Closing the Gap in Cybersecurity Talent: Another Approach

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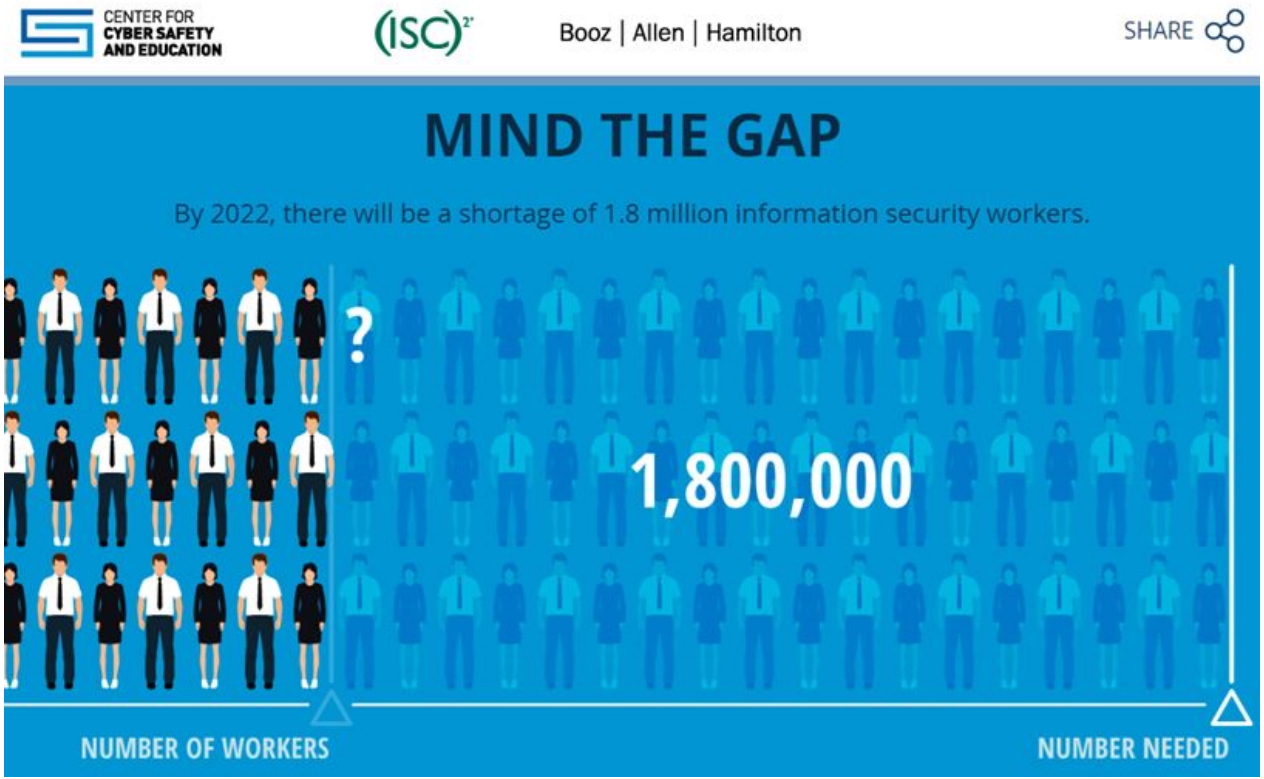
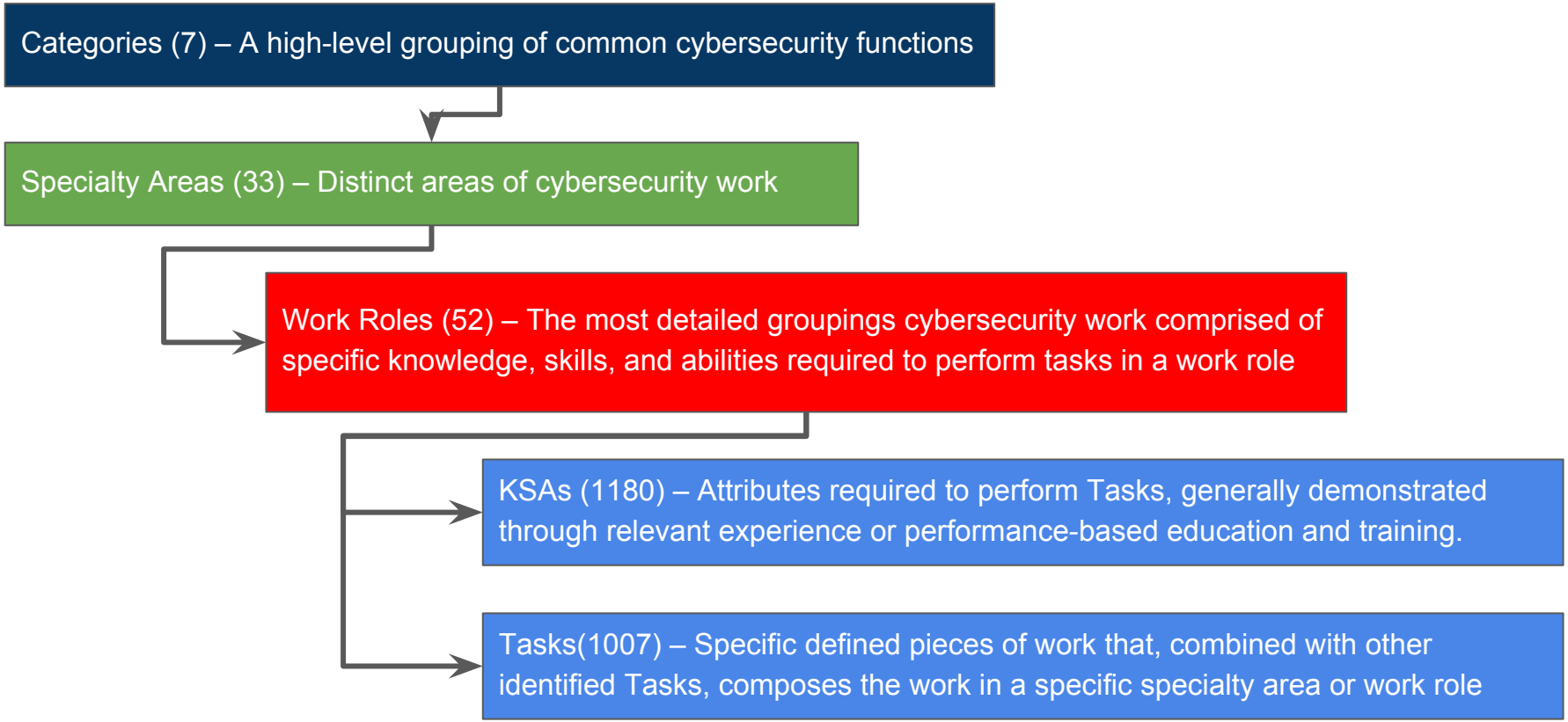
The 1.8 Million Gap



