Business Acumen for the Graduating Cybersecurity / InfoSec Student

National Cybersecurity Student Association

NATIONAL
CYBERSECURITY
STUDENT ASSOCIATION

CyberStudents.org

Overview

- Introductions
- Define Business Acumen
- Identify Business Acumen Skills and Behaviors
- Cybersecurity and Business Acumen
- Tying It All Together
- Resources ~ Future Plans

Welcome and Introductions

Jo Portillo, Founding Executive Director, National Cybersecurity Student Association

- Ed.D Instructional Technology and Leadership, Nova Southeastern University

Jessa Gramenz, Director of Communications of NC Student Association

- B.A. Computing Technology at the University of North Texas (UNT)

Gustavo Hinojosa, Executive Director of National Cybersecurity Student Association

- M.S. Cybersecurity at the University of Maryland University College (UMUC)

Vitaly Ford, Chapter Development Director of NC Student Association

- PhD Computer Science at Tennessee Tech University (TN Tech)

Reflection and Journaling

- Purpose
- What's in it for you?
- How is it done?
- What do we do with it?

#whoami

Introductions
- Name
- Role (student, faculty member, Industry partner, etc.)
- Organization

#think

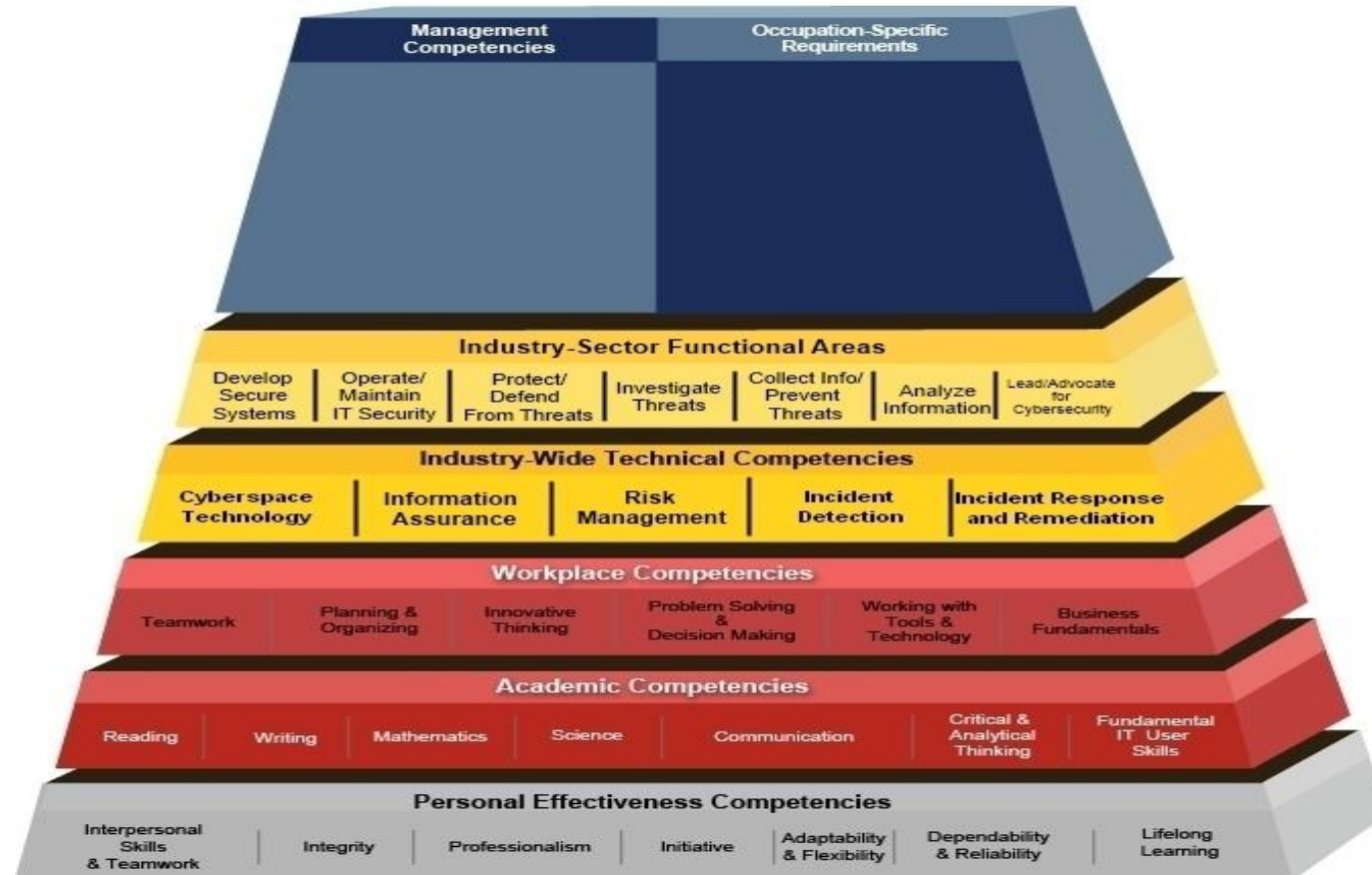What happens when you do not see the big picture?
a) Opportunities are focused
b) Opportunities are overlooked
c) Nothing
d) Growth is enhanced

