

ICT/DIGITAL MEDIA SECTOR PROFILE



**Key Findings from the Los Angeles County
Sector Analysis Project**

August 2021



Prepared by:
Los Angeles County
Center of Excellence
for Labor Market Research

Introduction

To support the collaborative planning and development of career education (CE) programs and to inform regional investments in Los Angeles County, the Los Angeles County Center of Excellence has developed a series of sector profiles examining trends in the labor market and postsecondary education and training programs addressing local hiring needs.¹

These profiles highlight in-demand and well-paid middle-skill jobs—those jobs that typically require some form of education or training beyond a high school diploma, but less than a bachelor’s degree. These occupations are a critical component of the workforce overall and support the economic vitality of the region and state.

This profile of the ICT/digital media sector summarizes key findings on current and projected workforce demand, hourly wages, job postings, and program and training data from area community colleges and other training providers. For the purpose of this analysis, ICT/digital media occupations with a promising outlook have been divided into three groups:

- 1) Digital media/entertainment occupations
- 2) Entry-level ICT occupations
- 3) Pathway ICT occupations

Quick Facts

Employment



218,634
Jobs in 2019

18,207
Annual Job Openings

2%
5-year Projected
Growth

\$38.58
Average Hourly
Earnings

Education



53
Community Colleges and
Other Training Providers
with Programs

61,819
Community College
Students Enrolled
(2018-19)

1,675
Community College
Awards (2019-20)

2,017
Awards from Proprietary
Schools/Other Training
Providers (2018-19)

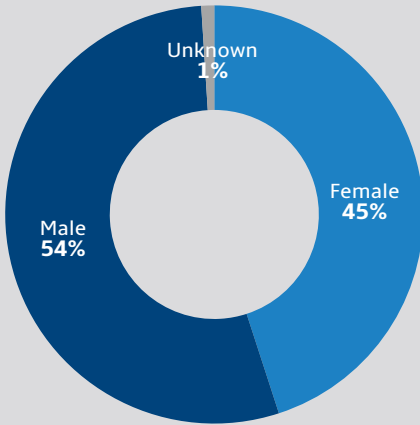


¹ **Impact of the COVID-19 pandemic:** This profile relies largely on 2019 employment and education data preceding the pandemic. The exception is job posting data from 2020. Due to severe economic impacts from the pandemic, job posting data should not be considered an accurate depiction of employer demand; however, the frequency of certain data points can provide insights into the types of workers and skill sets that employers are seeking. Annual job openings are derived from the labor market analytics firm Emsi whose projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. At this time, it is not possible to quantify the economic impact of COVID-19 on projections of occupational employment. A complete list of data sources is provided on the last page of this profile.

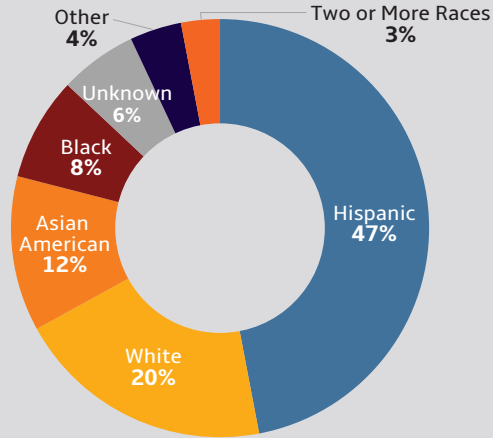
Introduction

Student Demographics

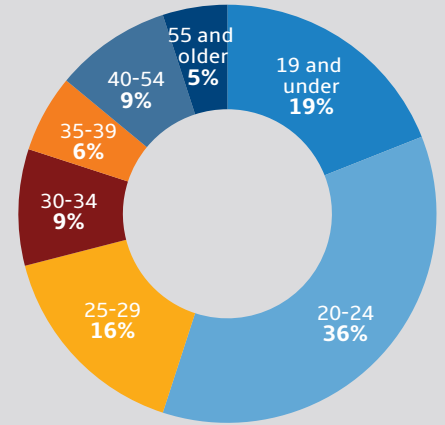
Student Gender



Student Race/Ethnicity²



Student Age



² Due to low percentages the "other" category represents students who selected American Indian/Alaska Native, Filipino, or multiple values. Please note: This report uses race and ethnicity data from LaunchBoard collected by the California Community Colleges. The terms in this document, including white, Hispanic, and Black, adhere to the terms and definitions the California Community Colleges use in collecting its data. For definitions, please refer to <https://webdata.cccco.edu/ded/std/std10.pdf>.

