EXECUTIVE SUMMARY

CYBERSECURITY
IN THE SAN DIEGO REGION

AN ECONOMIC IMPACT ANALYSIS
AND WORKFORCE STUDY
MARCH 2019

PRODUCED BY
Sponsored By

Cyber Center
of Excellence

Bank of America
LOCKTON
SENTEK GLOBAL
San Diego has emerged as a leader for the development of cybersecurity technology and the delivery of cyber-related services. The region’s healthy ecosystem, including its strong military presence, world-class academic institutions, incubators and strong partnerships between industry associations and governments, has positioned San Diego as a hub for cyber operations. Today, there are more than 150 firms in the San Diego region focused exclusively on cyber. With incidences of cyber attacks on the rise worldwide, the industry’s innovative companies are equipped to meet the global market’s increasing demands for new products and technologies.

More than 150 cyber firms call San Diego home

Cybersecurity Firms Operate in a Variety of Industries

Surveyed cyber companies were allowed to select multiple industries within the 12 categories, which are not mutually exclusive.

- 39% Developing or Advancing
- 36% Resilient / Secure Networking
- 11% Software or Non-Cybersecurity Software
- 7% Telecommunications, including wireless
- 5% Utility or Energy
- 4% Manufacturing and Advanced Manufacturing

Another 26% provide cyber or IT solutions

Another 21% support and technically assist organizations in their cybersecurity needs

Technologies & Capabilities

San Diego cyber companies are actively involved in developing or advancing, and/or using cutting edge technologies including:

- Machine Learning / Artificial Intelligence (AI)
- Mobile Security
- Resilient / Secure Networking
- Internet of Things (IoT)-Cybersecurity
- Data Protection / Data Layer Security
- Resilient / Secure Computing

The rise of machine learning & artificial intelligence (AI)

59% of cyber companies are actively developing or advancing their products and services in machine learning or artificial intelligence

The largest share

37% of companies directly develop or support the development of new cyber products or software

Another 26% provide cyber or IT solutions

Another 21% support and technically assist organizations in their cybersecurity needs

SPOTLIGHT

DEPARTMENT OF DEFENSE

San Diego is home to the Navy’s Space and Naval Warfare Systems Command, or SPAWAR, which is the anchor of the region’s cyber industry. SPAWAR not only drives talent attraction, but annually spends billions on developing and securing critical Navy systems. Currently employing approximately 5,190 civilian and military personnel, SPAWAR’s presence and associated economic impact cannot be understated.

83% of firms view the San Diego region as an “excellent” or “good” place to do business

A FAVORABLE BUSINESS CLIMATE

Generally satisfied with the local business climate, the majority of firms view access to customers in the region, talent and a skilled workforce as the primary strengths of San Diego’s cyber ecosystem.

CUSTOMERS NEAR AND FAR

Firms selected top two markets

The reach of San Diego’s cyber industry spans the globe, with nearly half of firms doing business internationally

59% NATIONAL

47% INTERNATIONAL

24% SAN DIEGO COUNTY

12% SOUTHERN CALIFORNIA

6% STATEWIDE

An Economic Impact Analysis and Workforce Study

Cybersecurity is pervasive throughout San Diego’s economy

Historical data shows continual growth in cyber employment

75% of firms surveyed expect to grow their cyber employment over the next 12 months

4,920 DIRECT PRIVATE SECTOR JOBS

16.4% increase from 2016

3,530 DIRECT SPAWAR JOBS

4.2% increase from 2016

8,450 TOTAL DIRECT JOBS

11.0% increase from 2016

Faster than the regional employment increase of 3.0%

64% of cyber firms have grown over the last three years and by an average of 17 employees

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Cybersecurity is pervasive throughout San Diego’s economy

San Diego has emerged as a leader for the development of cybersecurity technology and the delivery of cyber-related services. The region’s healthy ecosystem, including its strong military presence, world-class academic institutions, incubators and strong partnerships between industry associations and governments, has positioned San Diego as a hub for cyber operations. Today, there are more than 150 firms in the San Diego region focused exclusively on cybersecurity. With incidences of cyber attacks on the rise worldwide, the industry’s innovative companies are equipped to meet the global market’s increasing demands for new products and technologies.

