










Other Information Technology

Labor Market Analysis for San Diego College of Continuing Education

September 2021

Summary

| NEW PROGRAM RECOMMENDATION? | EVIDENCE OF A SUPPLY GAP? | AT OR ABOVE THE LIVING WAGE? | EXPECTED LEVEL OF EDUCATION |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Proceed with New Program</p> |   |   | <input checked="" type="checkbox"/> Bachelor's Degree+ <input type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate <input type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship |
| SUPPORT FOR PROGRAM MODIFICATION? | NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING | NUMBER OF ANNUAL JOB OPENINGS | |
|   | <p>LOW</p>  | <p>HIGH</p>  | |

This report provides labor market information for an occupation selected by San Diego College of Continuing Education for its *Other Information Technology* program. The training provided by this program is likely to lead to employment as *Computer Occupations, All Other*. According to available labor market information, *Computer Occupations, All Other* in San Diego County have a labor market demand of 726 annual job openings (while average demand for a single occupation in San Diego County is 242 annual job openings). On average, no institution supplies for-credit awards and one institution supplies zero noncredit awards in San Diego County for this occupation. In short, the region supplies zero for-credit and noncredit awards for 726 annual job openings, suggesting that there is a supply gap in the labor market. Entry-level and median wages are above the living wage for this occupation. This brief recommends proceeding with developing a new program or a program modification because 1) there is a supply gap; and 2) entry-level and median wages are above the living wage. The college should note that **the typical entry-level education for this occupation is a bachelor's degree.**

Introduction

This report provides labor market information in San Diego County for an occupation related to the six-digit Taxonomy of Programs (TOP)¹ code, Other Information Technology (TOP 0799.00). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego College of Continuing Education (SDCCE), with program development and review. SDCCE identified one occupation from the Standard Occupational Classification (SOC)² system for *Other Information Technology*, which will be the focus of this report:

Computer Occupations, All Other (SOC 15-1299): All computer occupations not listed separately. "All Other" titles represent occupations with a wide range of characteristics which do not fit into one of the detailed O*NET-SOC occupations. (O*NET Online is an application developed by the U.S. Department of Labor to provide the general public access to labor market information.) O*NET data is not available for this type of title. For more detailed occupations under this title, see below:

- 15-1199.01 Software Quality Assurance Engineers and Testers
- 15-1199.02 Computer Systems Engineers/Architects
- 15-1199.03 Web Administrators
- 15-1199.04 Geospatial Information Scientists and Technologists
- 15-1199.05 Geographic Information Systems Technicians
- 15-1199.06 Database Architects
- 15-1199.07 Data Warehousing Specialists
- 15-1199.08 Business Intelligence Analysts
- 15-1199.09 Information Technology Project Managers
- 15-1199.10 Search Marketing Strategists
- 15-1199.11 Video Game Designers
- 15-1199.12 Document Management Specialists

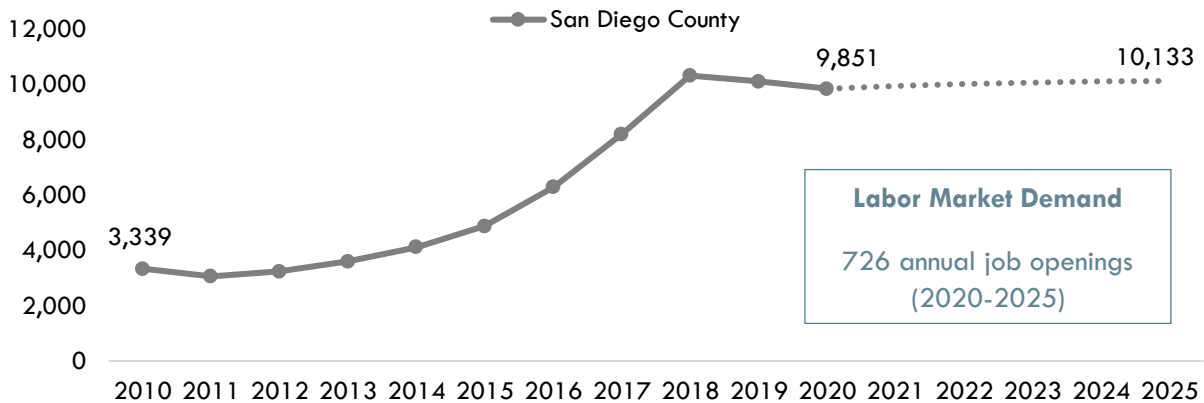
¹ Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.

