Cybersecurity Professionals Salary, Skills, and Stress Survey

Compensation, Job Satisfaction, Education, and Technology Outlook
Overview

THE EXABEAM 2019 CYBERSECURITY Professionals Salary, Skills, and Stress Survey is based on a global survey of 479 security professionals conducted in September 2019. The goal of the survey was to gain insights into trends in security professionals’ salaries (focusing on the median range of income earners according to this sample), their education levels, job satisfaction, attitudes towards innovative, and new emerging technologies and workplace stress.

Note: All salaries were converted to U.S. dollars after answering survey questions about salary. The resulting income numbers do not represent regional differences in income and cost of living, which can be a significant factor when evaluating salary.
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Key Insights

Salary and Demographic Insights

**SALARIES ARE HIGHEST IN NORTH AMERICA, ASIA, AND THE MIDDLE EAST**

Professionals in these three regions reported average salaries of $75,000-$100,000, the highest salaries in the world.

**SALARIES ARE HIGHEST IN THE MANUFACTURING, ENERGY, AND HEALTH INDUSTRIES**

Professionals in manufacturing, energy and extraction, and health and pharmaceuticals reported the highest salaries in all industries surveyed. These salaries also tend to be higher for those with a bachelor’s degree or greater.

**PROFESSIONALS EARNING $100,000 OR MORE REPORT HIGHEST SALARY SATISFACTION**

We found that participants reported higher levels of satisfaction with their salaries than those who made less than $100,000.

**MEN AND WOMEN REPORTED SIMILAR WAGES, AND MINORITIES MADE SOME OF THE HIGHEST SALARIES**

While the participants were 91% male and 65% Caucasian, the median salary for men and women was steady at $75,000, and African-American professionals made some of the highest salaries. However, discrepancies in hiring and representation skew some of these results.
KEY SURVEY SATISFACTION INSIGHTS

• MOST PARTICIPANTS EXPRESSED SOME LEVEL OF SATISFACTION WITH THEIR salary and jobs, with those in the energy and extraction industries showing the highest levels of satisfaction.

• PARTICIPANTS WITH HIGH SCHOOL DIPLOMAS OR GENERAL EDUCATIONAL development, some college education, or post-doctorate experience were some of the most satisfied professionals surveyed in terms of salary and job satisfaction. Those with doctoral degrees were the least satisfied for the same criteria.

• INFORMATION SECURITY DIRECTORS REPORTED BOTH THE HIGHEST MEDIAN salaries and the highest salary satisfaction of all respondents.

• THOSE WITH 3-5 YEARS' EXPERIENCE REPORTED THE HIGHEST LEVELS OF job satisfaction.

• SEVENTY-ONE PERCENT OF THOSE SURVEYED FEEL SATISFIED OR VERY satisfied with their positions, while 76% feel secure or very secure.

• SIXTY-TWO PERCENT OF PROFESSIONALS CITE THAT THEY ARE STRESSED OR very stressed by their jobs, and 44% don’t feel like they are achieving a work/life balance.

KEY INSIGHTS

76% of those surveyed feel secure or very secure with their positions.

71% of those surveyed feel satisfied or very satisfied with their positions.

62% of professionals cite that they are stressed or very stressed by their jobs.

58% of professionals reported that a challenging work environment was the most rewarding aspect of their job.

44% of professionals don’t feel like they are achieving a work/life balance.
ADDITIONAL INSIGHTS

Most security professionals are male (91%) and Caucasian (65%). Bachelor’s and master’s degrees were the most common levels of education of all respondents. Furthermore, most participants (76%) reported having at least one professional certification. Of the total number, 55% report having taken part in educational activities (internships, work study, or on-site training) outside of school.

Related to the perception of technology, 80% of professionals stated that automation made their jobs easier and improved security.

ON-SITE EDUCATION

- Training Programs: 53%
- Internship: 23%
- Work-Study Programs: 23%

KEY INSIGHTS

- 91% of security professionals are male.
- 65% of security professionals are Caucasian.
- 76% of professionals reported having at least one professional certification.
- 55% of professionals report having taken part in educational activities outside of school.
- 41% of participants reported that they have 10+ years of experience in the field.
- 80%+ of professionals stated that automation made their jobs easier and improved security.
Salary Trends in The Security Profession

SURVEY PARTICIPANT PROFILES

Median salaries among all respondents were in the $75,000-$100,000 per year range—identical to our findings in 2018. However, the largest percentage of participants (22%) reported making less than $50,000 per year, unlike 2018 where the largest percentage was earning $50,000-$75,000 per year. This year 36% of respondents stated one of their top job responsibilities was audit and compliance, indicating a reason for the decrease from 2018.