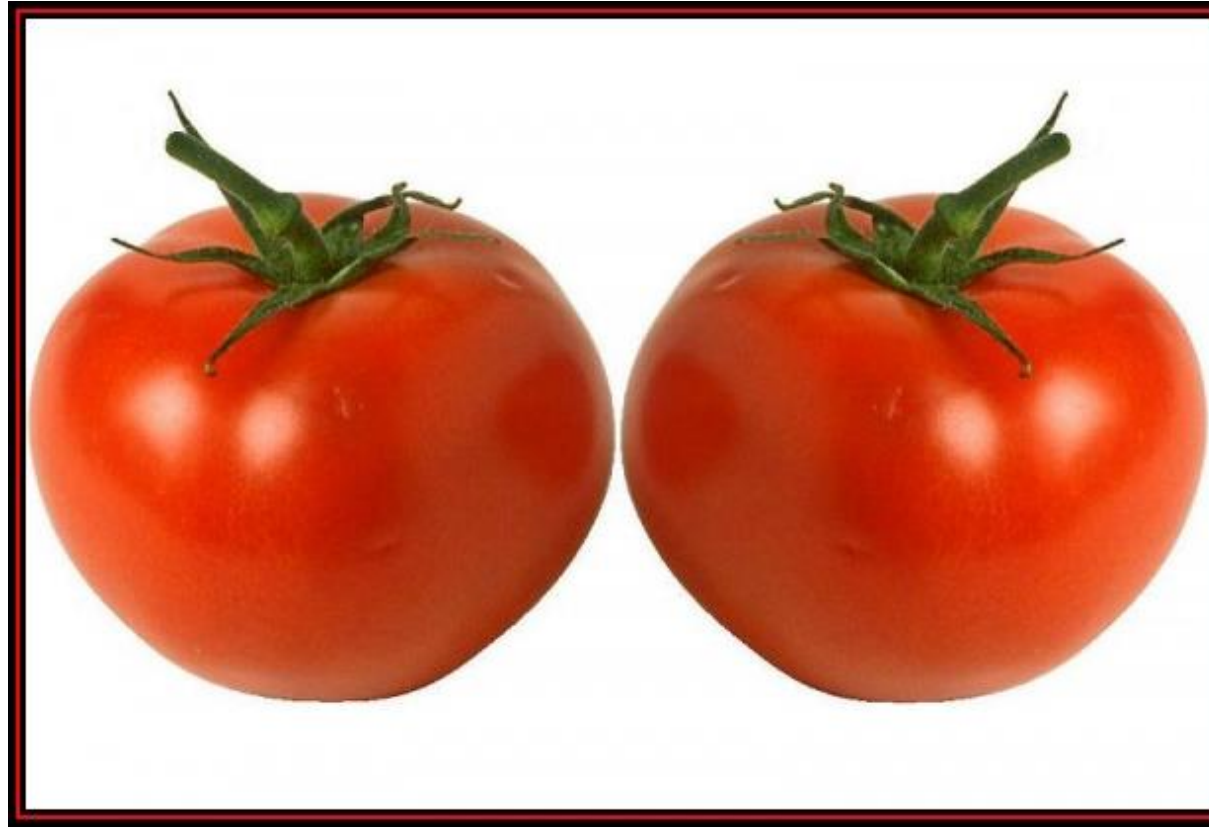# #think

What do most people focus their energy on at work?
a) Big picture
b) Interests
c) Specific roles
d) Company roles

Information Technology Model

Pyramid diagram of the Information Technology / Cybersecurity competency model, from top to bottom:

Management Competencies | **Occupation-Specific Requirements**

Industry-Sector Functional Areas

| Develop Secure Systems | Operate/ Maintain IT Security | Protect/ Defend From Threats | Investigate Threats | Collect Info/ Prevent Threats | Analyze Information | Lead/Advocate for Cybersecurity |

Industry-Wide Technical Competencies

| Cyberspace Technology | Information Assurance | Risk Management | Incident Detection | Incident Response and Remediation |

Workplace Competencies

| Teamwork | Planning & Organizing | Innovative Thinking | Problem Solving & Decision Making | Working with Tools & Technology | Business Fundamentals |

Academic Competencies

| Reading | Writing | Mathematics | Science | Communication | Critical & Analytical Thinking | Fundamental IT User Skills |

Personal Effectiveness Competencies

| Interpersonal Skills & Teamwork | Integrity | Professionalism | Initiative | Adaptability & Flexibility | Dependability & Reliability | Lifelong Learning |

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What is Business Acumen ?

Industry Definitions of Business Acumen

- a keenness and quickness in understanding and dealing with a business situation in a manner that is likely to lead to a good outcome" (Wikipedia, 2012).

- "the ability to make good judgments and quick decisions". (Oxford English Dictionary).

- "the knowledge and understanding of the financial, accounting, marketing and operational functions of an organization." Society for Human Resource Management (SHRM).

Industry Experts on Business Acumen

"Businessmen must move with the times…the correlation between knowledge and business as the key to success is closer than ever." – Li Ka Shing

"Know your numbers' is a fundamental precept of business." – Bill Gates

NC Student Association Advisory Board Member Quotes

"How have you prepared for the first role in your future career? While an education is a great start, understanding the business environment that you will be working in will give you an advantage over others in your field. We spend years preparing for our future career, but recent graduates often underestimate the importance of educating ourselves about our future employer." - Jessa Gramenz, Director of Communications at National Cybersecurity Student Association

"True business acumen is developed by learning from success and from failure." – Carl Willis-Ford, Senior Principal at CSRA.org

Business Skills & Behaviors

- Know your Organization

- Communication

- Emotional Intelligence

- Women in the Workplace

- Multi Generations

- Building Connections

- Interviewing Acumen
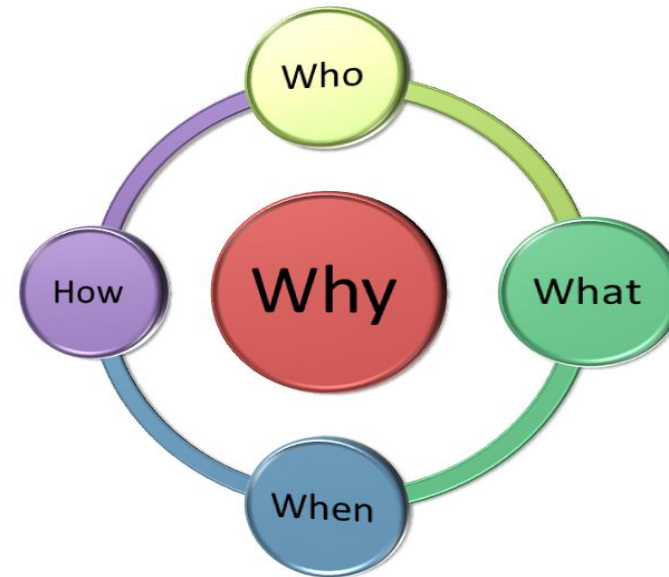
Understand the Organization's Story

1. Mission, Vision, Goals

2. Culture

3. Structure

4. Your role and the difference it makes

5. What are some of the challenges with the organizations structure?

Understand the Organization's Story

- Identify business units and functions within the organization

- Identify key performance indicators and why they are important to you

- Recognize the language, jargon, and financial terms used organization-wide

- Can you describe the organizations competitive advantage?