NIST NICE Cybersecurity Workforce Framework



52 Work Roles

Authorizing Official/Designating Representative
Security Control Assessor
Software Developer
Secure Software Assessor
Enterprise Architect
Security Architect
Research & Development Specialist
Systems Requirements Planner
System Testing and Evaluation Specialist
Information Systems Security Developer
Systems Developer

Database Administrator
Data Analyst
Knowledge Manager
Technical Support Specialist
Network Operations Specialist
System Administrator
Systems Security Analyst

Cyber Legal Advisor
Privacy Officer/Privacy Compliance Manager
Cyber Instructional Curriculum Developer
Cyber Instructor
Information Systems Security Manager
Communications Security (COMSEC) Manager
Cyber Workforce Developer and Manager
Cyber Policy and Strategy Planner
Executive Cyber Leadership
Program Manager
IT Project Manager
Product Support Manager
IT Investment/Portfolio Manager
IT Program Auditor

Cyber Defense Analyst
Cyber Defense Infrastructure Support Specialist
Cyber Defense Incident Responder
Vulnerability Assessment Analyst

Threat/Warning Analyst
Exploitation Analyst
All-Source Analyst
Mission Assessment Specialist
Target Developer
Target Network Analyst
Multi-Disciplined Language Analyst

All Source-Collection Manager
All Source-Collection Requirements Manager
Cyber Intel Planner
Cyber Ops Planner
Partner Integration Planner
Cyber Operator

Cyber Crime Investigator
Law Enforcement /CounterIntelligence Forensics Analyst
Cyber Defense Forensics Analyst

Challenges

1. NIST NICE requires all IT professionals become security professionals
2. Don’t have enough young adults interested in STEM or security
3. US does not produce enough CS/security graduate

4. We need to re-educate experienced professionals into cybersecurity field to fill the gap

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Learn how to detect threats, protect systems and networks, and anticipate potential cyber attacks.
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Computer Forensics

Learn the process, techniques and tools for performing a digital forensics investigation to obtain data related to computer crimes.
Learn more

Cybersecurity Risk Management

Learn key principles of risk analysis, risk assessment and risk mitigation for information security.
Learn more

Network Security

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Learn more

Cybersecurity Capston

Demonstrate the knowledge and skills acquired in the Cybersecurity MicroMasters Program
Learn more

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CERTIFICATE *of* ACHIEVEMENT

R·I·T

This is to certify that

[redacted]

successfully completed and received a passing grade in

CYBER502x: Computer Forensics

a course of study offered by RITx, an online learning initiative of Rochester Institute of Technology through edX.

