



# THE NEW TECH BOOM

**AROUND THE WORLD, WOMEN AND PEOPLE OF COLOR RELY ON TECH GADGETS THAT HAVE SPRUNG PRIMARILY FROM THE MINDS OF WHITE MEN—BUT THAT’S ABOUT TO CHANGE**

BY KIMBERLY OLSON

**A**S THE CHEROKEE NATION works to preserve its vibrant culture, one of its goals is to save its language. Like most Native American tongues, the Cherokee language is at risk of extinction as fluent speakers enter old age and the younger generation learns mainly English.

A unique partnership with Microsoft may very well turn the tide. “Our Native American Employee Network Group here at Microsoft and a Cherokee Nation team worked for over two years to get the language and a font to be included as one of the 109 worldwide languages supported in our Office software,” says Gwen Houston, general manager of global diversity and inclusion at Microsoft. “That’s a wonderful partnership for us, especially here in the Pacific Northwest, which has such a rich history of Native American culture.” Like all kids, young Cherokees have embraced technology, so the Cherokee Nation will now have software to help ensure the preservation of its language for generations to come.

Tech companies are seeing that diverse employees can shed light on the needs of their own communities—and that understanding ultimately leads to more useful products. “The diversity of our workforce is a real strength for us,” Houston says. “It gives us the opportunity to pioneer the inventions that the world needs and to create products that consumers around the world want.”


 A portrait of Jackie Glenn, a Black woman with shoulder-length brown hair, smiling warmly. She is wearing large hoop earrings and a dark top. The background is a soft, warm brown color.
 

## JACKIE GLENN

*Global Chief Diversity Officer, EMC*

In India, for example, Microsoft is designing mobile apps with Indian women in mind. To that end, it launched a friendly reality-show-style competition for female employees at its Hyderabad office called Code for Her. The women ultimately churned out apps like Asset Tracker and Yoga for Her, which were then voted on by a panel of judges for possible uploading to the Windows Phone 7. “We’re now working on Code for Her 2, to broaden the audience of phone apps to include the family,” Houston says. “I just love the fact that we can use our own employees as a focus group of consumers.”

Intel, as well, makes good use of its diverse workforce. “We have users all around the world, and what I use my cell phone for might be different from what somebody in Africa uses her cell phone for,” says Rosalind Hudnell, chief diversity officer and global director of education and external relations at Intel. In Africa, for instance, laptops are generally less common than in the United States, so people are much more reliant on their cell phones to access the Internet.

“When you design products that are going to be used in different geographies, you have to have a design team of people who have those life experiences, and who can bring those experiences to bear in the engineering design process,” Hudnell says.

Within the tech community, there’s not much debate about the value of diverse product teams. The discussion is now focused on the best ways to attract more women and people of color into engineering and other technology fields. For companies in the United States, meeting that challenge is especially important.

## THE GREAT BRAIN DRAIN

**AT A TIME WHEN SO MANY PEOPLE ARE STRUGGLING** to find work, tech firms are actually having trouble finding qualified job candidates. In the United States, fewer college students are pursuing science, technology, engineering, and math (STEM) education, even as the demand for those skills soars.

“Across Asia, where we recruit a lot, more than 21 percent of college students are graduating in engineering, but in the United States, it’s less than 5 percent,” Houston says. “And then you see our 15-year-olds ranked 25th out of 34 nations in math. We’ve got to ensure that our students are not left behind and that they understand what it takes to work in STEM-related fields.”

The Brookings Institution found that, in the average large metro area, 30 percent of job openings require STEM skills, but just 11 percent of the local population has a STEM degree. In high-demand areas, the situation is even worse. In San Jose—the heart of Silicon Valley—there are 19 computer-related job openings per qualified college graduate. In San Francisco, there are 25 openings per candidate. Couple that with a generation of skilled baby boomers entering retirement, and the situation appears dire.

Throughout the tech community, there have been robust debates over how companies based in the United States can maintain their competitive edge in an increasingly competitive and fast-paced global economy. “We’re very concerned,” says Jackie Glenn, chief diversity officer at EMC<sup>2</sup>, a leading provider of IT data storage and cloud computing solutions. “America is not producing a lot of people in those fields.”

