Labor Market Assessment: Information Technology
Information Technology (Associate Degree)
Computer Network Administration and Security Management (Associate Degree)
Los Angeles County Center of Excellence, May 2022

Summary

Program Endorsement:	Endorsed: All Criteria Met	☐	Endorsed: Some Criteria Met	☒	Not Endorsed	☐
Program Endorsement Criteria						
Supply Gap:	Yes ☑				No ☐	
Living Wage: (Entry-Level, 25th)	Yes ☑				No ☐	
Education:	Yes ☐				No ☑	
Emerging Occupation(s)						
Yes ☐				*No* ☑		

The Los Angeles County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to eight occupations:

- *Computer and information systems managers* (11-3021);
- *Computer systems analysts* (15-1211);
- *Information security analysts* (15-1212);
- *Computer network support specialists* (15-1231);
- *Computer user support specialists* (15-1232);
- *Computer network architects* (15-1241);
- *Network and computer systems administrators* (15-1244); and
- *Computer programmers* (15-1251)

Although six of the eight occupations in this report typically require a bachelor's degree and are not traditionally considered middle-skill[1], community college programs have historically trained students for entry-level jobs or provided the foundational knowledge necessary for other programs, as well as for transferring. This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

---

[1] The COE classifies middle-skill jobs as the following:
- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

Based on the available data, there appears to be a supply gap in the region for the occupations of interest. Although all eight occupations in this report have entry-level wages exceeding the self-sufficiency standard wage for one adult in both Los Angeles and Orange counties, the majority typically require a bachelor's degree. **Due to some of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

Demand:
- *Supply Gap Criteria –* Over the next five years, there is projected to be **7,151 jobs available annually** in the region due to new job growth and replacements, **which is more than the 2,175 awards conferred annually** by educational institutions in the region.
- *Living Wage Criteria –* In Los Angeles County, all eight occupations have entry-level wages **above** the self-sufficiency standard wage ($18.10/hour).[2]
- *Educational Criteria –* The Bureau of Labor Statistics (BLS) lists a bachelor's degree as the typical entry-level education for six of the eight occupations of interest. Specifically, the two listing some type of community college training are *computer network support specialists* (15-1231) and *computer user support specialists* (15-1232).
    - National-level educational attainment data indicates **between 20% and 40% of workers in the field have completed some college or an associate degree.**

Supply:
- Between 2017 and 2020, **28 community colleges** in the LA/OC region issued awards in programs that have historically trained for the occupations of interest, conferring an average of **1,203 awards.**
- Between 2016 and 2019, non-community college institutions in the region conferred an average of **972 awards** in relevant programs.

---

[2] Self-Sufficiency Standard Wage data was pulled from The Self-Sufficiency Standard Tool for California. For more information, visit: http://selfsufficiencystandard.org/california.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for the eight occupations of interest. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to remain steady through 2025. There will be 7,151 job openings per year through 2025 due to job growth and replacements.

This report includes employment projection data by Emsi which uses EDD information. Emsi's 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. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the full impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the full impacts of COVID-19 into account.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties[3]

Geography	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change	Annual Openings
Los Angeles	68,022	67,857	(165)	0%	4,877
Orange	30,232	30,804	572	2%	2,276
Total	**98,253**	**98,661**	**408**	**0%**	**7,151**

Wages

The labor market endorsement in this report considers the hourly wages for the eight occupations of interest in Los Angeles County, as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the LA/OC region. Detailed wage information, by county, is included in Appendix A.

Los Angeles County — All eight occupations have entry-level wages **above** the self-sufficiency standard wage for one adult ($18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between $22.00 and $65.63, with *computer and information systems managers* earning the highest wages.

Orange County — All eight occupations have entry-level wages **above** the self-sufficiency standard wage for one adult ($20.63 in Orange County). Typical entry-level hourly wages are in a range between $21.17 and $63.57, with *computer and information systems managers* earning the highest wages.

