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The LA -19 is leading industry -education partnerships to collaboratively strengthen our region's talent development ecosystem

1. Data-driven research on the supply and demand for talent

2. Industry Councils and Regional Program Advisories

3. Developing work-based learning and employment opportunities

For more information, visit: www.CompetitiveWorkforce.LA

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Current Landscape

For Information & Communications Technology, industrial employment is measured using 10 NAICS codes

- Commercial Printing (Except screen and books)
- Radio and TV Broadcasting & Wireless Communications Equipment Manufacturing
- Electronic Shopping and Mail-Order Houses
- Software Publishers
- Wired & Wireless Telecommunications Carriers
- Data processing, hosting and related services
- Internet Publishing and Web Search Browsers
- Custom Computer Programming
- Computer Systems Design Services
- Corporate, Subsidiary and Managing Offices

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Current Landscape

Information and Communications Technology Employment
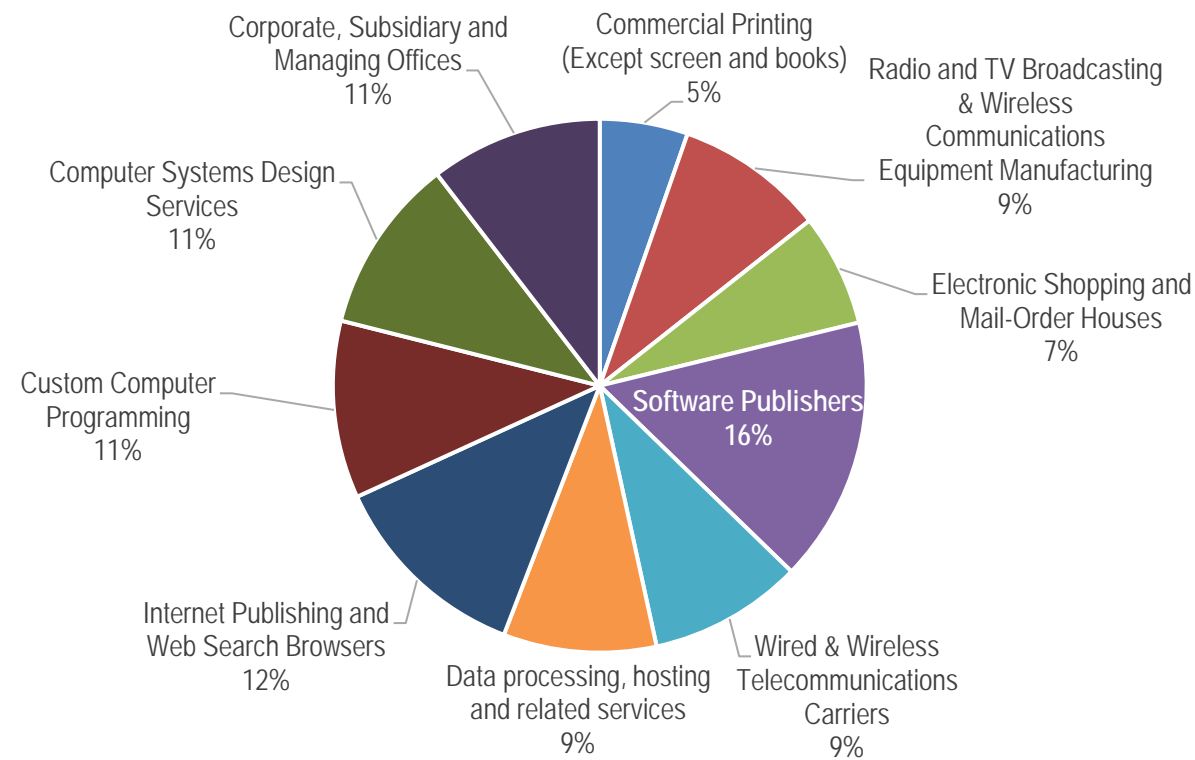### Los Angeles County, 2011 - 2021
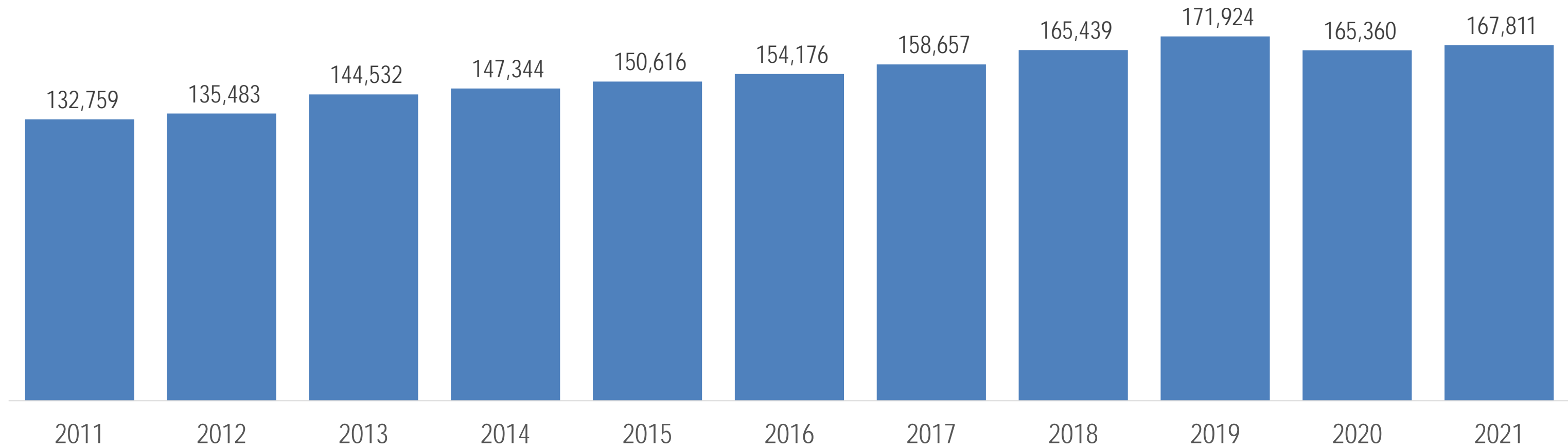
Source: CA EDD

Information and Communications Technology (ICT) employment has seen a general upward trend for the last 10 years, never dipping below the 2011 mark of near 133,000 employees.