“Technology is impacting how we’re going to solve the problems of our environment and how medical services are delivered around the world,” Hudnell adds. “Technology is impacting the products that we use every day. This is where jobs are being created. This is where the wealth is being created. This is where the movement of careers is happening, and we have significant portions of our population in this country who are not participating.”

That’s why many experts believe that attracting more women and ethnic minorities into tech—in addition to giving companies better insight into their diverse consumer base—could ultimately help resolve the talent shortage.

## SPARKING INTEREST, CREATING CAREERS

**CORPORATIONS, ACADEMIA, AND GOVERNMENT** are working together to diversify the tech talent pool, and the key is getting kids interested in STEM fields when they’re young.

“The data says that women and ethnic minorities in college are more likely to go into the biological sciences,” Hudnell says. “We don’t have a situation where we lack people going to medical school or law school. When you’re a doctor, you get to save lives. It’s very clear. A lot of people think if we just had a TV show about [tech careers], that would solve it. When there is role modeling and a clear understanding of what engineering is, girls are more likely to become engineers.”

“The research says that if you want to encourage young people—and certainly girls and children of color—to consider fields in STEM, you’ve got to get to them sooner rather than later, because many of them formulate their interests early,” Houston says. “Before I came to Microsoft, I was unaware of some of the very unique things that our engineers get to do. It’s about showing kids the cool factor. And giving them access to role models

with similar backgrounds who can share their personal stories goes a long way, we've found, in helping students feel that they can achieve the same career."

To that end, global companies are rolling out fun, exciting math and science programs for kids in the United States and around the world. Microsoft partnered with government, non-profits, and other companies to launch YouthSpark, an initiative designed to get young people—who are already enthusiastic consumers of technology—to start thinking about becoming the next inventors of technology.

"With this program, we are committed to creating opportunities for 300 million youth around the world over the next three years," Houston says. "We aim to empower youth to imagine their full potential by connecting them with greater education, employment, and entrepreneurship opportunities." The initiative includes the prestigious Imagine Cup, which has brought together student innovators from 190 countries to compete for generous cash prizes, development support, and bragging rights. Young contestants have come up with tech solutions to reduce carbon emissions, translate sign language into verbal communication, and even diagnose childhood pneumonia.

Meanwhile, Microsoft's DigiGirlz program gets high school girls excited about careers in technology via hands-on workshops, panel discussions, technology demonstrations, and tours. "It started small, by a group of employees partnering with some of our local community organizations, to show high school girls that a career in technology isn't just sitting behind a computer coding all day long, but is also about teamwork and collaboration and creativity," Houston says. "They have an amazing experience. And last year, we hired three past DigiGirlz participants as full-time employees." Since its launch in 2000, DigiGirlz days and DigiGirlz camps have spread to more than 45 Microsoft locations in the United States and in 16 other countries.

Companies are even looking for ways to get a child's family involved. "A lot of times, kids in the inner city don't have a computer at home," Glenn says. "So we're participating in Black Family Technology Awareness Week, a national program. The idea is to make sure that every house in these neighborhoods has at least one computer."

Also, many companies, like EMC<sup>2</sup>, are funding in-school STEM education. "One of the newest programs we're participating in is at the Bluford Drew Jemison School for Boys, in Baltimore," Glenn says. "That school takes inner-city boys and teaches them robotic technology. You'd be amazed to hear them talk about how much they love math and technology."

Schools across the country soon will get a boost in their math and science programs. The Obama administration has made STEM education a top priority, vowing to create a STEM Master Teaching Corps that ultimately will grow to include 10,000 skilled educators.

As it rolls out various programs, the administration is working closely with the country's top technology companies to



**GWEN HOUSTON**

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gather their advice and insight. (Intel President and CEO Paul Otellini serves on President Obama's Council on Jobs and Competitiveness and co-leads the High-Tech Education Task Force, for example.)

When students get to college, however, they face still more challenges. According to a study done by the Wisconsin Center for Education Research and the University of Colorado Boulder, between 40 and 60 percent of STEM students end up leaving their program and choosing another major. "It could be that they get their first bad grade, they don't have an environment that says they can do it, or they don't have a study group or the resources at home," Hudnell says. "So they just decide they'll do something different."