² 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.

Projected Occupational Demand

Between 2020 and 2025, *Computer Occupations, All Other* is projected to decrease by 282 net jobs or three percent (Exhibit 1). Employers in San Diego County will need to hire 726 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

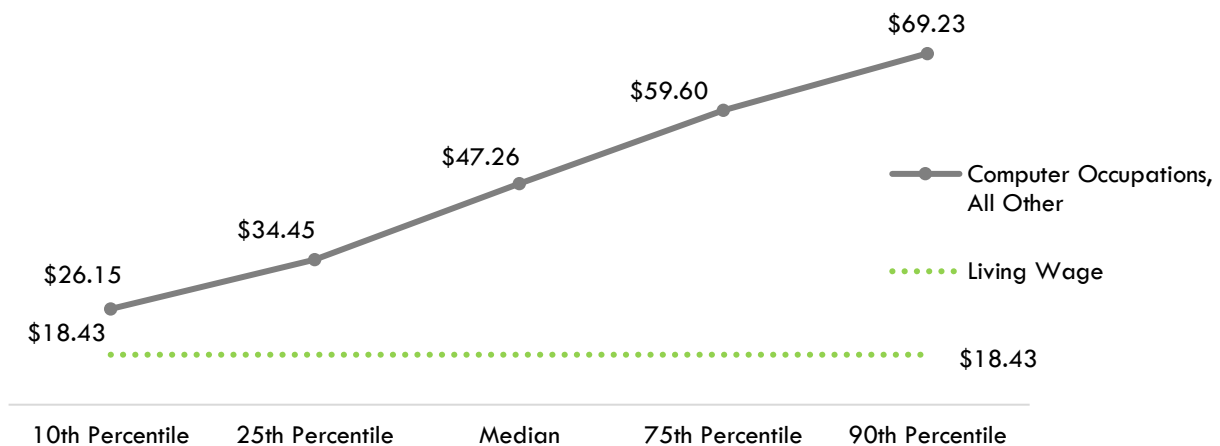
Exhibit 1: Number of Jobs for Computer Occupations, All Other (2010-2025)³



Earnings

Computer Occupations, All Other receive entry-level hourly earnings of \$34.45; this is more than the living wage for a single adult in San Diego County, which is \$18.43 per hour (Exhibit 2).⁴

Exhibit 2: Hourly Earnings⁵ for Computer Occupations, All Other in San Diego County⁶



³ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

⁴ "Family Needs Calculator (formerly the California Family Needs Calculator)," Insight: Center for Community Economic Development, last updated 2021. insightccd.org/family-needs-calculator/.

⁵ 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.

⁶ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

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.⁷ According to TOP and CIP⁸ data, no community college reported supplying the region with for-credit awards for Other Information Technology (TOP 0799.00) (Exhibit 3).

Exhibit 3a: Number of For-Credit Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2017-18 through 2019-20)

| College | Award Type | PY 17-18 | PY 18-19 | PY 19-20 | 3-Yr Total Average |
|--------------|------------|----------|----------|----------|--------------------|
| N/A | N/A | 0 | 0 | 0 | 0 |
| Total | | 0 | 0 | 0 | 0 |

In terms of noncredit awards, only San Diego College of Continuing Education provides noncredit awards for Other Information Technology (TOP 0799.00), with a three-year average of zero noncredit awards (program years 2017-18 through 2019-20) (Exhibit 4).

Exhibit 4: Number of Noncredit Awards Conferred by SDCCE (Program Years 2017-18 through 2019-20)

| Program Title | Award Type | PY 17-18 | PY 18-19 | PY 19-20 | 3-Yr Total Average |
|------------------------------------------|------------|----------|----------|----------|--------------------|
| Cisco Certified Network Associate (CCNA) | Noncredit | 0 | 0 | 1 | 0 |

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

⁸ There are three CIP codes related to Other Information Technology (TOP 0799.00): Computer Software and Media Applications, Other (CIP 11.0899), Computer/Information Technology Services Administration and Management, Other (CIP 11.1099), and Computer and Information Sciences and Support Services, Other (CIP 11.9999).

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁹ suggests that there is a **supply gap** in San Diego County, with **726** annual openings and **zero** for-credit and noncredit awards supplied by the region (Exhibit 5).

Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

| TOP6 Program | Demand (Annual Openings) | Supply (Total Annual Average Supply) | | Supply Gap or Oversupply |
|-----------------------------------------------|--------------------------------|-----------------------------------------|------------|--------------------------------|
| | | Noncredit | For-Credit | |
| Other Information Technology (TOP 0799.00) | 726 | 0 | 0 | 726 |

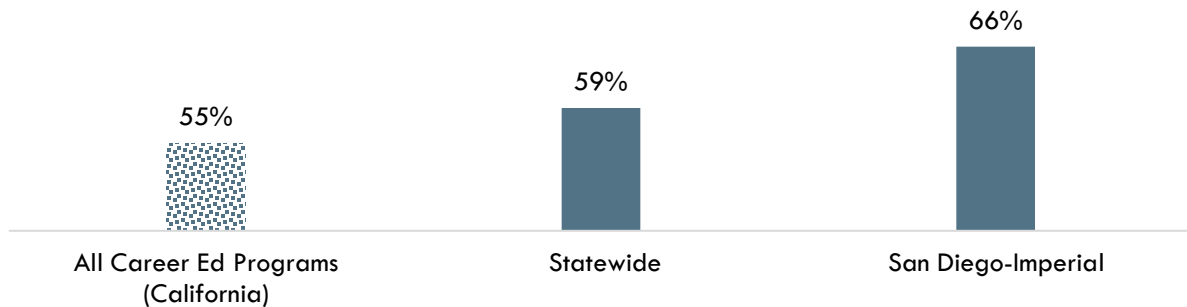
Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers;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

⁹ 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.

Student Outcomes and Regional Comparisons

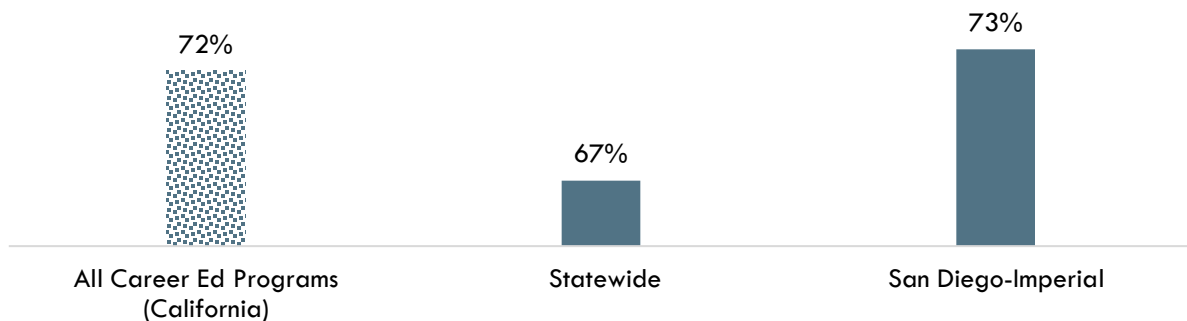
According to the California Community Colleges LaunchBoard, 66 percent of students in the San Diego-Imperial region earned a living wage after completing an Other Information Technology (0799.00) program, compared to 59 percent statewide and 55 percent of students in Career Education programs in general across the state (Exhibit 6a).¹⁰

**Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program
(Other Information Technology, PY 2017-18)¹¹**



According to the California Community Colleges LaunchBoard, 73 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Other Information Technology (0799.00) program, compared to 67 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 6b).¹²

**Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program
(Other Information Technology, PY 2016-17)¹³**



¹⁰ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹¹ Among completers and skills builders who exited, the proportion of students who attained a living wage.

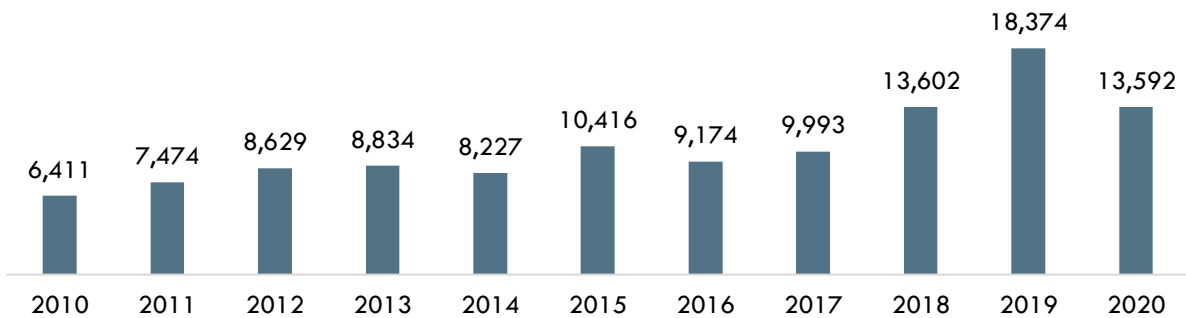
¹² "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹³ Most recent year with available data is Program Year 2016-17. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Online Job Postings