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Change in Information and Communications Technology Employment
Los Angeles County, 2011 - 2021

Employment Distribution for ICT Industries
Los Angeles County 2011

Employment Distribution for ICT Industries
Los Angeles County 2021
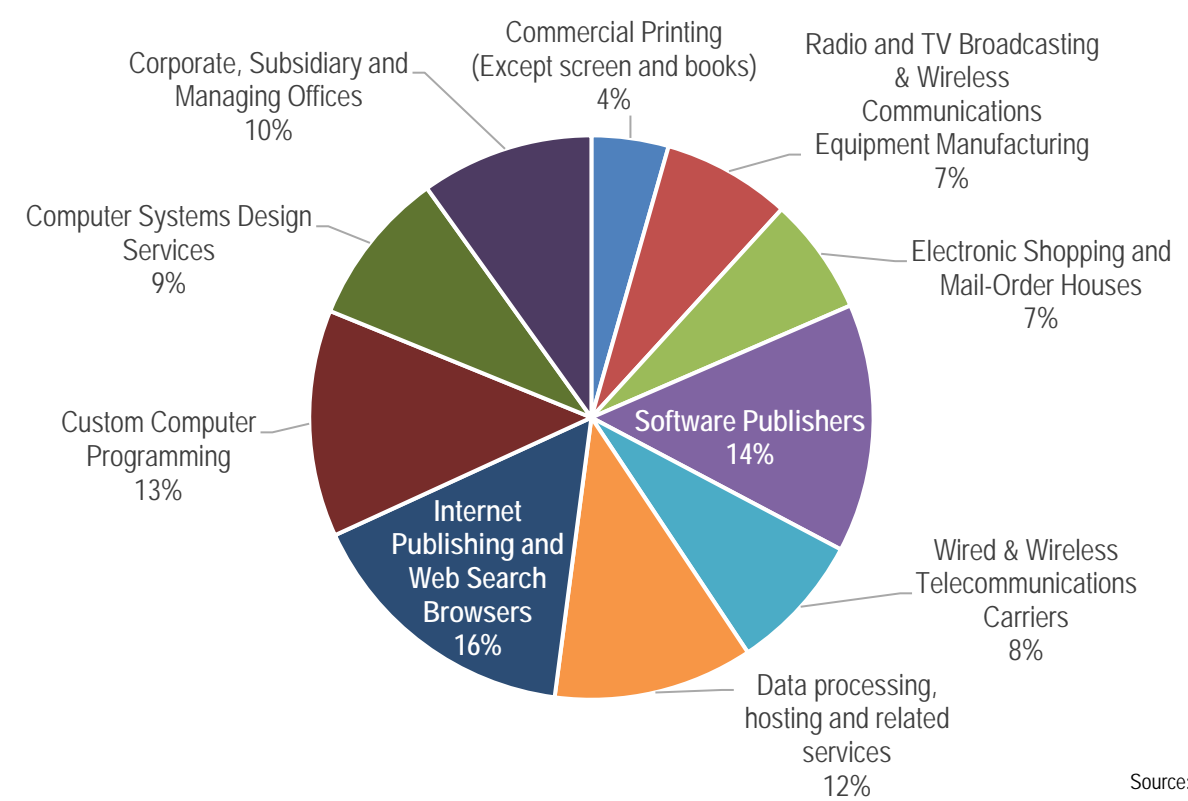
In 2011 the largest industry was Software Publishing, with a 16 percent share of employment. By 2021, the Internet Publishing and Web Search Browsers industry surpassed Software Publishing and held the largest share of employment with 16 percent.

