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U.S. Customs and Border Protection

Women in IT: How'd We Get Here, and Where are We Going?

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Agenda

❑ General Overview
❑ Women in IT: Cybersecurity Microcosm
❑ The Corporate World
❑ Efforts to Change the Landscape
❑ Questions

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The Numbers: In the United States…

- **26%** of professional computing occupations are held by women

- **17%** of CIO positions were held by women in 2017.

- **19%** of Computer and information sciences degrees were awarded to women.

- Women's employment in the computing industry has dropped from over **35%** in 1991.

Source: National Center for Women in Information Technology (www.ncwit.org)

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DHS Headquarters and CBP Leadership

- Current DHS Secretary Kirstjen Nielsen is a cybersecurity expert.

- Former DHS Secretary Janet Napolitano served from (2009-2013).

- Three of the last leaders, including the current one, of our Automated Commercial Environment (ACE) Single Window office have been women.

- Women hold the Chief of Staff positions for CBP's Office of Information Technology and DHS's Science and Technology Directorate.

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Women in Cybersecurity: A Microcosm of the Experience of Women in IT

Example: Women in Cybersecurity

The Cybersecurity Landscape:

- At 11% representation, women are globally underrepresented in the cybersecurity profession.

- Men are 4x more likely to hold "c-suite" and executive level positions as women, and 9x more likely to hold managerial ones.

- Over 51% of women in the cyber security workforce report some form of discrimination.

- Women earned less than men at every employment level.

## Bright Spots

- Women are 51% of computer science graduates.

- About 52% of millennial women in cyber hold a computer science degree.

Source: 2017 Global Information Security Workforce Study: Women in Cybersecurity (Frost and Sullivan)

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Global Presence of Women in IT: Cybersecurity

