CYBER-CHICKS………
AN ENDANGERED SPECIES

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■ We are going to take a lighthearted approach to a serious issue, and provide serious, tangible strategies.

■ When we grew up in our adult life, women in the field were an anomaly, not a common phenomenon. We need to work to make it a normal transition into a career.

"The argument in favor of greater gender equality in cybersecurity is really not one of right vs. wrong or men vs. women. Rather, it's that having more women in the workplace is good for business. Diversity in perspectives, leadership, and experience is good for business."

-Pricilla Moriuchi, Recorded Future

"The demand for capable, knowledgeable, hard-working security professionals is so high and the threat to innocent people and critical networks so broad that both women and men can have impactful, rewarding careers in this field."

- Pricilla Moriuchi, Recorded Future

"The lack of gender diversity is definitely apparent, especially when you attend events, such as RSA or Black Hat, and men make up the vast majority of attendees."

-Rose Elliott, Tenable

The cyber workforce is way too small

■ The talent shortage in cybersecurity requires more people, from all genders, cultures, ages and backgrounds, to solve it

■ The 2018 ISC2 Workforce Study indicated the shortage is 2.93 million globally

– Asia-Pacific faced the largest shortage at 2.15 million

– 63% indicated they were understaffed

– 59% felt their company was at extreme or moderate risk due to shortage

– 36% said there is a shortage of skilled cyber professionals

- 805,000 cybersecurity professionals are estimated to be working in the United States

- 65% of organizations represented have a shortage of staff dedicated to cybersecurity

- Lack of skilled/experienced cybersecurity personnel is the top concern respondents

- More of a concern is lack of resources to do their jobs effectively

- 51% of cybersecurity professionals say their organization is at moderate or extreme risk due to cybersecurity staff shortage

Women have a majority presence throughout the world

So, where are they?

- There are 101 men to each 100 women worldwide

- Yet, women comprise only 20% of the global cybersecurity workforce

Women In Cybersecurity

What	Before	After
Representation of Women in the Cybersecurity Field	11 Percent in 2013	20 Percent in 2019 [1]
Representation of Women in F500 CISO Positions	13 Percent in 2017	20 Percent in 2019 [2]
Unfilled Cybersecurity Jobs	1 Million in 2014	3.5 Million in 2021 [3]

1. SOURCE: CYBERSECURITY VENTURES
2. SOURCE: FORRESTER RESEARCH
3. SOURCE: CYBERSECURITY VENTURES

CYBERCRIME MAGAZINE

Cybersecurity is losing women faster than they can hire them

- Of women who enter the cybersecurity field only **14%** of them remained in the field **5 years or longer**
  - This means less women in leadership
    - Less role models and mentors
    - Unbalanced workforce, making women feel less welcome, and they leave
  - Women still fall into, or get stuck with "old school" duties
    - Note taking in meetings
    - Technical "Housekeeping duties" - memos, documentation, follow-ups, etc. ➔ leads to less opportunity to shine ➔ leads to less promotions
  - With nowhere to promote, it lowers their incentive to remain

Women In Technology (WITI) Survey: Barriers Women Face

LACK OF MENTORS

LACK OF FEMALE ROLE MODELS IN THE FIELD

GENDER BIAS IN THE WORKPLACE

UNEQUAL GROWTH OPPORTUNITIES COMPARED TO MEN

UNEQUAL PAY FOR THE SAME SKILLS

Why Women Do Not Enter Cybersecurity Fields

- Lack of diversity

- Male-dominated culture and locker room environment

- Their skill sets are oftentimes not viewed as all that technical

- The job is viewed as in continuous crisis mode, making it difficult to keep sane work hours
  - Anyone who has a large caretaking role outside of work (e.g., family, children, eldercare, etc.) has a hard time working crazy crisis hours, which leads to burnout

- Politics in the workplace

Tech Workforce 2020 Survey: The Age & Gender Perception Gap

Conducted by ISACA for their "SheLeads Tech Program" - published October 2019

- 3,500 IT, InfoSec and Risk personnel surveyed

- 56% of women said lack of female role models leads to the under representation of women in the workforce

- Those over 50 years in age said there needs to be more education on cyber earlier in life and inclusion of more women in this education

- 32% of men surveyed said there aren't more women in Tech because they felt women find tech careers less appealing than non-technical careers

Forbes & Casey Ellis, Founder & CTO BugCrowd, on Cybersecurity

- Predicts 3.5 million openings globally in cybersecurity by 2021

- Approximately 350,000 cybersecurity openings in United States currently

Why Women Leave Technology Fields

- "Housework issue" (noted earlier, but worth repeating)
  - They take notes, write-up procedures, do the mundane tasks...

