Women and Minorities in Cybersecurity and STEM: Starting a Conversation

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Today's Agenda

- Current issues in cybersecurity
- Educating and training professionals
- Women and minorities in the cybersecurity arena

Cybersecurity Professionals Needed by the End of the Decade

We are a Connected World

We are Digitally Connected

- Computers opened the door
- The Internet opened the world

Cyber Attacks are Escalating

- The majority of Fortune 500 companies have been attacked

- Over 50% of small businesses have been attacked

Hacked by Those With Malicious Intent

Cyber Crime is Costly

The Losses are Staggering

- The global economy looses $1 trillion annually
- The US economy looses over $70 billion annually
- Credit card fraud costs merchants $190 billion annually
- Credit card fraud via ATMs costs banks $11 billion annually
- Identity theft costs Americans $37 billion annually
- Over 70 million individuals in the US were victims of cyber crime last year

Hackers are after DATA

Connections to the Internet

- Pathways to attack digital systems:

  Primary attack vector is the Internet

  - Insider attack
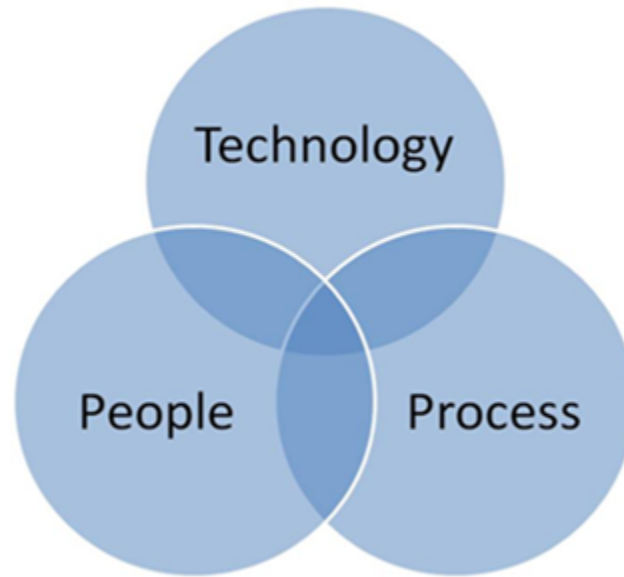 - Social engineering
  - Supply chain

Integrating the Domains

Cybersecurity is a *People Problem*

- Wired
- Wireless
- Mobile devices
- Physical access
- Supply chain

Points to Remember in Training

- Portable media
- Laptops
- Wireless
- Passwords
- Social Media
- Email
- Web browsing
- Social Engineering
- Review the Organization's Security Policy

How to Develop a Cybersecurity Culture

- We need to be concerned with *values* . . .
    - Cognitive
    - Psychomotor
    - Affective

Recommendations to Abide By

- Identify what you really need to protect

- Be aware of vulnerabilities

- Develop a strong password policy

- Educate and train employees

- Encrypt your data

- Keep software updated

Recommendations to Abide By

- Create detailed email and Internet policies
- Create a strong security policy, an effective incident response plan, and a disaster recovery plan
- Configure all devices properly
- Obtain cybersecurity insurance
- Change default settings
- Create a cybersecurity culture

Women in Cybersecurity and STEM

- Women currently make up over 50% of the US workforce
- Yet . . . less than 25% of STEM positions
- Less than 13% in cybersecurity positions
- Why is this situation as it is?

Minorities in Cybersecurity and STEM

- Minorities comprise 29% of the US workforce
- Yet. . . less than 15% of STEM positions
- Less than 8% in cybersecurity positions
- Why has this occurred?

Statistics

- Nearly half of students who enter STEM fields don't continue
- Only about 3% of minorities earn an engineering degree
- The majority of the STEM labor force positions go to people with BS or MS
- Job creation in the STEM field will far outpace non-STEM jobs
- In many states few women or minorities take advanced placement exams in computer science

Statistics

- Statistics from a MAJOR tech organization:
- 30% female
- 61% white
- 30% Asian
- 2% Black
- 3% Hispanic

Cybersecurity Statistics

- **Less than10%** of Black & Hispanics in Cybersecurity

Cyber Issues for Women and Minorities

- Numerous reasons for shortage in STEM
  - Traditional roles prior to school
  - Issues in schooling
  - Issues in the workplace
  - Issues at home with family

Women and Minorities in Traditional Roles

- Young women are often pushed into traditional roles by parents, family, counselors
- STEM jobs have not traditionally been filled by minorities and women

Women & Minorities in the School Setting

- Start ahead or equal to white males then fall behind
- Lack of attention by teachers
- Tremendous peer pressure to conform
- White males dominate in the classroom
- Poor guidance by counselors
- A geek image to STEM

Women and Minorities in the Workplace

- Limited promotion or pathway opportunities
- Unfriendly work environment
- Limited mentoring
- Pay inequity
- Limited bonding with peers

Issues on the Home Front

- Work conflicts with family time
- Lack of support
- Child care often takes precedence
- Long hours

Recommendations Pre-Workplace

- At home and in school create openness to broaden horizons
- Improve guidance counseling in school
- Train teachers to create level playing field in the classroom
- Establish mentoring programs
- Provide STEM role models
- Increase internships

Recommendations in Workplace

- Establish an accepting environment
- Create pay equity for male and female
- Establish equal pathways for promotion
- Establish child care opportunities
- Create flex hours

Cybersecurity: Future Trends

- Cyberattacks will increase and become more sophisticated

- No perfect solution to prevent hacking on the horizon

- Cybersecurity will evolve as will attacks

- Increased accountability on the individual/organizational level

- Demand for cybersecurity professionals will grow

- Women and minorities numbers increasing

- Security awareness will increase

The Future

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