

# Information Technology Administrators

## Labor Market Analysis: San Diego County

April 2019

### Summary

- Do not Proceed
- Proceed with Caution
- Proceed

**PROCEED WITH  
NEW PROGRAM?**



**SUPPLY  
GAP?**



**AT OR ABOVE  
THE LIVING WAGE**



**NUMBER OF  
INSTITUTIONS THAT  
PROVIDE TRAINING**

High

Medium

Low



**EXPECTED LEVEL  
OF EDUCATION**

Bachelor's Degree+

Associate Degree

Some College or Certificate

High School Diploma or Equivalent

Less than a HS Diploma

Apprenticeship

According to available labor market information, there is a supply gap for occupations that could be trained by an *Information Technology Administrators* program. *Information Technology Administrators* include “Database Administrators” and “Network and Computer Systems Administrators.” *Information Technology Administrators* in San Diego County have a labor market demand of 360 annual job openings, and 12 educational institutions in San Diego County supply 333 awards for these occupations, suggesting that there is a small supply gap.

### Introduction

This report provides labor market information in San Diego County for the following occupational codes in the Standard Occupational Classification (SOC)<sup>1</sup> system:

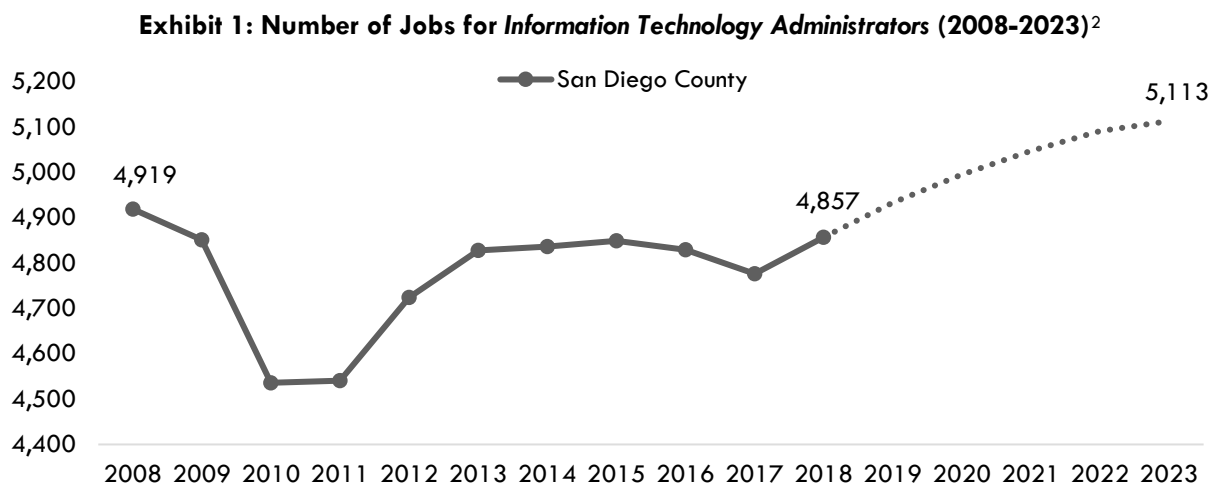
<sup>1</sup> The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](http://bls.gov/soc).

- **Database Administrators** (SOC 15-1141): Administer, test, and implement computer databases, applying knowledge of database management systems. Coordinate changes to computer databases. May plan, coordinate, and implement security measures to safeguard computer databases.
- **Network and Computer Systems Administrators** (SOC 15-1142): Install, configure, and support an organization's local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Monitor network to ensure network availability to all system users and may perform necessary maintenance to support network availability. May monitor and test Web site performance to ensure Web sites operate correctly and without interruption. May assist in network modeling, analysis, planning, and coordination between network and data communications hardware and software. May supervise computer user support specialists and computer network support specialists. May administer network security measures.

For the purpose of this report, these occupations are referred to as *Information Technology Administrators*.

