

Lack of diversity in cybersecurity and how we fix this once and for all

Shelley Westman
Southeast Region Cybersecurity Leader, EY

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Men and women are treated differently in all areas of life

▶ What is the Pink Tax?

- ▶ A form of **gender-based price discrimination**, with the name stemming from the observation that many of the affected products are **pink**. Products marketed specifically toward **women** are generally **more expensive** than those marketed for men.¹

Pen for her, \$4.97

Original pen, \$2.47



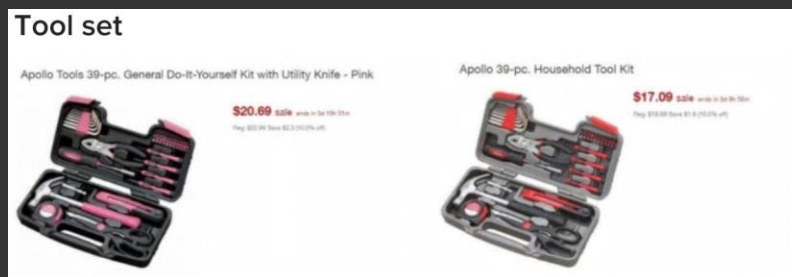
Perfume for her, \$107

Cologne for him, \$89



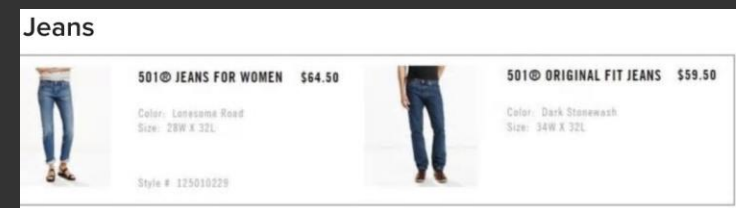
Tools for her, \$20.69

Tools for him, \$17.09



Jeans for her, \$64.50

Jeans for him, \$59.50



In sports ...



Charlotte Clymer

Men like John McEnroe are celebrated for their spirit on the court. Women like Serena are told they need to quiet down and play nice. What a goddamn ridiculous double standard.²



Alize Cornet was issued a violation at the US Open for taking off her shirt during her first-round match after she realized it was on backward.³



“Serena Williams is right in calling out sexism at the US Open. Male players are celebrated for outburst.”⁴



In pay ... across all industries, including cybersecurity

MPRnews

“Why are women athletes still paid less than men? Why do women continue to get paid less? And does the lack of investment translate into fewer opportunities for development and sponsorship?”⁵

The Washington Post

“A doctor said the gender pay gap is fair because women in medicine ‘don’t work as hard.’ He apologized.”⁶

Forbes

“Women earn more college degrees and men still earn more money.”⁷

**INFOSEC
INSTITUTE**

Women make up just 11% of the global cybersecurity workforce and earn less than their male counterparts at every level in the cybersecurity industry.⁸

Let's take a closer look at cybersecurity



Only **11%**

of cybersecurity professionals around
the world are women. ⁹

Source: Report by ISC2

Let's take a closer look at cybersecurity

Only **11%** of cybersecurity professionals are **women** ... why?

Stereotypes about the profession.

What do you think of when you hear the term "**hacker**"?



Let's take a closer look at cybersecurity

Only **11%** of cybersecurity professionals are **women** ... why?

Discrimination and **image**.

“Cyber firm blasted for using ‘booth babes’ at major security conference.”¹⁰



“Black hat hacker conference begins to grapple with gender discrimination and sexual assault in cybersecurity.”¹¹

“More than half of women in the cybersecurity industry have experienced some form of discrimination throughout their careers from their male peers.”¹²

Let's take a closer look at cybersecurity

Only **11%** of cybersecurity professionals are **women** ... why?

Women are steered into **typical female careers** by parents and guidance counselors from the time **they are little**.



78% of young women
rule out a career in cybersecurity.¹³

Source: Survey by Kaspersky Lab



So how do we fix this?

Train your organization on **unconscious bias**.