Student Employment Outcomes

Data on community college students exiting ICT/digital media programs in Los Angeles County shows that 62% obtained employment in a job closely related to their field of study in the 2016-17 academic year. On average, these students earned a median income of \$28,188 after exiting a ICT/digital media program.

Exhibit 1. Students with a job closely related to their field of study

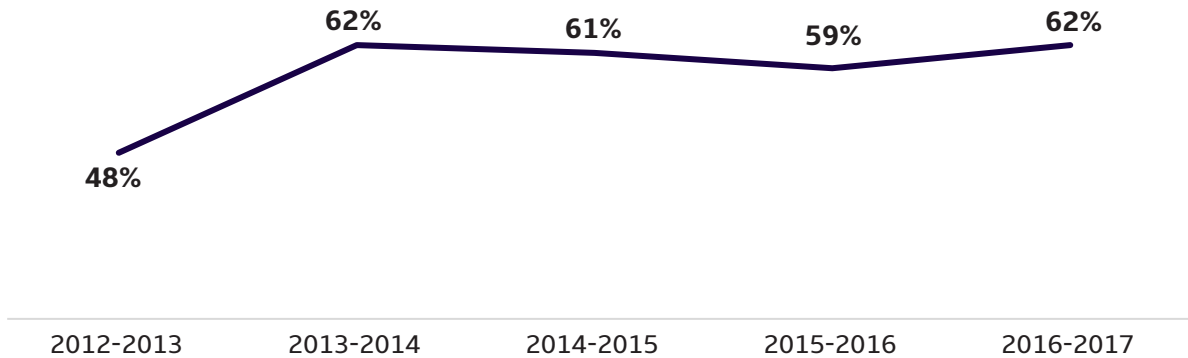
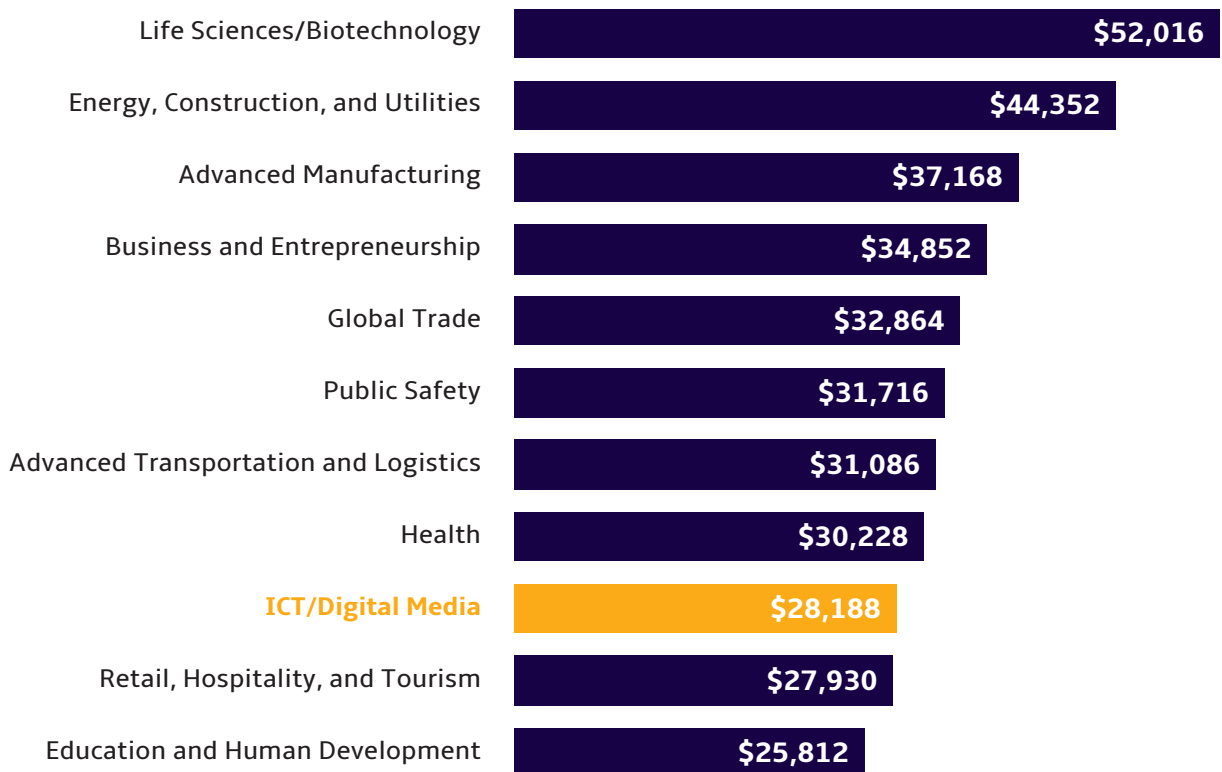


