Management Development team at Citi and has increased her earning potential by 165%.



“If someone had told me five months ago that I would be interning with one of the largest financial institutions, while working from home in my first apartment, with two IT certificates for show... I probably would NOT have believed them.”

Nneke Haley

NPower New York Graduate

Information Technology
Apprentice at Citi



Barriers Remain

The National Academies of Sciences, Engineering, and Medicine produced a detailed report investigating the barriers faced by women of color in tech⁴. These barriers stretch from K–12 to the workforce. Barriers to young people becoming interested in the tech sector include a lack of rigorous STEM courses in primary and secondary school and the digital divide that determines which families and communities have computers in their homes, high-speed internet, and early education in digital literacy. Barriers to female students of color pursuing tech degrees include a lack of departmental support, financial concerns, and confronting negative stereotypes or bias. There are many excellent organizations, such as Girls Who Code, The Knowledge House, and Girl Scouts of the USA, that are supporting young girls and young women who are interested in tech.

In preparing this report, NPower convened focus groups where graduates could share the barriers that they continue to confront even after their success in training and in landing a job in tech.

⁴ <https://www.nap.edu/catalog/26345/transforming-trajectories-for-women-of-color-in-tech#:~:text=Transforming%20Trajectories%20for%20Women%20of%20Color%20in%20Tech%20uses%20current,advancement%20of%20women%20of%20color>

/ Doomed work assignments.

Some women expressed that there was no parity with regard to work assignments. Work assignments that were high visibility or high stakes were rarely given to women of color. Instead, women of color were staffed on struggling teams or assigned to projects that the rest of the staff was not interested in. The women felt that unfair project staffing set them up for failure while others were being set up for success.

/ Sexual harassment, microaggressions, and othering.

Some of the focus group participants discussed being harassed or being targeted by microaggressions or othering.

/ Gender and/or racial pay gap and differences in employment arrangements.

Many of the women expressed frustration over the pay gap that they experienced between their salary and the salaries of their male or White male counterparts. Some women further explained that in addition to a pay gap in hourly rates, the women of color were less likely to be full-time employees and more likely to be contract workers.

/ Lack of work-life balance, exacerbated because of life situations that are more common for women and people of color.

Some women mentioned a lack of support during maternity leave, and others mentioned that the boundaries they set up during maternity leave were not respected. Other women mentioned that work hours were inflexible to childcare responsibilities or senior-care responsibilities.

/ Few opportunities or continued professional development.

Many female tech workers of color were interested in continuing their tech education and professional development. Most had few options for training and development at work and were instead seeking these services elsewhere. Some returned or planned to return to NPower for additional training.

/ Isolation due to lack of diversity, especially among managers and leadership.

Some focus group participants expressed a difficulty bringing their whole selves to work. Others mentioned that their thoughts and opinions were undermined by their race or nontraditional backgrounds. In both cases, participants felt that they would be able to count on greater advocacy and support from their places of work if there were better representation of women of color in leadership roles.

/ Bias towards degrees does not just apply to hiring but also to promotions.

Focus group participants who did not have a Bachelor's degree expressed that their lack of a formal degree hurt them in the eyes of their peers and managers. Even if hiring managers de-emphasize degree requirements, colleagues and future managers continue to use the heuristic when assessing who is qualified for a promotion or a difficult assignment.

/ Facing the need to “prove it.”

Multiple participants shared that they were working multiple jobs in the tech sector simultaneously: a primary job that was typically the entry-level position that they entered after graduating from NPower, and a stretch job that they took on to prove their capabilities to others. These stretch jobs were often in advanced fields like cybersecurity.

