Addressing The Cybersecurity Skills Gap

A Commitment to Diversity and Workforce Development

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“Always walk through life as if you have something new to learn, and you will.”

Vernon Howard
2.93M

The number of open and unfilled cybersecurity jobs around the world
What are the forces shaping the Future of Work?

1. Accelerating Technological Changes
2. Growing Demand For Skills
3. Changing Employer Expectations
4. Shifting Labor Demographics
5. Transitioning Work Models
6. Evolving Business Environment
IBM can help...

IBM is dedicated to addressing the skills gap through...

- Academic Programs
- New Collar Initiative
- Commitment to Diversity
- Workforce Development

- P-TECH
- Veteran programs
- Apprenticeships
- Tech Re-Entry

- Collaboration amongst Industry, Gov’t & Academia
- Community outreach
IBM Academic Programs (With a Security Focus)

**Building relationships of mutual value**

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Security doesn't need more tools. It needs new rules. It's time to rethink the approach to cybersecurity.

IBM Security Research
List of links to research groups and projects in Security and Privacy at IBM.

IBM Security Learning Academy
Free technical training for IBM Security products.

IBM X-Force Security Research
Thought leadership from security experts.
Welcome to IBM Security & Privacy PIC page!

The Professional Interest Communities (PICs) at IBM Research are a group of 21 research areas that seek to enhance interactions between IBM researchers and research professionals in the wider world.

The goals of Security & Privacy PIC include:

- Develop and pursue a strategy to increase the influence and viewpoint within IBM of the S&P PIC through Big Bets, Strategic Initiatives and GTO topics
- Review the scope of the PIC, incorporate emerging topics and research directions, update the list of PIC conferences as necessary
- Increase collaborations with external researchers by inviting world-class researchers for long and short term visits to IBM labs and working with them
- Continue to build local research communities and improve collaboration with other PICs, encouraging interdisciplinary research
- Organize workshops/tutorials in the key S&P conferences and host Regional Security & Privacy events
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IBM Security Learning Academy

www.securitylearningacademy.com

Learning at no cost!

The Security Learning Academy is a full service learning platform, providing a variety of training objects and instruction options.

- Single portal, easy to navigate
- Interactive and individualized learning
- Role and task based roadmaps can be followed as-is or users can select from the catalog
Security Learning Academy

1. New to the Security Learning Academy? Take a tour via the Start Here course.

2. Select QRadar from the Featured Product list on the Home Page or Browse the Full Catalog.

3. Select a Training Roadmap to see courses by role.

4. Enroll in learning activities, complete lessons or labs, assess your skills and earn badges for select courses (2H2019).

IBM Security
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IBM X-Force Security Research

IBM X-Force Research is one of the most renowned commercial security research teams in the world.

These security professionals monitor and analyze security issues from around the globe, analyzing threats and providing insights that can help organizations stay ahead of the curve. IBM X-Force researchers work closely with customers to understand the latest trends and threats, ensuring that organizations are protected from emerging threats.

IBM X-Force Threat Intelligence

[Image of the IBM X-Force Threat Intelligence dashboard]
Gaining Insight Into the Ponemon Institute's 2020 Cost of Insider Threats Report

Scaling Security in Software Development: The Art of Possible

What Are You Protecting Against? Deploying Proper Use Cases Is Critical to Build Security Maturity
How CISOs can secure a strategic partnership

Getting more out of your relationship

Building a secure future with partners

In today's hyper-connected world, a strategic relationship between Chief Information Security Officers (CISOs) and their boards of directors is critical. It enables organizations to better prevent, respond to, and recover from incidents and helps mitigate cyber-risks. Board members and security leaders tend to approach security from their own vantage points. Building a strategic partnership, however, requires aligning their viewpoints to determine the best way to support the overall organization. Our research revealed a group of security leaders who have successfully built supportive, investing and collaborative partnerships with their boards, enabling a clear focus on the greater needs of the business.

