Development of Soft Skills That Are In Demand by Cybersecurity Employers

February 21, 2018
The Growing Skills Gap in Cybersecurity

Travis Smith, Principal Security Researcher, Tripwire
A Growing Need for Cybersecurity Talent

93% are concerned about the security “skills gap”

Some experts are predicting a “skills gap” in security organizations where it will become increasingly difficult to staff a security team with required skills and expertise.

In your opinion, is this likely to be a problem?

- 42% / Yes, we are already facing a skills gap with our security needs
- 51% / Yes, we are OK for now, but we can see it coming
- 7% / No, this will not be a problem

Source: 2017 Tripwire Skills Gap Survey
A Growing Need for Cybersecurity Talent

Needed security skills have changed in the past years

In your opinion, have the skills required to be a great security professional changed in the past few years?

81% / Yes 19% / No

Almost 3 in 4 say it is harder to hire skilled security staff

How has the ability to hire skilled security professionals changed in the past two years?

72% / It is harder 12% / It is easier 16% / It hasn’t changed

Source: 2017 Tripwire Skills Gap Survey
How Are Security Teams Adapting?

In what ways has your company’s security team evolved in the past two years?

In what ways do you expect your company’s security team to evolve in the next two years?

We have hired people with expertise that was not security specific

We have invested heavily in training our existing staff

Source: 2017 Tripwire Skills Gap Survey
How Are Security Teams Adapting?

91% plan to supplement their team by outsourcing for skills.

88% believe managed services would add value to solving the skills gap problem.

98% expect other functions like non-security teams to be more involved in cybersecurity moving forward.

96% believe that automation will play a role in solving the skills gap in the future.

Source: 2017 Tripwire Skills Gap Survey
Need for Technical Skills

79% believe the need for technical skills among security staff has increased over the past two years.

Top 3 Tech Skills

“When you hire for your security team, which technical skills are most important?”

- 52% / Network Monitoring
- 51% / IT Fundamentals
- 51% / Vulnerability Management

Source: 2017 Tripwire Skills Gap Survey
The Rise of Soft Skills

72% Need for soft skills has increased

21% Soft skills are more important than hard skills

17% Expect to hire people without security expertise

Source: 2017 Tripwire Skills Gap Survey
Q & A
Employability Skills Framework

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OFFICE OF CAREER, TECHNICAL, AND ADULT EDUCATION (OCTAE)
U.S. DEPARTMENT OF EDUCATION
### For Educators and Training Providers:

**Poll Question:** What do you feel are the top 3 soft skills students should learn before entering the cybersecurity workforce?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Percentage</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied academic skills</td>
<td>21.5%</td>
<td>22</td>
</tr>
<tr>
<td>Communication skills</td>
<td>67.6%</td>
<td>69</td>
</tr>
<tr>
<td>Critical thinking skills</td>
<td>73.5%</td>
<td>75</td>
</tr>
<tr>
<td>Information Use</td>
<td>11.7%</td>
<td>12</td>
</tr>
<tr>
<td>Interpersonal Skills</td>
<td>48.0%</td>
<td>49</td>
</tr>
<tr>
<td>Personal Qualities</td>
<td>8.82%</td>
<td>9</td>
</tr>
<tr>
<td>Resources Management</td>
<td>6.86%</td>
<td>7</td>
</tr>
<tr>
<td>Systems Thinking</td>
<td>23.5%</td>
<td>24</td>
</tr>
<tr>
<td>Technology Use</td>
<td>14.7%</td>
<td>15</td>
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### For Employers:

**Poll Question:** What top 3 soft skills do you feel are lacking in cybersecurity professionals within your workforce?

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Employer Perceptions

Difficulty filling jobs that require crosscutting skills like critical thinking, collaboration, and digital literacy

A lack of employability skills may contribute to a “talent shortage” - ManpowerGroup, 2016

Employers cite employability skills as the most important skill - Hart Research Associates, 2015
Employability Skills Framework

Click on the components to learn more

- Applied Academic Skills
- Interpersonal Skills
- Critical Thinking Skills
- Personal Qualities
- Workplace Skills
- Technology Use
- Resources Management
- Systems Thinking
- Information Use
- Communication Skills
Workplace skills are the abilities employees need to successfully accomplish work tasks. Workplace skills include:

- **Resource management** skills enable employees to successfully perform work tasks by managing time and other resources.
- **Information use** skills enable employees to successfully perform work tasks by understanding, evaluating, and using a variety of information.
- **Communication skills** enable employees to successfully perform work tasks by communicating effectively with others in multiple formats.
- **Systems thinking** skills enable employees to successfully perform work tasks by understanding relationships among the components of a system.
- **Technology use** skills enable employees to successfully perform work tasks by applying information technology appropriately and effectively.
Helpful Resources

http://www.cyberseek.org
http://www.ccrscenter.org
Email:  Robin.Utz@ed.gov or CTE@ed.gov
Website:  http://cte.ed.gov
Q & A
The Rise of Soft Skills

- **72%**: Need for soft skills has increased
- **21%**: Soft skills are more important than hard skills
- **17%**: Expect to hire people without security expertise

Source: 2017 Tripwire Skills Gap Survey
Which Are More Important?

- Analytical Thinker: 65%
- Communication Skills: 60%
- Good Trouble Shooter: 59%
- Integrity & Ethics: 58%
- Ability to Work Under Pressure: 58%
- Able to Handle Confidential Info: 50%

Source: 2017 Tripwire Skills Gap Survey
Enlisting Other Organizations

98% believe non-security functions need to be more involved in cybersecurity

Expected to be more involved in the future:
- IT Operations: 74%
- Risk Management: 60%
- Compliance: 53%
- Legal: 45%
- Human Resources: 32%
- Marketing: 11%

Source: 2017 Tripwire Skills Gap Survey
Q & A
Thank You for Joining Us!

**Upcoming Webinar:** The Evolution of Federal Government Cybersecurity Education and Scholarship Programs

**When:** Wednesday, March 21, 2018 at 2:00pm ET


[nist.gov/nice/webinars](nist.gov/nice/webinars)