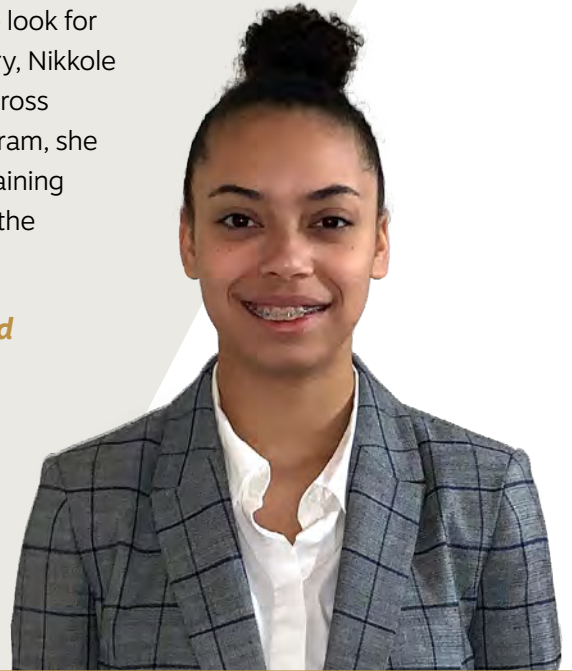


THE EQUATION IN ACTION

Customer Service / Service Industry › Tech

After graduating from high school, Nikkole found herself working several customer service jobs hoping for a way to advance and find a meaningful career. While working for an airline in an operations role, she developed an interest in technology, but was unsure how to begin her career. Unfortunately, due to COVID, she lost her job at the airport and was forced to look for employment elsewhere. While working at a medical dispensary, Nikkole was introduced to NPower through a flier her mother came across and she encouraged her to apply. Once enrolled into the program, she took full advantage of all the opportunities NPower offered, gaining additional technical skills that she was lacking and leveraging the professional development workshops to network.

Upon completion of the program, Nikkole obtained a six-month internship as a Technical Operations Associate with Samba TV and has recently secured a full-time position as an Technical Operations Associate and since joining NPower has increased her wages by 41%.



Nikkole Owen

NPower California Graduate

Technical Operations Associate at
Samba TV



***Recommendations /
Shifts***

As important as using the Equation for Equality is for continuously monitoring the growth in the number of tech-eligible women of color, the next step is setting an audacious goal to increase the representation of women in tech. NPower and the Command Shift coalition advocate for the following goal:

Achieve 10% Women of Color in Tech Within 10 Years

Achieving this goal will require a commanding shift in the tech sector.

Based off the Equation and Equality, NPower and Command Shift recommend tech sector employees, recruiters and decision-makers consider the following shifts in order to leverage the skill-similar workforce and provide more opportunities for women of color:

SHIFT IN MEASUREMENT

Measure multiple DEI baselines within the firm. View your granular, internal data across and within the firm's locations, divisions, and roles, and levels of seniority to measure representation, retention, advancement, and other employment outcomes. Identify where some employee groups are experiencing inequitable outcomes. Highlight successes and bring focus to trouble spots.

/ Baseline Disparity Analysis

Measure the diversity baseline at the company. Compare employment outcomes across teams and locations, disaggregated by race, ethnicity, gender, and other worker characteristics.

/ Comparative Benchmarking Analysis

Compare employment outcomes to benchmarks that will resonate with senior leadership, generating buy-in for DEI initiatives. Benchmarks may include specific peers, the industry, similar occupations, the region overall, the talent pipeline, and **the skill-similar workforce**.

/ Recruiting and Pipeline Analysis

Identify where under-represented groups face barriers in the talent management process. Identify where talent needs are being met externally when they could otherwise be met internally, especially when doing would open equity-building career pathways.

/ Retention and Promotion Analysis

Determine whether and how diversity challenges arise in recruiting and talent acquisition. Pinpoint the precise stages in recruitment at which disparities emerge.

SHIFT IN INVESTMENT

Use the quantitative and qualitative practices of inclusion to make every employee feel valued, and work to achieve a high level of engagement to help them reach their highest potential.

/ Foster a Culture of Training and Development

Bridging skill gaps is the way into new occupations and the way up within a company. Shift measurement to catalog the skills that workers have and the skills that jobs require, support and invest in women of color in earning the skills that lead to advancement.

/ Pair Targeted Goals with Targeted Strategies

Using the data from the drafting stage, anchor goals to relevant benchmarks, and orient strategies around diagnosed barriers. Goals can include timelines for skill-based assessments. For example, develop or invest in a program with an external training provider that will enable transitions from skill-based occupation and create a goal for the number of people hired into such programs. This is not solely about investment but rather the need to build partnership and ongoing relationships with training providers that can adapt and support changes in employer needs.

/ Ensure Inclusion, Not Just Representation

Implement best practices in talent acquisition and management to ensure that diverse candidates are recruited, and retained, ensuring that diverse employees do not face barriers to mobility, that employee groups do not leave the company early, among other employment outcomes. Invest in continual upskilling and advancement pathways. Partner with career service providers to develop these training programs. Work with career service providers to provide support to under-represented employee groups.

SHIFT IN HIRING, RETENTION, AND ADVANCEMENT

Build hiring, retention, and advancement strategies around inclusivity and finding the right skills as opposed to the familiar faces.