Current Landscape

Average Annual Pay in Information and Communications Technology Industries

Los Angeles County 2021

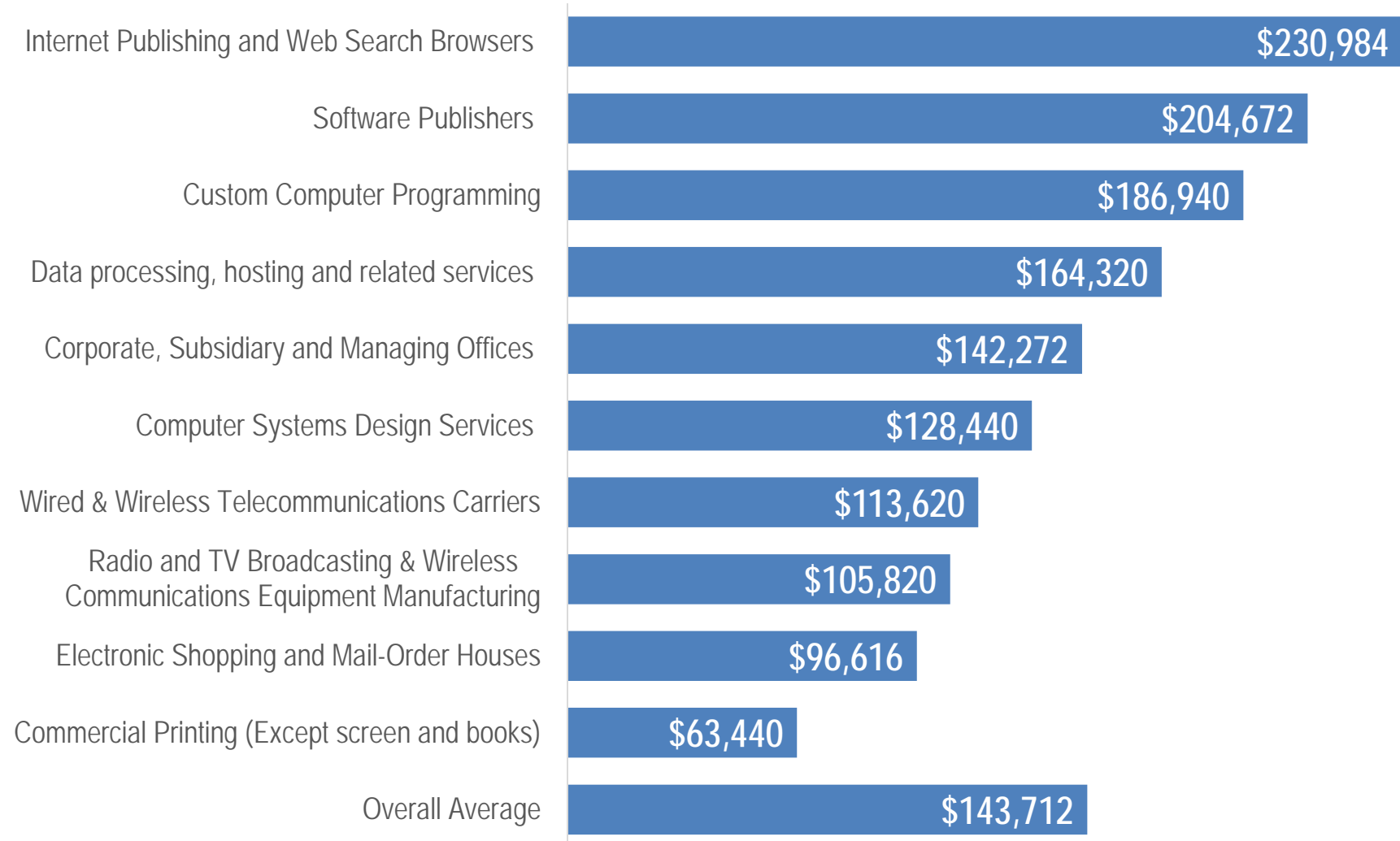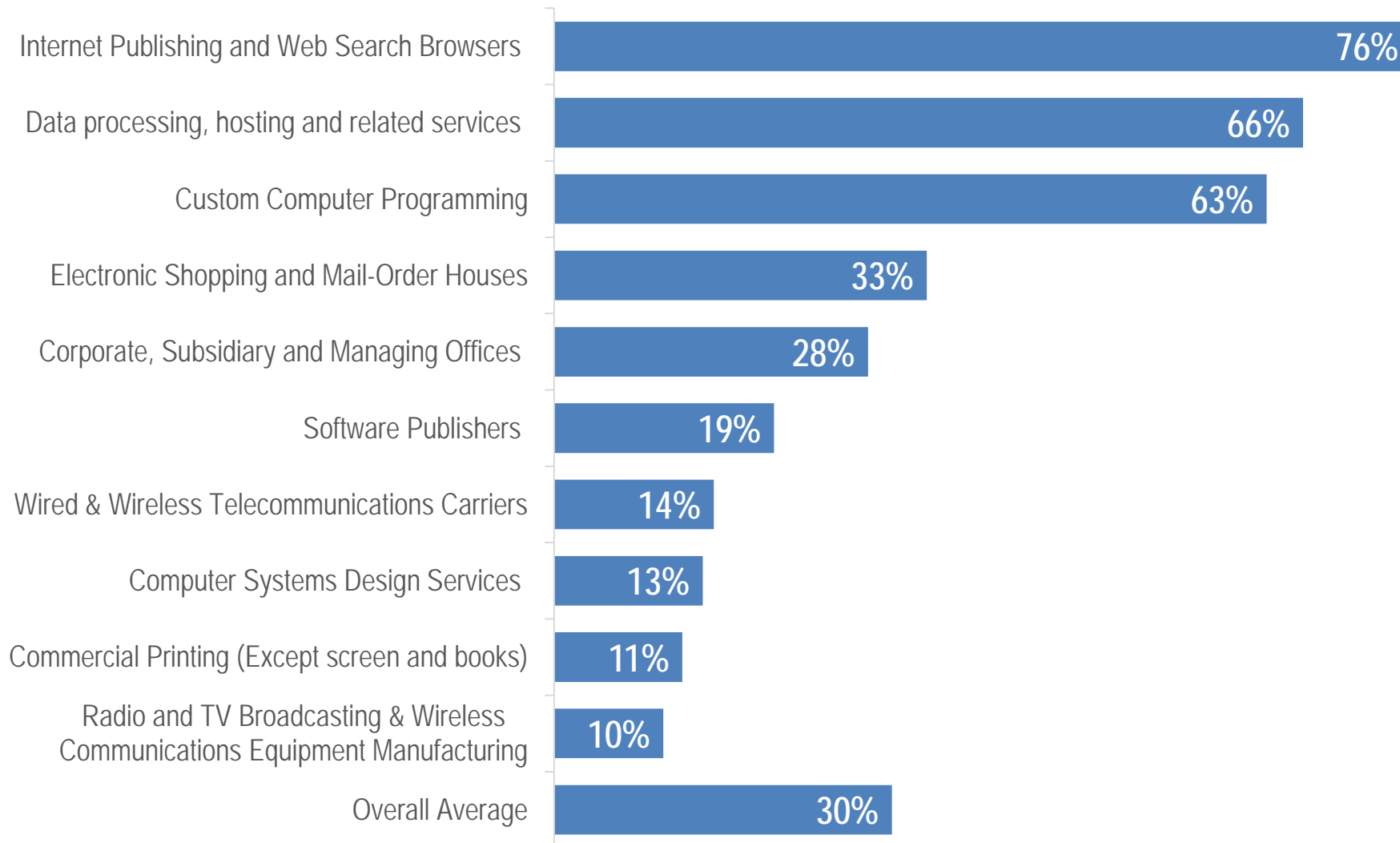| Industry	Average Annual Pay
Internet Publishing and Web Search Browsers	$230,984
Software Publishers	$204,672
Custom Computer Programming	$186,940
Data processing, hosting and related services	$164,320
Corporate, Subsidiary and Managing Offices	$142,272
Computer Systems Design Services	$128,440
Wired & Wireless Telecommunications Carriers	$113,620
Radio and TV Broadcasting & Wireless Communications Equipment Manufacturing	$105,820
Electronic Shopping and Mail-Order Houses	$96,616
Commercial Printing (Except screen and books)	$63,440
Overall Average	$143,712

Source: CA EDD

Each industry pays a living wage in Los Angeles County, with the lowest industry paying $63,440 on average.

