Cybersecurity Market Worth

202.36 Billion USD by 2021
“More than 200,000 U.S. cybersecurity jobs are unfilled. The cybersecurity workforce shortage is expected to reach 1.5 million unfilled positions by 2019.”

Forbes Magazine, Oct 2015
Cybersecurity Skills Shortage a State of Emergency

A vast majority of organizations acknowledge that it is difficult to recruit and hire cybersecurity talent.

ESG brief, (2/2016)
More than **209,000** cybersecurity jobs in the U.S. are unfilled, and postings are up 74 percent over the previous five years.

(Peninsula Press – Standford, 2015)
Dramatic Skill Shortage in Cybersecurity Professionals

82% of respondents agreed that there is a large shortage in their own organization as well as their country as a whole.

Intel Report
A Global Problem Affecting Every Country

Percentage of respondents who say there is a shortage of cybersecurity professionals in their country

Hacking the skills shortage CSIS and Intel Security, July 2017
Demand to Fill Cybersecurity Jobs is Booming

Cybersecurity jobs on average offer a premium of about $12,000 over the average for all computer jobs

(Peninsula Press – Stanford, 2015)
Cybersecurity Talent Gap in Spite of High Salaries...

**Top 10 Security Skills**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Role</th>
<th>Average Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lead Software Security Engineer</td>
<td>$233,333</td>
</tr>
<tr>
<td>2</td>
<td>Chief Security Officer</td>
<td>$225,000</td>
</tr>
<tr>
<td>3</td>
<td>Global Information Security Director</td>
<td>$200,000</td>
</tr>
<tr>
<td>4</td>
<td>IT Security Consultant</td>
<td>$198,909</td>
</tr>
<tr>
<td>5</td>
<td>Chief Information Security Officer</td>
<td>$192,500</td>
</tr>
<tr>
<td>6</td>
<td>Director of Security</td>
<td>$178,333</td>
</tr>
<tr>
<td>7</td>
<td>Cyber Security Lead</td>
<td>$175,000</td>
</tr>
<tr>
<td>8</td>
<td>Lead Security Engineer</td>
<td>$174,375</td>
</tr>
<tr>
<td>9</td>
<td>Cyber security Engineer</td>
<td>$170,000</td>
</tr>
<tr>
<td>10</td>
<td>Application Security Manager</td>
<td>$165,000</td>
</tr>
</tbody>
</table>

*Source: Dice Jobs Database, 2013-15*
http://media.dice.com/wp-content/uploads/2015/05/MayDiceReportImage.jpg
The Skill Shortage is relevant for every vertical

46% of organizations claim to have a problematic shortage of cyber security skills.

ESG brief, (2/2016)
The Need for Trained Personnel

“In advanced security analytics, the value comes from the people. Software does not provide the answers; it provides the tools and delivers the data needed to discover answers.” — “Big Data” Analytics in Network Security,

Frost & Sullivan
Cybersecurity Personnel are Underqualified Upon Hire

60 percent note the lack of qualification of half of the job candidates.

On average, how many cybersecurity/information security applicants are qualified upon hire?

Figure 8 – Qualified Applicants

- Don’t Know: 12%
- 75-100%: 12%
- 50-75%: 17%
- 25-50%: 27%
- % 25+: 33%

Top Computer Science Programs Aren’t Providing The Relevant Skills

Of the top ranked U.S. computer science programs...

0 of the top 10 require a cybersecurity course for graduation

3 of the top 50 require a cybersecurity course for graduation

1 of 121 top schools require 3 or more cybersecurity course for graduation

Cloudpassage, 2016
What factors are important when recruiting and retaining cybersecurity professionals?

Level of **training offered** is the **second most important parameter** when recruiting cybersecurity personnel and the third most important when retaining them.
Existing Cybersecurity Training Programs Don’t Necessarily Focus on the Right Skill Sets

“When you've got everybody in the world realizing they need to do something and going to the market, it leads to a skills shortage, especially when we haven't been training people with these skill sets necessarily”

Robert Stroud, international president of ISACA
Lack of Hands-On Experience

Managers’ expectations are shifting when considering candidates for cyber security positions:

- 55% of respondents report that practical, hands-on experience is the most important cyber security qualification.
- 25% of respondents say today’s cyber security candidates are lacking in technical skills.
- 45% of respondents don’t believe most applicants understand the business of cyber security.
- 69% of respondents indicate that their organizations typically require a security certification for open positions and most view certifications as equally, if not more, important as formal education.

What is the biggest barrier to CIOs success?

CIOs see talent (skills and resources) as the No. 1 barrier to their success - 22% of respondents.