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian (non-Hispanic)</td>
<td>311</td>
<td>65%</td>
</tr>
<tr>
<td>Latino/Hispanic</td>
<td>63</td>
<td>13%</td>
</tr>
<tr>
<td>Asian</td>
<td>41</td>
<td>9%</td>
</tr>
<tr>
<td>Middle Eastern</td>
<td>19</td>
<td>4%</td>
</tr>
<tr>
<td>African-American</td>
<td>14</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>30</td>
<td>6%</td>
</tr>
</tbody>
</table>

91% of our total respondents identified as male (as compared to 90% from 2018).

65% of our total respondents identified as Caucasian. The next highest were Asian (at 13%) and Latino/Hispanic (at 8%).
SECURITY PROFESSIONALS AND CAREER SATISFACTION

Results point towards a general health and satisfaction in the industry, with 71% of participating cybersecurity professionals reporting that they are satisfied with their jobs. Three-quarters of those polled (76%) report that they feel secure in those jobs, and 53% report satisfaction with their salaries.

71% of participating cybersecurity professionals report that they are satisfied with their jobs.

76% report that they feel secure in those jobs.

53% report satisfaction with their salaries.

78% said that they would recommend a career in cybersecurity.

JOB SATISFACTION

- Very Satisfied: 25%
- Satisfied: 46%
- Neither Satisfied nor Unsatisfied: 20%
- Unsatisfied: 7%
- Very Unsatisfied: 2%

JOB SECURITY

- Very Secure: 31%
- Secure: 45%
- Neither Secure nor Insecure: 18%
- Insecure: 5%
- Very Insecure: 1%
Unsurprisingly, 78% said that they would recommend a career in cybersecurity.

**WOULD YOU RECOMMEND A CAREER IN CYBERSECURITY?**

<table>
<thead>
<tr>
<th>Yes</th>
<th>369</th>
<th>78%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsure</td>
<td>84</td>
<td>18%</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>4%</td>
</tr>
</tbody>
</table>

**MEDIAN SALARY**

The median salary for respondents was $75,000-$100,000 per year, which matches our 2018 findings. However, the largest percentage of participants (22%) reported a salary of less than $50,000, which differs from our 2018 where a quarter of respondents made $50,000-$75,000 per year.
EDUCATION & DEGREE PROGRAMS

Respondents overwhelmingly have college degrees, with 41% reporting a bachelor's degree earned and 33% reporting a master's degree. The lowest-reported education came from those without high school degrees (<1%). For comparison, 71% reported having a bachelor's degree or higher in 2018. However, 69% said that they did not complete a degree program specifically related to cybersecurity, suggesting outside certification, education, or “on-the-job” learning.

41% of respondents reported having earned a bachelor's degree.

33% of respondents reported having earned a master's degree.

<1% of respondents reported only having a high school education.

69% of respondents did not complete a degree program specifically related to cybersecurity.

DEGREE PROGRAM RELATED TO CYBERSECURITY

| Did Not Attend School | 3 | 1% |
| High School Degree/GED | 25 | 5% |
| Some College (No Degree) | 82 | 17% |
| Bachelor's Degree | 193 | 41% |
| Master's Degree | 157 | 33% |
| Doctorate | 6 | 1% |
| Post-Doctoral Work | 5 | 1% |

Yes | 122 | 31% |
No | 271 | 69% |
MEDIAN SALARY BY GENDER

Despite the discrepancy in gender representation, men and women both reported the same median salary range.

RACE AND MEDIAN SALARY

African-Americans reported the highest median salary. However, with the dearth of African-American representation, this median range was only split over 2-3 respondents. Caucasian respondents reported $75,000 and higher, while Latino and Middle Eastern groups reported a range of $50,000 or less.
REGION AND MEDIAN SALARY

North America, Asia Pacific, and the Middle East reported the highest median salaries for cybersecurity experts, with ranges of $75,000-$100,000. There were increases in salaries reported from Latin America and Asia since 2018 by roughly 50%, and this report added two additional regional categories (Africa and India) based on participants.