## Projected Occupational Demand

Between 2018 and 2023, *Information Technology Administrators* are projected to increase by 256 jobs or five percent (Exhibit 1). Employers in San Diego County will need to hire 360 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

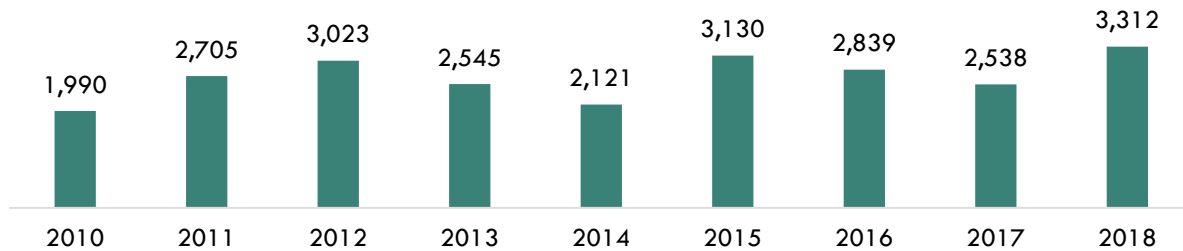


<sup>2</sup> Emsi 2019.01; QCEW, Non-QCEW, Self-Employed.

## Online Job Postings

Between 2010 and 2018, there was an average of 2,689 online job postings per year for *Information Technology Administrators* in San Diego County (Exhibit 2).

**Exhibit 2: Number of Online Job Postings for *Information Technology Administrators* in San Diego County (2010-2018)<sup>3</sup>**



## Earnings

The median hourly earnings of *Information Technology Administrators* range from \$41.28 to \$45.09 (Exhibit 3a). On average, the median hourly earnings for *Information Technology Administrators* is \$43.19; this is more than the Self-Sufficiency Standard for a single adult in San Diego County, which is \$15.99 per hour (Exhibit 3b).<sup>4</sup>

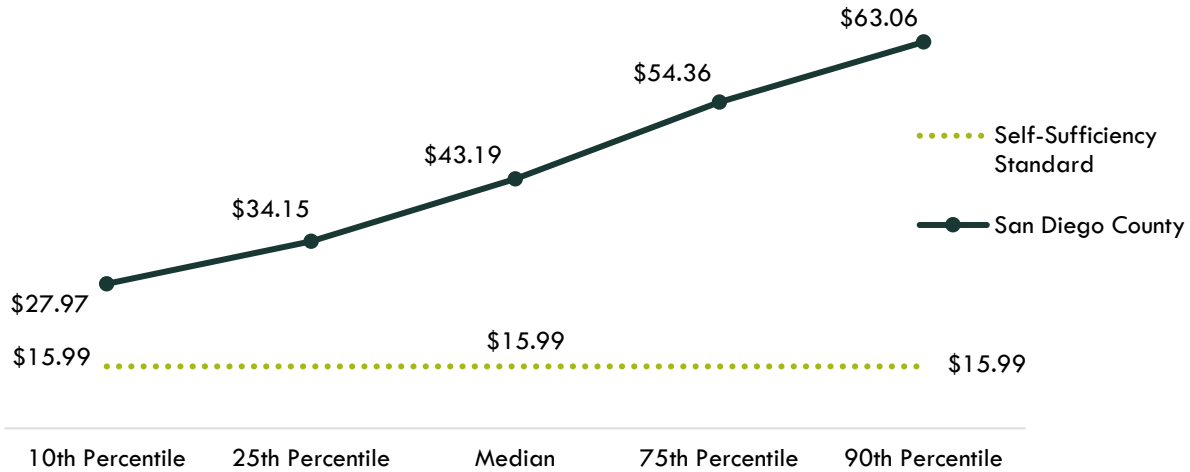
**Exhibit 3a: Hourly Earnings for *Information Technology Administrators* Occupations in San Diego County**

Occupational Title	Entry-Level Hourly Earnings (10 <sup>th</sup> Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (90 <sup>th</sup> Percentile)
Network and Computer Systems Administrators	\$28.06	\$41.28	\$61.64
Database Administrators	\$27.89	\$45.09	\$64.48

<sup>3</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

<sup>4</sup> The self-sufficiency wage in San Diego for one adult is \$15.99 (insightcced.org/2018-self-sufficiency-standard).