Although not yet a fully mature business process, cybersecurity is and will continue to be a board room issue. As cybersecurity has risen into the strategic agenda of boards of directors, challenges are emerging and successful practices are being identified. Today, CISOs and other security leaders are faced with increased personal responsibilities. They not only have to manage their own teams and operations, they must also advise and adhere to their C-suite, as well as collaborate with their boards of directors - who may have varying levels of experience and knowledge on the topic. The relationship between boards of directors and security leaders is an important one that needs more care and attention. The board’s experience with cybersecurity must be reevaluated, and this conversation should be included in discussions related to cybersecurity were noted. CISOs are rated last in effectiveness by directors surveyed. For this to improve, interactions between CISOs and their boards need to occur more frequently. CISOs must be more proactive in working with their boards to help establish a good understanding of their role and responsibilities.

According to a study by the Enterprise Strategy Group (ESG) and Information Systems Security Association (ISSA), 45 percent of information security professionals surveyed believe that CISO participation with executive management is not at the right level today and should increase in the future. Work needs to be done on both sides of the equation.
Harness the Power of IBM

Get easy no-charge access to the tools you need to develop the next great thing. Enjoy powerful technical and strategic resources from IBM. Jump right in with cloud access to powerful services and the most prominent open-source computer technologies, or take advantage of hands-on resources that will teach you about data and analytics, Internet of Things, and security.

Get access today to the same tools used in the enterprise.

What is the IBM Academic Initiative?

Established in 2005, the IBM Academic Initiative allows and encourages faculty, students and researchers at accredited academic institutions to leverage IBM tools, courses, and other resources in the classroom. Our mission is to enable students to graduate with direct hands-on experience on "industrial strength" tools that will help them in their chosen career.

Most popular topics covered

See all →

Cloud

Cloud skills are required for virtually any career in today’s global marketplace. Get hands-on access to the industry’s most open standards-based cloud platforms and technologies. Cloud skills are required for virtually any career in today’s global marketplace.

IBM Watson

IBM Watson is a technology platform that uses natural language processing and machine learning to reveal insights from large amounts of unstructured data. Watson can extract key information from documents, reveal insights and patterns in data, and more, reveal insights and patterns in data, and more.

Data Science

IBM’s complete portfolio of analytics solutions enables students to engage with data to answer the toughest business questions, uncover patterns, and pursue breakthrough ideas.
### Cloud Access
Enhanced access to the IBM Cloud and select cloud-based resources and applications, such as the Watson APIs and Analytics Engine

### Software
Access to the same software used by our commercial customers leading to practical training for today’s jobs

### Courseware
Faculty access to enterprise quality courses for inclusion in part or whole into existing and new curriculum
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Cloud skills are required for virtually any career in today’s global marketplace. Get hands-on access to the industry’s most open standards-based cloud platforms and technologies. Cloud skills are required for virtually any career in today’s global marketplace.

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Blockchain
Blockchain has emerged as disruptive way to conduct transactions within trusted networks. As companies in many industries are looking to start and join networks, demand for blockchain skills has far exceeded supply.

Quantum
Discover the IBM Quantum Experience and our connections that enable you to access tools, simulators, and systems to explore, experiment, and

IBM Watson
IBM Watson is a technology platform that uses natural language processing and machine learning to reveal insights from large amounts of unstructured data. Watson can extract key information from documents, reveal insights and patterns in data, and more, reveal insights and patterns in data, and more

Security
In today’s world, there are serious security threats that must be addressed head-on. IBM Security delivers an advanced system of protection with analytics to help you monitor your data.

IBM Z
IBM Z enables you to create outstanding customer experiences. Leverage mobile, analytics, cloud, and data protection for great user benefits.

Power Systems
Power Systems are used in today’s marketplace across all industries, providing companies with a single, energy-efficient, and easy way to deploy a platform for AIX, IBM i, and Linux. Power server architecture analyzes big data for patterns to give you new insights.
We are in the process of transitioning the IBM Academic Initiative to this new and improved website.

This new site will allow faculty and students to access valuable cloud access, software, and courseware more easily and efficiently. We look forward to remaining your chosen partner in the journey to skills on emerging technologies.

What is IBM Security?