MEDIAN SALARY BY INDUSTRY

There was a certain regularity in the median income reported by cybersecurity experts in different industries. However, we saw an increase in salary ranges in some industries, with the highest salaries found in the manufacturing, healthcare and pharmaceuticals, and energy and extraction industries in line with data from 2018.
Salary satisfaction across these industries remained relatively steady. Around 50%-55% of respondents across multiple industries reported that they were at least satisfied with their salary. The highest levels of satisfaction with salaries in our survey were in the energy and extraction industry, which reported a 77% salary satisfaction (a significant increase from the 31% reported in 2018). The lowest were reported by the insurance industry, with 25% satisfaction (a significant decrease since 2018).
COMPANY SIZE AND MEDIAN SALARY

Median salaries were the highest for the largest companies, specifically those with 10,000 or more employees. They were the lowest for the smallest companies. Over 60% of respondents worked for enterprise and up, while 35% work for companies with less than 1,000 employees.

**60%+**

of respondents worked for enterprise and up.

**35%**

of respondents work for companies with less than 1,000 employees.

SALARY SATISFACTION AND COMPANY SIZE

Salary satisfaction was relatively split in companies of any size. Companies with employee numbers between 1,000 and 1,500 reported the highest salary satisfaction at 58%, where those with 30,000 or more employees reported that they were satisfied with their salaries.
**MEDIAN SALARY BY EXPERIENCE**

Participants report that experience leads to higher salaries, with those with over 10 years of experience in the cybersecurity industry reporting the highest wages. Median salary by experience remained largely unchanged from 2018.

**MEDIAN SALARY BY TIME WITH EMPLOYER**

The higher-end salaries for experienced professionals increased the longer they worked with their current employer. Mid-range salaries also improved with more time at the same employer. There were shifts since 2018, with a 25% increase for those who worked more than 10 years with their current employer and a 25% decrease for those who worked less than 2 years.
MEDIAN SALARY AND JOB TITLE

Median salaries varied between job titles. In 2019, those with the title of information security director reported the highest median salary, whereas those identifying as SOC content creation engineer reported the lowest.
**SALARY SATISFACTION BY JOB TITLE**

Participants with the job title chief information security officer reported the highest satisfaction with their salary, while SOC analysts 1 or 2 replied with the lowest.

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**JOB TITLES AND SALARY SATISFACTION**

- Chief Information Security Officer: 64%
- Cybersecurity Analyst or Threat/Intel Research: 59%
- Information Security Analyst: 58%
- Information Security Director: 57%
- Security Engineer: 56%
- Security Analyst: 50%
- Threat Hunter: 50%
- Information Security Manager: 46%
- Security Architect: 46%
- SOC Shift or Team Lead: 38%
- Information Security Officer: 26%
- SOC Analyst 1 or 2: 10%
- SOC Content Creation Engineer: 0%
- Other: 59%
MEDIAN SALARY AND RESPONSIBILITY

While there was some variety between median salaries and responsibilities, participants who work in leadership roles make the most, while those in malware and packet analysis, threat hunting, and security training make the least.
SALARY AND JOB SATISFACTION

In terms of salaries, those earning $100,000 or more expressed the highest satisfaction with their salaries. However, those earning between $175,000-$200,000 expressed the highest dissatisfaction with their salaries.

SALARY SATISFACTION (TOTAL)

Ten percent of participants stated that they were “very satisfied,” while 43% responded they were “satisfied” with their salary. This is an increase from 2018, where only 4% claimed to be very satisfied and 32% satisfied with their salaries overall.

Seventeen percent surveyed responded that they were “unsatisfied,” and another 8% responded that they were “very unsatisfied.” This is an improvement over 2018, where almost 40% of participants claimed to be unsatisfied to some degree.
SALARY SATISFACTION BY EDUCATION

Cybersecurity professionals completing (or having completed) post-doctoral education reported the highest satisfaction with their salaries at 60%. Respondents with bachelor’s and master’s degrees both reported job satisfaction at 54%. Fifty percent of those with some college work and no degree reported being satisfied with their salary.

On the other hand, those with doctoral degrees only reported 17% satisfaction with their salaries.

