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How to grapple with the growing gender gap in cybersecurity

Attracting women to cyber careers requires mentorship, marketing, more

FEATURED STORY   **BY RODIKA TOLLEFSON, THIRDCERTAINTY**

Glass ceilings are not exclusive to the White House. The cybersecurity industry, too, is struggling to open career paths for women.

Although the number of women in the profession is growing, their proportion of the information security workforce — about 10 percent, according to a 2015 Frost and Sullivan study—has stayed the same.

And there's a bigger problem.

Women played a prominent role in computer sciences for several decades around the middle of last century. But by 1991, their numbers in the IT industry overall peaked at 36 percent and has declined ever since, according to CompTIA, a nonprofit trade association for the IT sector.

Related infographic: *Infosec careers beckon more women*

Between 1993 and 2012, there also has been a sharp decline in women majoring in computer sciences — from 28 percent to 18 percent, based on an analysis by the National Science Foundation. Accenture forecasts that if current education and work-force trends continue, the gender gap in computing will grow rather than shrink.

Elise Yacobellis, (ISC)2

Even as a relatively new field, information security

already has seen that happen. Elise Yacobellis of (ISC)[2], an international nonprofit association that sponsored the Frost & Sullivan research, says there was a rise in the proportion of women in the industry starting around 2008, to as high as 17 percent. Then the gap widened again.

"The information security work force is growing, but the number of women in the industry is not growing at the same pace," says Yacobellis, business development strategist at (ISC)[2], which is a leader in providing several professional cybersecurity certifications.

Efforts to reverse trend

The good news is that the industry is paying attention. Numerous programs and initiatives have sprouted at tech companies and nonprofits alike in an effort to attract more young women to information technology, in general, and cybersecurity, in particular.

"I would love to see a more concerted effort, but it is a difficult effort to rally around," Yacobellis says. "Any individual program that contributes to that has got to make a difference—and we're seeing an increase in interest, just not as high as we'd like it."

Michele Guel, engineer and chief security architect at Cisco, stumbled into cybersecurity in the late 1980s while working at NASA. She was tasked with creating a security role at the Numerical Aerodynamic Simulation facility when cybersecurity didn't exist at most organizations.

"We didn't know what (cybersecurity) meant, but I got to learn," she says.

After many years of being the "lone female in the room," Guel says it's very encouraging to see the growing number of women at events such as the RSA Conference, because that visibility helps the ranks of women in the industry grow organically.

"There's finally a tip in the numbers, and this is really good to see," she says.

Putting cybersecurity on girls' radar

Two years ago, Guel co-founded a business-initiative network called the Cisco Women in Cyber Security Community, which is focused both on internal and external outreach. She says many college-age and younger kids "aren't hearing about these careers so they haven't thought about it."

The longer-term goal of the group is to "share the DNA" of what they did at Cisco so others can do the same. But first, there's one more level in the pipeline that Guel would like to better connect with: middle school.

"That's when they're thinking, 'What do I want to do when I grow up, and what classes do I need to take?'" she says.

Carolyn April, senior director of industry analysis at CompTIA, says that "simply saying that girls aren't into technology or they're not as good at technology as boys is a vast oversimplification and, frankly, not true." She says that's a stereotype that many influencers cater to—even parents and teachers, but especially toy manufacturers.

CompTIA's recent study, "Make Tech Her Story," found that interest in tech careers is higher in middle school than high school. Nearly 30 percent of middle school girls consider it, but by high school that number wanes to 18 percent.

Give them something to relate to

Michelle Dennedy, chief privacy officer at Cisco, calls this "the middle school blues, math is not cool" problem. She's seen it in her own daughters, who are great at math but not as interested in STEM (science, technology, engineering, math) careers.

"Maybe we've named the problem too narrowly," she says. If robotics is not "their jam," then children should have other experiences related to technology jobs, like design challenges and leadership skill building.

It all comes down to messaging—essentially, the industry has a marketing problem. Girls want to be in professions that are nurturing and making a difference in someone else's life. But they're not seeing IT careers in that light.

"What girls are not realizing is that they may be seeing IT careers in a very narrow way," April says. IT is not just about sitting at a help desk or analyzing a data breach incident—and it's also a career that crosses all industries, from retail and fashion to health care.

Tapping into talent

Guel has seen the difference in the messaging firsthand. As part of her involvement with the CyberGirlz middle school program at San Jose State University, she learned that girls like the concept of cybersecurity. But they told her they want to go into fields like fashion and music.

"So I spun it around to how you can apply cybersecurity to fashion," she says.

That got those girls excited. "We need more of that," she says.

April agrees that attracting the new generation of women is a matter of framing the conversation the right way. That's why it's important for both men and women in the industry to be mentors and to demonstrate "that it is work

that helps other people, so that the nurturing aspect gets tapped into."

"It's very, very much a marketing campaign," she agrees. "If successful, it would bear tremendous fruits for both the industry and employers, and for these girls."

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