- HOW does the organization make Money?

Organizational Structure Acumen

Organizational structure determines how the roles, power and responsibilities are assigned, controlled, and coordinated, and how information flows between the different levels of management.

Why is it important to learn about your organization?

While cybersecurity was once relegated to a technical or operational issue handled by IT, a cross-departmental, enterprise-wide approach to cybersecurity is necessary.

http://www.businessdictionary.com/definition/organizational-structure.html
https://www.grantthornton.com/issues/library/survey-reports/advisory/2015/FEI-CFO-Study/org-structure-around-cybersecurity.aspx

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Organizational Structure Acumen

- **IT** owns the tools, such as the firewalls, antivirus software, password controls and mobile device management.

- **Legal** is our partner in terms of consultation, and they approve the data protection policies that we have in place. They also push out the data protection policies and report on compliance for any legal or regulatory obligations.

- **HR** is our change management partner, communicating to the organization in partnership with IT. And they also approve, and are consulted in terms of data protection policies, because they own a significant portion of employee information.

- **Finance** not only provides the funding and the resources around data protection, but they also are consulted with and approve the data protection policies.

Organizational Structure Acumen

SWOT

- How does the organization make money?

- What is the impact on the bottom line?

- What does the organization have to offer?

- What are the threats, risk and vulnerabilities?

- Business impact analysis (BIA)?
  - disruption, privacy, financial, reputation, legal

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Organizational Structure Acumen

- How to research about the organization that your going into
  - Website, github => mission, main focus, projects, collaborations
  - Networking on social media
  - How are you fitting in there?
  - Understand departmental and your personal responsibilities

- Conveying your message
  - Describing cyber attacks and steps to mitigation
  - Technical Reporting vs Reporting to Executives

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Financial Aspects of Business

- The organizational market

- The management structure

- Clients/customers

- Ownership types

- The age of the business

- Laws and regulations – industry and region

Common Financial Terms

- Cash flow
- Budget
- Asset
- Liabilities
- Capital
- Balance sheet
- Revenue (gross vs. net)
- Expenses
- Return on Investment

Communication

Jargon ~ Lingo Examples

- SWOT Analysis
- Plug and Play
- Get your Ducks in a Row
- Band Width
- Bang for your Buck
- Cookie
- Rubber Check
- Picked-Off
- Sweat Equity
- GOHIO

CORPORATE JARGON

Your climb up the corporate ladder is directly related to your ability to get the bandwidth to ping someone to discuss the low hanging fruit and incentivise a sustainable solution by COB for all the business owners in the trenches.

Abbreviations ~ Acronyms

Why is it important to understand your industry abbreviations?
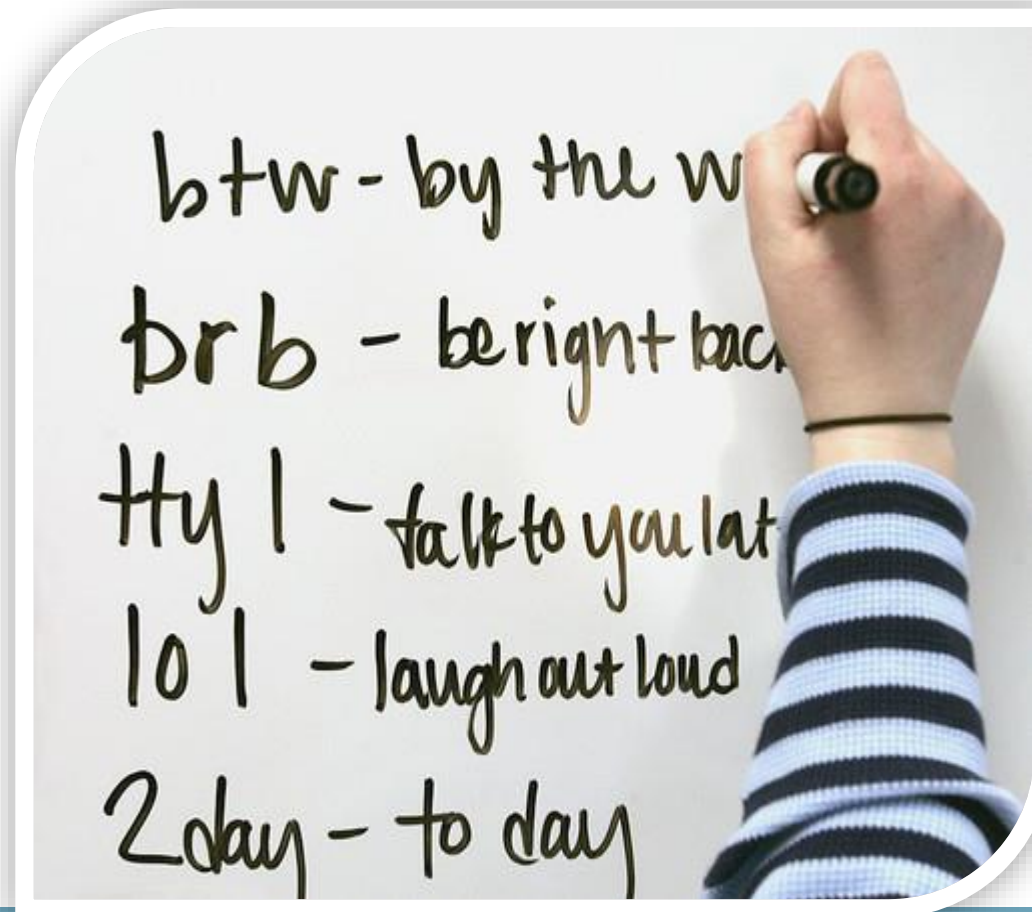
Your Role

Every Industry uses different terms that build a common thread for those who are employed

CSRF   Cross-Site Request Forgery
CSRF   Control Systems Research Facility

"Somebody have just exploited CSRF!"