Cybersecurity Firms Operate in a Variety of Industries

Surveyed cyber companies were allowed to select multiple industries within the 12 categories, which are not mutually exclusive.

Technologies & Capabilities

San Diego cyber companies are actively involved in developing or advancing, and/or using cutting edge technologies including:

- The largest share of companies directly develop or support the development of new cyber products or software,
- Another 26% provide cyber or IT solutions,
- Another 21% support and technically assist organizations in their cybersecurity needs.

The rise of machine learning & artificial intelligence (AI)

59% of cyber companies are actively developing or advancing their products and services in machine learning or artificial intelligence.

63% of cyber firms work directly or indirectly for the Federal government, including the Department of Defense.

83% of firms view the San Diego region as an “excellent” or “good” place to do business.

A Favorable Business Climate

Generally satisfied with the local business climate, the majority of firms view access to customers in the region, talent and a skilled workforce as the primary strengths of San Diego’s cyber ecosystem.

Customers Near and Far

The reach of San Diego’s cyber industry spans the globe, with nearly half of firms doing business internationally.

83% National
47% International

CUSTOMERS NEAR AND FAR

75% of firms surveyed expect to grow their cyber employment over the next 12 months.

4,920 Direct Private Sector Jobs
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3,530 Direct SPAWAR Jobs
- 4.2% increase from 2016

8,450 Total Direct Jobs
- 11.0% increase from 2016
- Faster than the regional employment increase of 3.0%

64% of cyber firms have grown over the last three years and by an average of 17 employees.

Firms selected top two markets:

- The largest share
- Machine Learning / Artificial Intelligence (AI)
- Mobile Security
- Resilient / Secure Networking
- Internet of Things (IoT) - Cybersecurity
- Data Protection / Data Layer Security
- Resilient / Secure Computing

63% of cyber firms are actively developing or advancing their products and services in machine learning or artificial intelligence.

Historical data shows continual growth in cyber employment.
A GROWING TALENT POOL
San Diego’s academic institutions offer a variety of specialized cyber programs and certifications to help satisfy the growing demand

San Diego’s academic institutions confer more than 20,000 cyber-related degrees each year, mostly in the fields of engineering and computer sciences. With specialized cyber programs at some of the region’s universities including the University of San Diego and California State University San Marcos, the region’s homegrown talent pipeline continues to expand each year. Additionally, robust offerings at local community colleges help to satisfy the growing demand for additional certifications and occupations requiring less than a four-year degree.

82% of firms believe it is important to be near universities doing cyber work

TODAY, THERE ARE 58,000 TECHNOLOGY SPECIALISTS IN SAN DIEGO

San Diego’s academic institutions confer more than 20,000 cyber-related degrees each year

Key Cybersecurity Occupations

<table>
<thead>
<tr>
<th>KEY OCCUPATION</th>
<th>2018 JOBS</th>
<th>MEDIAN SALARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Developers</td>
<td>18,400</td>
<td>$109,500</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>6,100</td>
<td>$95,400</td>
</tr>
<tr>
<td>Computer User Support Specialists</td>
<td>5,900</td>
<td>$57,100</td>
</tr>
<tr>
<td>Network &amp; Computer Systems Administrators</td>
<td>3,600</td>
<td>$86,400</td>
</tr>
<tr>
<td>Computer Network Support Specialists</td>
<td>1,700</td>
<td>$69,700</td>
</tr>
<tr>
<td>Computer Network Architects</td>
<td>1,500</td>
<td>$119,400</td>
</tr>
<tr>
<td>Cybersecurity Analysts</td>
<td>900</td>
<td>$97,000</td>
</tr>
</tbody>
</table>

Cyber Center of Excellence (CCOE) is a non-profit that focuses on regional planning and program implementation in order to address cybersecurity workforce, economic development and infrastructure challenges through collaboration with industry, academia and government agencies.

TODAY, THERE ARE 58,000 TECHNOLOGY SPECIALISTS IN SAN DIEGO

TOP 5 IN-DEMAND CERTIFICATIONS

1. Certified Information Systems Security Professional (CISSP)
2. SANS/GIAC Certification
3. Security+
4. GIAC Security Essentials Certification (CSEC)
5. CISCO Certified Networking Processional (CCNP)

Note: 33 companies completed the survey conducted by BW Research in 2019.