- ▶ **Learned stereotypes** that are automatic, unintentional, deeply ingrained, universal and able to influence behavior
- ▶ Far **more prevalent** than **conscious prejudice** and often incompatible with one's conscious values
- ▶ Examples:
 - ▶ Name on a resume makes a difference (male vs. female, "white" sounding vs. "non-white" sounding)
 - ▶ Left- vs. right-handed
 - ▶ Scores in STEM classes not graded anonymously

So how do we fix this?

Change the **job descriptions** to attract more women.

- ▶ Five studies conducted by researchers at the University of Waterloo and Duke University found that job listings for positions in engineering and other male-dominated professions **used more masculine words**, such as:

A word cloud of masculine terms used in job descriptions. The words are arranged in a roughly circular pattern. The largest and most prominent words are 'Leader', 'Competitive', 'Ninja', 'Dominant', and 'Superior'. Other words include 'Active', 'Determined', 'Assertive', 'Decisive', 'Aggressive', 'Lead', 'Ambitious', 'ANATOMOUS', 'Analytical', 'Objective', 'Rock Star', 'Outspoken', 'Independent', and 'Rigid'.

Active Determined **Leader** Assertive Decisive Aggressive

Lead Ambitious ANATOMOUS **Dominant**

Competitive Analytical Ninja Objective

Rock Star Outspoken Rigid Independent **Superior**

So how do we fix this?

Change the job descriptions to attract more women.

BEFORE:

textio Talent Beta

TEXTIO SCORE
25
WEAK

STRENGTHS:
✓ Optimal length >
✓ Strong use of active language >
✓ Appropriate use of adjectives >
✓ Strong use of verbs >

PROBLEMS:
- Uses corporate cliches >
- Missing equal opportunity statement >
- Not enough bulleted content >
- Uses repetitive wording >
- Too much directive language >
- Needs more 'you' statements >

TONE:
[Gender balance slider]

Senior Software Engineer Engineering

Job Description

We are looking for technical **superstar** to build our next generation of inventory planning, and vendor selection. We build scalable automated **the** economically optimal sourcing plan for millions of unique SKU sold worldwide. This puts us at the nexus of retail business, suppliers, operations, logistics, and capacity planning. Our software is a critical link to ensuring the products our customers want are available when they need them.

We have a highly scalable Distributed Systems Architecture and own about 20 services. We extensively use Map Reduce, AWS Datastores like S3, Dynamo DB etc for Performance. We have our own Research and Product Management Team. **We have stringent expectations.** In this role **you must** be able to be the brightest software engineers, scientists, and product managers to define problem requirements, invent algorithms and solve highly challenging problems of supply chain. You will be responsible for designing the architecture, building the software, and working with the team to deploy **mission-critical** sol will lead inter-departmental design discussions with senior engineers and Principal Engineers. This is a unique opportunity to both create and your work on billions of dollars' worth of inventory in one of the world's most advanced supply chains, and at massive scale. **You must** be at technical architectures & requirements are able to quickly identify solutions to challenges discovered during development, and ready to work with the latest cloud computing technology. Prior experience building stable, scalable, solutions is required. Prior experience with data mining, databases, or map reduce, Cloud Computing, AWS Datastores is a plus. **Successful candidates** will thrive in **fast-paced environments** (deploying code continuously) using agile planning techniques, **encourage** and reward **creative** design, intelligent risk taking, and find **innovative ways** to **leverage** cutting edge technology.

The **successful candidate** will function as technical lead throughout the full development lifecycle (we do scrum), end-to-end, from scoping, design, implementation and testing, to **flawless** documentation, delivery and maintenance. We have a **high-performance culture.** **You must** reviews for other engineers, including feedback on architecture and design issues, as well as **integration**, performance and scalability. **You must** resources on multiple technical projects and ensure schedules, **milestones**, and priorities are compatible with technology and business goals.

Negative Positive Repetitive Masculine Feminine How does it work?

AFTER:

textio Talent Beta

TEXTIO SCORE
94
VERY STRONG

STRENGTHS:
✓ Optimal length >
✓ Uses positive language >
✓ Limited corporate cliches >
✓ Strong equal opportunity statement >
✓ Strong use of active language >
✓ Appropriate use of adjectives >
✓ Strong use of verbs >

PROBLEMS:
- Not enough bulleted content >
- Needs more 'you' statements >

TONE:
[Gender balance slider]

Senior Software Engineer Engineering

Job Description

We are looking for a technical leader to build our next generation of inventory planning, and vendor selection. We build scalable automated platforms that **determine** **the** economically optimal sourcing plan for millions of unique SKU sold worldwide. This puts us at the nexus of retail business, suppliers, operations, logistics, and capacity planning. Our software is a critical link to ensuring the products our customers want are available when they need them.