OVERALL SURVEY RANGE (SALARY)

Of all respondents that provided a salary range, nearly a quarter of them made less than $50,000. However, 62% made between $50,000 and $150,000.

<table>
<thead>
<tr>
<th>Education</th>
<th>Satisfaction</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Degree/GED</td>
<td>48%</td>
<td>25</td>
</tr>
<tr>
<td>Some College (No Degree)</td>
<td>50%</td>
<td>82</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>54%</td>
<td>193</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>54%</td>
<td>157</td>
</tr>
<tr>
<td>Doctorate</td>
<td>17%</td>
<td>6</td>
</tr>
<tr>
<td>Post-Doctoral Work</td>
<td>60%</td>
<td>5</td>
</tr>
</tbody>
</table>

1/4 of all respondents that provided a salary range made less than $50,000.

62% of respondents that provided a salary range made between $50,000 and $150,000.
Trends in Security Profession Roles, Certifications, and Education

Professionals in the cybersecurity industry are increasingly turning toward job titles that include security analysis or security management. These responsibilities typically focus on auditing and compliance and incident response over other responsibilities. Unsurprisingly, most security analysts had several certifications (with the CISSP certification being the most popular).

**JOB TITLES IN THE INDUSTRY**

The leading job titles for respondents were information security analysts, information security managers, and security engineers. A full 35% had the term “security” in their job titles. Yet the largest number of job titles was categorized outside of those presented in the survey.

35% of respondents had the term “security” in their job titles.
Participants primarily fell outside of our general list of positions presented (21%), with the highest percentage outside of that working with the title of information security manager (12%), information security analyst (11%), and security engineer (12%).
**JOB RESPONSIBILITIES**

Participants reported audit and compliance (36%), incident response (28%), and application security (21%) as their top responsibilities.

Threat intelligence received the lowest response at a little over 1%.

- **36%** of participants reported that auditing and compliance was their top responsibility.
- **28%** of participants reported that incident response was their top responsibility.
- **21%** of participants reported that application security was their top responsibility.
- **>1%** of participants reported that threat intelligence was their top responsibility.
**CERTIFICATIONS**

Thirty-four percent of participants reported having the Certified Information Systems Security Professional (CISSP) certification, and 22% earned their CompTIA certification. The third most popular certification (19%) was the Certified Ethical Hacker training.

**ON-SITE EDUCATION AND TRAINING**

More than half the participants (55%) reported that they took part in on-site training during their college education or outside of it. Of those who responded, 53% stated that they were in, or had taken, work-related training or professional programs.

**CERTIFICATIONS**

- Certified Information Systems Security Professional (CISSP) 34%
- CompTIA Certification 22%
- Certified Ethical Hacker (CEH) 19%
- Certified Information Security Manager (CISM) 14%
- CRISC 8%
- GSEC: Security Essentials 7%
- CISA 4%
- CCNA 3%
- CSSK >1%
- CCSP 1%
- CSSLP 1%

**ON-SITE EDUCATION**

- Training Programs 53%
- Internship 23%
- Work-Study Programs 23%
MEDIAN TIME WITH EMPLOYER BY INDUSTRY

Much like 2018, most participants reported a median of 3-5 years with their employers. The only notable difference was in the manufacturing industry, which reported a median of 6-10 years.

INDUSTRY AND MEDIAN EXPERIENCE

Experience averaged between 6-10 years across most industries. Manufacturing saw an increase in the median from 6-10 years to 10+ years, and insurance remained the same as last year with a median of 3-5 years.
SATISFACTION BY RESPONSIBILITY

Most participants reported high satisfaction levels based on their responsibilities. The highest were malware analysts and security architects at 96% satisfaction. Security education and training specialists reported the highest dissatisfaction with their responsibilities, at 22%.

96% of malware analysts and security architects are satisfied with their responsibilities.

22% of security education and training specialists are dissatisfied with their responsibilities.
Job Security and Satisfaction

Surveyed professionals were mostly happy with their positions, with 71% reporting that they were satisfied. Seventy-six percent also felt secure in their position, and there was a correlation between job security, salaries, education, and satisfaction.

Other categories, like job responsibilities, company size, and experience played some part in satisfaction, but not as significantly as the factors listed above.