**Exhibit 3b: Hourly Earnings<sup>5</sup> for Information Technology Administrators in San Diego County<sup>6</sup>**



## Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.<sup>7</sup> There are **eight** TOP codes and **15** CIP codes related to *Information Technology Administrators* (Exhibit 4).

**Exhibit 4: Related TOP and CIP Codes for Information Technology Administrators**

### Information Technology Administrators

- TOP 070100: Information Technology, General

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- TOP 070200: Computer Information Systems

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- TOP 070720: Database Design and Administration

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- TOP 070800: Computer Infrastructure and Support

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- TOP 070810: Computer Networking

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- TOP 070820: Computer Support

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- TOP 070900: World Wide Web Administration

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- TOP 093430: Telecommunications Technology

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<sup>5</sup> 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

<sup>6</sup> Emsi 2019.01; QCEW, Non-QCEW, Self-Employed.

<sup>7</sup> TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart ([datamart.cccco.edu](http://datamart.cccco.edu)) and CIP data comes from the Integrated Postsecondary Education Data System ([nces.ed.gov/ipeds/use-the-data](http://nces.ed.gov/ipeds/use-the-data)).

### Information Technology Administrators

CIP 11.0101: Computer and Information Sciences, General

CIP 11.0103: Information Technology

CIP 11.0199: Computer and Information Sciences, Other

CIP 11.0301: Data Processing and Data Processing Technology/Technician

CIP 11.0802: Data Modeling/Warehousing and Database Administration

CIP 11.0901: Computer Systems Networking and Telecommunications

CIP 11.1001: Network and System Administration/Administrator

CIP 11.1002: System, Networking, and LAN/WAN Management/Manager

CIP 11.1003: Computer and Information Systems Security/Information Assurance

CIP 11.1004: Web/Multimedia Management and Webmaster

CIP 11.1005: Information Technology Project Management

CIP 11.1006: Computer Support Specialist

CIP 15.1202: Computer Technology/Computer Systems Technology

CIP 15.0305: Telecommunications Technology/Technician

CIP 47.0103: Communications Systems Installation and Repair Technology

According to TOP data, *nine* community colleges supply the region with awards for these occupations: Cuyamaca College, Grossmont College, MiraCosta College, Palomar College, San Diego City College, San Diego Continuing Education, San Diego Mesa College, San Diego Miramar College, and Southwestern College. According to CIP data, *three* other educational institutions supply the region with awards: Advanced Training Associates, California Miramar University, and Coleman University (Exhibit 5).

### **Exhibit 5: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2013-14 through PY2016-17 Average)**

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY14-15 to PY16-17)	Other Educational Institutions 3-Yr Annual Average Awards (PY13-14 to PY15-16)	3-Yr Total Average Supply (PY13-14 to PY16-17)
070100	Information Technology, General	<b>7</b>	<b>0</b>	<b>7</b>
	• Southwestern	7	0	
070200	Computer Information Systems	<b>52</b>	<b>0</b>	<b>52</b>
	• MiraCosta	0	0	
	• Palomar	15	0	
	• San Diego City	5	0	
	• San Diego Mesa	18	0	
	• San Diego Miramar	11	0	
	• Southwestern	3	0	
070800	Computer Infrastructure and Support	<b>21</b>	<b>0</b>	<b>21</b>
	• San Diego City	9	0	
	• San Diego Cont. Ed.	12	0	
070810	Computer Networking	<b>88</b>	<b>0</b>	<b>88</b>
	• Cuyamaca	12	0	
	• Grossmont	4	0	
	• MiraCosta	14	0	
	• Palomar	36	0	
	• San Diego City	19	0	
	• Southwestern	3	0	
070820	Computer Support	<b>33</b>	<b>0</b>	<b>33</b>
	• Palomar	0	0	
	• San Diego Cont. Ed.	28	0	
	• Southwestern	5	0	
070900	World Wide Web Administration	<b>41</b>	<b>0</b>	<b>41</b>
	• Grossmont	5	0	
	• Palomar	7	0	
	• San Diego Cont. Ed.	29	0	