Exhibit 2. Median annual earnings for exiting students, 2017-18

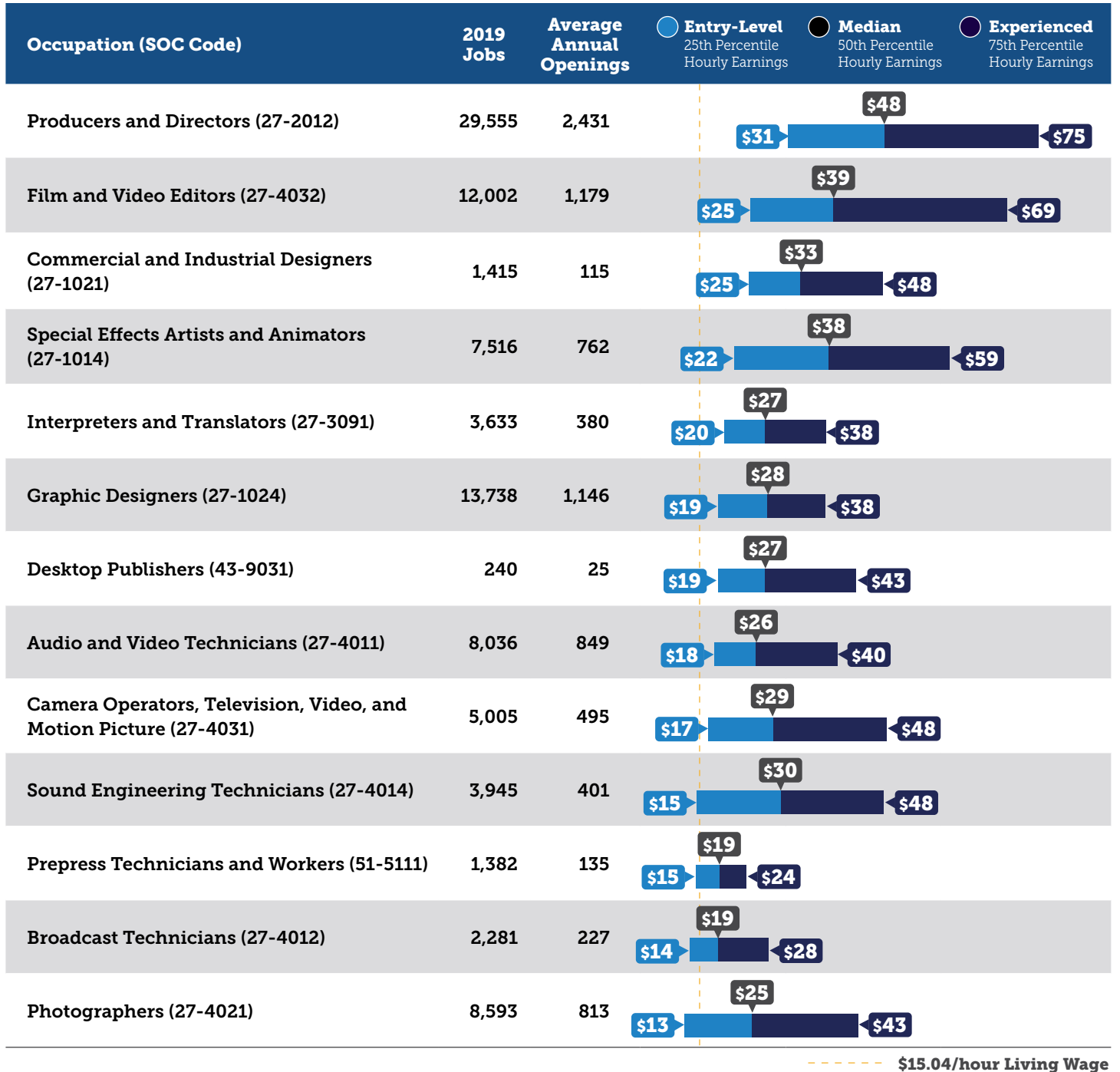


Digital Media/Entertainment Occupations

Employment Demand Analysis

Thirteen digital media/entertainment occupations account for 97,341 jobs in the county. Combined they have 8,960 projected annual openings (new + replacement jobs). The largest occupation, in number of 2019 jobs, is producers and directors. This occupation is projected to have the most annual job openings, 2,431.