Percentage of Women in Cybersecurity Careers by Region
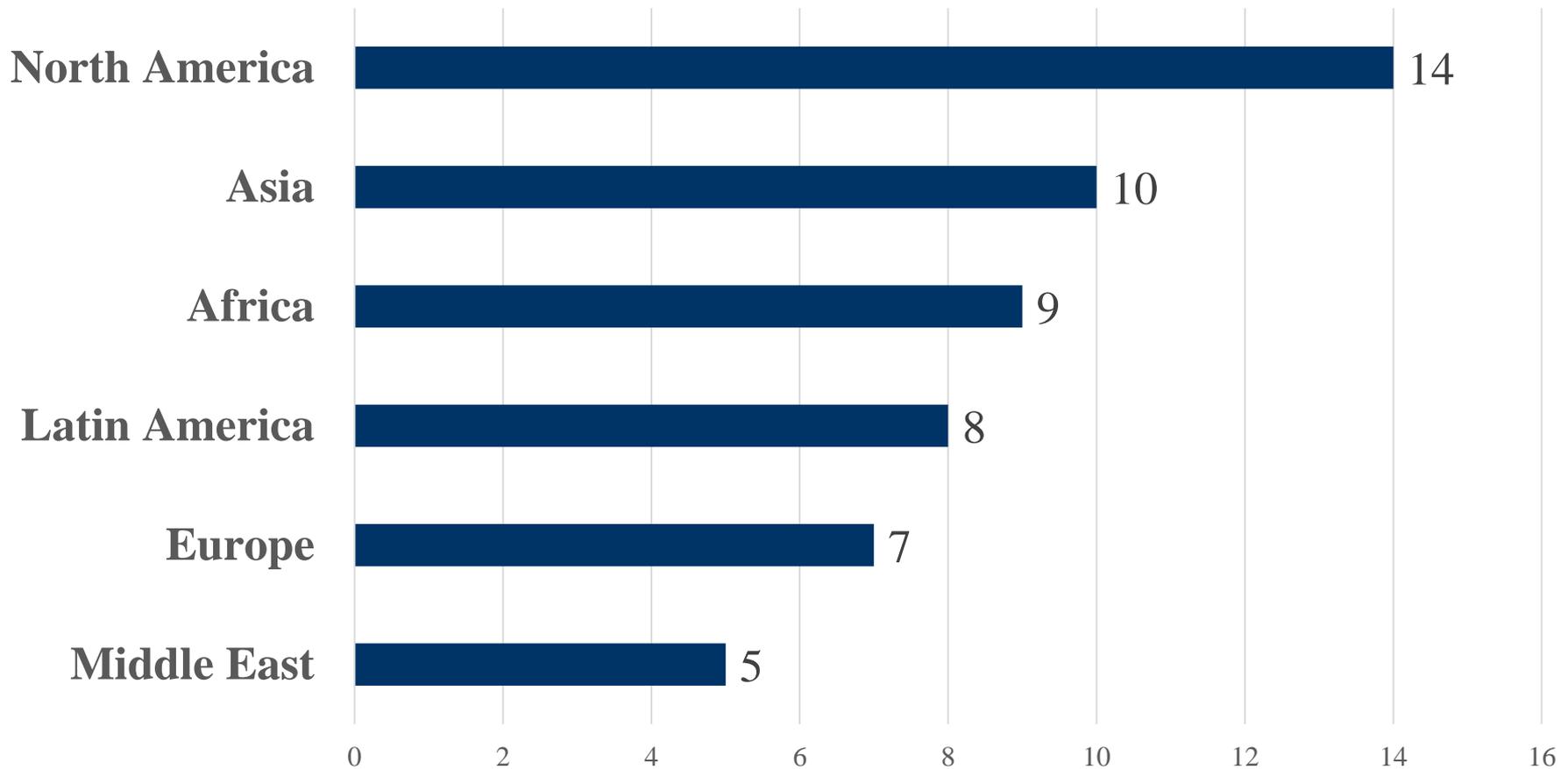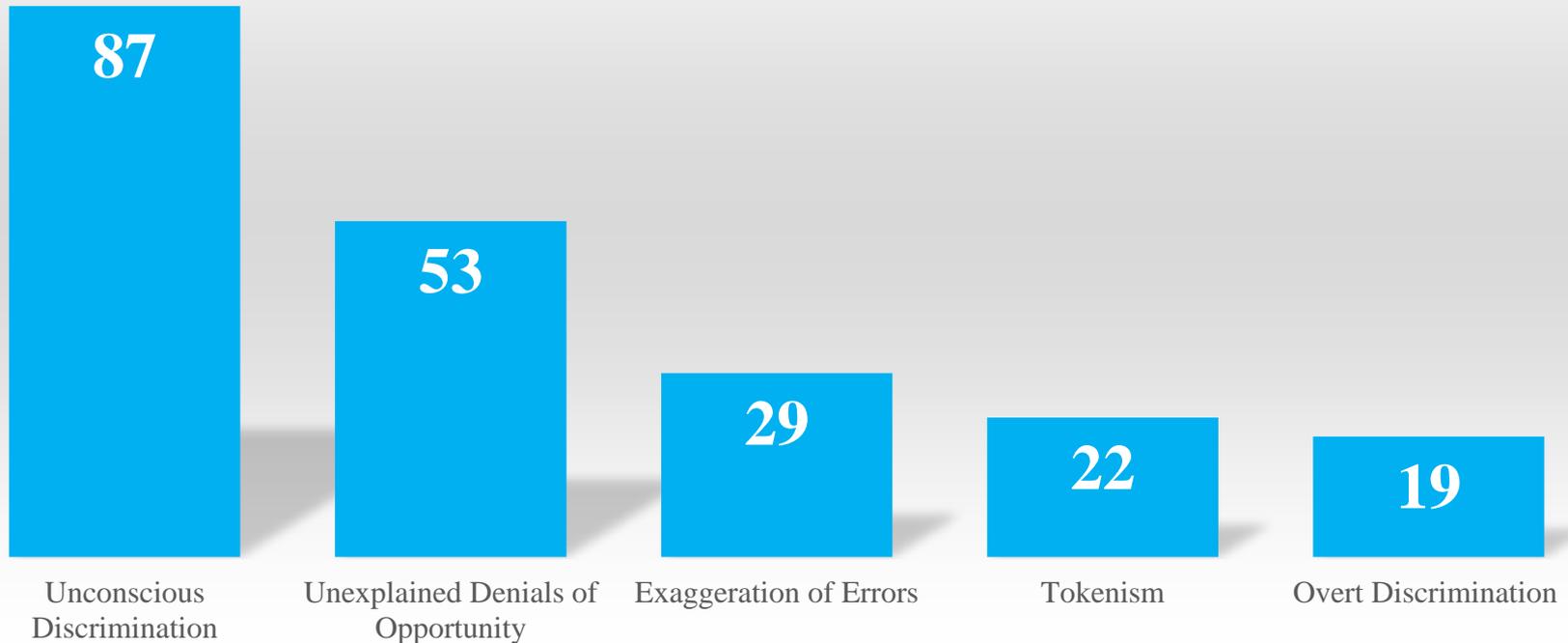
Women in Cybersecurity: Challenges