093430	Telecommunications Technology	4	0	4
	• San Diego City	4	0	
11.0101	Computer and Information Sciences, General	0	31	31
	• Advanced Training Associates	0	31	
11.0901	Computer Systems Networking and Telecommunications	0	45	45
	• Coleman University	0	45	
11.1003	Computer and Information Systems Security/Information Assurance	0	11	11
	• California Miramar University	0	0	
	• Coleman University	0	11	
			Total	333

## Demand vs. Supply

Comparing labor demand (annual openings) with labor supply<sup>8</sup> suggests that there is a **supply gap** for these occupations in San Diego County, with 360 annual openings and 333 awards. Comparatively, there are 4,460 annual openings in California and 3,444 awards<sup>9</sup> (Exhibit 6).

### Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

Community Colleges and Other Postsecondary Educational Institutions	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or <b>OverSupply</b>
San Diego	360	333	27
California	4,460	3,444	1,016

**Please note:** This is a basic analysis of supply and demand of labor. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed. Additionally, the data does not include workers who are currently in the labor force who could fill these positions or workers who are not captured by publicly available data.

<sup>8</sup> Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

<sup>9</sup> Centers of Excellence Student Outcomes supply table (coecc.net/Supply-and-Demand.aspx).

## Student Outcomes

Based on the information available in the CTE LaunchBoard, students who took courses in the related TOP codes exhibited the following outcomes (Exhibit 7).

**Exhibit 7: Strong Workforce Program Metrics for TOP 070800: Computer Infrastructure and Support San Diego-Imperial Region vs. California (PY2015-16)**

Metric	San Diego-Imperial	California
Number of course enrollments <sup>10</sup>	818	8,369
Completed 12+ CTE units in one year <sup>11</sup>	106	1,361
Completed 48+ CTE contact hours in one year <sup>12</sup>	22	23
Number of students who got a degree or certificate <sup>13</sup>	N/A	225
Number of students who transferred <sup>14</sup>	29	426
Employed in the second fiscal quarter after exit <sup>15</sup>	65%	65%
Employed in the fourth fiscal quarter after exit <sup>16</sup>	67%	66%
Job closely related to field of study <sup>17</sup>	N/A	N/A
Median earnings in the second fiscal quarter after exit <sup>18</sup>	\$9,761	\$10,986
Median change in earnings <sup>19</sup>	22%	37%
Attained a living wage <sup>20</sup>	51%	62%

<sup>10</sup> The number of enrollments in courses assigned to the TOP code in the selected year.

<sup>11</sup> The number of students who completed 12 or more credit CTE units.

<sup>12</sup> The number of students who completed 48 or more noncredit CTE instructional contact hours.

<sup>13</sup> The number of unduplicated students who earned a locally-issued certificate, Chancellor's Office approved certificate, associate degree, and/or California Community Colleges bachelor's degree in the selected TOP code.

<sup>14</sup> Students who took non-introductory courses or completed a California Community Colleges Chancellor's Office award in the selected TOP code in selected year who subsequently enrolled for the first time in a four-year institution the following year.

<sup>15</sup> Among all exiters with a valid SSN, the percentage who were employed two quarters after exiting California Community Colleges.

<sup>16</sup> Among exiting students with a valid SSN, the percentage who were employed four quarters after exiting California Community Colleges.