David C. Munson Jr.
President
Rochester Institute of Technology

Jeremy Haefner
Provost and Senior Vice President for Academic Affairs
Rochester Institute of Technology

edX

VERIFIED CERTIFICATE
Issued July 20, 2017

VALID CERTIFICATE ID
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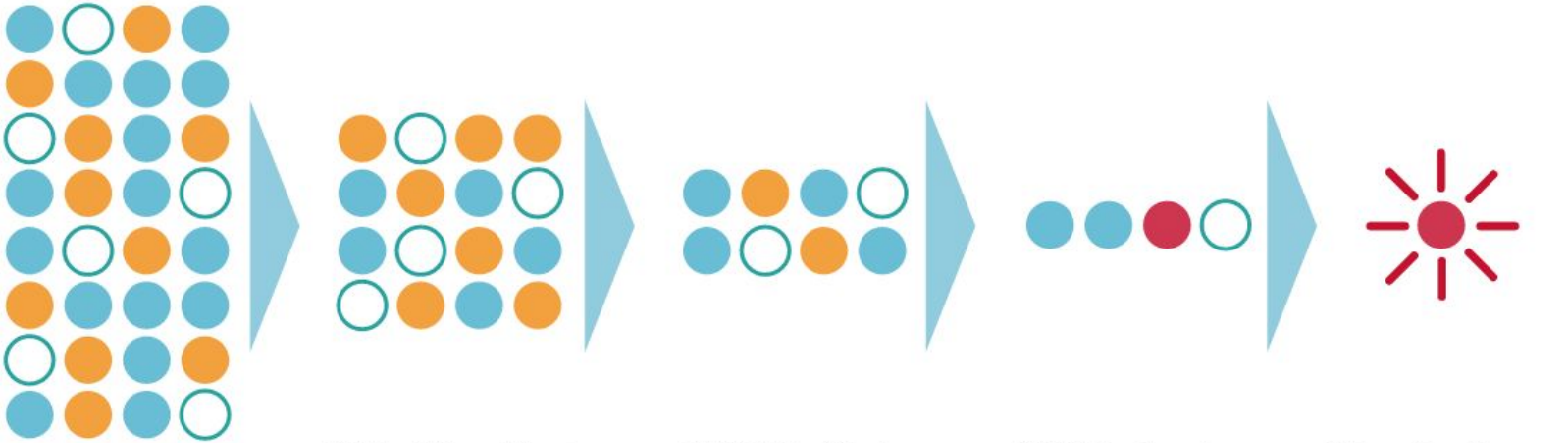
RITx MicroMasters in Cybersecurity



A New Pipeline for Cybersecurity

1. RITx MicroMaster in Cybersecurity on edX (9 credits equivalent)

   CYBER501x – Cybersecurity Fundamentals
   CYBER502x – Computer Forensics
   CYBER503x – Cybersecurity Risk Management
   CYBER504x – Network Security
   CYBER525x – Cybersecurity Capstone

