



Addressing the Cybersecurity Skills Gap with a "New Collar" Approach

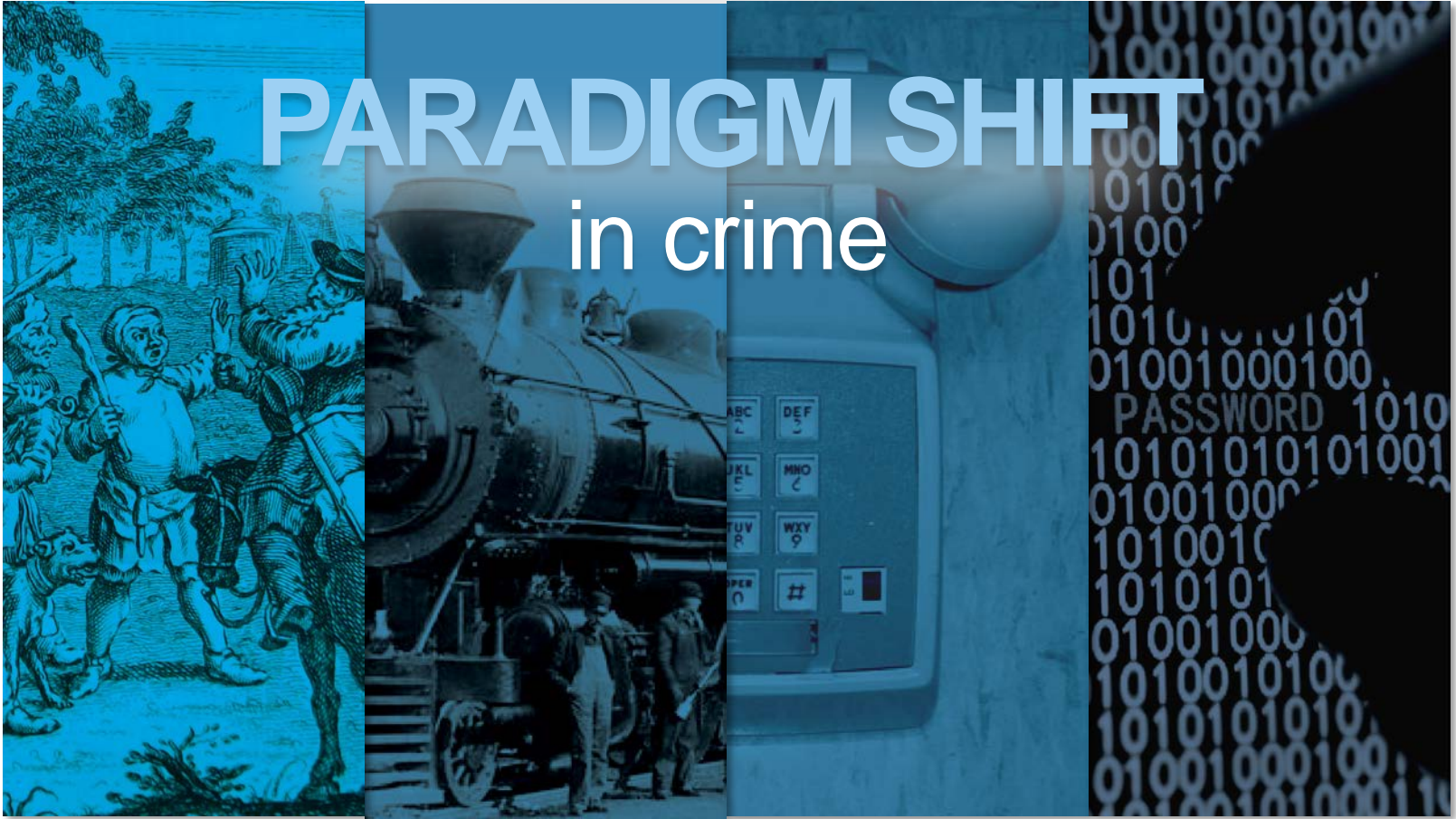
CISSE NEW ORLEANS 2018

Valinda Kennedy
IBM Academic Program Manager Midwest
vscarbro@us.ibm.com

Blog: <https://vscarbro.wordpress.com>



PARADIGM SHIFT in crime



Hacking is Becoming the New Face Of...

Espionage



A New Cold War Deep Under the Sea?