We have a highly scalable Distributed Systems Architecture and own about 20 services. We extensively use Map Reduce, AWS Datastores like S3, Dynamo DB etc for Performance. We have our own Research and Product Management Team. We aim high and **inspire change.** In this role you will work closely with some of the brightest software engineers, scientists, and product managers to define problem requirements, invent algorithms and solve highly challenging problems of supply chain. Our company mantra is **Create Something Better.** You will be responsible for designing the architecture, building the software, and working with the team to deploy critical and **groundbreaking** solutions across the globe. You will lead inter-departmental design discussions with senior engineers and Principal Engineers. This is a unique opportunity to both create and see the direct impact of your work on billions of dollars' worth of inventory in one of the world's most advanced supply chains, and at massive scale. **You love** to dive deep into technical architectures & requirements are able to quickly identify solutions to challenges discovered during development, and ready to work with the latest cloud computing technology. Prior experience building stable, scalable, solutions is required. Prior experience with data mining, databases, or massively distributed systems, map reduce, Cloud Computing, AWS Datastores is a plus. **You love** **collaborative** environments (deploying code continuously) that use agile planning techniques, **encourage** and reward **creative** design, intelligent risk taking, and find **innovative ways** to deploy cutting edge technology.

You are a real **self-starter.** You will function as technical lead throughout the full development lifecycle (we do scrum), end-to-end, from scoping, planning, conception, design, implementation and testing, to precise documentation, delivery and maintenance. We have a **creative** culture that creates new opportunities for motivated technical leaders. You will provide **design reviews** for other engineers, including feedback on architecture and design issues, as well as **integration**, performance and scalability. You will **manage** resources on multiple technical projects and ensure schedules and and priorities are compatible with technology and business goals.

Negative Positive Repetitive Masculine Feminine How does it work?

So how do we fix this?

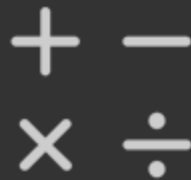
Be **open** to people with **different backgrounds**.



Law



**Associate's
degree**



Mathematics



Analytics



Psychology

So how do we fix this?

Once you attract women, make sure the **climate is inclusive**.

“Diversity is being invited to the party; inclusion is being asked to dance.”¹⁴

51%

of women surveyed
experience discrimination.¹⁵

28%

of respondents say their opinions
are not taken into account in the
workplace.¹⁵

3-6%

Is the average pay gap for
women.¹⁵

Appendix: citations

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⁵ "Why are women athletes still paid less than men?," *MPR News*, <https://www.mprnews.org/story/2018/08/15/why-are-women-athletes-still-paid-less-than-men>, accessed 13 September 2018.

⁶ Taylor Telford, "A doctor said the gender pay gap is fair because women in medicine 'don't work as hard.' He apologized.," *The Washington Post*, https://www.washingtonpost.com/health/2018/09/02/texas-doctor-says-gender-pay-gap-is-fair-because-women-dont-work-hard/?utm_term=.4067239d9e93, accessed 13 September 2018.

⁷ Janet Na politano, "Women Earn More College Degrees And Men Still Earn More Money," *Forbes*, <https://www.forbes.com/sites/janetnapolitano/2018/09/04/women-earn-more-college-degrees-and-men-still-earn-more-money/#68f5c47a39f1>, accessed 13 September 2018.

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⁹ *The 2017 Global Information Security Workforce Study: Women in Cybersecurity*, Center for Cyber Safety and Education, 2017 (accessed via <https://iamcybersafe.org/wp-content/uploads/2017/03/WomensReport.pdf> 13 September 2018).

¹⁰ Jason Murdock, "Cyber firm blasted for using 'booth babes' at major security conference," *Newsweek*, <https://www.newsweek.com/cyber-firm-blasted-using-booth-babes-major-security-conference-964472>, accessed 13 September 2018.

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