2. RIT Advanced Certificate in Cybersecurity (12 credits)

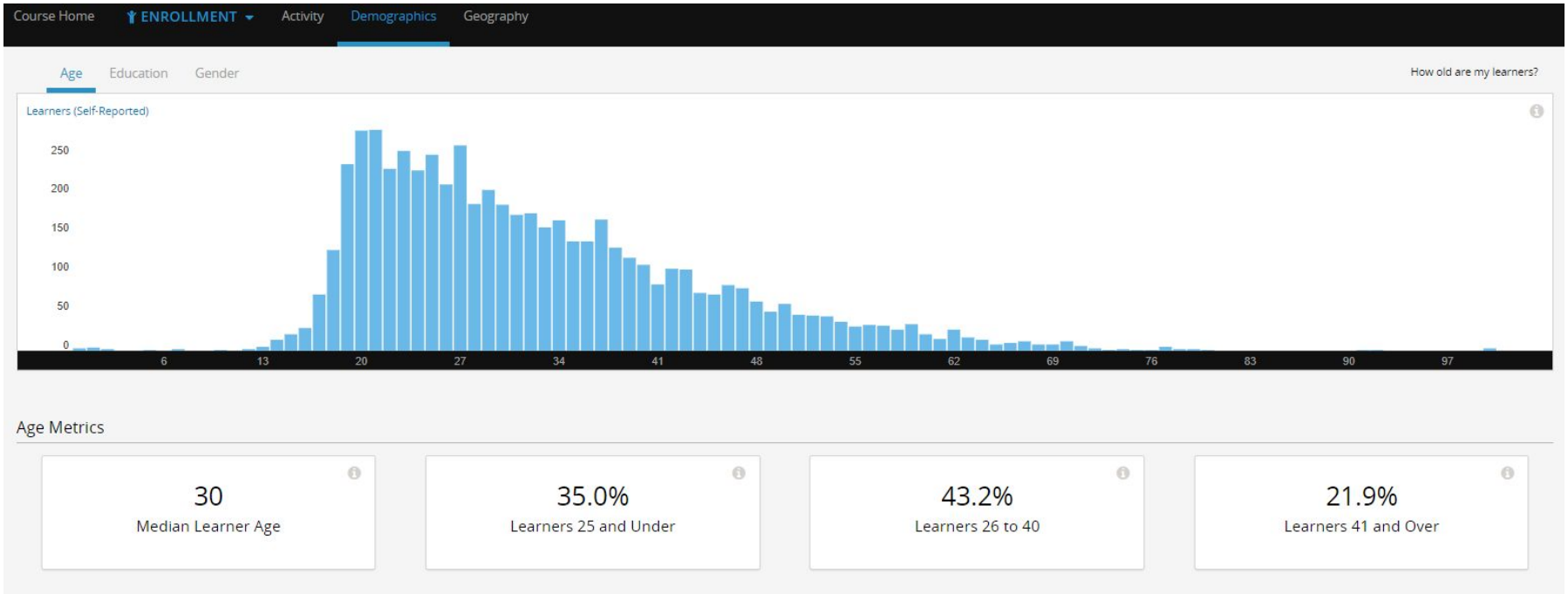
   CSEC-603 Enterprise Security / CSEC-742 Computer System Security

3. RIT Master of Science in Computing Security (30 credits)

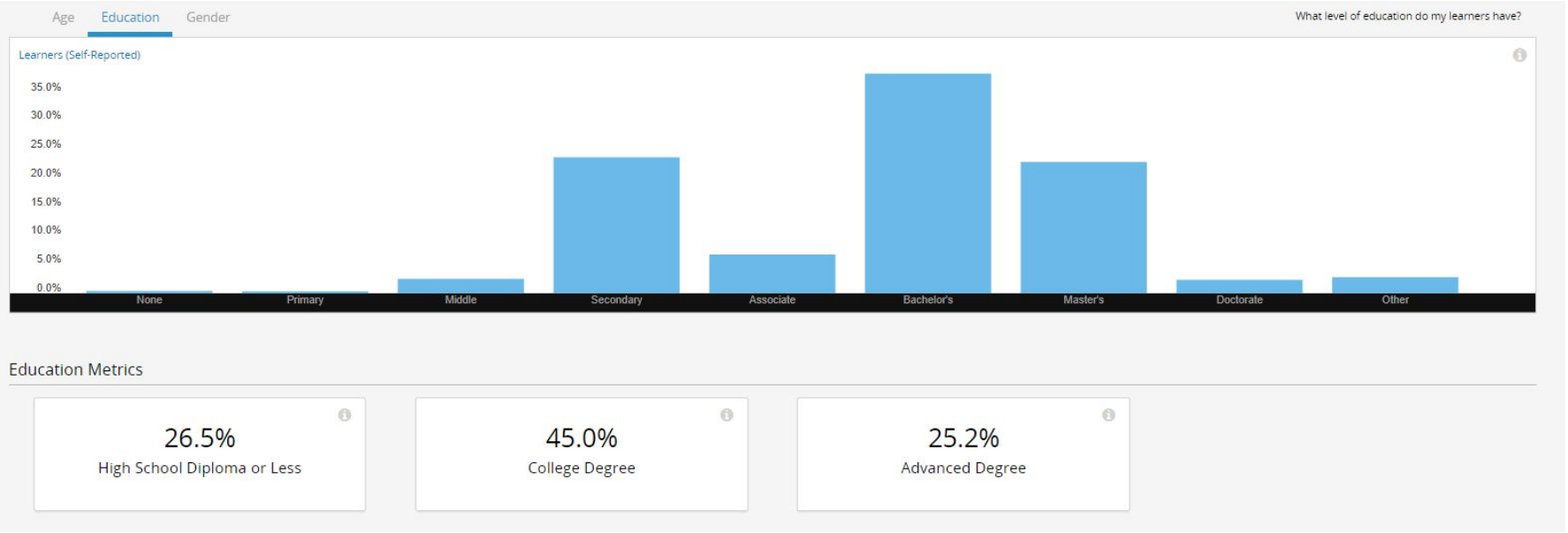
Broader Impact

- 6 course modules completed
- 3 course modules are running currently
- Total learners: **176K**
- Verified learners: **4K**