In May 2021, the average salary in Los Angeles County was about $66,000 per year.

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Real Wage Growth in Information and Communications Technology Industries

Los Angeles County 2011 - 2021

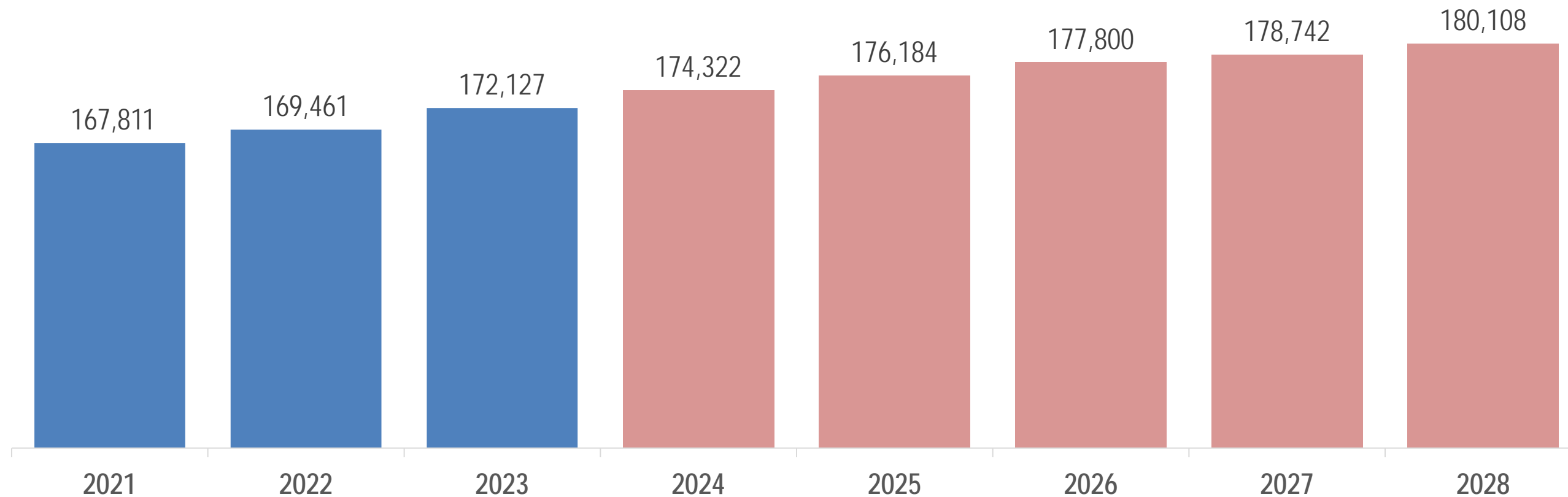| Industry	Growth
Internet Publishing and Web Search Browsers	76%
Data processing, hosting and related services	66%
Custom Computer Programming	63%
Electronic Shopping and Mail-Order Houses	33%
Corporate, Subsidiary and Managing Offices	28%
Software Publishers	19%
Wired & Wireless Telecommunications Carriers	14%
Computer Systems Design Services	13%
Commercial Printing (Except screen and books)	11%
Radio and TV Broadcasting & Wireless Communications Equipment Manufacturing	10%
Overall Average	30%

Source: CA EDD

Over the last 10 years, real wages grew at varying rates across the industry groupings.

The largest increase occurred in the Internet Publishing and Web Search Browsers industry, with 76 percent growth since 2011.

Overall, real wages in the Information and Communications Technology industries grew 30 percent.

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From 2021 to 2028, employment is expected to grow 7.3 percent, forecasting over 1,750 new jobs per year in Information and Communications Technology industries.

ICT Forecasted Employment
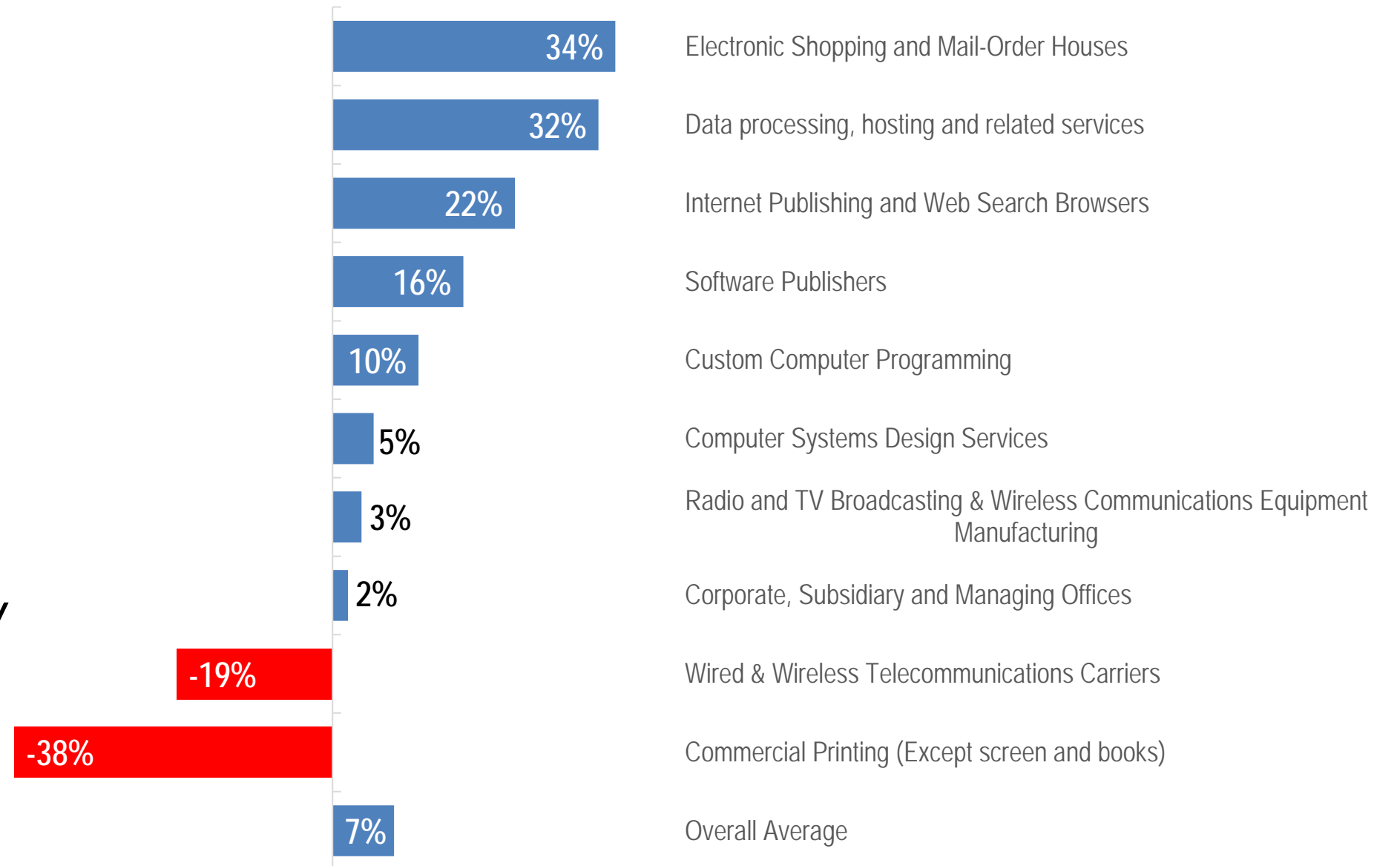### Los Angeles County 2021 - 2028