Learn the
Terminology
we use to help
tell our stories

Effective Communication

1. Listen
2. Be personal – use names
3. To the point
4. Let others talk
5. Manage your attitude
6. Manage your body language

Emotional Intelligence (EI)

	I	**US / THE OTHERS**
RECOGNITION	**SELF-AWARENESS** • Emotional Self-Awareness • Awareness of my own strengths and limitations • Self confidence	**SOCIAL AWARENESS** • Empathy • Organizational Awareness • Service Orientation
REGULATION	**SELF-MANAGEMENT** • Self-control • Transparency: honestity, integrity • Adaptability • Achievement drive • Initiative	**RELATIONSHIP MANAGEMENT** • Leadership and Influence • Building bonds • Helping others to develop • Change management • Conflict management

HOW TO USE EMOTIONAL INTELLIGENCE TO IMPROVE CUSTOMER SERVICE

with IT customer service expert
and author Don R. Crawley
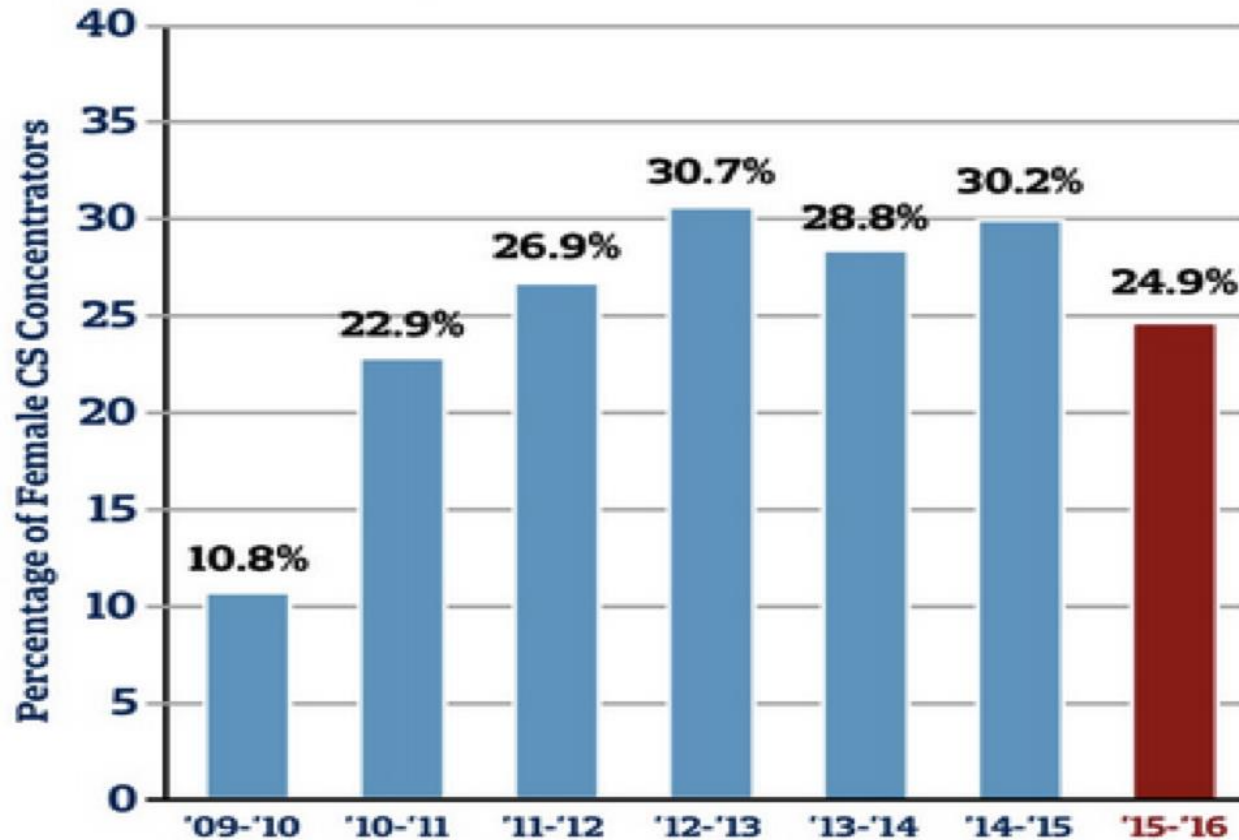
www.doncrawley.com
(206) 988-5858

Being a Woman in a Male Dominated Workplace

Female Computer Science Concentrators

Percentage of Female CS Concentrators

- '09-'10: 10.8%
- '10-'11: 22.9%
- '11-'12: 26.9%
- '12-'13: 30.7%
- '13-'14: 28.8%
- '14-'15: 30.2%
- '15-'16: 24.9%

http://www.thecrimson.com/image/2016/2/23/women-in-cs-graph/
5/23/2016

Numbers

Women only make up 11% of our field.

