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Why Mastercard is betting on middle school girls to detect cyberthreats and protect our personal data

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KEY POINTS

- According to the Center for Cyber Safety and Education, unfilled cybersecurity jobs are expected to reach 1.8 million by 2022, up 20% from 1.5 million in 2015.
- Mastercard believes women, who by 2028 will control nearly 75% of consumer discretionary spending worldwide, can play a pivotal role in encryption, fraud detection, biometrics and data analysis.
- Through its Girls4Tech program, Mastercard sends employees out to schools worldwide to inspire girls to seek a future in these high-tech fields. Their goal: to reach 1 million girls by 2025.



Source: Getty Images

Cybersecurity and artificial intelligence are two of the hottest technology fields today, yet there's no encrypted secret there's a skills and gender gap in the U.S. in these high-tech fields. According to the [Center for Cyber Safety and Education](#), unfilled cybersecurity jobs are expected to reach 1.8 million by 2022, up 20% from 1.5 million in 2015.

Mastercard is trying to change that, by showing 1 million middle school girls worldwide that they have what it takes to play a role in the technology landscape of the future.

Mastercard's mission is not only to close the gender gap — Cybersecurity Ventures found that women fill less than 20% of these roles — but to prove that women can play a pivotal role in encryption, fraud detection, biometrics and data analysis.

The U.S. Department of Commerce finds that only 1 in 20 girls aspire to be in STEM-based careers compared to 1 in 5 boys.

That's unfortunate, said Dana Lorberg, executive vice president of operations and technology at Mastercard. "Finding a woman in cybersecurity is like finding a unicorn. How can we possibly create products that are good for consumers if we don't have representation of that gender in the decision-making and engineering processes?"

According to UN Women, women today control about \$20 trillion in annual consumer spending and by 2028 will control nearly 75% of consumer discretionary spending worldwide. And that's what Mastercard is banking on.

For more than 50 years the financial services company has been transforming how consumers, businesses and governments pay and get paid. They are now in more than 210 countries and territories. With security a top concern — last month's [Capital One data breach](#), where the personal information of some 100 million Americans and 6 million Canadians who are Capital One credit card holders or applicants had been hacked did not even rank in the top 10 of the biggest such hackings — the company continuously looks for ways to innovate, and they believe women are key to their future.

So five years ago Mastercard launched [Girls4Tech](#), an effort that aims to put more women in the high-tech workplace by inspiring young girls to build their skills in science, technology, engineering and math. With its employees serving as role models and mentors, the program incorporates Mastercard's expertise in payments technology and innovation and includes topics such as encryption, fraud detection, data analysis and digital convergence.



MasterCard believes women can play a pivotal role in cybersecurity and AI. To boost their workforce and help close America's skills gap, MasterCard's Girls4Tech program has reached more than 400,000 girls in 26 countries, surpassing its 2017 goal to reach 200,000 girls by 2020. The company plans to inspire 1 million girls by 2025. MasterCard

"We have a crisis on our planet where there are not enough kids graduating with engineering degrees," says Lorberg, who runs the program. "We've got more jobs that need these kinds of skills than we have kids graduating with these degrees, and much less women and girls."

Working out of all 80 of Mastercard's business centers around the world, Girls4Tech sends employees out to schools to show girls that women can handle technology just as well as men do.



A self-professed "girl geek" herself, Lorberg says young girls need to be exposed to different opportunities in life. "They can't be what they don't see, and they don't see enough women in technology."

Lauren Ottolich, Mastercard's manager of global volunteerism, says girls will also offer additional perspectives. "It's critical that girls play a role in evolving technology so that we have different opinions at the table and we have different perspectives and experiences," she says.