Year	Employment
2021	167,811
2022	169,461
2023	172,127
2024	174,322
2025	176,184
2026	177,800
2027	178,742
2028	180,108

Source: Lightcast

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Looking Forward

Information and Communications Technology is anticipated to grow the most in the Electronic Shopping and Mail-Order Houses industry (34 percent), and the Data processing, hosting, and related services industry (32 percent).

Overall, ICT industries are expected to grow 7 percent on average through 2028.
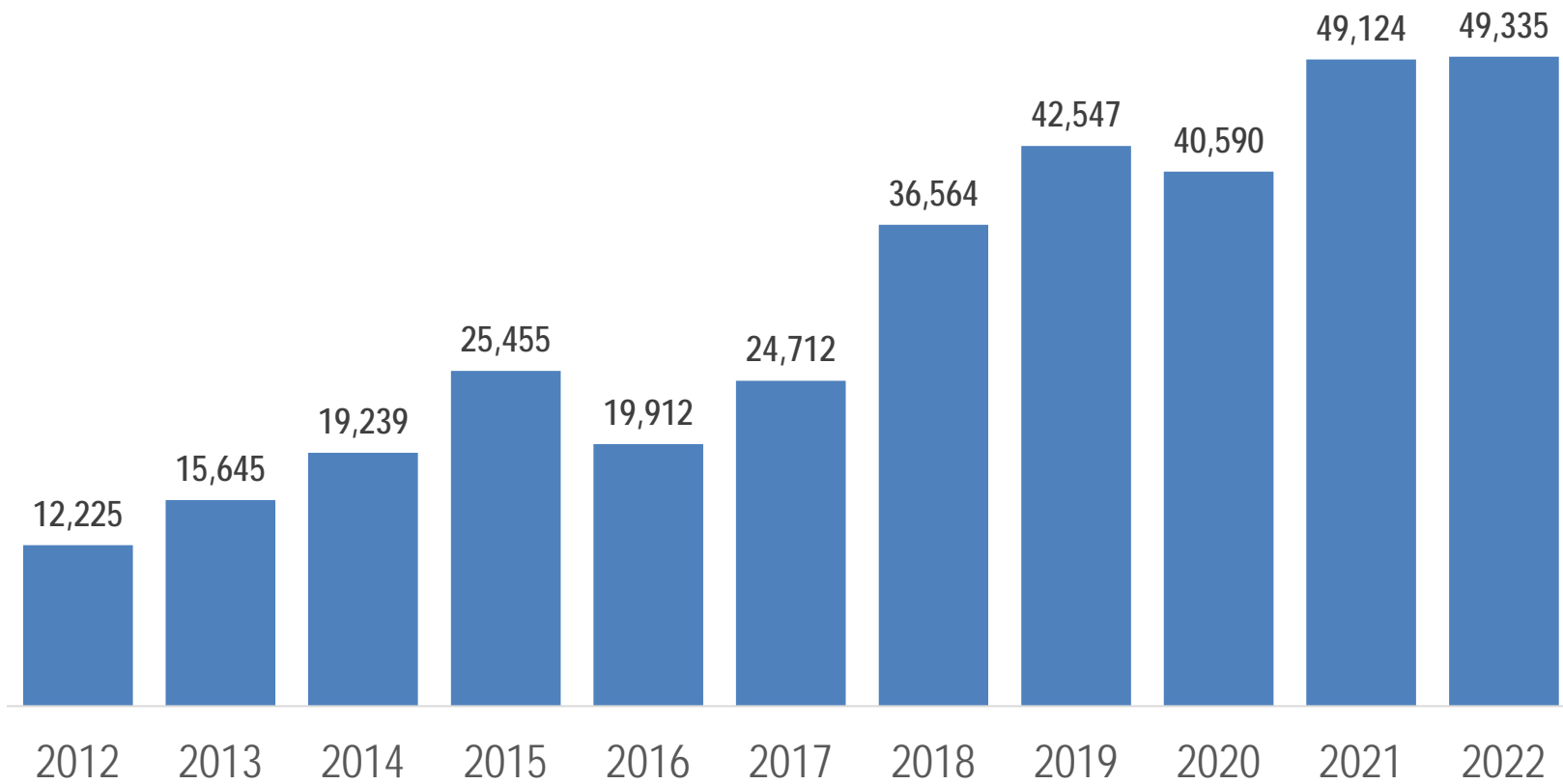
Forecasted Employment Growth in
Information and Communications Technology Industries
Los Angeles County 2021 - 2028