Perspective

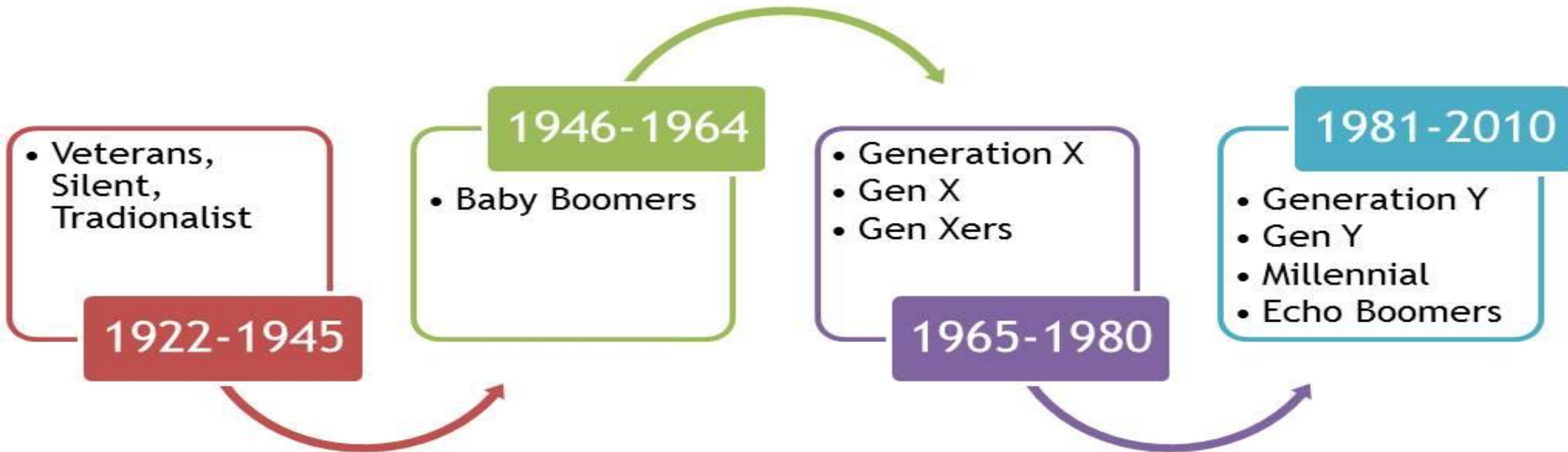The glass ceiling is an artificial boundary, don't just test it… exceed it.

Type A != Fun

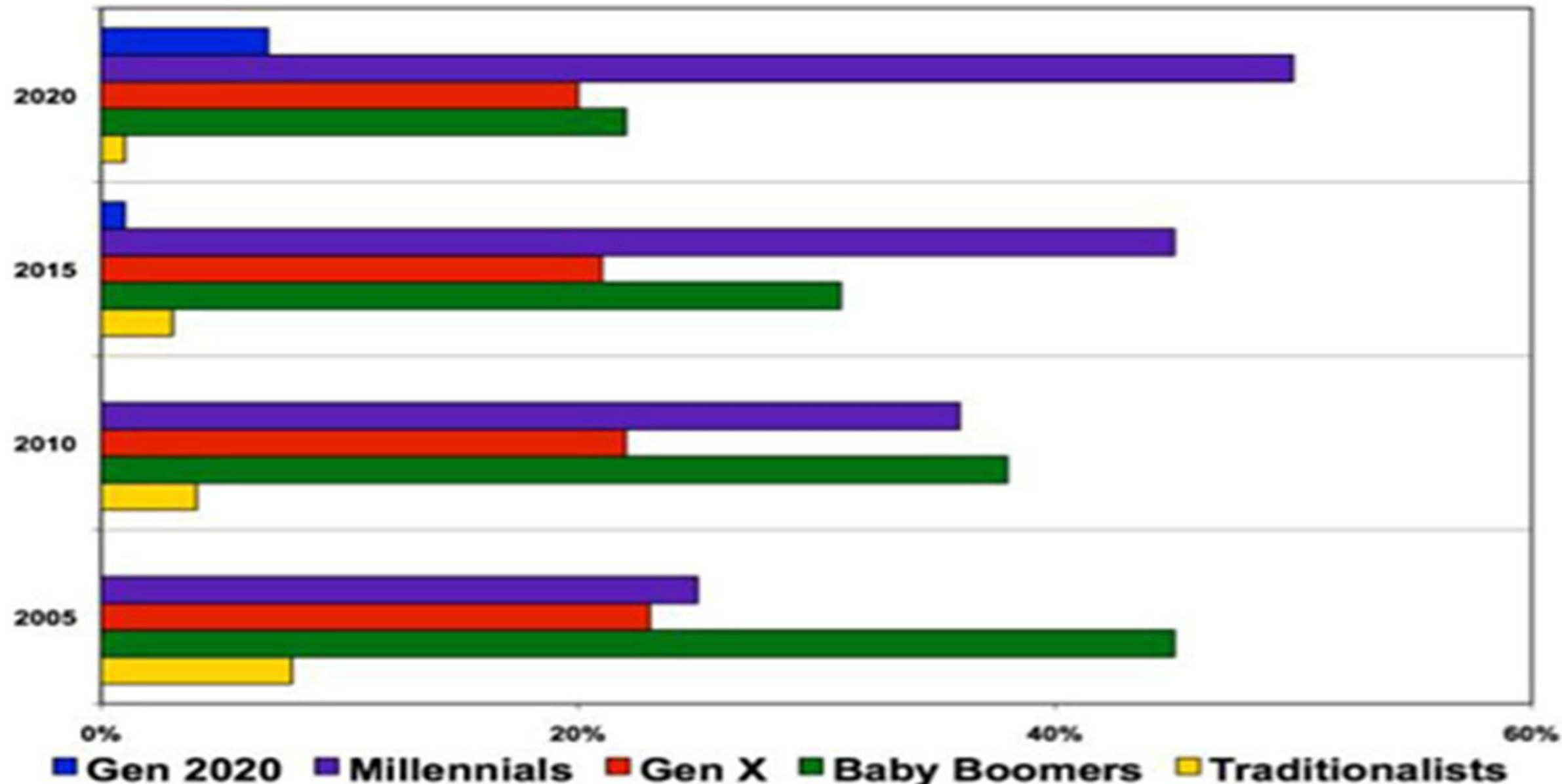Put a positive spin on a negative situation

There are Perks!