1 million girls by 2025

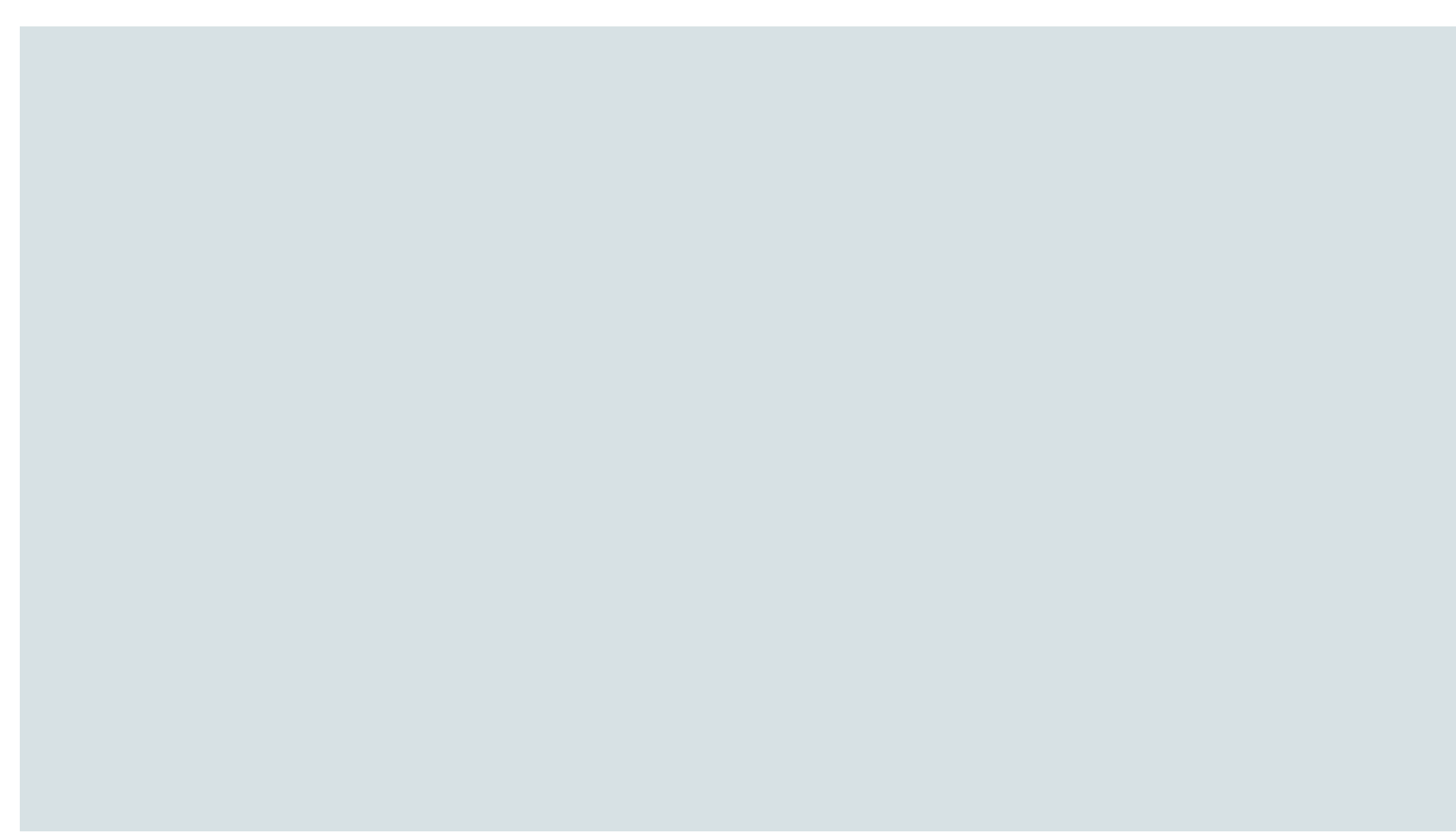
Mastercard gives employees five paid days off a year to do philanthropic volunteer work. "We believe in doing well by doing good," says Lorberg. "It's in our DNA."