IBM Security develops intelligent enterprise security solutions and services to help businesses prepare today for the cyber security threats of tomorrow.

Why is IBM Security important?

We confront the world’s most challenging cybersecurity problems and passionately protect the faces behind the data.

Important are skills when working in Security?

Curiosity, collaboration and communication are critical keys to success in Security. Learn from industry experts, explore IBM Security products and use our learning materials to understand the importance of these 3 C's.
**QRadar Community Edition**

With all the functionality of QRadar, Community Edition is your place to start or extend your skills and passion for QRadar. We'll guide you along the way, with a set of instructional videos to help you get started and access to IBM Learning Academy to deepen those skills.

Register or login to access this resource

**i2 Analyst's Notebook Premium**

i2 Analyst's Notebook Premium collects, manages, and organizes information and intelligence. Using i2 Analyst's Notebook Premium, it is easy for analysts and investigators to uncover networks, patterns, and trends within increasing volumes of structured and unstructured data.

Register or login to access this resource

**QRadar SIEM**

IBM QRadar SIEM helps security teams accurately detect and prioritize threats across the enterprise, and it provides intelligent insights that enable teams to respond quickly to reduce the impact of incidents.

**Explore the IBM Software Catalog**

Access a comprehensive library of professional software resources for use in the classroom or non-commercial research projects.
IBM Security Learning Academy
Get free technical training for IBM Security products. You can explore the course catalog and build your own curriculum by enrolling in courses.

Register or login to access this resource

Security Fundamentals - Why Security
These materials provide fundamental training for those new to the key areas of cyber security. In this module we cover Concepts & Principles of Security and ISO27001 & 27002 Security Standards

Register or login to access this resource

Security Fundamentals - People Security
These materials provide fundamental training for those new to the key areas of cyber security. In this module we cover Access Control; Digital Certificates and Public Key Infrastructure; Authentication; Digital Identity and Identity Management; Federation and SOA; Single Sign On

Register or login to access this resource

Security Fundamentals - Application Security
These materials provide fundamental training for those new to the key areas of cyber security. In this module we cover Introduction to Web Application Security; Business to Business vs Web to Business; Hybrid Analysis

Register or login to access this resource
This 12-week program piloted February to May of 2019 leveraged the IBM Security Learning Academy Security Intelligence Track to provide hands-on learning to 13 students. The 13 students were split into 2 Agile teams for the duration of the program.

Students acquired both technical and soft skills expected of a SOC analyst monitoring an organization’s network for intrusions.

All students completing the program earned this new digital credential.

Technical skills included:
- Understanding the function of a SIEM in an enterprise network
- Understanding the architecture of a SIEM
- Hands-on experience with the interface of a SIEM
- Investigating an offense triggered by events in a SIEM
- Using dashboards in a SIEM
- Creating reports in a SIEM
- Using filters in a SIEM

Each week, student teams presented to up to 9 IBM mentors, affording them the opportunity to develop soft skills, such as:
- Presentation skills
- Leadership skills
- Collaboration
- Professional networking
IBM can help

IBM is dedicated to addressing the skills gap through:

- Academic Programs
- NEW COLLAR INITIATIVE
- Commitment to Diversity
- Workforce Development
- P-TECH
- Apprenticeships & Pre-Apprenticeships
- Veteran programs
- Tech Re-Entry
- Collaboration amongst Industry, Gov’t & Academia
- Community outreach
New Collar is  
…about skills, not degrees  
…about opening up the aperture on talent pipelines  
to take advantage of underutilized sources of talent  
for new types of work  
…about developing new partnerships to address the  
skills gap together  
…about attracting, developing and retaining  
employees with diverse backgrounds and skillsets
What is Apprenticeship?

Apprenticeship Programs provide an “earn while you learn” opportunity to build skills while getting hands-on experience and mentorship. In apprenticeship, we hire for aptitude and knowledge and train for skills.

Apprenticeship is often referred to as the “gold standard” of work-based learning, given the robustness of learning and hands-on experiences, and direct connections to employment.