/ Build for the Non-Traditional Candidates

Every system is built perfectly for the outcomes it is currently achieving. The traditional candidate profile in tech is not inclusive of many women of color. Firms can build for non-traditional candidates by removing degree requirements in job postings, removing background checks, engaging in outreach in minority communities, and other methods.



/ Expand the Talent Pool

Use “skill adjacencies” externally, to identify reservoirs of talent that hiring managers are overlooking. Hire deliberately for necessary skills, instead of work experience or pedigree. Look outside the typical educational and industry pipelines. Use skills-based hiring. Source from non-traditional talent pools.

/ Elevate Diverse Talent Internally

Use “skill adjacencies,” or the overlap of knowledge, skills, and abilities between two roles to facilitate pathways into less diverse roles. Such pathways include advising current workers on how to advertise the skills they have and skills training to bridge the gap.

SHIFT IN CULTURE, POLICY, AND ADVOCACY

Implement and advocate for policies and programs that provide women of color the support they need to overcome the common barriers they face in the tech sector.

/ Implement and Advocate for Policies That Meet Women of Color Where They Are

To meet and keep women of color, firms need to provide employee support for childcare, transportation, flexible work schedules, continuing education, and other policies that address structural inequities disproportionately faced by women of color.

/ Implement Internal Firm-Level Policies that Reflect Diverse Perspectives

Elevate marginalized voices within the company to ensure that policies and practices are supportive of the workers who are underrepresented and who face the greatest barriers to success, so they can achieve long-term sustainable success and elevated prosperity through tech and tech-adjacent jobs.

/ Advocate for Other Firms to Follow

Publicly, privately, and at common forums, advocate for policies and programs that provide women of color the support they need to overcome the common barriers they face in the tech sector.

/ Best Practices for Supporting a Diverse Workforce

Pull in best practices from established DEI initiatives. These include mentorship, affinity groups, cross-training and cross-functional teams, strong HR function for support and issue remediation, flexible hours, etc.

Investing in System Change

Launched in 2014, Pathways to Progress is a job skills-building initiative that addresses the persistent, global issue of youth unemployment. Through a combination of Citi Foundation philanthropic investments, Citi employee volunteers, career development opportunities at Citi, and research, Pathways to Progress aims to address the skills mismatch and equip young people, particularly those from underserved communities, with the skills and networks needed to succeed in today's rapidly changing economy.

In 2020 Citi Foundation doubled down efforts to improve economic and employment opportunities for young people in underserved communities around the world and young people of color in the U.S. by investing an additional \$100 million in Pathways. With this intentional focus, grant investments target organizations that are training some of the most underrepresented youth, including women of color for careers in in-demand sectors, like technology.

The Citi Foundation has supported NPower since 2002 through a series of projects that have aimed to shift the gender paradigm of underrepresented women in technology, including increasing the enrollment of Black and Latinx women in NPower tech training programs as part of the **40 by 22 initiative**.

Citi Foundation



To help ensure the work propelled by 40 by 22 is sustained, in 2021 the Citi Foundation became a founding partner of the **Command Shift Coalition**, a movement comprised of corporate tech leaders that together through collective action are helping the sector as a whole advance institutional practices that more effectively recruit young women of color, with approaches that include driving career advancement, wage equity and growing mentoring networks.

The Citi Foundation's longtime collaboration with NPower has always possessed a strategic vision looking not only at short-term solutions, but systemic change. Direct support to equip young women for tech careers prepares these women for jobs, but supporting an enabling environment creates a place for the pipeline to connect to, allowing women to achieve their career aspirations.

Leading Indicators

The following is an HR practice of Comcast Cable's Technology, Product & Xperience (TPX) Team



When it comes to diversity, equity, and inclusion, Comcast NBCUniversal is intentional about using data to inform its approach, guide its focus, and maintain accountability.

Comcast is using a thoughtful and systematic strategy to improve representation of underrepresented groups at all levels of its workforce. First, Comcast considers a broad range of qualification by focusing on experience and skills as well as talent coming out of bootcamps and with non-degree certifications. The Company hires a greater number of entry-level positions than senior positions and provides programs and initiatives to help grow skills and develop career advancement pathways. These approaches mean that a position at Comcast is accessible to a wider range of candidates.