Since its inception in 2014, Girls4Tech has put 3,600 Mastercard employees before 400,000 students in 26 countries. Their goal is to reach 1 million girls by 2025.

"A lot of girls need more confidence," Lorberg says. "They need to have good role models so they can see that they can do it, too."

The typical half-day program is set within school hours and presents global science and math exercises in a fun format, utilizing Mastercard's expertise in subjects like encryption, fraud detection and data analysis. To ensure they are making a positive impact, Mastercard polls the students after every program. Their typical findings: 98% of the girls polled learn something new about STEM; 88% say they are interested in learning more about fraud detection and cryptography.

Kyra, 11, a sixth-grader from Millstone, New Jersey, attended a Girls4Tech seminar at her school, thinking that fraud detection was the field for her. Then she stopped at the data science table and an exercise there made her realize she had a knack for managing large amounts of information. Now she wants to be a data scientist.



Kyra, a sixth-grader from Millstone, New Jersey, realized her interest in data science after attending a Girls4Tech seminar.

"They collect data on problems and then organize it and eliminate the data that isn't needed and then they analyze it," she explained, adding that she frequently asks her father, a software architect, to give her problems to help her hone her skills.

Beatrice Karp, a sophomore at the University of Pennsylvania studying science technology and society, credits Girls4Tech for launching her on the journey that brought her to where she is today.

When Karp was a 14-year-old freshman at Mamaroneck High School in New York, she was not interested at all in STEM subjects. Her mother encouraged her to try the Girls4Tech program on coding and she agreed to go, without much enthusiasm. But that soon changed.

Over the 20-week extended Girls4Tech course, she and her team created an "outfit generator," an app that chooses what clothes to wear, depending on the occasion. Inspired by the experience, she went on to take computer classes at school and during summers and parlayed her enthusiasm into a spot at a prestigious Ivy League college.

The whole concept of identifying a social issue and figuring out how to address it using a platform and programming is an idea that has never left her — and remains a major part of what she is doing now.

"What they're doing is teaching girls how to think and how to approach a problem critically," Karp said.

Expanding beyond the US

Since its launch, Girls4Tech has expanded its curriculum to three new programs — Girls4Tech in a Day, Girls4Tech 2.0 for high school girls and Girls4Tech & Code, a 20-week mentoring/coding program. It's now been translated into 11 languages, including Bulgarian, Polish, Chinese and sign language.

Girls4Tech now works with a network of global partners, such as Be Better China, the Network for Teaching Entrepreneurship, and the Singapore Committee for UN Women, all geared toward gender parity in high tech.

In the U.S. it is developing a new curriculum with Scholastic to explore the issues of privacy, artificial intelligence and algorithms.

"Teachers and students alike are eager for resources that help connect curriculum standards to the real world of today and tomorrow," says Ann Amstutz Hayes, senior vice president of Scholastic national partnerships.

In Ireland, in collaboration with the Royal and Ancient Golf Club of St. Andrews, Mastercard recently launched a new version of the program to show girls how STEM skills can be applied to the science and business of golf.