"A lot of inner-city kids drop out of engineering school because they can't afford it, and they don't know about the funding that's available to them," Glenn adds.

To keep college students in STEM, many companies are lending support in the form of scholarships and other resources. The federal government is also getting involved. In 2012, the President's Council on Jobs and Competitiveness—in partnership with universities and dozens of companies—launched the Stay With It program, which finds engineering students study groups, tutors, and earlier internships, and offers support to boost their confidence.

## ATTRACTING TOP TALENT

**THE COMPETITION FOR TECH TALENT IS FIERCE**, so companies are rolling out the red carpet for the best candidates. Being committed to diversity—particularly at the leadership level—can certainly give a company an edge.

"A lot of the time, [a job candidate] wants to look across the spectrum of Microsoft leaders and have their own presence affirmed in this company before they choose to come in," Houston says. "It's not unusual for a recruiter who's got a great candidate to call me and say, 'Gwen, can you take this person out for coffee, because she wants to understand what you're doing to retain and promote women.' So it can be a differentiator—no doubt."

While many tech companies put considerable resources into recruiting—by developing relationships with engineering



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**ROSALIND HUDNELL**  
*Chief Diversity Officer, Global Director of Education and External Relations, Intel*

schools, offering internships, attending conferences, and using social networking—they say that keeping talented employees happy is just as important.

“A large percentage of women who are trained in technology drop out of the field before they reach midcareer, for various reasons,” Glenn says. “We have a young African American woman who came from Smith College. She loves her job as an engineer, but her department is all middle-aged Caucasian men, and she has nothing in common with them. She sent me the sweetest note the other day to thank me for introducing her to other people her age in the company.”

To help women, ethnic minorities, and other diverse employees make those connections, companies offer various resources, including networking events, seminars, and speaker series.

Many also offer mentoring programs designed specifically to help women and people of color develop and rise into management. “One of the most important things to understand about an organization is the culture—not the culture that is talked about, but the unwritten rules,” Hudnell says. “You are more apt to get that from people who might have an affinity with you. So we tend to do a lot of work so that our leaders who have affinity with employees can help them get that feedback.”

As diverse employees rise to higher levels, many companies encourage them to circle back and connect with younger employees to share their own stories and offer support. At Intel, for example, senior women executives participate in a program called Extend Our Reach, in which they sponsor an up-and-coming woman and help to usher her through middle management and ultimately into senior management. The company is also piloting an executive leadership program in which CEO Paul Otellini and his direct reports are

sponsoring the next generation of diverse talent, preparing them to become directors and vice presidents at Intel.

Meanwhile, more and more mentorship programs are designed to nurture the talent pipeline at the college level. EMC<sup>2</sup>, in partnership with the Simmons College School of Management, runs a three-day residency program for high-potential students called Women in the Fast Lane. “Executive women are now turning around and mentoring the next level of women, which is really wonderful,” Glenn says.

To help ensure that the talent pool grows, technology companies have developed strong working partnerships with the Obama administration, academic institutions, professional associations—and each other. “Even though we might compete for talent with other tech companies, there’s a tremendous amount of collaboration that we do, because [the shrinking talent pool] is a problem we all have,” Hudnell says. “If we can figure it out together, it helps all of us.”

As women and people of color begin to enter tech in greater numbers, those who are already in the industry say the rewards go far beyond mere job security.

“When you think about the products that exist today that didn’t exist—heck—two years ago, it’s pretty amazing,” Hudnell says. “First there were mainframes, then desktops, and then laptops. Now we’ve got ultrabooks, tablets, and smartphones. This is an environment that has always been at the forefront of the next big thing. When I talk to young people and they tell me they want to change the world, I tell them, ‘Whatever you’re going to do to change the world is going to be enhanced by technology.’ That’s the reality now.” **DW**

## ARE BOYS BETTER AT MATH?

We’ve been hearing it for years: boys simply have greater aptitude for math than do girls. But is it true? A study of hundreds of thousands of schoolchildren in 86 countries, conducted by researchers at the University of Wisconsin-Whitewater and the University of Wisconsin-Madison, found that there are no significant differences in boys’ and girls’ math scores. And in cases where differences were found, sociocultural differences—rather than biological ones—appeared to be the cause.

*Kimberly Olson is DW’s managing editor.*