---

[3] Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Job Postings

Over the past 12 months, there have been 50,827 online job postings related to the occupations of interest. The highest number of job postings were for systems administrators, business systems analysts, network engineers, IT support specialists, security engineers, information security analysts, desktop support technicians, IT technicians, IT specialists, cyber security analysts, and IT support technicians. The top skills were technical support, customer service, help desk support, project management, repair, SQL, IT support, hardware/software installation, and system administration. The top employers, by number of job postings, in the region were Boeing, Anthem Blue Cross, Northrop Grumman, Best Buy, Raytheon, Deloitte, and Accenture.

It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the full impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.

Educational Attainment

The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

- **Bachelor's degree:** *computer and information systems managers* (11-3021); *computer systems analysts* (15-1211); *information security analysts* (15-1212); *computer network architects* (15-1241); *network and computer systems administrators* (15-1244); *computer programmers* (15-1251)
- **Associate degree:** *computer network support specialists* (15-1231)
- **Some college, no degree:** *computer user support specialists* (15-1232)

National-level educational attainment data indicates that between 20% and 40% of workers in the field have completed some college or an associate degree.

Educational Supply

Community College Supply — Exhibit 2 shows the annual and three-year average number of awards conferred by community colleges in programs that have historically trained for the occupations of interest. The colleges with the most completions in the region are Mt. San Antonio, Long Beach, and Cypress.

Exhibit 2: Regional community college awards (certificates and degrees), 2017-2020

TOP	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
0701.00	Information Technology, General	East LA	15	23	10	16
		LA Harbor	6	-	-	2
		LA Mission	1	1	3	2
		Long Beach	25	34	64	41
		Mt San Antonio	79	74	90	81
		Santa Monica	-	39	-	13
		West LA	4	4	5	4
	Supply Subtotal/Average		**130**	**175**	**172**	**159**
0702.00	Computer Information Systems	Citrus	7	5	8	7
		Compton	-	1	-	0
		Cypress	8	5	4	6
		East LA	16	19	15	17
		El Camino	18	14	21	18
		Fullerton	20	15	11	15
		Glendale	-	-	5	2
		Irvine Valley	-	-	2	1
		LA City	4	1	1	2
		LA Mission	9	5	1	5
		LA Trade	14	8	20	14
		Mt San Antonio	-	-	79	26
		Orange Coast	3	4	2	3
		Pasadena	1	-	-	0
		Rio Hondo	19	21	10	17
		Santa Ana	6	4	2	4
		Santiago Canyon	2	3	4	3
		West LA	6	8	10	8
	Supply Subtotal/Average		**133**	**113**	**195**	**147**
0702.10	Software Applications	Cerritos	3	9	6	6
		Coastline	4	9	8	7
		Irvine Valley	22	39	48	36
		LA City	-	-	1	0

		LA Mission	7	2	-	3
		LA Southwest	2	1	-	1
		Long Beach	-	-	7	2
		Mt San Antonio	3	1	2	2
		Saddleback	3	2	7	4
		Santa Monica	10	18	13	14
	Supply Subtotal/Average		**54**	**81**	**92**	**76**
0707.00	Computer Software Development	Cypress	1	1	1	1
		Golden West	3	4	2	3
		LA City	-	1	-	0
		Orange Coast	7	7	2	5
		Saddleback	3	13	3	6
	Supply Subtotal/Average		**14**	**26**	**8**	**16**
0707.10	Computer Programming	Cerritos	4	-	2	2
		Citrus	-	-	1	0
		Cypress	18	22	20	20
		East LA	6	8	4	6
		Fullerton	-	16	28	15
		Glendale	2	2	3	2
		Irvine Valley	10	8	4	7
		LA City	-	-	6	2
		LA Mission	5	6	4	5
		LA Pierce	9	18	4	10
		LA Southwest	1	-	1	1
		LA Valley	10	7	6	8
		Long Beach	2	4	5	4
		Mt San Antonio	62	119	114	98
		Orange Coast	29	31	157	72
		Pasadena	8	11	21	13
		Santa Ana	1	13	1	5
		Santa Monica	42	44	46	44
		Santiago Canyon	30	9	3	14
		West LA	-	1	-	0
	Supply Subtotal/Average		**239**	**319**	**430**	**329**
0707.30	Computer Systems Analysis	Cerritos	4	2	3	3
		Cypress	5	2	-	2
		East LA	-	-	1	0
		LA Mission	-	-	1	0
	Supply Subtotal/Average		**9**	**4**	**5**	**6**