- Not Trusted with the Keys to the Network
  - They are viewed many times as not as technical, so there is hesitancy to let them have full control and access to all things technical

- Men often times don't listen to them, or discount what they say, or over-rule them
  - Some women find it hard to stand up for themselves and go toe-to-toe with men or their manager
  - *The **lack of advancement to leadership roles** is a major challenge they face, and relates to the biggest reason for women leaving their jobs - the lack of career growth/trajectory.*

- Crisis Mode – Lack of staff and planning lead to a re-active, crisis triage type of environment, which creates burnout

- Work versus Life Balance is off

Those who would consider switching jobs in the next year

70%

They consider themselves in play for job recruitment

The Under 30 Pros are Highly Mobile

49% have changed jobs within the past two years

39% say they will change jobs within the next two years

Top 5 Career Obstacles for both Men and Women
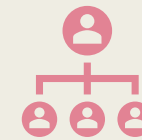
Limited access to career growth opportunities

Lack of mentors

Unequal growth opportunities

Lack of resources for training

Unsupportive management

"Tech professionals under 30 believe they MUST continuously drive to learn and build technical and leadership skills, or they will get left behind in an increasingly challenging and uncertain world. Thus, Millennial and Gen Z professionals use skill development as a critical metric in deciding whether to stay or leave a job. When they sense that skill development has stalled, the younger professional will leave, even if that means leaving a job after only a year.

– Caitlin McGaw
   President & Chief Recruiting Officer Candor McGaw, Inc.

Retaining Young Pros

The Gender Perception Gap

- Men surveyed thought more is being done to recruit & retain women than what is actually happening
  - 65% of men said their company has a program to recruit women
    - 51% of the women surveyed agreed

  - 71% of men said their company has a program to encourage the promotion /advancement of women
    - 59% of women agreed

- Clearly, there is a disconnect

ISACA SURVEY RESPONDENTS SAID:

I Must Work Harder than My Colleagues to demonstrate my skills

49% Women

44% Men

I lack confidence in my ability to negotiate my salary

74% Women

64% Men

Reasons that Diversity and Inclusion Improve Organizations

- A commitment to diversity & inclusion improves life and work for everyone.
  - Should reflect the community
  - Recruit women and minorities
  - The male majority should mentor and provide opportunities for women and minorities to shine, which gives them the opportunity to promote
  - Having more women in cybersecurity brings balance

Diversity of experience & thought = more creative thinking

Diversity in perspectives, leadership and experience is good for business
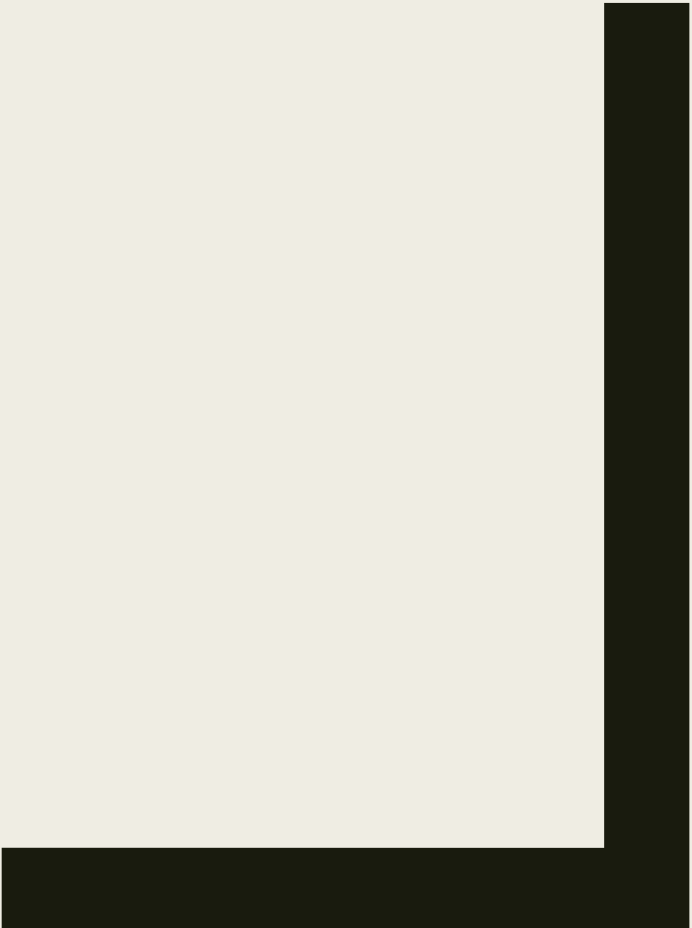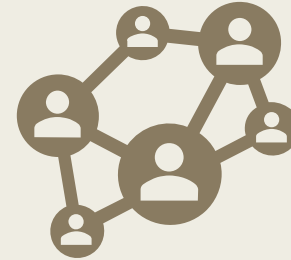
Threat actors and bad guys have disparate backgrounds