Exhibit 3. Occupational employment, annual openings, and wages



Digital Media/Entertainment Occupations

Job Posting Finding

Occupations geared toward design dominate the top 15 job titles for the digital media/entertainment grouping. Common design-related job titles include senior product designer, motion graphic designer, freelance graphic designer, senior graphic designer, and visual designer.

A search of online job postings shows 10,905 postings related to this group of occupations in 2020 in Los Angeles County. The top five job titles for digital media/entertainment occupations were listed in 1,629 postings. The job title that occurred most frequently, graphic designer, appeared in more than 1,000 postings. This occupation had nearly 6 times the number of postings for the second most common job title, product designer, listed in 171 postings.

Exhibit 4. Top job titles in job postings

Job Title	Job Postings
Graphic Designer	1,036
Product Designer	171
Video Editor	165
Junior Graphic Designer	132
Producer	125

In Los Angeles County, employers who posted the most ads for digital media/entertainment occupations were Disney, ATA Translation Agency, and Activision.

Exhibit 5. Top employers in job postings

Employer	Job Postings
Disney	94
Ata Translation Agency	92
Activision	75
NBC	74
Language Line Llc	73

Digital Media/Entertainment Occupations

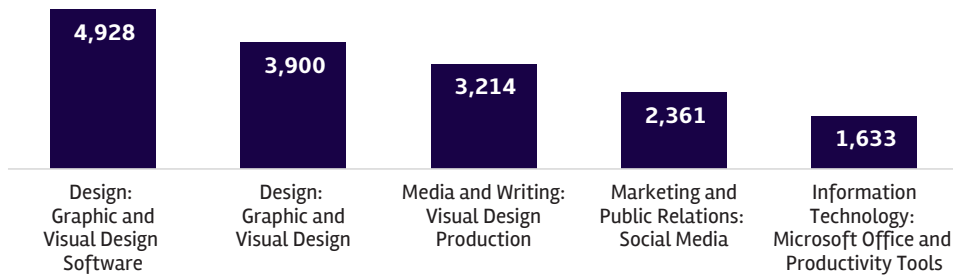
Job posting data can show how employers of the digital/media occupations are concentrated by industry. In Los Angeles County, employment placement agencies posted the most job ads, a total of 252, followed by software publishers, 189 job ads, and television broadcasting, 171 job ads.

Exhibit 6. Top industries in job postings

Industry	Job Postings
Employment Placement Agencies	252
Software Publishers	189
Television Broadcasting	171
Motion Picture and Video Production	112
Cable and Other Subscription Programming	82

One way to determine how in-demand skills coalesce across occupations and industries is to look at skill clusters which can offer a broader picture of employer needs. The design: graphic and visual design/software cluster dominates job postings for the 13 occupations in this grouping; however, some additional skill clusters also emerge in the areas of media and writing, marketing and public relations, and information technology.

Exhibit 7. In-demand skill clusters



Digital Media/Entertainment Occupations

Education & Training Supply Analysis

In Los Angeles County, 17 community colleges and 26 proprietary schools and other training providers offer programs related to the digital media/entertainment occupations. In the 2019-20 academic year, community colleges conferred 714 awards, and in the 2018-19 academic year, proprietary schools and other training providers conferred 1,592 awards.

Exhibit 8. Total awards by academic year³

	2017	2018	2019
Community Colleges	547	745	714
Proprietary Schools & Other Training Providers	1,393	1,538	1,592

Exhibit 9. Education and training programs

Community Colleges	<ul style="list-style-type: none"> · Applied Photography (TOP 1012.00) · Commercial Art (1013.00) · Computer Graphics and Digital Imagery (TOP 0614.60) · Digital Media (TOP 0614.00) · Film Production (TOP 0612.20) · Mass Communications (TOP 0610.00) · Multimedia (0614.10) · Radio (0604.10) · Radio and Television (0604.00) · Television (including combined TV/Film/Video) (TOP 0604.20)
Proprietary Schools and Training Providers	<ul style="list-style-type: none"> · Animation, Interactive Technology, Video Graphics and Special Effects (CIP 10.0304) · Cinematography and Film/Video Production (CIP 50.0602) · Commercial and Advertising Art (CIP 50.0402) · Computer Software and Media Applications, Other (CIP 11.0899) · Digital Communication and Media/Multimedia (CIP 09.0702) · Radio and Television Broadcasting Technology/Technician (CIP 10.0202) · Radio and Television (CIP 09.0701)