The three key challenges for women in the workplace are:

- Underrepresentation
- Pay inequity
- Discrimination
    i.   Unconscious bias
    ii. Unexplained denial of career advancement
    iii. Exaggerated highlighting of mistakes
    iv. Tokenism
    v.   Overt discrimination

Discrimination in Cyber: Globally

Percentage of Women Stating They Have Experienced Discrimination

Category	Percentage
Unconscious Discrimination	87
Unexplained Denials of Opportunity	53
Exaggeration of Errors	29
Tokenism	22
Overt Discrimination	19

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Discrimination in Cyber: North America

Percentage of Women Stating They Have Experienced Discrimination

United States	Mexico	Canada	Rest of Latin America
53	44	39	47

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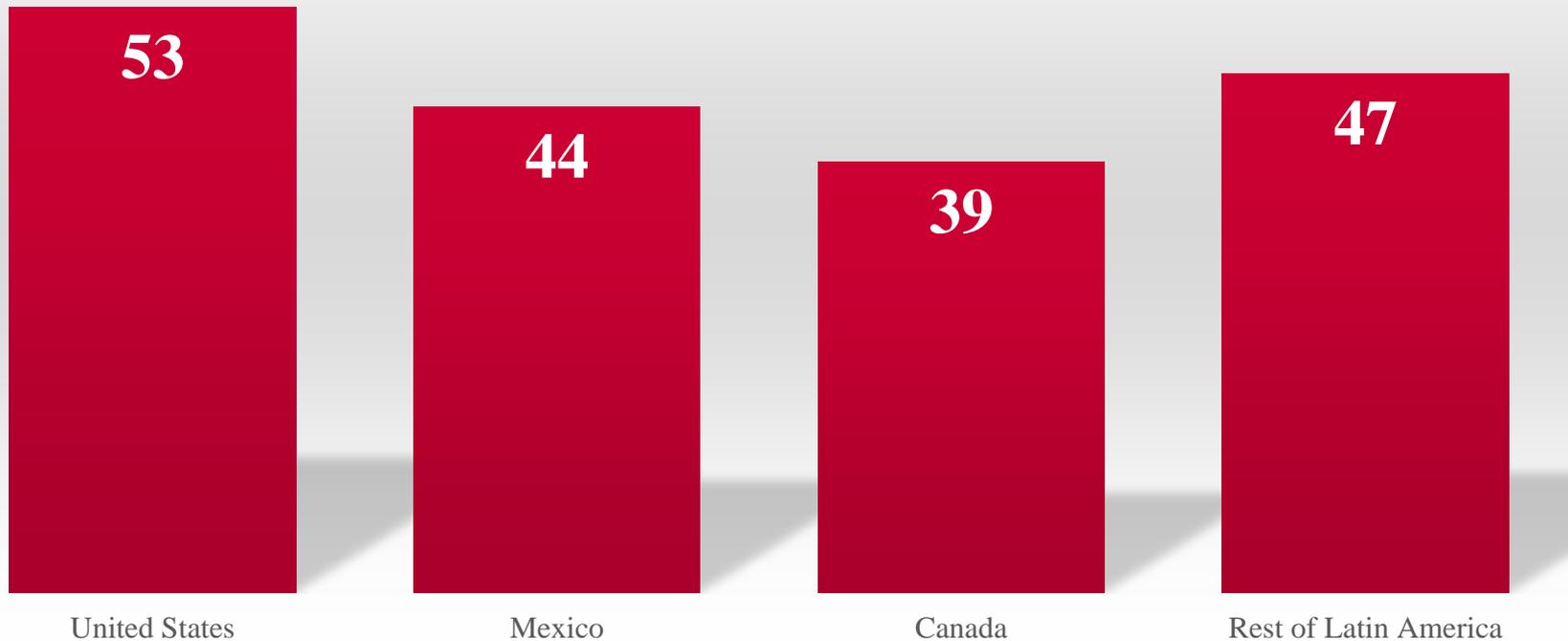
Women in Cyber : Challenges: Bias