No line for the bathroom

The field is eager for diversity

Multi-Generations in the Workplace

1922-1945
- Veterans, Silent, Tradionalist

1946-1964
- Baby Boomers

1965-1980
- Generation X
- Gen X
- Gen Xers

1981-2010
- Generation Y
- Gen Y
- Millennial
- Echo Boomers

Five Generations in the Workplace

Bureau of Labor Statistics Employment Projections

Building Connections

- Knowledge

- Collaboration

- Creativity

- Confidence

- Mentorship

- https://www.facebook.com/pg/CyberStudents.org/videos/

Finding and Utilizing a Mentor

Step 1: **Find a Mentor**
- Networking, family, friends, instructors, coworkers
- Get their contact information
- Ask if they can commit to mentoring

Step 2: **Study Your Mentor**
- Find out their specialty. Capitalize on their strengths to learn from them

Step 3: **Utilize Your Mentor**
- Understand they will be busy
- Make the process easy for them
- Ask the right questions

Interview Acumen

Intro to interview Acumen

Why is it important?
- Understanding your organization
- Doing research on your company
  - Glassdoor, LinkedIn, Google Search

Mock Interview Questions

- What are some of your most significant accomplishments?

- How would you describe your ideal job?

- If you had to recruit for this position, what are the top things you would look for in a candidate?

- Why do you think manhole covers are round?

- How do you want the work you do to be remembered?

Questions to Ask During the interview

- What exactly are the job responsibilities?
- What would my first project be if I am hired?
- How did this position become available?
- What type of development opportunities does the job and the company offer?
- Are continuing education and professional training stressed?
- How do you see me benefiting the company?
- Who would be my manager if I am hired?
- When will you make a decision on the successful candidate?
- May I contact you if I have other questions?

Written & Unwritten Norms

Know the environment and culture at the company

- What is the culture?
  - How is the hierarchy established?
  - Is there a white glove treatment with high profile employees and clients?
  - How to gauge the professional interactions with coworkers

- What is the dress code?
  - Business casual
  - Business professional

DRESS CODES

WOMEN'S

Business - Formal   Business   Business Casual   Smart Casual   Casual

Reflection TIME

Are you communicating successfully and effectively to influence others or are you just talking?

Cybersecurity Business Acumen

"Understanding and communicating the business case for cybersecurity is an essential skill for students in our Computer Information Systems program at Cal Poly Pomona."
- Dr. Dan Manson, Professor and Department Chair in Computer Information Systems

Certification Routes

Entry

- **MTA:** Microsoft Technology Associate Net|Sec
- **CompTIA A+|Net+|Sec+|Linux+|Cloud+**
- **GSEC:** SANS GIAC Security Essentials
- **CCENT:** Certified CISCO Entry
- **GISF:** Information Security Fundamentals
- **ISACA:** CSX Cybersecurity Fundamentals Certificate

Mid

- **CCNA:** Certified CISCO Networking Associate
- **CEH:** Certified Ethical Hacker
- **CEH-SA:** CEH Security Analyst
- **SSCP:** Systems Security Certified Practitioner
- **CompTIA CSA+:** Cybersecurity Analyst

Advanced

- **CISSP Associate:** Certified Information Systems Security Professional
- **CISM:** Certified Information Security Manager
- **OSCP:** Offensive Security Certified Professional

Cybersecurity Business Acumen

The National Initiative for Cybersecurity Education (NICE) developed the NICE Cybersecurity Workforce Framework (NCWF)

- 7 categories
- 30 specialty areas
- 50 work roles
- csrc.nist.gov/nice/framework/

NIST
National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce
http://csrc.nist.gov/nice/framework/
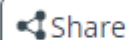
PROTECT AND DEFEND — INCIDENT RESPONSE

Responds to crisis or urgent situations within the pertinent domain to mitigate immediate and potential threats. Uses mitigation, preparedness, and response and recovery approaches, as needed, to maximize survival of life, preservation of property, and information security. Investigates and analyzes all relevant response activities.

TASK / KSA

ID	Statement	Competency
29	Knowledge of data backup, types of backups (e.g., full, incremental), and recovery concepts and tools	Computer Forensics
50	Knowledge of how network services and protocols interact to provide network communications	Infrastructure Design
60	Knowledge of incident categories, incident responses, and timelines for responses	Incident Management
61	Knowledge of incident response and handling methodologies	Incident Management
66	Knowledge of intrusion detection methodologies and techniques for detecting host- and network-based intrusions via intrusion detection technologies	Computer Network Defense
81	Knowledge of network protocols (e.g., Transmission Control Protocol and Internet Protocol [TCP/IP], Dynamic Host Configuration Protocol [DHCP]) and directory services (e.g., Domain Name System [DNS])	Infrastructure Design
87	Knowledge of network traffic analysis methods	Information Systems/Network Security