5 day **BloombergBusiness**



China's Cyber Spies Take to High Seas as Hack Attacks Spike

by Dav

October 15, 2015

AN UNPRECEDENTED LOOK AT STUXNET, THE WORLD'S FIRST DIGITAL WEAPON



Terrorism



ISIS news: Terrorists hack U.K. cabinet members' email accounts

By MARVIE Sep 13, 2015 **Where is America's cyberdefense plan? The Washington Post**

U.K.'s Go Headqu investigat targeting Cameron



ISIS Cyber Caliphate Hacks US Media Outlets; Terrorists Threaten Tennessee With Next Attack: 'Citizens of Tennessee! We Are Watching You!'

By SAMUEL SMITH Jan 8, 2015

Organized Crime



All It Takes To Buy A Stolen Password On The Internet Is 55 Cents

Entire digital identities can be bought by

"anyone" **Cybercrime Costs Hudson Valley About \$610 Mln Per Year**



May 25, 2010 | Updated May 25, 2011

These d you.

Ask NSA Director Keith Alexander: Does Cybercrime Really Cost \$1 Trillion?

Aug 01, 2012

Peter Maass and Megha Rajagopalan ProPublica



The Cybersecurity Skills Gap

WHY BUILDING STRONGER SKILLS IS CRITICAL TO MAKING THE WORLD A SAFER PLACE

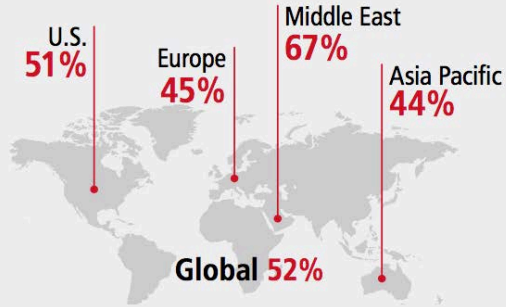


CyberSecurity Skills Gap by the Numbers

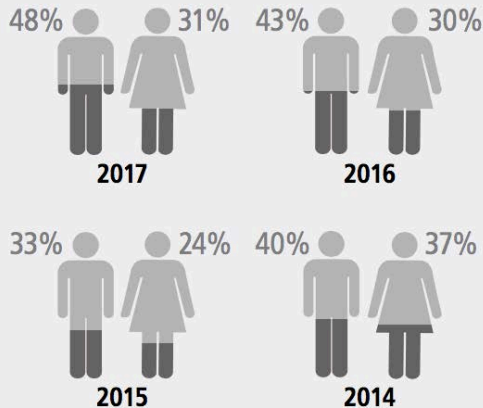


Cybersecurity Career Awareness

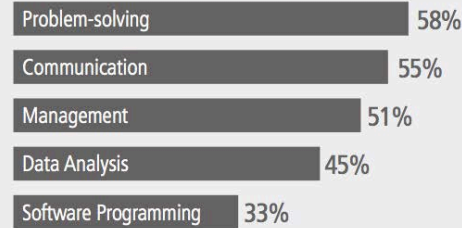
YOUNG ADULTS WHO KNOW WHAT CYBERSECURITY PROFESSIONALS DO



MILLENNIALS MORE LIKELY THAN A YEAR BEFORE TO CHOOSE A CAREER TO MAKE THE INTERNET SAFER



MILLENNIALS WHO WANT A JOB REQUIRING THESE SKILLS, ALL OF WHICH ARE AVAILABLE IN CYBER

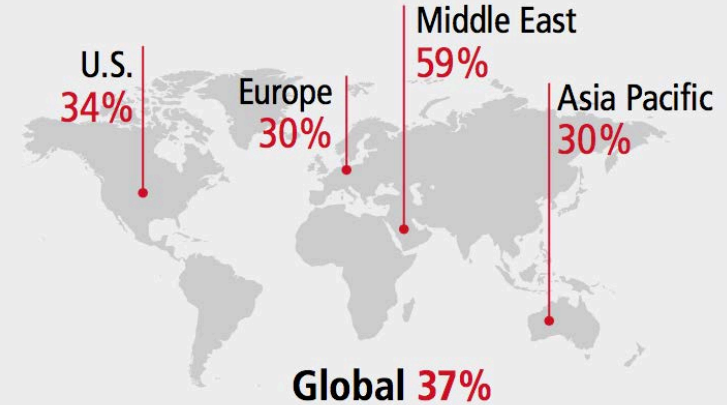


WHY ARE YOU MORE INTERESTED NOW IN A CAREER TO KEEP THE INTERNET SAFE THAN A YEAR AGO?



Includes only respondents more interested now than a year ago

YOUNG ADULTS APPROACHED BY A TEACHER ABOUT CYBERSECURITY CAREERS



“The number of U.S. teachers who talked to students about cybersecurity careers tripled from 2013 to 2017.”