Participants cited challenging and engaging work environments as the most significant aspect of their satisfaction with their work, often over salary. Conversely, lack of advancement opportunities was most often cited as the least satisfying aspect of a given job.
OVERALL JOB SATISFACTION

More than 70% of participants reported that they were either satisfied or very satisfied with their current position. Twenty-five percent reported being “very satisfied” with their position, and 9% reported being “unsatisfied.”

71% of participants reported that they were either satisfied or very satisfied with their current position.

6% of participants reported that they were not confident about job security.

OVERALL JOB SECURITY

Seventy-six percent of participants said that they felt secure in their current position, whereas 6% said that they felt “insecure” or “very insecure.”

OVERALL JOB SECURITY

- Very Secure: 145 (31%)
- Secure: 212 (45%)
- Neither Secure nor Insecure: 83 (18%)
- Insecure: 21 (4%)
- Very Insecure: 7 (2%)
Forty-one percent of participants reported that they have more than 10 years of experience in the cybersecurity industry, while 16% reported that they have had less than 2 years.

Participants who reported higher job security unsurprisingly reported higher job satisfaction. Of the group who reported feeling “very secure” or “secure,” 79% reported feeling satisfied with their position. Almost a quarter of participants reported feeling undecided or “insecure” about job security and satisfaction.
JOB SECURITY AND SATISFACTION

Participants who made $75,000 and above reported being either secure or very secure with their position. Those who made less than $50,000 reported feeling very insecure about their jobs.

SATISFACTION BY EDUCATION

Participants with high school degrees or some college education reported the highest job satisfaction (with 76% and 75%, respectively) while those who did not attend school or earn a high school diploma reported the highest rates of dissatisfaction at 67%.
COMPUTNY SIZE AND JOB SATISFACTION

Participants in mid-range enterprise companies (10,001 - 30,000) reported the highest levels of job satisfaction at 80%. Those who worked at companies with 30,000+ employees reported the second highest levels of dissatisfaction with 11%, followed closely by those at companies of 500-1000, with 9%.

WORKPLACE SATISFACTION BY COMPANY SIZE

- 0-499: 54% Satisfied, 8% Unsatisfied
- 500-1000: 71% Satisfied, 9% Unsatisfied
- 1001-5,000: 72% Satisfied, 6% Unsatisfied
- 5001-10,000: 72% Satisfied, 8% Unsatisfied
- 10,001-30,000: 80% Satisfied, 12% Unsatisfied
- 30,000+: 65% Satisfied, 11% Unsatisfied

MOST SATISFYING ASPECT OF JOB

Participants overwhelmingly (58%) claimed that a challenging work environment was their favorite aspect of their jobs. Compensation was ranked as the lowest, at 8%.

CHALLENGING WORK ENVIRONMENT RANKED:

- 274: Challenging Work Environment
- 57: Other
- 39: Compensation
- 99: Workplace Benefits

8% of participants reported that compensation was their favorite aspect of their jobs.
JOB SECURITY AND SATISFACTION

CURRENT TIME WITH EMPLOYER

Professionals in the field are moving from job to job rapidly. More than 40% of participants reported that they have only been with their current employer for two years or less. Conversely, more than 30% of participants can say that they have been with their employer for over 6 years, and only 17% report being with their employer for over 10 years.

JOB SATISFACTION AND EXPERIENCE

Participants with 3-5 years reported the highest levels of satisfaction at 76%, but rates across all levels of experience remained steadily above 66%. The highest levels of dissatisfaction (11%) were reported by those with 6-10 years of experience.

TOTAL EXPERIENCE AND SATISFACTION

- 0-2: 69% Satisfied, 11% Unsatisfied
- 3-5: 76% Satisfied, 3% Unsatisfied
- 6-10: 67% Satisfied, 11% Unsatisfied
- 10+: 72% Satisfied, 10% Unsatisfied
LEAST SATISFYING ASPECT OF JOB

Over a third of participants (36%) reported that lack of advancement opportunities was their least favorite part of their job. However, both compensation (22%) and long work hours (21%) received significant mentions.
SATISFACTION BY EXPERIENCE

Over two-thirds of participants stated they were satisfied with their jobs by their tenure. The highest satisfaction rate (76%) was reported by those with 3-5 years’ experience, while the lowest rate (67%) was reported by those with 6-10 years’ experience. The most unsatisfied groups were employees who worked for the same company for 0-2 and 6-10 years, with 11% reporting dissatisfaction in their current job.