0708.00	Computer Infrastructure and Support	Cerritos	-	-	4	1
		Coastline	65	49	46	53
		Cypress	1	2	3	2
		Glendale	-	-	3	1
		LA City	-	-	3	1
		LA Harbor	1	1	1	1
		LA Mission	-	2	12	5
		LA Valley	8	5	2	5
		Long Beach	1	3	8	4
		Mt San Antonio	20	24	24	23
		Orange Coast	-	-	7	2
		Pasadena	-	1	1	1
		Rio Hondo	-	-	9	3
		West LA	-	4	15	6
Supply Subtotal/Average			**96**	**91**	**138**	**108**
0708.10	Computer Networking	Cerritos	8	11	9	9
		Coastline	12	38	59	36
		Cypress	37	70	95	67
		Glendale	6	3	3	4
		Irvine Valley	12	11	21	15
		LA City	37	23	-	20
		LA Pierce	23	39	20	27
		Long Beach	27	55	47	43
		Mt San Antonio	2	8	11	7
		Rio Hondo	-	5	7	4
		Saddleback	17	10	21	16
		Santa Ana	7	14	12	11
		West LA	43	77	48	56
Supply Subtotal/Average			**231**	**364**	**353**	**316**
0708.20	Computer Support	Citrus	-	-	1	0
		Cypress	1	3	5	3
		Glendale	3	10	7	7
		LA Pierce	7	9	8	8
		Long Beach	1	8	14	8
		Pasadena	3	7	30	13
		Santa Ana	10	9	-	6
Supply Subtotal/Average			**25**	**46**	**65**	**45**
Supply Total/Average			**931**	**1,219**	**1,458**	**1,203**

Non-Community College Supply — For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that may provide training programs for the occupations of interest. Exhibit 3 shows the annual and three-year average number of awards conferred in relevant programs. Due to different data collection periods, the most recent three-year period of available data is from 2016 to 2019. Between 2016 and 2019, non-community college institutions conferred an average of 972 awards.

Exhibit 3: Regional non-community college awards, 2016-2019

CIP	Program	Institution	2016-17 Awards	2017-18 Awards	2018-19 Awards	3-Year Average
11.0101	Computer and Information Sciences, General	Azusa Pacific University	19	26	30	25
		Brand College	-	2	-	1
		Brandman University	26	20	20	22
		Chapman University	5	12	13	10
		Loyola Marymount University	19	42	32	31
		Pacific States University	1	-	2	1
		The Master's University and Seminary	7	6	7	7
		University of California-Irvine	1	-	1	1
		University of La Verne	19	18	39	25
		University of the People	57	100	80	79
		Vanguard University of Southern California	-	1	-	-
11.0103	Information Technology	Abraham Lincoln University	-	1	1	1
		Brand College	28	37	50	38
		California Intercontinental University	1	-	-	-
		California State University-Dominguez Hills	-	1	5	2
		California State University-Los Angeles	117	162	158	146
		California State University-Northridge	43	54	54	50
		Platt College-Anaheim	-	1	11	4

		Platt College-Los Angeles	-	-	6	2
		Stanbridge University	25	-	-	8
		Trident University International	74	93	75	81
		University of La Verne	-	-	3	1
		University of Phoenix-California	16	60	57	44
11.0201	Computer Programming/ Programmer, General	ABCO Technology	18	23	29	23
		Platt College-Anaheim	-	4	4	3
		University of Phoenix-California	43	27	5	25
11.0501	Computer Systems Analysis/Analyst	Brand College	4	2	-	2
		DeVry University-California	94	55	49	66
		University of Phoenix-California	4	4	-	3
11.0901	Computer Systems Networking and Telecommunications	Brand College	2	-	2	1
		DeVry University-California	135	106	86	109
		Mt Sierra College	5	4	-	3
		University of Phoenix-California	27	18	3	16
11.1001	Network and System Administration/ Administrator	ABCO Technology	-	13	5	6
		Brand College	2	6	23	10
		California Intercontinental University	-	1	3	1
		University of Phoenix-California	1	12	13	9
11.1002	System, Networking, and LAN/ WAN Management/ Manager	ABCO Technology	10	7	9	9
11.1003	Computer and Information	Azusa Pacific University	3	-	-	1