Dispelling the Myth of Roles in Cybersecurity

- Computer Scientists, Computer Engineers
- Network Engineers
- Data Scientists
- Software Developers and Designers
- Graphic Designers
- User Interface Designers
- MBA's
- Lawyers
- Writers
- Project Managers



A hand is shown reaching out from the left side of the frame, touching a glowing blue digital interface on the right. The background is a blurred, futuristic scene with blue and white light effects.

It's not where you start—it's how you finish

Addressing the cybersecurity skills gap with a new collar approach

IBM Institute for Business Value

Visit <http://ibm.com/security/ciso> to download the report

Read the blog at [Securityintelligence.com](https://www.securityintelligence.com)



The difficulties don't end at raw numbers

Everyone is challenged

Industry	Professionals	Academic institutions	Students
<ul style="list-style-type: none">• Need security candidates with hands-on skills and product experience• Overall shortage of qualified candidates	<ul style="list-style-type: none">• Cybersecurity professionals are under constant pressure – they don't have the time to train new staff• Need for continuous training and professional development to keep up with the threat landscape	<ul style="list-style-type: none">• There are shortage of qualified teachers and professors and competition with industry salaries• Struggling to keep pace with shifts in industry and technology	<ul style="list-style-type: none">• Trouble defining a career path since there are myriad options• Many cybersecurity jobs require significant education and experience – students don't know where to get started

Cross-profession challenges

- Underrepresentation of women and wage gaps in the field
 - Competition between public and private sectors

So what is New Collar?

New Collar is about skills, not degrees. If you have the right skills, there's a career for you at today's IBM.



“IBM is making the IT industry more inclusive. With our emphasis on new collar, we are focused on hiring for capability, not just credentials. In fact, over the past few years, 10 – 15 percent of our US hires did not have a traditional four-year degree. An even larger percentage of our US job openings do not necessarily require a four year degree.”

There are many potential partnerships we can engage in to improve the cybersecurity talent pool



IBM Academic Initiative



<TECH/HIRE>_



IBM Skills Academy

What do they all have in common?

HE IS A ...
PhD Student
LOOKING FOR AN
**Industry
Fellowships**

SHE IS A ...
**University
Researcher**
LOOKING FOR
**Research
Grants**

SHE IS AN ...
**College
Alumni**
LOOKING FOR
**Start-up Use
Case Ideas**

HE IS A ...
**Community
College
Student**
LOOKING FOR
**Industry
Credentials**

HE IS A ...
**University
Professor**
LOOKING TO
**Curriculum
Resources**

SHE IS A ...
**Undergrad
Student**
LOOKING FOR
**Cutting-edge
Skills**

SHE IS A ...
**Teaching
Assistant**
LOOKING FOR
**Cloud
Access**



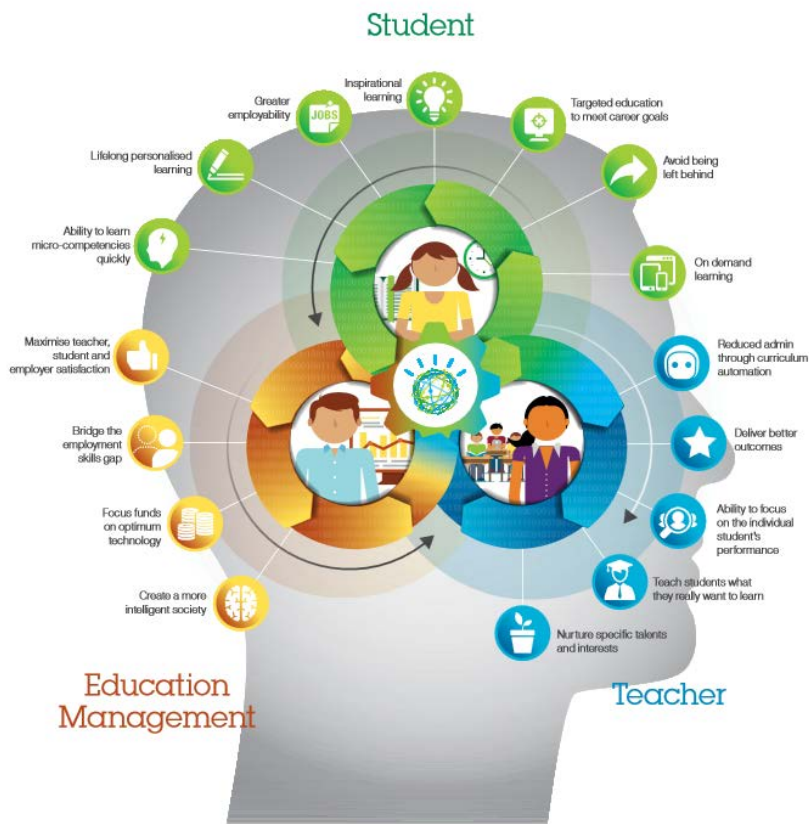
We are partnering with community colleges to build the skills of the future

What is the Community College Skills Accelerator?