Apprenticeship Programs are registered with the US Department of Labor or participating State Agencies. This registration ensures consistency with industry standard and becomes a credentialed program eligible for training grants and wage offsets.

IBM Apprenticeship Offerings

+ Software Engineer/Application Developer
+ Cyber Security
+ Network Administrator
+ Computer/IT Support
+ Mainframe System Administrator
+ Data Scientist
+ Data Analyst
+ Chemical Technician
+ Electronics Technician
+ Human Resources
+ Marketing
+ Hardware Design Technician
+ Technical Solution Specialist
+ Technical Solution Seller
+ Project Manager
+ UX Designer
+ Visual Designer
+ Visual Researcher
+ IT Specialist
+ Hardware Hacker
So, What is a Pre-Apprenticeship?

Pre-apprenticeship programs are training initiatives designed to prepare participants to enter and succeed in a Registered Apprenticeship or another high-quality apprenticeship program, and ultimately a career.
Why Are Pre-Apprenticeships Important to the Future of Work?

- There are currently 700,000 open IT jobs in the United States and our universities are only producing 70,000 computer science grads.
- We need to do more to create opportunity and access for everyone in the era of digital and AI.
- Educational systems cannot keep up with rapid change, nor do they always understand what industry needs.
- Pre-apprenticeship offers a solution by partnering with universities, community colleges and high schools to offer “supplemental” learning pathways to ready students into in-demand jobs.
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<td>Introduction to Cybersecurity Tools &amp; Cyber Attacks</td>
<td>4.5</td>
<td>325 ratings • 105 reviews</td>
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<tr>
<td>2</td>
<td>Cybersecurity Roles, Processes &amp; Operating System Security</td>
<td>4.5</td>
<td>123 ratings • 32 reviews</td>
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<td>Network Security &amp; Database Vulnerabilities</td>
<td>4.4</td>
<td>72 ratings • 16 reviews</td>
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This course gives you the background needed to understand basic Cybersecurity. You will learn the important concepts of threats to organizations and individuals, key terminology, basic system concepts and tools, as well as how to detect and protect against these threats. You will also gain knowledge of current threats to organizations and individuals, and how to defend against them.
IBM can help...

IBM is dedicated to addressing the skills gap through...

- Academic Programs
- New Collar Initiative
- COMMITMENT TO DIVERSITY
- Workforce Development
- P-TECH
- Veteran programs
- Apprenticeships
- Tech Re-Entry
- COLLABORATION AMONGST INDUSTRY, GOV’T & ACADEMIA
- COMMUNITY OUTREACH
IBM Security…

Sponsors an internal Women in Security Excelling (WISE) Business Resource Group to help get more women engaged with security within the company (~1000 participants across the globe)

Reaches girls at an early age to get them informed and interested in cybersecurity careers by hosting IBM Cyber Day 4 Girls events to provide pre-teen and teenage girls with the opportunity to learn more about cyber security careers.

Sponsors a scholarship program for women to attend EC-Council’s Hacker Halted security conference free of charge.

Sponsors Women in Cybersecurity (WiCyS), ICMCP and more.
Our mission: Launched in October 2016, IBM CyberDay4Girls promotes awareness of security as a career among middle school girls while teaching them cyber hygiene and introducing them to cyber security topics and role models.

Program Results as of Dec 2019: 100 events reaching 5405 girls in cities crossing 10 countries* and 6 continents

Our 2019 Goal: Reach 2000 Girls in partnership Corporate Social Responsibility (2959 reached)

* Argentina, Australia, Canada, Costa Rica, India, Ireland, Nigeria, South Africa, UK, US
Commitment to Collaboration - IBM Security Sponsored Academic Conferences and Student Competitions in 2019
How can educators work to create **opportunity and access** for students?

- Engage with other schools in your area
- Engage with your local business community
- Explore youth apprenticeship and pre-apprenticeship programs
- Encourage students to engage in conferences, competitions and clubs
Imagine the possibilities
IBM Entry Level Opportunities

Join our Talent Network

What IBMers do

Entry Level Opportunities

Why join IBM

https://careers.ibm.com/ListJobs/All/Search/Position-type/Early-professional