"Our results show that women's contributions tend to be accepted more often than men's. However, women's acceptance rates are higher only when they are not identifiable as women. Our results suggest that although women on GitHub may be more competent overall, bias against them exists nonetheless."

– Gender Differences and Bias in Open Source: Pull Request Acceptance of Women Versus Men (2016)

The Corporate World and Women in the Workplace McKinsey & Co./Lean In Study

- **Survey-based: 222 companies/70,000 employees.**

- **Topics: employment experiences regarding**
  - **Gender**
  - **Opportunity**
  - **Career**
  - **Work-Life Balance Issues**

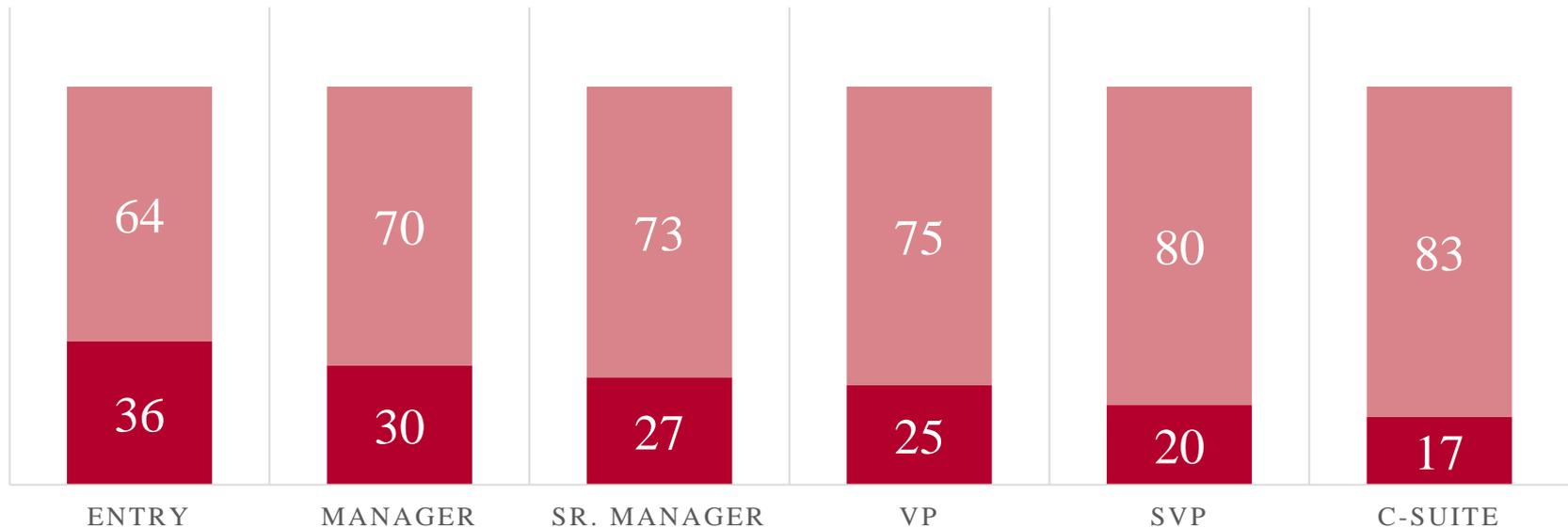**Source: *Women in the Workplace 2017 (McKinsey&Company/Lean in)***

Study Findings

- Women remain underrepresented at every level in corporate America, despite earning more university degrees than men 30 years and counting.