Overall, security professionals reported being mostly secure and satisfied with their salaries and their jobs. Unsurprisingly, higher salaries correlated with higher levels of satisfaction and security, but only to a point. (Some higher salary professionals reported low satisfaction).
Results show that many cybersecurity professionals are ready for AI and automation tools. Most professionals (75%) said that automation and SOAR solutions would help their response times, and 80% stated that they would make their job easier and improve security. Similarly more than 60% disagreed that AI and automation were a threat to their job. SOAR and automation were also seen as the solution most ready to impact their future work against security threats.

- 75% of professionals said that automation and SOAR solutions would help their response times.
- 80% of professionals stated that automation and SOAR solutions would make their job easier and improve security.
- 60% of participants disagreed that AI and automation were a threat to their job.
TOOLS USED BY SOC ANALYSTS

Of the total 32% of participants who say they work in a SOC, 72% used SIEM solutions and firewalls. Google Security tools had the lowest usage reported, at 13%.

WHAT TOOLS DO YOU USE DAILY?

<table>
<thead>
<tr>
<th>Tool</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Information and Event Management (SIEM)</td>
<td>233</td>
<td>72%</td>
</tr>
<tr>
<td>Firewalls</td>
<td>229</td>
<td>71%</td>
</tr>
<tr>
<td>WHOIS, NSLOOKUP, or Similar Utilities</td>
<td>222</td>
<td>69%</td>
</tr>
<tr>
<td>Email Security</td>
<td>213</td>
<td>66%</td>
</tr>
<tr>
<td>Intrusion Prevention Systems (IPS)</td>
<td>203</td>
<td>63%</td>
</tr>
<tr>
<td>Endpoint Detection and Response (EDR)</td>
<td>187</td>
<td>58%</td>
</tr>
<tr>
<td>LDAP</td>
<td>142</td>
<td>44%</td>
</tr>
<tr>
<td>Threat Intelligence Platforms (TIP) or Services</td>
<td>132</td>
<td>41%</td>
</tr>
<tr>
<td>IAM</td>
<td>78</td>
<td>24%</td>
</tr>
<tr>
<td>NGF</td>
<td>47</td>
<td>15%</td>
</tr>
<tr>
<td>Google Security Tools</td>
<td>41</td>
<td>13%</td>
</tr>
<tr>
<td>Other</td>
<td>41</td>
<td>13%</td>
</tr>
</tbody>
</table>
Participants were almost split in terms of either planning to use SOAR solutions (44%) and having no plans for SOAR solutions (41%). Only 16% reported currently using some sort of SOAR solution.
AI AND MACHINE LEARNING UTILIZATION

Over 20% of participants reported that they were already using AI or machine learning as part of their job. Forty-three percent reported that they planned on using it, while 36% reported having no plans to implement either AI or machine learning.

AI AND MACHINE LEARNING ARE A THREAT

Sixty-five percent of participants reported that they disagree with the idea that AI or machine learning is a threat to their jobs. Only 10% felt that these technologies were a threat.

<table>
<thead>
<tr>
<th>Currently Using</th>
<th>Planning to Use</th>
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<td>94</td>
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<td>166</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>36</td>
<td>115</td>
<td>216</td>
<td>81</td>
</tr>
</tbody>
</table>

21% of participants reported that they were already using AI or machine learning.

43% of participants reported that they plan on using AI or machine learning.

65% of participants reported that they disagree with the idea that AI or machine learning is a threat.

10% of participants reported that they think AI or machine learning is a threat.
SOAR TECHNOLOGY IMPROVES SOC RESPONSE TIMES

Seventy-five percent of participants felt that SOAR solutions would improve SOC response times, while only 3% felt that they would not.

30% of participants felt that SOAR solutions would improve SOC response times.

3% of participants felt that SOAR solutions would not improve SOC response times.