Industry	Growth
Electronic Shopping and Mail-Order Houses	34%
Data processing, hosting and related services	32%
Internet Publishing and Web Search Browsers	22%
Software Publishers	16%
Custom Computer Programming	10%
Computer Systems Design Services	5%
Radio and TV Broadcasting & Wireless Communications Equipment Manufacturing	3%
Corporate, Subsidiary and Managing Offices	2%
Wired & Wireless Telecommunications Carriers	-19%
Commercial Printing (Except screen and books)	-38%
Overall Average	7%

Source: Lightcast

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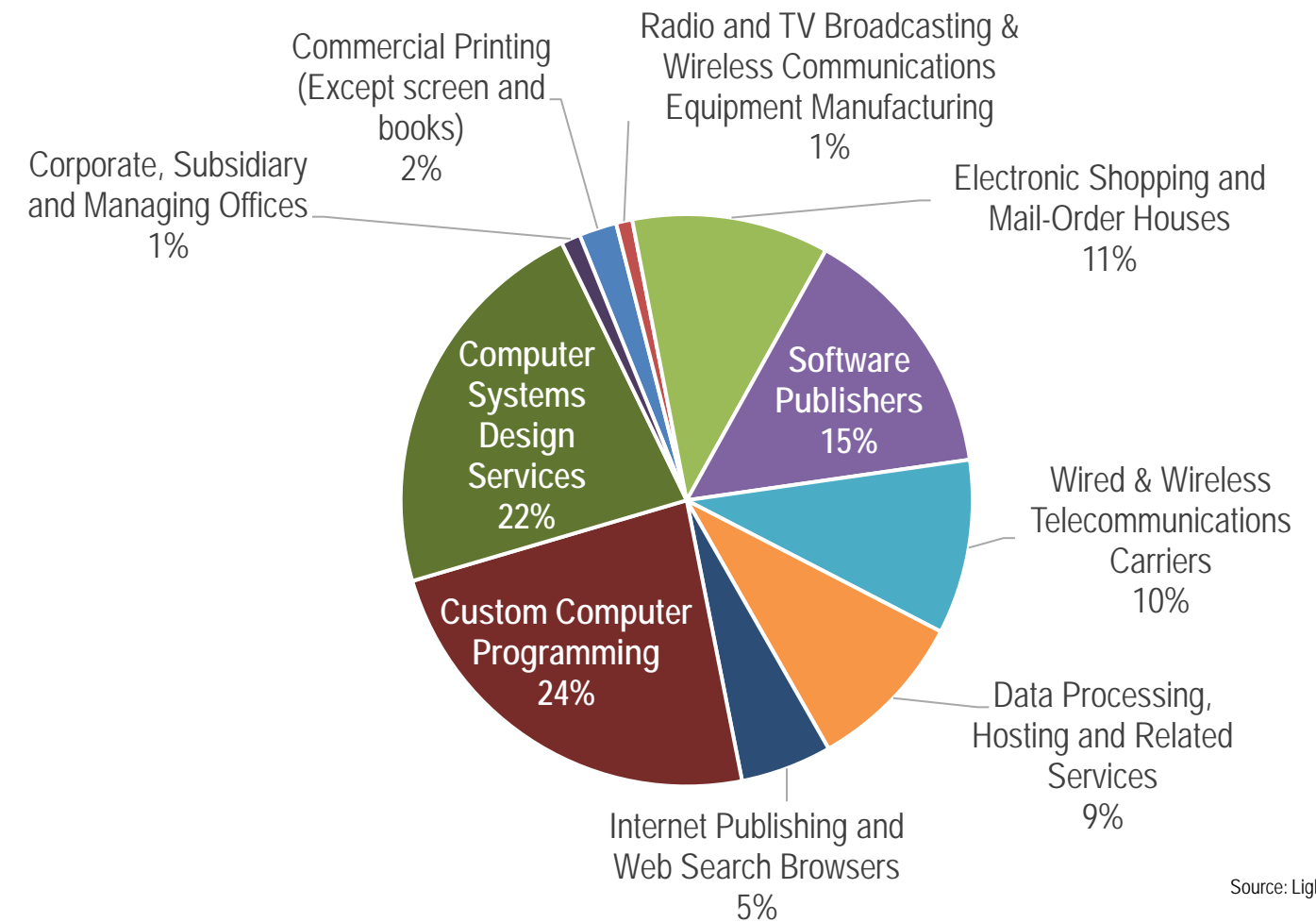## REGIONAL PROGRAM ADVISORY

Job postings peaked in 2022, with over 49,000 job postings compared to about 12,000 in 2012. Custom Computer Programming represents the largest industry over this 10-year period, with 24 percent of total posts.