We need a wide variety of experience and backgrounds to be able to fight against them and think ahead of them

The wider variety of people defending our networks, the better the chance of success

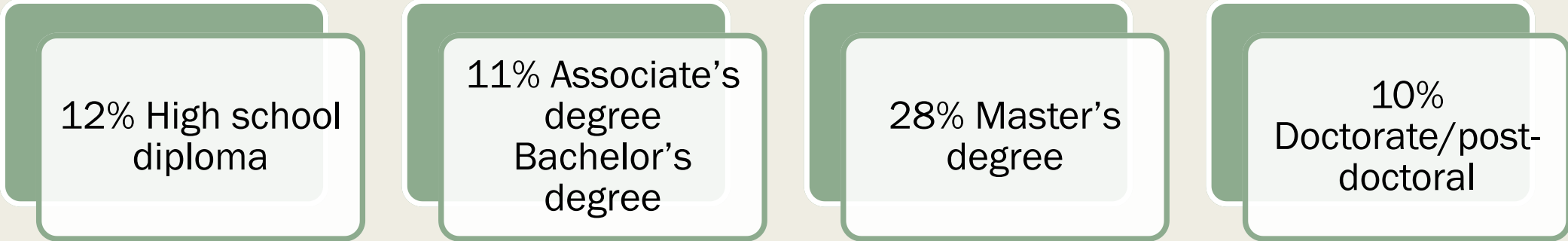# (ISC)² CYBERSECURITY WORKFORCE STUDY, 2019

Top Job Concerns Among Cybersecurity Professionals

- 36% Lack of skilled/experienced cybersecurity security personnel

- 24% Inadequate budget for key security initiatives

- 28% Lack of standard terminology for effective communication

- 27% Lack of resources to do my job effectively

- 24% Lack of work-life balance

Titles They Hold

- Exec/CXO • CISO

- IT Director

- IT Security Director

- IT Manager

- IT Security Manager

- Security Architect/Engineer

- Security Specialist

- Security Consultant/Advisor

- Security Analyst

- Security/Compliance Officer

- Security Administrator

- IT Staff

- Application Developer/Tester

Educational Backgrounds Cybersecurity Professionals Come From

12% High school diploma

11% Associate's degree Bachelor's degree

28% Master's degree
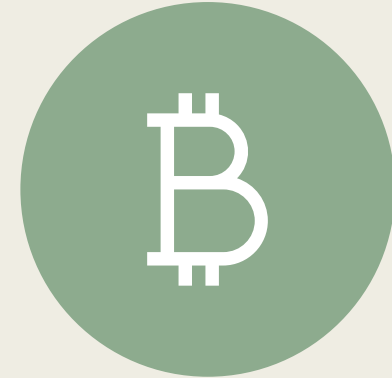
10% Doctorate/post-doctoral

Cybersecurity Professionals with Degrees Come From...

COMPUTER AND INFORMATION SCIENCES: 40%

ENGINEERING: 19%

BUSINESS: 10%

Key Items Hindering Career Progression

28% Cost of cybersecurity certifications

27% Unclear career path opportunities in cybersecurity roles

26% Lack of knowledge about cybersecurity skills within organizations

24% Not enough job experience in a cybersecurity role

24% Cost of formal education to properly prepare for career in cybersecurity

37% Paid for completely by employer

35% Paid for completely by myself

21% Paid for by a combination of me and an employer

7% Don't know

Who Pays for Certifications?