Cybersecurity Supply/Demand Heat Map

Cybersecurity talent gaps exist across the country. Closing these gaps requires detailed knowledge of the cybersecurity workforce in your region. This interactive heat map provides a granular snapshot of demand and supply data for cybersecurity jobs at the state and metro area levels, and can be used to grasp the challenges and opportunities facing your local cybersecurity workforce.
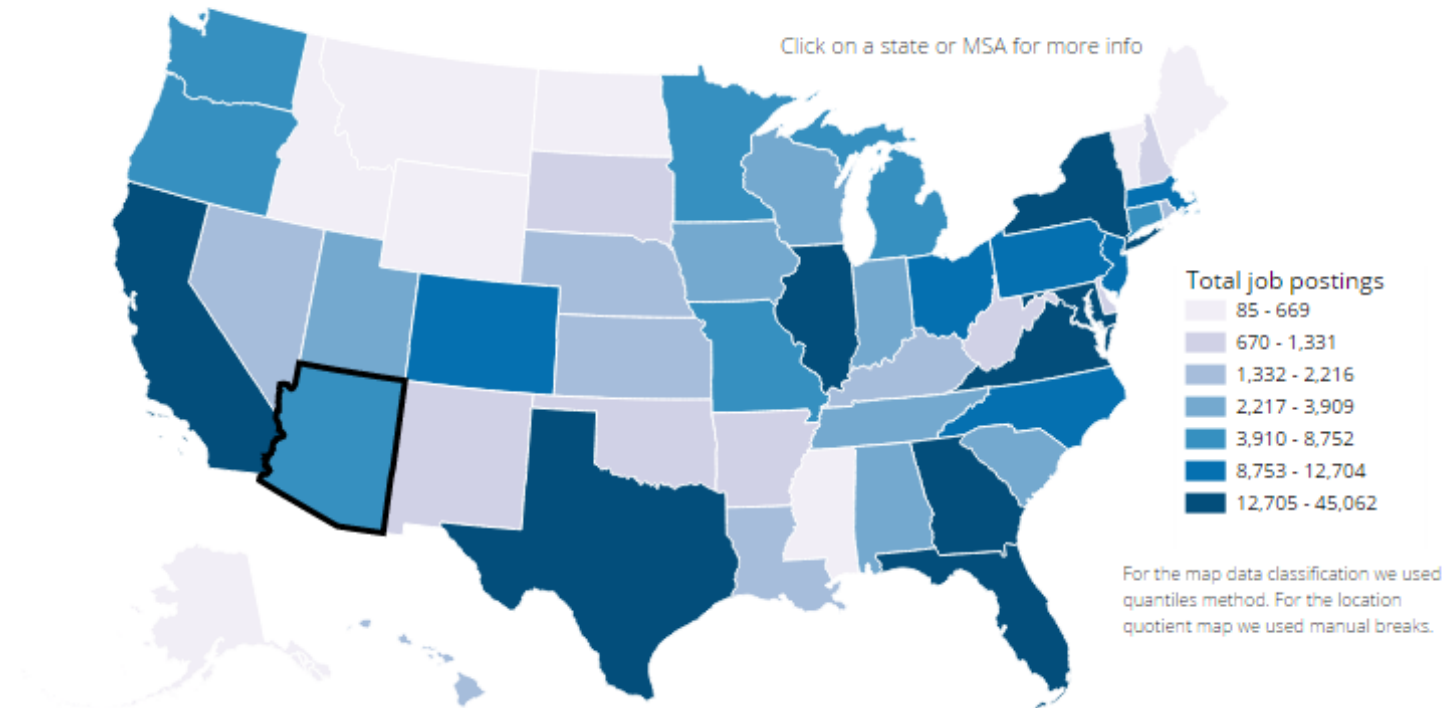
[◄ Share]

Click on a state or MSA for more info

Total job postings

	85 - 669
	670 - 1,331
	1,332 - 2,216
	2,217 - 3,909
	3,910 - 8,752
	8,753 - 12,704
	12,705 - 45,062

For the map data classification we used quantiles method. For the location quotient map we used manual breaks.

Arizona

TOTAL CYBERSECURITY JOB OPENINGS ⓘ	SUPPLY OF CYBERSECURITY WORKERS ⓘ	GEOGRAPHIC CONCENTRATION ⓘ	TOP CYBERSECURITY JOB TITLES ⓘ
8,447	**Very Low**	**High**	• Cyber Security Analyst / Specialist
	CYBERSECURITY WORKFORCE SUPPLY/DEMAND RATIO	LOCATION QUOTIENT	• Cyber Security Engineer
TOTAL EMPLOYED CYBERSECURITY WORKFORCE	AZ	AZ	• Auditor
	1.7	**1.3**	• Network Engineer / Architect
14,339			• Systems Administrator
			• Systems Engineer
	National average	National average	• Risk Manager / Analyst
	2.2	**1.0**	• Software Developer / Engineer
			• Systems Analyst

http://cyberseek.org

POSTINGS BY NICE CYBERSECURITY WORKFORCE FRAMEWORK CATEGORY ⓘ

Operate & Maintain	**Securely Provision**	**Analyze**
6,024	4.3 **4,223**	**3,318**
Protect & Defend	**Oversee & Govern**	
	2,294	
	Collect & Operate	
3,158	**1,460**	**638**