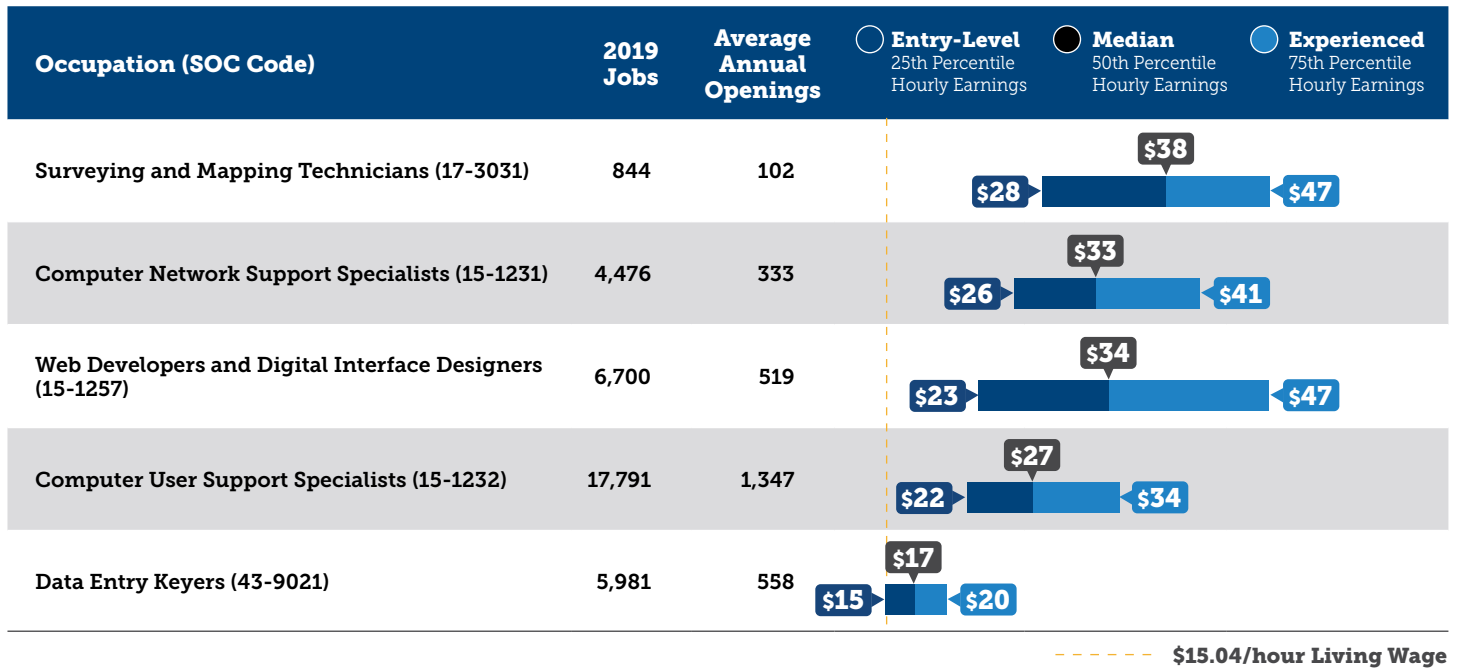
³ Due to different data collection periods, the most recent three-year period of available data for community colleges is 2017-18 to 2019-20 while the three-year period for proprietary schools and other training providers is 2016-17 to 2018-19.

Entry-Level & Pathway ICT Occupations

Entry-level ICT: Employment Demand Analysis

Five occupations are considered entry-level positions for the ICT sector. They account for 35,792 jobs and have a combined total of 2,859 projected annual openings in the county. The largest occupation, computer user support specialists, has substantially more jobs than any other occupation in this category. This occupation also is projected to have the most annual job openings, 1,347.

Exhibit 10. Occupational employment, annual openings, and wages



A search of online job postings shows 17,638 postings related to the entry-level grouping of ICT occupations in 2020 in Los Angeles County. The most advertised job titles are data entry clerk, with 1,040 job postings, and senior front-end engineer, with 212 job postings.

Exhibit 11. Top job titles in job postings

Job Title	Job Postings
Data Entry Clerk	1,040
Senior Front-End Engineer	212
Web Developer	181
Senior Back-End Engineer	171
Desktop Support	170

Entry-Level & Pathway ICT Occupations

Job Posting Finding

Employers of both entry-level and pathway ICT occupations are incredibly varied indicating the broad applicability of skills associated with these occupations. Top employers from defense industry contractors to scientific technology companies to Disney. Other employers include SpaceX, Amazon, Microsoft, and City National Bank.

In Los Angeles County, the employers who posted the most ads for the entry-level grouping of ICT occupations were healthcare provider Anthem Blue Cross and Best Buy.