	Systems Security/ Information Assurance	Learnet Academy Inc.	48	17	-	22
		Mt Sierra College	8	13	-	7
		University of Phoenix-California	71	42	32	48
11.1005	Information Technology Project Management	California Intercontinental University	2	-	1	1
11.1006	Computer Support Specialist	Southern California Institute of Technology	16	26	25	22
		University of Phoenix-California	1	2	-	1
15.1202	Computer Technology/ Computer Systems Technology	Learnet Academy Inc.	11	1	-	4
	Supply Total/Average		**963**	**1,019**	**933**	**972**

Appendix A: Occupational demand and wage data by county

Exhibit 4. Los Angeles County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Computer and Information Systems Managers (11-3021)	15,921	15,951	29	0%	1,190	$65.63	$82.61	$101.61
Computer Systems Analysts (15-1211)	12,666	12,709	43	0%	898	$39.87	$52.38	$65.54
Information Security Analysts (15-1212)	2,055	2,275	220	11%	196	$44.35	$55.78	$68.13
Computer Network Support Specialists (15-1231)	4,029	4,055	25	1%	302	$26.93	$32.50	$40.31
Computer User Support Specialists (15-1232)	16,719	16,786	68	0%	1,245	$22.00	$28.17	$36.69
Computer Network Architects (15-1241)	3,494	3,422	(72)	(2%)	204	$41.92	$58.30	$72.80
Network and Computer Systems Administrators (15-1244)	7,920	7,831	(89)	(1%)	508	$35.55	$45.97	$57.22
Computer Programmers (15-1251)	5,217	4,828	(389)	(7%)	333	$34.51	$46.12	$58.21
Total	**68,022**	**67,857**	**(165)**	**0%**	**4,877**	**-**	**-**	**-**

Exhibit 5. Orange County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Computer and Information Systems Managers (11-3021)	6,887	6,976	90	1%	530	$63.57	$80.00	$98.34
Computer Systems Analysts (15-1211)	5,798	5,931	133	2%	432	$38.72	$50.84	$63.60
Information Security Analysts (15-1212)	992	1,141	149	15%	105	$42.81	$53.85	$65.78
Computer Network Support Specialists (15-1231)	1,696	1,746	51	3%	134	$26.33	$31.80	$39.50
Computer User Support Specialists (15-1232)	7,511	7,767	256	3%	600	$21.17	$27.10	$35.30
Computer Network Architects (15-1241)	1,661	1,676	15	1%	102	$40.88	$56.79	$70.90
Network and Computer Systems Administrators (15-1244)	3,225	3,258	33	1%	215	$34.54	$44.67	$55.59
Computer Programmers (15-1251)	2,463	2,308	(154)	(6%)	158	$33.44	$44.46	$56.05
Total	**30,232**	**30,804**	**572**	**2%**	**2,276**	**-**	**-**	**-**

Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Typical Entry-Level Education
Computer and Information Systems Managers (11-3021)	22,808	22,927	119	1%	1,720	Bachelor's degree
Computer Systems Analysts (15-1211)	18,464	18,640	176	1%	1,330	Bachelor's degree
Information Security Analysts (15-1212)	3,047	3,416	369	12%	301	Bachelor's degree
Computer Network Support Specialists(15-1231)	5,725	5,801	76	1%	436	Associate degree
Computer User Support Specialists (15-1232)	24,229	24,553	324	1%	1,845	Some college, no degree
Computer Network Architects (15-1241)	5,155	5,098	(57)	(1%)	306	Bachelor's degree
Network and Computer Systems Administrators (15-1244)	11,145	11,089	(56)	(1%)	723	Bachelor's degree
Computer Programmers (15-1251)	7,680	7,136	(544)	(7%)	490	Bachelor's degree
Total	**98,253**	**98,661**	**408**	**0%**	**7,151**	**-**

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women's Welfare, University of Washington
- Chancellor's Office Curriculum Inventory (COCI 2.0)

For more information, please contact:

Luke Meyer, Director
Los Angeles County Center of Excellence
lmeyer7@mtsac.edu