<table>
<thead>
<tr>
<th>Barrier to success as CIO</th>
<th>Percentage of CIOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Skills/Resources</td>
<td>22%</td>
</tr>
<tr>
<td>2 Funding/Budgets</td>
<td>15%</td>
</tr>
<tr>
<td>3 Culture/Structure of organization</td>
<td>12%</td>
</tr>
<tr>
<td>4 IT-business alignment</td>
<td>11%</td>
</tr>
<tr>
<td>5 Technology challenges (legacy, security, etc)</td>
<td>9%</td>
</tr>
<tr>
<td>6 Capacity/Willingness to change</td>
<td>8%</td>
</tr>
<tr>
<td>7 Management sponsorship/understanding/relationships</td>
<td>8%</td>
</tr>
</tbody>
</table>

Note: Percentages represent the number of CIOs identifying an item as their main barrier.

Cybersecurity Workforce Shortage Impacts Every Aspect

100% of respondents suffer a negative impact of the cybersecurity skill shortage

- **35%** We can’t maintain an adequate staff of cybersecurity professionals
- **33%** We are a target for hackers as they know our cybersecurity is not strong enough
- **25%** We’ve lost proprietary data through cyberattacks
- **22%** We’ve suffered reputational damage
- **17%** We’ve had a reduced ability to create new IP for products and services

Lack of Trained Personnel is also a Barrier for Adopting Advanced Technologies

Biggest Barriers to Adopting Security Processes and Technology

2015 (n=2432)

- Budget Constraints: 39%
- Compatibility Issues: 32%
- Certification Requirements: 25%
- Competing Priorities: 24%
- Current Working Too Heavy: 24%
- Lack of Knowledge: 23%
- Organizational Culture/Attitude: 23%
- Lack of Trained Personnel: 22%
- Reluctance to Purchase Until Proven: 22%
- Upper Management Buy-In: 20%

https://emear.thecisconetwork.com/site/content/lang/en/id/5322
Retaining Staff is a Major Challenge Too

Nearly 50% of security leaders cite lack of training or qualification sponsorship as common reasons for talent departure.

Hacking the skills shortage CSIS and Intel Security, July 2017
Training is Crucial to Gaining the Upper Hand on Threat Actors

New technology can provide a false sense of security, as operating budgets do not take into account the time to support, maintain and operate the new technology—thus it becomes ineffective. Threat actors have the upper hand when technology is not maintained and they develop ways to circumvent how it works.

Continuous operational and security training, coupled with additional staff, are required to stay on the same level as threat actors.

Verizon data breach 2016
Closing the gap in cybersecurity skills requires countries to develop critical technical skills, cultivate a larger and more diverse workforce, and reform education programs to include more hands-on learning.

Intel Report
This is WHY Security Leaders’ #1 Investment Priority for 2017 is TRAINING

What improvements in IR is your organization planning to make in the next 12 months?

- Additional training and certification of staff
- Better definition of processes and owners
- Better security analytics and correlation across event types and impacted systems
- Improved utilization of current enterprise security tools already in place
This Market will Continue to Grow Exponentially

Education and Training Market Size, by Region, 2014-2019 ($Billion)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>NA</td>
<td>1.13</td>
<td>1.19</td>
<td>1.27</td>
<td>1.35</td>
<td>1.44</td>
<td>1.55</td>
<td>6.4%</td>
</tr>
<tr>
<td>EU</td>
<td>0.69</td>
<td>0.71</td>
<td>0.75</td>
<td>0.78</td>
<td>0.83</td>
<td>0.89</td>
<td>5.2%</td>
</tr>
<tr>
<td>APAC</td>
<td>0.47</td>
<td>0.52</td>
<td>0.57</td>
<td>0.64</td>
<td>0.72</td>
<td>0.82</td>
<td>12%</td>
</tr>
<tr>
<td>MEA</td>
<td>0.19</td>
<td>0.21</td>
<td>0.24</td>
<td>0.26</td>
<td>0.30</td>
<td>0.34</td>
<td>11.6%</td>
</tr>
<tr>
<td>LA</td>
<td>0.15</td>
<td>0.17</td>
<td>0.19</td>
<td>0.22</td>
<td>0.25</td>
<td>0.30</td>
<td>15.4%</td>
</tr>
<tr>
<td>Total</td>
<td>2.63</td>
<td>2.80</td>
<td>3.01</td>
<td>3.25</td>
<td>3.55</td>
<td>3.90</td>
<td>8.2%</td>
</tr>
</tbody>
</table>

Source: MarketsandMarkets Analysis
Education and Training Budget Per Vertical in 2017

Source: MarketsandMarkets Analysis
Thank You!

For more information on how to use advanced simulation technologies to approach the training market, visit the [Cyberbit website](https://cyberbit.com).