Next, the company sets aspirational representation goals among its candidate pool. Comcast uses data on the race, ethnicity, and gender makeup of qualified candidates in tech occupations within the Comcast footprint to identify opportunities to hire candidates who best reflect the communities we serve. Where such opportunities exist, the Company prioritizes the recruitment process, casting a wide net to ensure the applicant pool for each role aligns with all available talent. Comcast then continues to monitor the composition of the candidate pool as it progresses through the talent acquisition pipeline: from application, to resume screen, to interviews, on through to an offer.

Comcast uses this data to also identify “leading indicators” that point to where specifically in the talent acquisition pipeline candidates from underrepresented groups fall out. For example, when the diversity of the candidate pool drops between stages in the talent acquisition pipeline, that is an indication that the resulting group of hires may be less diverse than the initial pool of applicants. When the Company finds a leading indicator, they review that stage of the pipeline for any structural barriers or other factors that could be causing diverse candidates to fall out at disproportionately higher rates. Comcast then makes changes to hiring processes or takes other steps to address the root causes.

Guided by data, Comcast understands the importance of recruiting candidates based on skills and experience. Through the use of leading indicators, Comcast is able to determine new ways of attracting, hiring and retaining employees from underrepresented groups. Together this process helps to drive progress and create a more diverse and inclusive workforce.

Apprenticeships are a Critical Component

Accenture is a 60,000-employee organization in the US alone, and the company has embraced the important value of identifying and bringing to life opportunities for historically untapped pools of talent. Professional apprenticeships are a key component of Accenture's work to create a more inclusive digital economy.

Accenture launched its North America Apprenticeship Program in 2016, providing 12-month earn-and-learn opportunities to apprentices. The goal is to provide offers for full-time career opportunities at the conclusion of the program. **To date, more than 1,200 apprentices have participated, with 575 entering the program in 2021 alone.**

Accenture has made apprenticeships a critical component of its overall talent strategy. In fact, **Accenture has committed to 20% of its entry level hiring this year to be apprentices** and approximately 45 percent of entry-level roles do not require four-year degrees, consistent with their skills-based hiring approach. An overwhelming majority of apprentices who have gone through Accenture's program have continued with the company.



The program is designed to attract individuals who do not have a bachelor's degree; Accenture works with community colleges, non-profit skilling organizations, and bootcamps to reach this population. Approximately 80 percent of apprentices do not have a bachelor's degree when they join, 60 percent are ethnically diverse and nearly half are women.

Accenture's apprenticeship program focuses on in-demand roles, setting apprentices up for success through training and job experience including in cyber, digital, data analytics and cloud migration. Accenture is also intentional about staffing apprentices on client-facing projects, to build experience in client relationship, project management, and customer service.

Robust support apprentices receive includes structured learning, professional skills development, on-the-job training, coaching, ongoing feedback and performance evaluations.

Accenture, dedicated to sharing best practices and bringing together a vast ecosystem of partners that support professional apprenticeships, has created a national playbook to help other companies join the movement for **professional apprenticeship programs**. Today, Apprentice networks are in Chicago, Greater Washington, DC, Houston, Massachusetts, Minnesota, Northern California, and Philadelphia.





ABOUT NPOWER

NPower is a national nonprofit that is committed to advancing race and gender equity in the tech industry through skills training, real-world experience, support, and mentorships. The organization has helped young adults from underserved communities and veterans move from poverty to the middle class by training them with a range of tech skills and placing them in quality jobs.

Students who enter the free, six-month training program, earn industry-recognized certifications and graduate with the competencies of an IT professional with one to two years of experience.

NPower also places students in paid internships with corporate and nonprofit organizations. Eighty percent of NPower graduates get a full-time job or continue their education. Not only is NPower changing life trajectories for individuals from vulnerable communities, but they are also strengthening the overall competitiveness of U.S. businesses hamstrung by today's limited pool of IT talent.

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ABOUT COMMAND SHIFT

Command Shift, Accelerating More Women of Color in Tech, is a national consortium of women and allies that advocate for strategies that invest in and inspire the advancement of young women of color in tech careers—with particular focus on women from underrepresented communities and non-traditional pathways. The coalition is comprised of business leaders, corporations, nonprofits, and community organizations, who will address the glaring inequities of women of color in tech. The coalition is an initiative developed by NPower and in partnership with the Citi Foundation to help young women of color access the skills needed to launch careers in the tech industry.