Top Recruiting Sources

28% Educational institutions/new university graduates

27% consultants/contractors

26% other departments within your organization

25% security/hardware vendors

24% career changers

"Some of the most talented information security professionals I've met did not come from the traditional IT background, but from other sectors. Information security is a great career-change option."
– (ISC)² Study participant

"To be an effective cybersecurity professional, you have to have a broad, detailed understanding of all components of IT, and those with cybersecurity certifications have skills far beyond what is required of other certifications."
– (ISC)² Study participant

So, what do we do?

- Identify your core business cybersecurity needs

- Make a plan to fill those needs (e.g., security roadmap, strategy, architecture, policies needed, etc.)

- Determine the skills needed to meet that plan
  - Craft job duties to fill those needs
  - Identify training needed

- Recruit potential staff from various areas (e.g., Technical Associations, Head-hunters looking for a diverse group of applicants, etc.)

- Individualize each position - You don't need an entire staff of the same skill set

- Set clear expectations, discuss job duties and provide training, and then repeat.

Proposed Solutions for Developing Cyber Careers

- Get Started Early
- K-12 Cyber-Awareness
  - Volunteer to speak to classes to share your cyber skills and knowledge
- Education
- Female Role Models
- Clubs and Organizations Targeted at Youth and Community Involvement
  - *Girl Scouts – Cyber Badges*
  - *Youth Challenges*
  - *Cyber Camps*
  - *Hack-A-Thons*

Men must be part of the solution

- ■ Become a teacher
  - – Share your time, talents and knowledge with less seasoned staff

- ■ Step back and give someone else the limelight
  - – Let them contribute, speak, share ideas, lead meetings and shine
  - – Encourage them to continue learning – help them when they flop to get up and try again
  - – Act as a mentor, sounding board and sponsor to grow and season them

- ■ Look to interview and promote diverse candidates who can hold their own to compete with others for the position

5 Steps to Recruiting & Retaining

1. Understand why staff depart
2. Understand why staff stay
3. Demonstrate opportunities for advancement
4. Keep compensation in regular review
5. Continually offer training and skill development

Understand What Motives Them to Stay

- Good life/work balance ← Top Reason!

- Interesting work – feeling of value

- Good compensation

Outline Opportunities for Advancement

- 2/3 of those surveyed felt they had topped out in their current job

- Felt they needed to leave to receive more pay, skills, new duties

Keep Current With Compensation – Stay Competitive

■ Compensation is the 2nd most stated reason people leave

  – *First is lack of interesting work*

Offer Continuous Training & Skill Development

■ Lack of training – insufficient skills

■ Inability to train to become certified – Companies want employees with Certs

Tips for Women Entering Cybersecurity

1 Don't be intimidated; take chances

2 Network and find mentors

3 Look for internal opportunities first

4 Act with confidence

5 Embrace learning

Women need to be bold and claim the spotlight for themselves

- Don't fall into or easily accept the "traditional" roles

- Continue to learn

- Speak up in meetings

- Take on assignments to display your skills

- Mentor others

Keep in Mind

- There is no "I" in TEAM – be part of the Team, don't sit on the bench – Break down the barriers

- Find places to Network with other Women in IT, or just IT in general
  - *You may find your mentor, role model there*
  - *It will help you build a support or Go-To group*

- HR should do focused recruitment of Women to diversify the workgroup

- Management may need to be trained to understand how women fit into the cyber workforce
  - *This means losing the perception that women maintain to high of a LIFE Balance compared to Work Balance. Studies show men struggle with the same life/work balance issues*

- Create paths for upward mobility and provide training to allow staff to compete for advancement
  - *This means putting the money there also*

The Challenge

Employers need to diversify the workforce
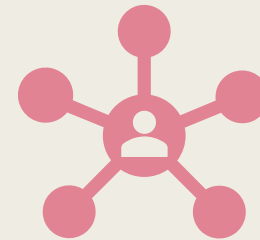
Stories of success should be shared

Once people hear it often enough, they begin to accept and implement it as the New Normal

Conclusion – We're on the right track – just not there

- The trend toward diversity, equity, and inclusion in cybersecurity is encouraging

- More large companies are talking about it and some, are taking real, visible, significant steps to improve, and are seeing the benefits.

ANY QUESTIONS?

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