ICT Job Postings
Los Angeles County 2012 - 2022

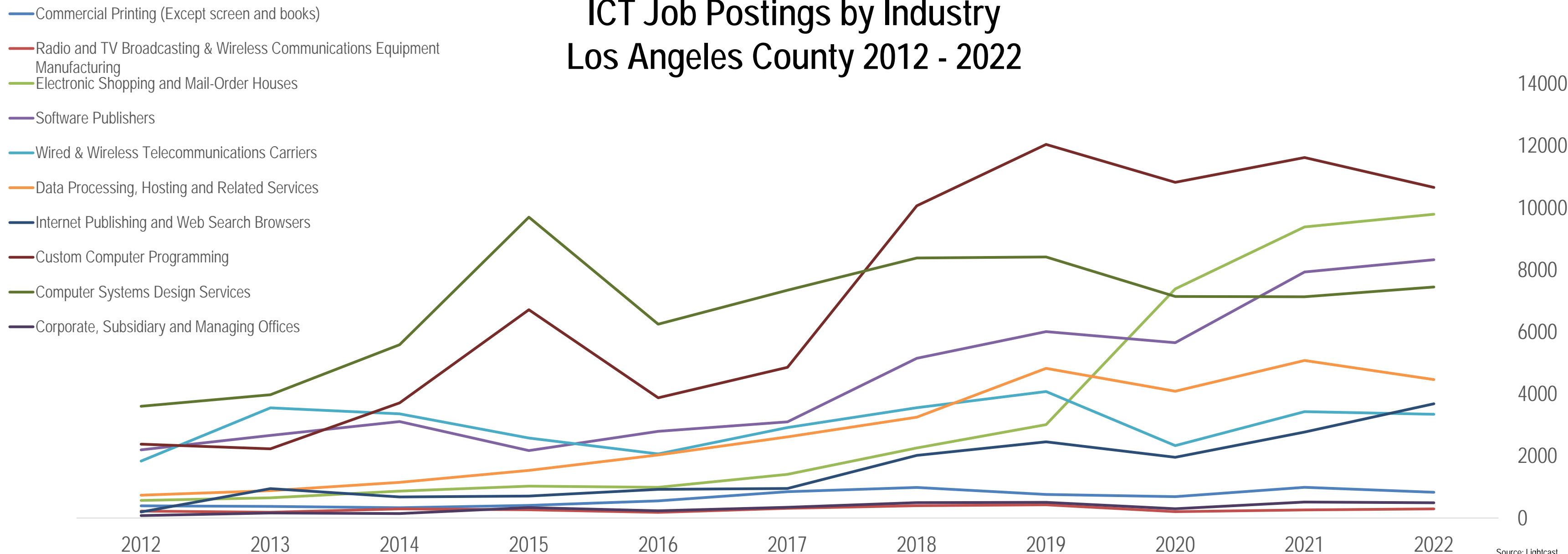Source: Lightcast

ICT Job Postings Distribution
Los Angeles County 2012 - 2022

Source: Lightcast

Employer Job Postings

Major ICT Employers in Los Angeles County, 2022

Amazon

Riot Games

Accenture

Activision Blizzard

T-Mobile US

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Industry Demographics

Age Distribution of ICT Workers, 2021

ICT

| <24 | 25-39 | 40-54 | 54+ |
| 7.7% | 47.8% | 28.9% | 15.6% |

Total, All Industries

| <24 | 25-39 | 40-54 | 54+ |
| 29.9% | 23.1% | 19.9% | 27.0% |

■ <24 ■ 25-39 ■ 40-54 ■ 54+
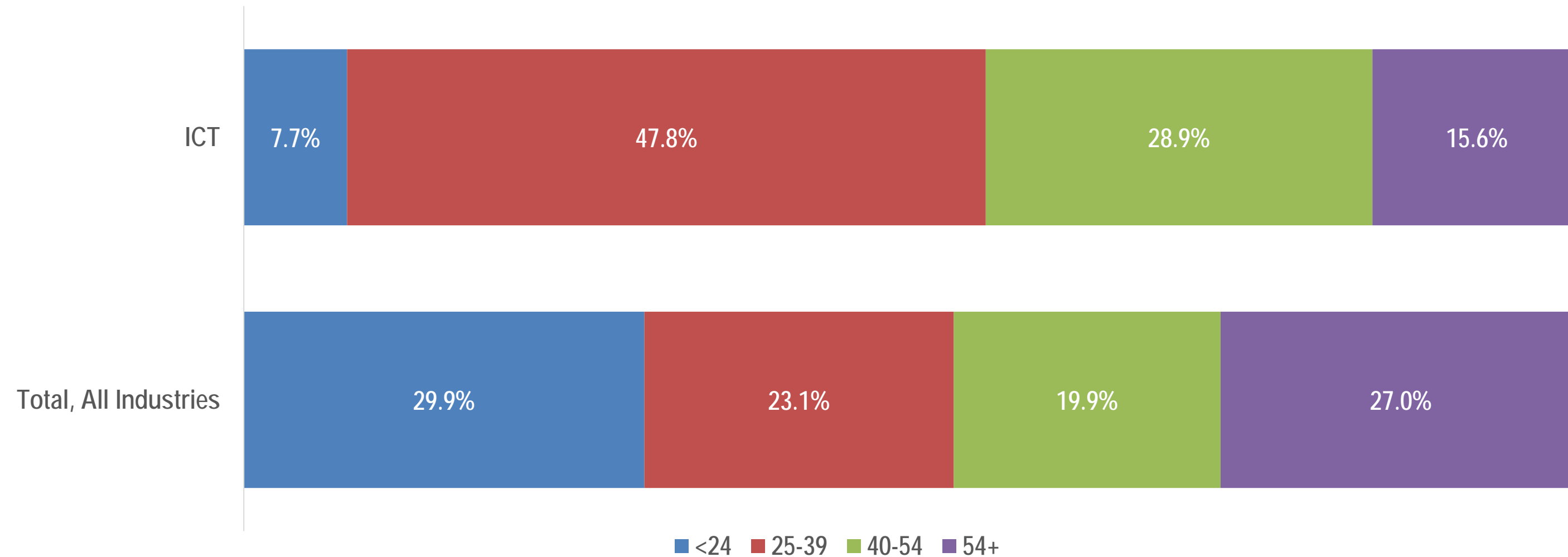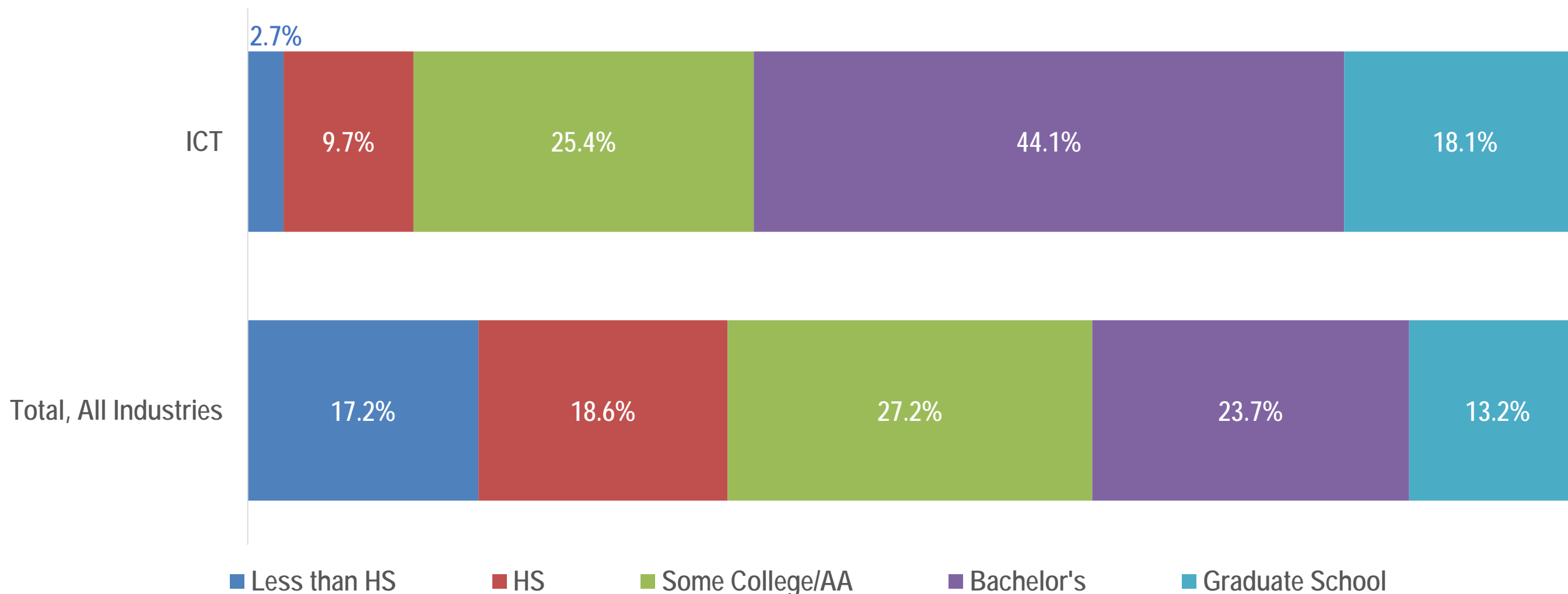
Source: PUMS