Exhibit 12. Top employers in job postings

Employer	Job Postings
Anthem Blue Cross	267
Best Buy	109
IBM	90
Morani Enterprise	74
University Of California	56
Northrop Grumman	56

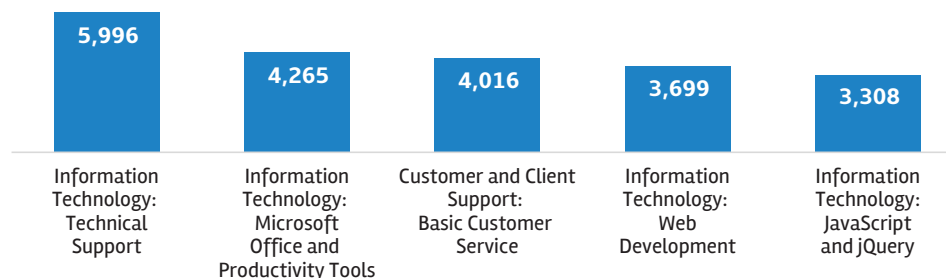
Job posting data can show how employers are concentrated by industry. In Los Angeles County, the industries with the most job postings for entry-level ICT occupations were direct health and medical insurance carriers, software publishers, and electronic stores.

Exhibit 13. Top industries in job postings

Industry	Job Postings
Direct Health and Medical Insurance Carriers	286
Software Publishers	185
Electronics Stores	128
Other Scientific and Technical Consulting Services	94
Colleges, Universities, and Professional Schools	75

An analysis of skill clusters shows that information technology accounts for four of the top five skill clusters among the job postings. Customer and client support is the third most in-demand skill cluster for these entry-level occupations.