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ABOUT EMSI BURNING GLASS

Emsi Burning Glass is the world's leading authority on job skills, workforce talent, and labor market dynamics, providing expertise that empowers businesses, education providers, communities and governments to find and develop the skills and talent they need and enabling workers to unlock new career opportunities. With engineers and data specialists continually collecting and analyzing data from thousands of job boards, company websites, online resumes, employee profiles, and traditional government sources, the company produces the most comprehensive, up-to-date picture of the labor market available. With education and workforce development practitioners, the company ensures that these data drive sound decision making and investments in people, community partnerships, credentialing and skills development efforts. Emsi Burning Glass is active in more than 30 countries and has offices in the United States, United Kingdom, Italy, and India. The company is backed by global private equity leader KKR.

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Command Shift Coalition



STEERING COMMITTEE MEMBERS

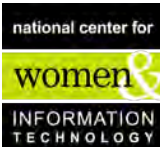
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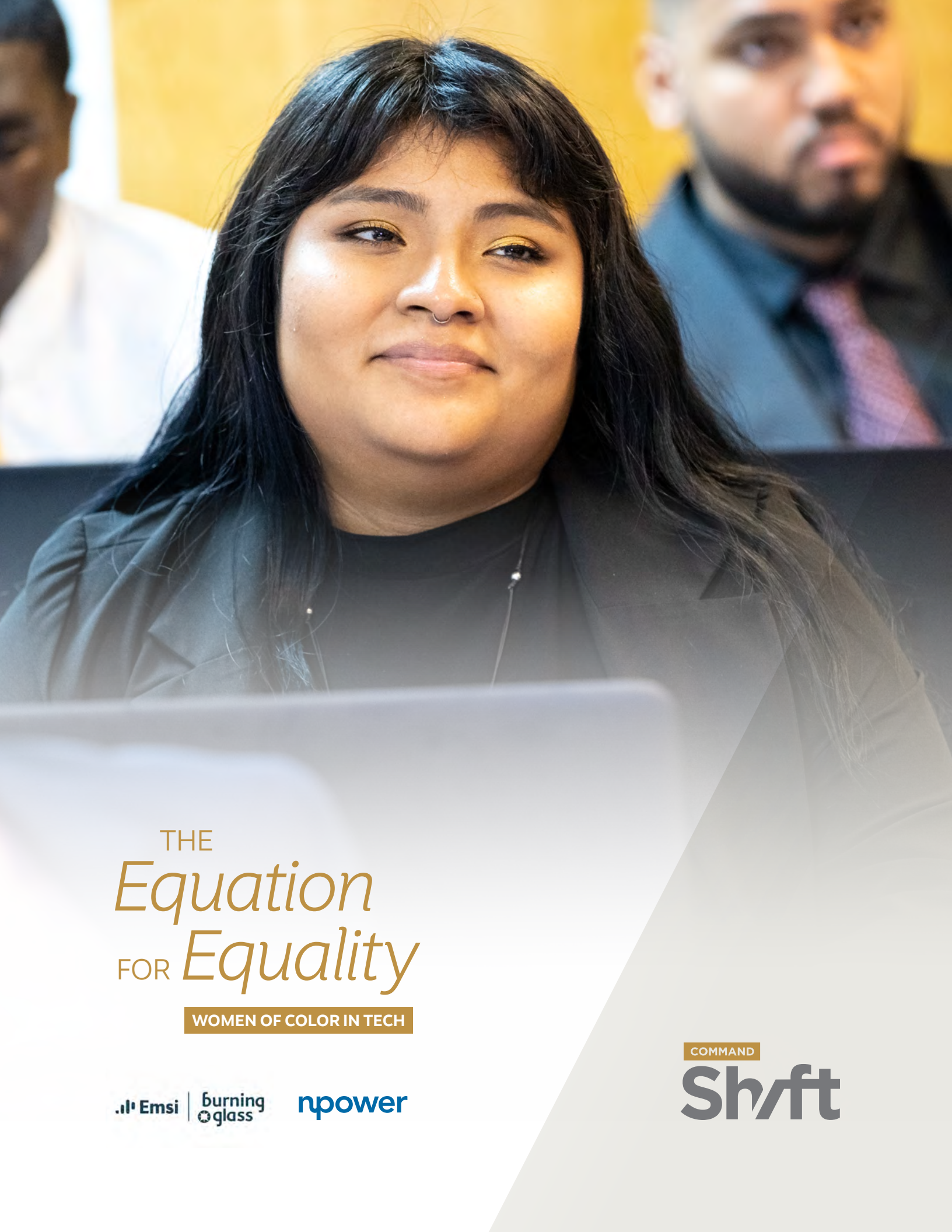
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