<sup>17</sup> Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

<sup>18</sup> Among exiting students, the median second-quarter earnings one year after the year in which they exited California Community Colleges.

<sup>19</sup> Among exiting students with a valid SSN, the percentage change in earnings one year before and one year after exiting California Community Colleges.

<sup>20</sup> Among completers and skills builders who exited, the proportion of students who attained a living wage.



## Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top five employers in San Diego County for these occupations were [General Dynamics](#), [Advantage Sales & Marketing](#), [Northrop Grumman](#), [University of California, San Diego](#), and [Teradata Operations](#) (Exhibit 8).

### Exhibit 8: Top Employers in San Diego County for Information Technology Administrators<sup>21</sup>

Top Employers	
<ul style="list-style-type: none"><li>• General Dynamics</li><li>• Advantage Sales &amp; Marketing</li><li>• Northrop Grumman</li><li>• University of California, San Diego</li><li>• Teradata Operations, Inc.</li></ul>	<ul style="list-style-type: none"><li>• Booz Allen Hamilton Inc.</li><li>• General Atomics</li><li>• Sony Electronics Incorporated</li><li>• SAIC</li><li>• Leidos</li></ul>

## Skills, Education, and Certifications

Exhibit 9a indicates the educational attainment for the occupation found currently in the national labor force. The educational requirement for *Information Technology Administrators* is a bachelor's degree (Exhibit 9a).

### Exhibit 9a: Educational Requirements for Information Technology Administrators Occupations<sup>22</sup>

Occupational Title	Typical Entry-Level Education
Network and Computer Systems Administrators	Bachelor's degree
Database Administrators	Bachelor's degree

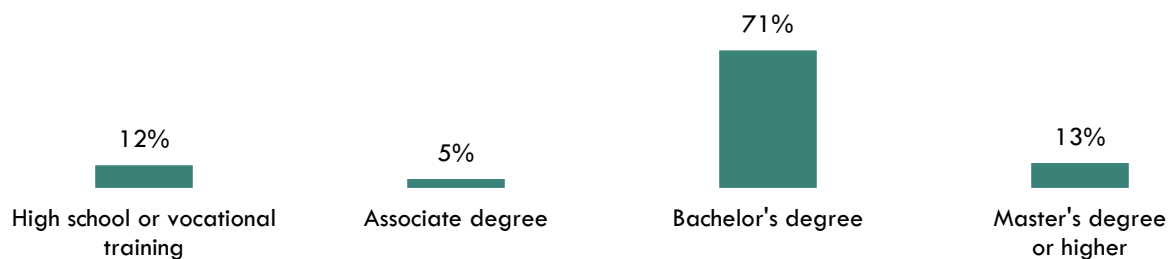
Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Information Technology Administrators* is a [bachelor's degree](#) (Exhibit 9b).<sup>23</sup>

<sup>21</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

<sup>22</sup> Emsi, 2019.01; QCEW, Non-QCEW, Self-Employed.

<sup>23</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

**Exhibit 9b: Educational Requirements for Information Technology Administrators in San Diego County<sup>24</sup>**



\*May not add to 100% due to rounding

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

**Exhibit 10: Top Skills for Information Technology Administrators in San Diego County<sup>25</sup>**

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> <li>• SQL</li> <li>• System Administration</li> <li>• Linux</li> <li>• Database Administration</li> <li>• VMware</li> </ul>	<ul style="list-style-type: none"> <li>• Troubleshooting</li> <li>• Communication Skills</li> <li>• Problem Solving</li> <li>• Planning</li> <li>• Teamwork / Collaboration</li> </ul>	<ul style="list-style-type: none"> <li>• SQL</li> <li>• Linux</li> <li>• VMware</li> <li>• SQL Server</li> <li>• Oracle</li> </ul>

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<sup>24</sup> "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. [bls.gov/emp/tables/educational-attainment.htm](https://bls.gov/emp/tables/educational-attainment.htm).

<sup>25</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

**Important Disclaimers**

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.