CERTIFICATION HOLDERS / OPENINGS REQUESTING CERTIFICATION ⓘ

🟧 Certification holders　🟦 Openings requesting certification

RATIO

Security+
3,924
916
4.3

Certified Information Privacy Professional (CIPP)
76
35
2.2

Certified Information Systems Security Professional (CISSP)
1,530
2,227
0.69

Certified Information Security Manager (CISM)
267
790
0.34

Certified Information Systems Auditor (CISA)
467
1,402
0.33

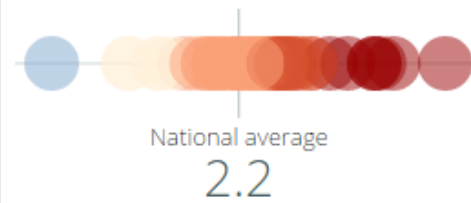# National level

TOTAL CYBERSECURITY JOB OPENINGS ⓘ

348,975

TOTAL EMPLOYED CYBERSECURITY WORKFORCE

778,402

SUPPLY OF CYBERSECURITY WORKERS ⓘ

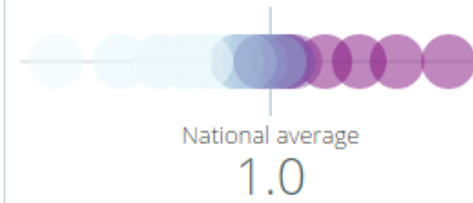## Very Low

CYBERSECURITY WORKFORCE SUPPLY/DEMAND RATIO

National average
2.2

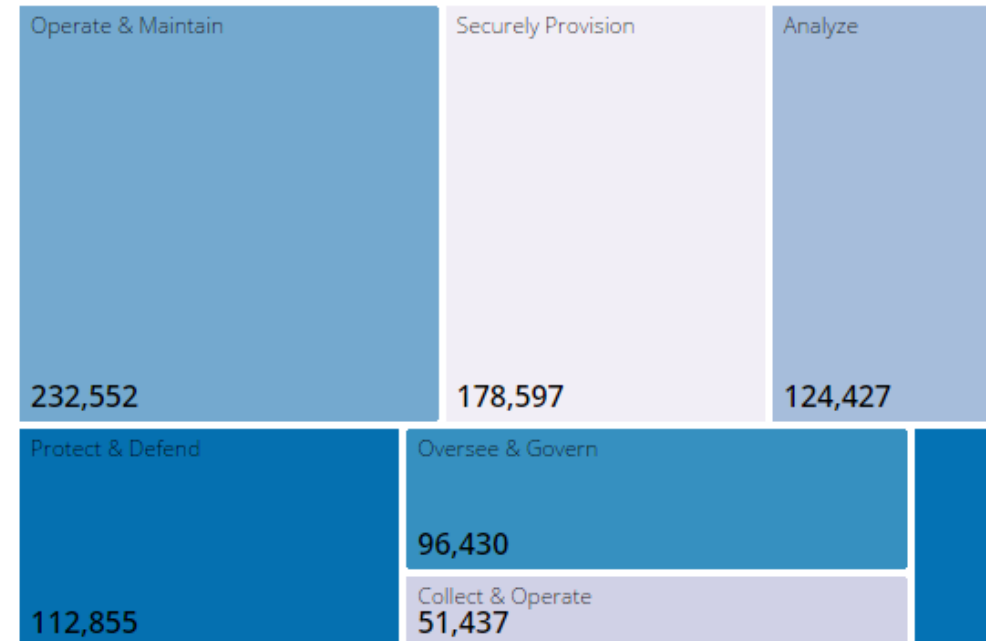**GEOGRAPHIC CONCENTRATION** ⓘ

Average

LOCATION QUOTIENT

National average
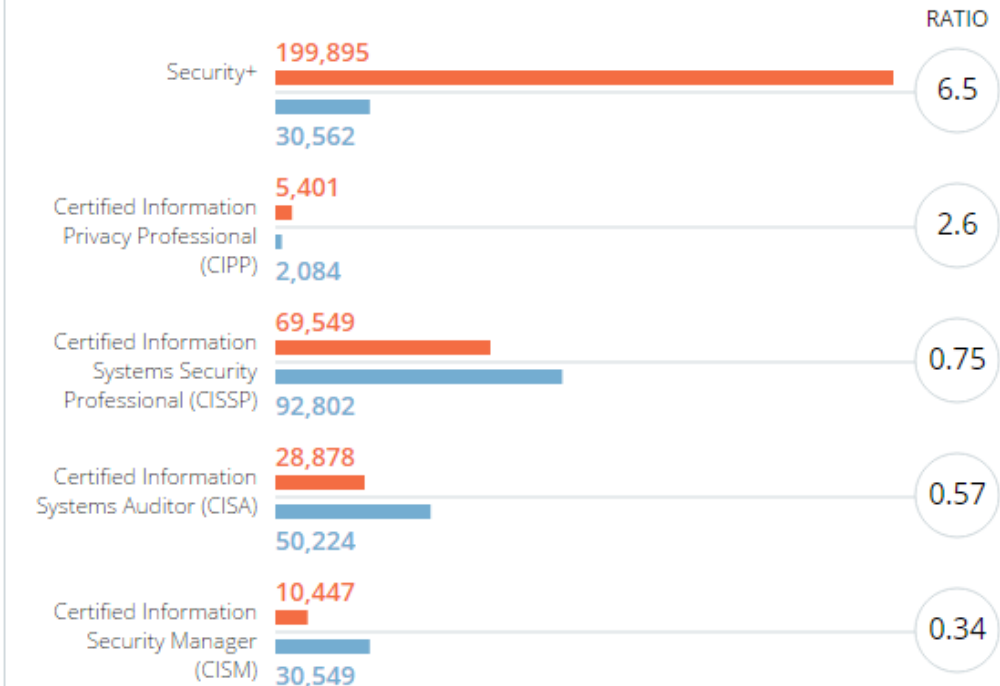1.0

TOP CYBERSECURITY JOB TITLES ⓘ

- Cyber Security Analyst / Specialist
- Cyber Security Engineer
- Auditor
- Network Engineer / Architect
- Software Developer / Engineer
- Systems Engineer
- Systems Administrator
- Information Assurance Engineer / Analyst
- Risk Manager / Analyst

POSTINGS BY NICE CYBERSECURITY WORKFORCE FRAMEWORK CATEGORY ⓘ

Operate & Maintain	Securely Provision	Analyze
232,552	178,597	124,427

Protect & Defend	Oversee & Govern	
112,855	96,430	
	Collect & Operate 51,437	

CERTIFICATION HOLDERS / OPENINGS REQUESTING CERTIFICATION ⓘ

🟧 Certification holders   🟦 Openings requesting certification

RATIO

Security+
199,895
30,562
6.5

Certified Information Privacy Professional (CIPP)
5,401
2,084
2.6

Certified Information Systems Security Professional (CISSP)
69,549
92,802
0.75

Certified Information Systems Auditor (CISA)
28,878
50,224
0.57

Certified Information Security Manager (CISM)
10,447
30,549
0.34

How will your Actions and Behaviors add VALUE?

Resources

- News/technical write-ups: https://www.reddit.com/r/netsec/
- Free IT/CS books (including a set of security books): https://github.com/vhf/free-programming-books/blob/master/free-programming-books.md#professional-development
- Wired threat level: https://www.wired.com/category/security/threatlevel/
- Tech news: http://www.theverge.com/
- Hacker news: https://news.ycombinator.com/
- Security investigations: https://krebsonsecurity.com/
- Podcasts: https://securityweekly.com/podcasts/
- Conferences: http://infosecevents.net/calendar/ (DefCon, DerbyCon, BSides)
- E-books on IT and security: http://www.allitebooks.com/

Wrap up ~ Tying it all together

- Recap

- Planning for future

- A Facebook follow-up Live session
  - Every 1st & 3rd Saturday of month @ 1pm EST

- NCSA's WiCyS PPTX
  - Cyberstudents.org under Resources

- Time for QUESTIONS?

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