- Access to documented skills roadmaps with open badges that faculty and staff can transform curriculum for new collar jobs
- Access to free IBM tools, including platforms, services, and software
- Partnership on the creation of school-specific Open Badges
- Access to IBM mentorship and subject matter expertise, including collaboration on curriculum review and creation
- ★ Pathways to employment, including internships and apprenticeships
- Continued touchpoints through ongoing webinars and targeted roadshows that will allow Community Colleges to start utilizing program offerings

Developing a World of Life Long Cyber Learners...

Incorporating Industry Cyber Security Resources In Education to Reduce the Skills Gaps



- Access to leading industry resources
- Includes on-line learning resources
- Cloud access for hands on labs
- Curated content
- New industry assets as technology changes
- Educator guides

IBM Academic Programs With a Security Focus

<https://www.research.ibm.com/university>

**Building
relationships
of mutual
value**

**Between IBM
& Academia**

IBM University Awards Programs	IBM Skills Academy Program	IBM Academic Initiative Program
<ul style="list-style-type: none">• PhD Fellowships• Faculty Awards• Shared University Research Awards• Open Collaborative Research Awards	<ul style="list-style-type: none">• Train the trainers• On-demand Skills• Cloud-based Hands-on Labs• Industry Use Cases• Proctored Exams approved by IBM• Open Badges/Digital Credentials	<ul style="list-style-type: none">• Courseware• Software• Cloud Access



The Value of Diversity Begins Early with Broad Potential



IBM

**Women in Security
Excelling (WISE)**

Super Women's Group

- IBM Security supports the internal **Women in Security Excelling (WISE)** program to help get more women engaged with security within the company (800+ participants across the globe)
- **Reaching girls at an earlier age** to get them informed and interested in cybersecurity careers
 - Hosting **#IBMCyberDay4Girls** events to provide middle school-aged girls with the opportunity to learn more about cyber security careers
- Recently sponsored a **scholarship program** for women to attend EC-Council's Hacker Halted security conference free of charge
- Sponsoring **Women in Cybersecurity 2018** March 23 - 24 in Chicago, IL

Representation of Women in Cybersecurity Remains Stagnant, Despite Recent Efforts to Balance the Scales

March 15, 2017 | By [Heather Ricciuto](#)



The skills gap we face in the cybersecurity profession has been well-documented for the past several years. In 2015, Frost and Sullivan estimated that 1.5 million positions will be open and unfilled by 2020 and that women make up only 10 percent of the cyber workforce. In other words, not only do we have a skills gap, we have a serious gender gap.



- 29 camps to date, reaching ~1300 girls across Canada, US, Australia , South Africa and Nigeria



THANK YOU

FOLLOW US ON:

-  ibm.com/security
-  securityintelligence.com
-  xforce.ibmcloud.com
-  [@ibmsecurity](https://twitter.com/ibmsecurity)
-  youtube/user/ibmsecuritysolutions

© Copyright IBM Corporation 2016. All rights reserved. The information contained in these materials is provided for informational purposes only, and is provided AS IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, these materials. Nothing contained in these materials is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software. References in these materials to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates. Product release dates and / or capabilities referenced in these materials may change at any time at IBM's sole discretion based on market opportunities or other factors, and are not intended to be a commitment to future product or feature availability in any way. IBM, the IBM logo, and other IBM products and services are trademarks of the International Business Machines Corporation, in the United States, other countries or both. Other company, product, or service names may be trademarks or service marks of others.

Statement of Good Security Practices: IT system security involves protecting systems and information through prevention, detection and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, misappropriated or misused or can result in damage to or misuse of your systems, including for use in attacks on others. No IT system or product should be considered completely secure and no single product, service or security measure can be completely effective in preventing improper use or access. IBM systems, products and services are designed to be part of a lawful, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products or services to be most effective.

IBM DOES NOT WARRANT THAT ANY SYSTEMS, PRODUCTS OR SERVICES ARE IMMUNE FROM, OR WILL MAKE YOUR ENTERPRISE IMMUNE FROM, THE MALICIOUS OR ILLEGAL CONDUCT OF ANY PARTY.