AUTOMATION MAKES MY JOB EASIER AND IMPROVES SECURITY

A significant 80% of participants said that automation makes their jobs easier, versus only 3% who said it does not.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<td>Number</td>
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<td>9</td>
<td>5</td>
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<td>Percentage</td>
<td>30%</td>
<td>50%</td>
<td>17%</td>
<td>2%</td>
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<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<td>Number</td>
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<td>235</td>
<td>104</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Percentage</td>
<td>23%</td>
<td>52%</td>
<td>23%</td>
<td>2%</td>
<td>1%</td>
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</tbody>
</table>
AUTOMATION THREAT TO JOB SECURITY BY INDUSTRY

Over 50% of participants in most industries disagree that automation is a threat to their jobs, except for those working in manufacturing and healthcare and pharmaceuticals.

Telecommunications security professionals were the largest group (21%) that said automation is a threat to their jobs.

AUTOMATION IS A THREAT TO MY JOB

![Graph showing the percentage of participants in different industries who agree, neither agree nor disagree, or disagree that automation is a threat to their jobs. The percentages are as follows:

- Finance and Financial Services: 14% Agree, 20% Neither Agree nor Disagree, 66% Disagree
- Telecommunications: 21% Agree, 21% Neither Agree nor Disagree, 58% Disagree
- Government: 15% Agree, 39% Neither Agree nor Disagree, 54% Disagree
- Manufacturing: 7% Agree, 39% Neither Agree nor Disagree, 54% Disagree
- Retail and Consumer Durables: 9% Agree, 15% Neither Agree nor Disagree, 77% Disagree
- Healthcare and Pharmaceuticals: 7% Agree, 20% Neither Agree nor Disagree, 68% Disagree
- Insurance: 17% Agree, 17% Neither Agree nor Disagree, 68% Disagree
- Energy and Extraction: 0% Agree, 26% Neither Agree nor Disagree, 74% Disagree
- Other: 8% Agree, 27% Neither Agree nor Disagree, 66% Disagree]
AI UTILIZATION BY INDUSTRY

Manufacturing reported the highest utilization of AI and machine learning at 42%, with another 45% stating that they planned on using both in the future. The health and pharmaceuticals industry reported the lowest utilization (10%) and the highest percentage stated that they had no plans to implement any solution (53%).

<table>
<thead>
<tr>
<th>Industry</th>
<th>Currently Using</th>
<th>Planning on Using</th>
<th>No Plans to Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance and Financial Services</td>
<td>25%</td>
<td>40%</td>
<td>36%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>21%</td>
<td>17%</td>
<td>63%</td>
</tr>
<tr>
<td>Government</td>
<td>13%</td>
<td>44%</td>
<td>43%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>13%</td>
<td>42%</td>
<td>45%</td>
</tr>
<tr>
<td>Retail and Consumer Durables</td>
<td>15%</td>
<td>33%</td>
<td>52%</td>
</tr>
<tr>
<td>Healthcare and Pharmaceuticals</td>
<td>10%</td>
<td>37%</td>
<td>53%</td>
</tr>
<tr>
<td>Insurance</td>
<td>25%</td>
<td>25%</td>
<td>50%</td>
</tr>
<tr>
<td>Energy and Extraction</td>
<td>19%</td>
<td>37%</td>
<td>44%</td>
</tr>
<tr>
<td>Other</td>
<td>21%</td>
<td>34%</td>
<td>45%</td>
</tr>
</tbody>
</table>

42% of manufacturing participants stated that they currently utilize AI and machine learning.

10% of health and pharmaceuticals participants stated that they do not currently utilize AI and machine learning.

45% of manufacturing participants stated that they planned on using AI and machine learning in the future.

53% of health and pharmaceuticals participants stated that they do not plan to utilize AI and machine learning.
WHAT TOOLS ARE GOING TO IMPROVE YOUR ABILITY TO DO YOUR JOB?

Of the various technologies, the most respondents (38%) cited SOAR and other automation tools could improve their ability to do their job. More than a quarter of respondents (27%) cited AI, and another 22% cited SIEM solutions as drivers for improving how they did their jobs.

38% of respondents cited SOAR and other automation tools.

27% of respondents cited AI.

22% of respondents cited SIEM solutions.

TECHNOLOGIES THAT WOULD HELP YOU DO YOUR JOB

- SOAR (other automation tools): 38%
- Artificial Intelligence: 27%
- SIEM: 22%
- Cloud: 4%
- Ueba: 4%
- Machine Learning: 3%
- Endpoint: 2%
Career Advice in Cybersecurity

Most professionals surveyed would recommend cybersecurity as a profession. However, most professionals reported that they felt that their jobs were stressful or very stressful, and 25% reported that they had an unbalanced or very unbalanced work/life relationship.