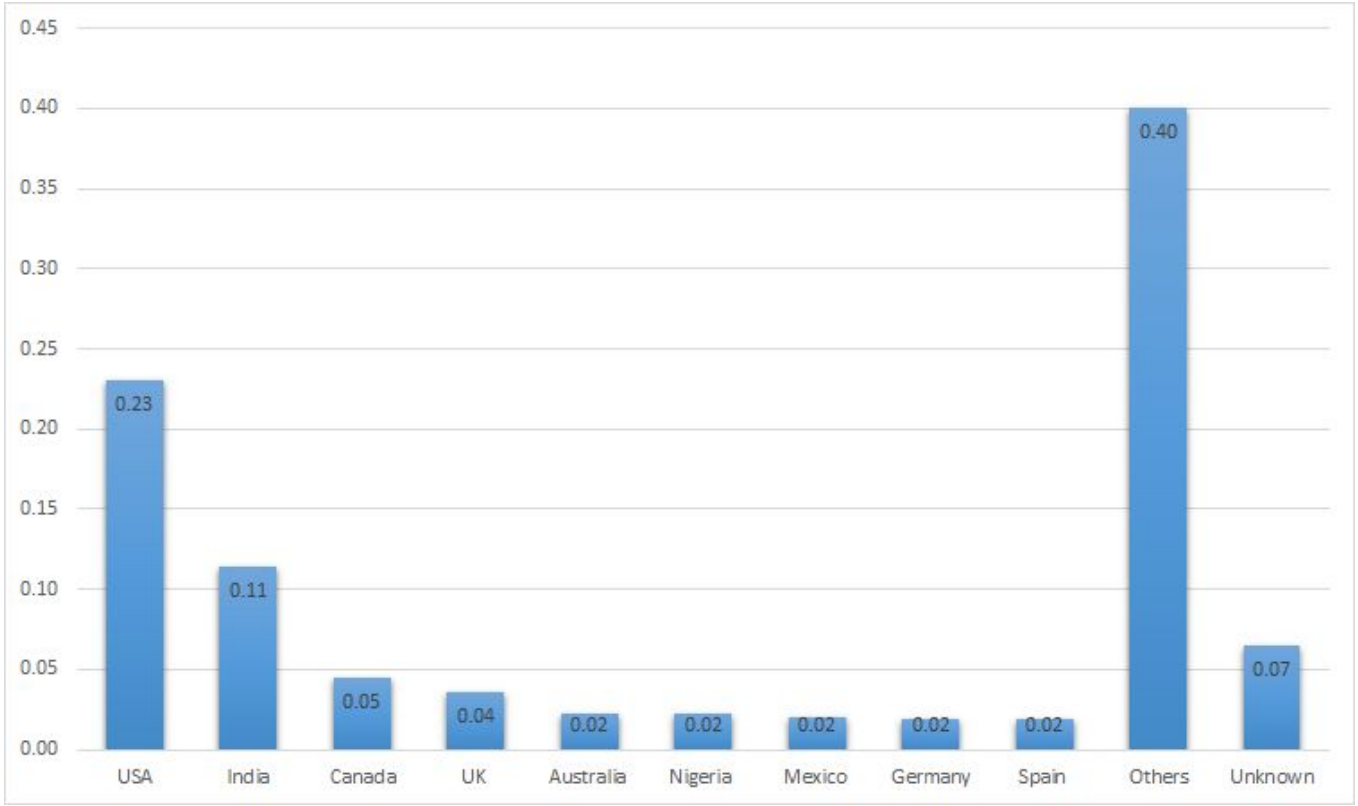
Learners Ages Distribution



Learners Education Levels



Learners Countries



Learners Gender Ratio

Male	Female
82%	18%

Conclusions

1. To fill the talent gap, we need a hybrid model in high education to re-educate experienced professionals for cybersecurity

2. Online learning might be more friendly to female learners in cybersecurity

3. Online learning plus hands-on labs might be a scalable approach