Exhibit 14. In-demand skill clusters

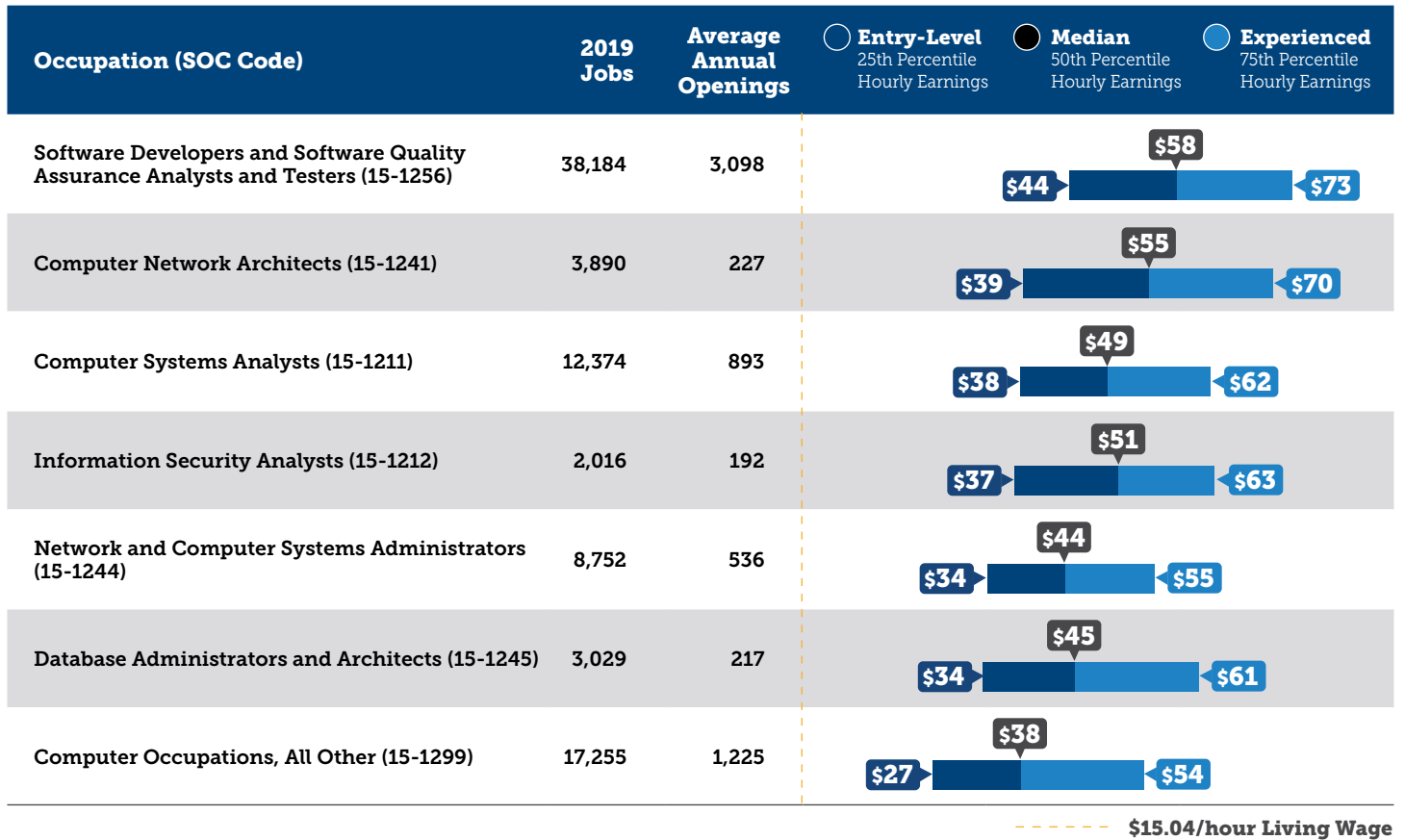


Entry-Level & Pathway ICT Occupations

Pathway ICT: Employment Demand Analysis

Seven occupations represent opportunities for career progression into pathway ICT occupations. These pathway occupations account for 85,501 jobs and have a combined total of 6,388 projected annual openings in the county. Software developers is the largest occupation in this category and has substantially more jobs, a total of 38,184. This occupation also is projected to have the most annual job openings, 3,098.

Exhibit 15. Occupational employment, annual openings, and wages



A search of online job postings shows 76,850 postings related to the grouping of pathway ICT occupations in 2020 in Los Angeles County. The most advertised job titles were senior software engineer and software engineer, appearing in 797 and 700 postings, respectively.

Exhibit 16. Top job titles in job postings

Job Title	Job Postings
Senior Software Engineer	797
Software Engineer	700
Devops Engineer	581
Data Analyst	573
Systems Engineer	446

Entry-Level & Pathway ICT Occupations

In Los Angeles County, the employers that posted the most ads for the pathway ICT occupations were Northrop Grumman, Anthem Blue Cross, and Raytheon.

Exhibit 17. Top employers in job postings

Employer	Job Postings
Northrop Grumman	2,343
Anthem Blue Cross	2,082
Raytheon	1,366
The Boeing Company	1,245
IBM	832

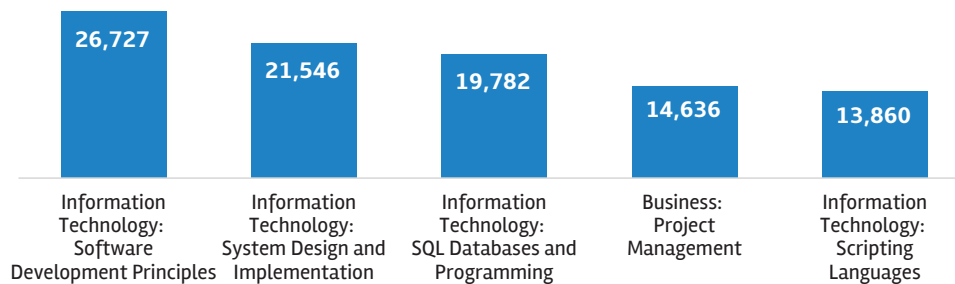
In Los Angeles County, the industries with the greatest concentration of job postings for pathway ICT occupations are aircraft manufacturing, and direct health and medical insurance carriers.

Exhibit 18. Top industries in job postings

Industry	Job Postings
Aircraft Manufacturing	3,826
Direct Health and Medical Insurance Carriers	2,649
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	1,369
Software Publishers	1,290
Other Scientific and Technical Consulting Services	1,070

An analysis of skill clusters shows that information technology skills are highly occurring within job postings for pathway ICT occupations. Skills concentrated within the IT cluster are software development principles; system design and implementation; SQL databases and programming; and scripting languages skills.

Exhibit 19. In-demand skill clusters



Entry-Level & Pathway ICT Occupations

Entry-level and Pathway ICT: Education & Training Supply Analysis

In Los Angeles County, 19 community colleges and 20 proprietary schools and other training providers offer programs related to both entry-level and pathway ICT occupations. In the 2019-20 academic year, community colleges conferred 961 awards, and in the 2018-19 academic year, proprietary schools and other training providers conferred 425 awards.