- Many employees (50% of men and 33% of women) think women are well represented in leadership when they see only a few.

- From the outset, fewer women than men are hired at the entry level, despite women being 57% of college graduates

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Findings: Continued…

At every subsequent step up, the representation continues to decline.

REPRESENTATION OF WOMEN IN TECH

■ Women ■ Men

	ENTRY	MANAGER	SR. MANAGER	VP	SVP	C-SUITE
Men	64	70	73	75	80	83
Women	36	30	27	25	20	17

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What is being done?

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Harvey Mudd College: A Success Story

About

- Located in Claremont, California

- Focus on the STEM disciplines (science, technology, engineering, mathematics).

- 825 Students

- 2018 Graduating Class of 172

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Harvey Mudd: The Approach

- **Mandatory Exposure to Computer Classes for every incoming student.**
  - Benefit: Removes the hesitancy/fear
- **Funded attendance at programming conferences for each female student.**
  - Benefit: provides access and exposure to female role models and mentors.
- **Summer of Study dedicated to contributing positively to society.**
  - Benefit: general public benefits from creation of educational computer games and recreational programs for the elderly.
- **Result: 56% of Harvey Mudd's Computer Science graduates were women (2018), compared with 19% for the rest of the country.**

UN Women: A Catalyst for Change

- UN Women is the UN organization dedicated to gender equality and the empowerment of women. A global champion for women and girls, UN women was established to accelerate progress on meeting their needs globally.

- It is responsible for addressing women's progress under the 2030 sustainable development goals (SDG).
  - World leaders from 193 nations adopted by consensus the 2030 Agenda for Sustainable Development, along with a set of 17 Sustainable Development Goals (SDGs) at the United Nations General Assembly in September 2015.

- Contains an innovation component, the Global Innovation Coalition for Change

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UN Women: Global Innovation Coalition for Change

The purpose of the GICC is to removes the barriers to the advancement of women and girls in innovation, technology and entrepreneurship by:

1. Building market awareness of the potential for innovations that meet the needs of, and developed by, women;

2. Identifying industry-specific barriers to women and girl's advancement in innovation, technology and entrepreneurship; and,

3. Working collaboratively to identify and select key actions to address these barriers and needs – at an industry wide level. Such actions may include sharing good practices, developing capacity and de-risking specific innovations through targeted support; and

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What Companies and Governments Can Do

- ✓ **Create inclusive workplaces to support advancement of women.**
  - ➤ Take intentional actions to close the workforce gap with multi-year initiatives to attract, advance, and retain top female talent.

- ✓ **Invest in more employee training and development.**
  - ➤ Sponsorship, mentorship, and leadership development programs are correlated with the success and satisfaction of women at all levels.

- ✓ **End pay inequity.**
  - ➤ Develop a statistical approach to measure and analyze pay data and identify the inequities.
  - ➤ Create clear, consistent criteria for evaluating candidates and employees.

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What Companies and Governments Can Do—cont'd

✓ **Enlist top leadership support.**

➢ Ensure that leaders of diversity efforts include high-level executives and senior-level employees who have decision-making authority.

✓ **Educate Managers.**

➢ Focus on improving the employee/employer relationship.

✓ **Ensure data transparency and accountability.**

➢ Developing a diverse workforce needs to be treated like any other critical business concern.

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What Women Can Do

- Advocate for yourself.
- Carve your place in the IT job marketplace.
- Take the initiative in learning how to code. Feed your own IT interests through volunteerism and internships.
- Assert your interest, and push to lead projects/generate ideas.
- Use the knowledge available to you (be it from males or females).
- Don't listen to those who substitute aggressive for assertive.

THANK YOU!

QUESTIONS?