RECOMMENDING CYBERSECURITY AS A CAREER

Participants overwhelmingly would recommend cybersecurity as a career for new professionals and graduates, with 78% responding “yes” to recommending a cybersecurity job.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Unsure</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responses</td>
<td>364</td>
<td>83</td>
<td>20</td>
</tr>
<tr>
<td>Percentage</td>
<td>78%</td>
<td>18%</td>
<td>4%</td>
</tr>
</tbody>
</table>
ARE YOU ACTIVELY LOOKING FOR A NEW JOB?
Sixty percent of participants said that they are not currently looking for a job, while 40% said that they were.

60% of participants said that they are not currently looking for a job.

40% of participants said that they are currently looking for a job.

RELATIONSHIP WITH CO-WORKERS
Respondents were evenly split in terms of how they interacted with co-workers and how often they felt frustrated with them. Thirty-six percent stated that they were often frustrated with coworkers, and 31% stated that they were not often frustrated.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Often</td>
<td>44</td>
<td>10%</td>
</tr>
<tr>
<td>Often</td>
<td>118</td>
<td>26%</td>
</tr>
<tr>
<td>Neither Often or Not Often</td>
<td>155</td>
<td>34%</td>
</tr>
<tr>
<td>Not Often</td>
<td>112</td>
<td>24%</td>
</tr>
<tr>
<td>Not Very Often</td>
<td>29</td>
<td>6%</td>
</tr>
</tbody>
</table>
WORK/LIFE BALANCE

More than half the respondents reported that they felt that they had a balanced work/life ratio. Twenty-one percent reported that they felt unbalanced, and 4% reported that they felt “very unbalanced.”

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Balanced</td>
<td>43</td>
<td>9%</td>
</tr>
<tr>
<td>Balanced</td>
<td>213</td>
<td>47%</td>
</tr>
<tr>
<td>Neither Balanced</td>
<td>87</td>
<td>19%</td>
</tr>
<tr>
<td>or Unbalanced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unbalanced</td>
<td>97</td>
<td>21%</td>
</tr>
<tr>
<td>Very Unbalanced</td>
<td>17</td>
<td>4%</td>
</tr>
</tbody>
</table>

HOW STRESSFUL IS YOUR CURRENT JOB?

Participants reported significant stress at their jobs, with almost two-thirds reporting that they felt that their jobs were “stressful” or “very stressful.” Only 6% reported feeling not stressed.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Stressful</td>
<td>66</td>
<td>15%</td>
</tr>
<tr>
<td>Stressful</td>
<td>204</td>
<td>47%</td>
</tr>
<tr>
<td>Neither Stressful</td>
<td>136</td>
<td>31%</td>
</tr>
<tr>
<td>or Not Stressful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Stressful</td>
<td>22</td>
<td>5%</td>
</tr>
<tr>
<td>Not Very Stressful</td>
<td>4</td>
<td>1%</td>
</tr>
</tbody>
</table>
WHAT ADVICE WOULD YOU GIVE NEW GRADUATES?

By far, the most frequent advice given to graduates was to “keep learning” (58%), with a related piece of advice (“get certifications and training”) getting 20%.

58% of participants said the most frequent advice given to new graduates was to “keep learning.”

20% of participants said new graduates should get certifications and training.

ADVICE TO GRADUATES

- Keep Learning: 58%
- Get Certifications and Training: 20%
- Get Hands-On Experience: 7%
- Find Your Passion: 6%
- Learn to Communicate: 5%
- Be Patient: 2%
- Listen: 1%
Exabeam is the Smarter SIEM™ company. We help security operations and insider threat teams work smarter, allowing them to detect, investigate and respond to cyberattacks in 51 percent less time. Security organizations no longer have to live with excessive logging fees, missed distributed attacks and unknown threats, or manual investigations and remediation. With the modular Exabeam Security Management Platform, analysts can collect unlimited log data, use behavioral analytics to detect attacks, and automate incident response, both on-premise or in the cloud. Exabeam Smart Timelines, sequences of user and device behavior created using machine learning, further reduce the time and specialization required to detect attacker tactics, techniques and procedures.

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