Exhibit 20. Total awards by academic year⁴

	2017	2018	2019
Community Colleges	679	899	961
Proprietary Schools & Other Training Providers	538	501	425

Exhibit 21. Education and training programs

Community Colleges	<ul style="list-style-type: none"> · Computer Information Systems (TOP 0702.00) · Computer Infrastructure and Support (TOP 0708.00) · Computer Networking (TOP 0708.10) · Computer Programming (TOP 0707.10) · Computer Software Development (TOP 0707.00) · Computer Support (TOP 0708.20) · Computer Systems Analysis (TOP 0707.30) · Database Design and Administration (TOP 0707.20) · E-Commerce (technology emphasis) (TOP 0709.10) · Geographic Information Systems (TOP 2206.10) · Information Technology, General (TOP 0701.00) · Software Applications (TOP 0702.10) · World Wide Web Administration (TOP 0709.00)
Proprietary Schools and Training Providers	<ul style="list-style-type: none"> · Computer and Information Systems Security/Information Assurance (CIP 11.1003) · Computer Programming, Specific Applications (CIP 11.0202) · Computer Programming/Programmer, General (CIP 11.0201) · Computer Software and Media Applications, Other (CIP 11.0899) · Computer Systems Analysis/Analyst (CIP 11.0501) · Computer Systems Networking and Telecommunications (CIP 11.0901) · Data Modeling/Warehousing and Database Administration (CIP 11.0802) · Geographic Information Science and Cartography (CIP 45.0702) · Network and System Administration/Administrator (CIP 11.1001) · Web Page, Digital/Multimedia and Information Resources Design (CIP 11.0801) · Web/Multimedia Management and Webmaster (11.1004)



⁴ Due to different data collection periods, the most recent three-year period of available data for community colleges is 2017-18 to 2019-20 while the three-year period for proprietary schools and other training providers is 2016-17 to 2018-19.

Cybersecurity & Cloud Computing

In light of the cutting-edge training being offered by Long Beach City College’s Center of Academic Excellence in Cyber Defense, which is sponsored and designated by the Department of Defense (DoD) and National Security Agency (NSA), and given the broad provision of other cybersecurity and cloud computing programs in the county, a summary of programs in Los Angeles County was compiled.

Exhibit 22. Regional cloud computing and cybersecurity programs

Program Area	Program Name	Colleges
Cloud Computing	Cloud Computing	Cerritos, East L.A., L.A. City, L.A. Harbor, L.A. Mission, L.A. Southwest, L.A. Valley, Long Beach City, Santa Monica
	Cloud Computing and Networking for Amazon Web Services; Cloud Computing Fundamentals for Amazon Web Services; Cloud Computing with Amazon Web Services; CIS Cloud Computing for Amazon Web Services	El Camino, L.A. Pierce, Mt. SAC, West L.A.
	Cloud, Networking, and Cybersecurity	L.A. Pierce
	Computer Information Technology/Cloud Computing Practitioner	Rio Hondo
Cybersecurity	Computer Information Systems - Cybersecurity	Pasadena City
	Computer Information Technology: Cybersecurity	L.A. City, Long Beach City, Rio Hondo
	Computer Information Technology: Cybersecurity Technician	Rio Hondo
	Cybersecurity	Cerritos, El Camino, L.A. City, L.A. Mission, L.A. Pierce, Long Beach City
	Cyber Security Associate	L.A. Mission
	ICT – Cyber Security Technology Essentials, Computer Science: Homeland Security and Computer Network Administrator	L.A. Southwest
	Computer Network & Security Management, Network & Information System Security	Long Beach City, Mt. SAC, West L.A.

More About the Centers of Excellence

The Centers of Excellence (COE) for Labor Market Research deliver regional workforce research and technical expertise to California Community Colleges for program decision-making and resource-development. This information has proven valuable to colleges in beginning, revising, or updating economic development and Career Education (CE) programs, strengthening grant applications, assisting in the accreditation process, and in supporting strategic planning efforts.

The Centers of Excellence Initiative is funded in part by the Chancellor's Office, California Community Colleges, Economic and Workforce Development Program. The Centers aspire to be the leading source of regional workforce information and insight for California Community Colleges. More information about the Centers of Excellence is available at coecc.net.

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To download a copy of this, visit LA/Orange County under *Studies by Region* coecc.net.

Sources

Emsi 2021.1, QCEW, non-QCEW, Self-Employed; Centers of Excellence Skill/Occupation Crosswalk; Burning Glass Technologies' Labor Insight Real-time Labor Market Information tool; CalPASS Plus/LaunchBoard; California Community Colleges Chancellor's Office Data Mart; Integrated Postsecondary Education Data System (IPEDS); Chancellor's Office Curriculum Inventory System (COCI).

Important Disclaimer

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 college/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.

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