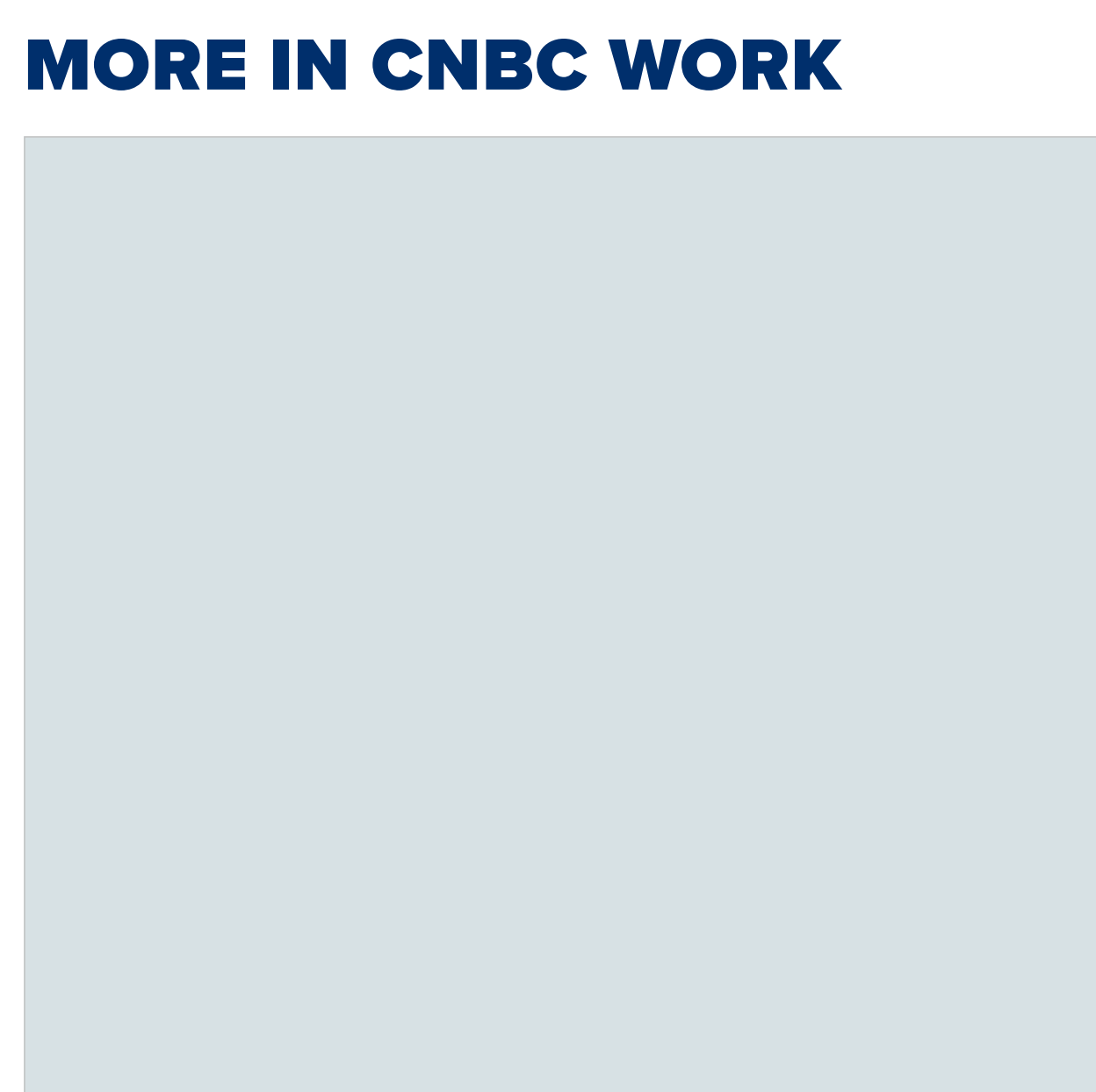
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In partnership with [American Airlines](#), Mastercard hosted its first two-day event in May, called "Girls4Tech Takes Flight," which challenged 50 girls to innovate solutions to humanitarian challenges outlined by the United Nations on gender equality; smart cities and sustainability; health and well-being; and quality education.

The financial services company is also partnering with Major League Baseball through its youth academies. According to Del Matthews, MLB's vice president for baseball development, "Girls4Tech is something that can help [girls] prepare for a great variety of careers, in baseball and elsewhere."

Celebrating the goal of 400,000 girls being exposed to high-tech careers, Susan Warner, vice president, talent and community engagement and founder of Girls4Tech, summed it up: "We hope to have sparked many future careers in STEM fields, because gender parity in tech will ultimately make all companies — and our society at large — better and stronger."

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