This report analyzes not only historical and projected (traditional LMI) data, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2010 and 2020, there was an average of 10,430 online job postings per year for *Computer Occupations, All Other* in San Diego County (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 7: Number of Online Job Postings for Computer Occupations, All Other in San Diego County (2010-2020)¹⁴



Top Employers

Between January 1, 2018 and December 31, 2020, the top five employers in San Diego County for this occupation were Northrop Grumman, Qualcomm, Booz Allen Hamilton, General Atomics, and Anthem Blue Cross based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for Computer Occupations, All Other in San Diego County¹⁵

| Top Employers | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Northrop Grumman • Qualcomm • Booz Allen Hamilton Inc. • General Atomics • Anthem Blue Cross | <ul style="list-style-type: none"> • University of California San Diego • Deloitte • Teradata Operations, Inc. • Viasat • Accenture |

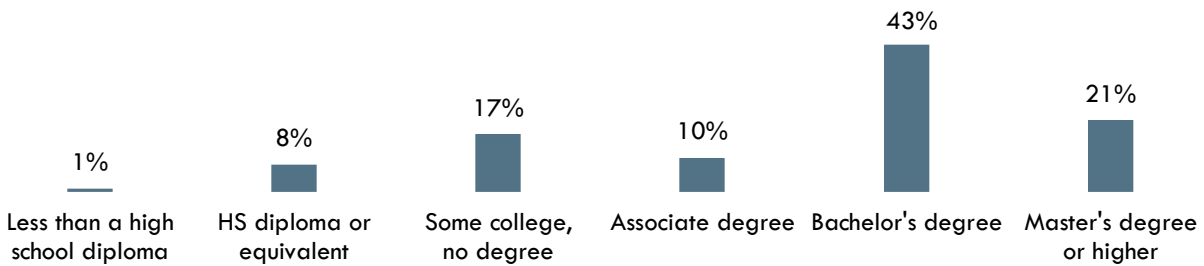
¹⁴ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.

¹⁵ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Education, Skills, and Certifications

Exhibit 9 indicates the educational attainment for this occupation found currently in the national labor force. The typical entry-level education is a [bachelor's degree](#).¹⁶

Exhibit 9: National Educational Attainment of Computer Occupations, All Other¹⁷



*may not total 100 percent due to rounding

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 10: Top Skills for Computer Occupations, All Other in San Diego County¹⁸

| Specialized Skills | Soft Skills | Software Skills |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Project Management • Systems Engineering • Software Development • Quality Assurance and Control • Scheduling • Budgeting • Scrum • Data Analysis • Software Engineering • Information Systems • Project Planning and Development Skills • Systems Integration • Technical Support • Business Process • Product Development | <ul style="list-style-type: none"> • Communication Skills • Teamwork / Collaboration • Planning • Problem Solving • Troubleshooting • Writing • Research • Detail-Oriented • Organizational Skills • Written Communication • Creativity • Verbal / Oral Communication • Presentation Skills • Multi-Tasking • Leadership | <ul style="list-style-type: none"> • SQL • Microsoft Excel • Python • Linux • Java • Scrum • Microsoft PowerPoint • C++ • Atlassian JIRA • Oracle • Microsoft Word • JavaScript • SAP • VMware • Microsoft C# |

¹⁶ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

¹⁷ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified April 4, 2021. bls.gov/emp/tables/educational-attainment.htm.

¹⁸ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Exhibit 11 lists the top certifications that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 11: Top Certifications for Computer Occupations, All Other in San Diego County¹⁹

Top Certifications in Online Job Postings

1. Security Clearance
 2. Project Management Certification
 3. Project Management Professional (PMP)
 4. CompTIA Security+
 5. IT Infrastructure Library (ITIL) Certification
 6. Cisco Certified Network Associate (CCNA)
 7. Certified ScrumMaster (CSM)
 8. Certified Information Systems Security Professional (CISSP)
 9. Microsoft Certified Solutions Associate (MCSA)
 10. Microsoft Certified Solutions Expert (MCSE)
 11. CompTIA Network+
 12. VMware Certified Professional (VCP)
 13. Cisco Certified Network Professional (CCNP)
 14. SANS/GIAC Certification
 15. CompTIA Advanced Security Practitioner (CASP)
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¹⁹ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

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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.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.