Almost 48 percent of employees in Information and Communications Technology industries are between 25 and 39 years old, about 25 percent more than in other industries in Los Angeles County.

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Educational Attainment Distribution of ICT Workers 2021

	Less than HS	HS	Some College/AA	Bachelor's	Graduate School
ICT	2.7%	9.7%	25.4%	44.1%	18.1%
Total, All Industries	17.2%	18.6%	27.2%	23.7%	13.2%

Source: PUMS

About 44 percent of employees in ICT industries have a Bachelor's degree, about 20 percent more than in other industries in Los Angeles County. Compared to other industries, ICT jobs are not as accessible to workers with a High School diploma or less.

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Racial/Ethnic Distribution of ICT Workers, 2021

	Hispanic/Latino	White	Asian	Black
ICT	27.1%	38.5%	23.7%	6.0%
Total, All Industries	49.1%	24.6%	14.6%	7.4%
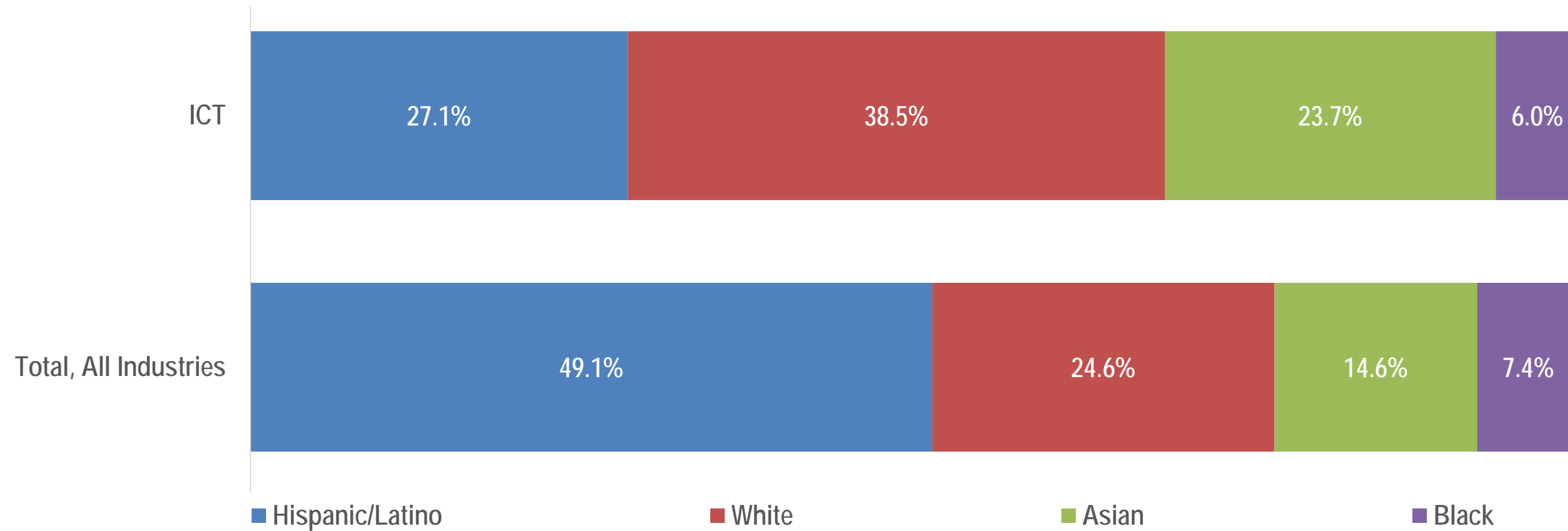
Source: PUMS

Hispanic/Latino, Asian, and Black workers are underrepresented in ICT industries, with about 14 percent more white workers compared to other industries in Los Angeles County.

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Gender Distribution of ICT Workers, 2021
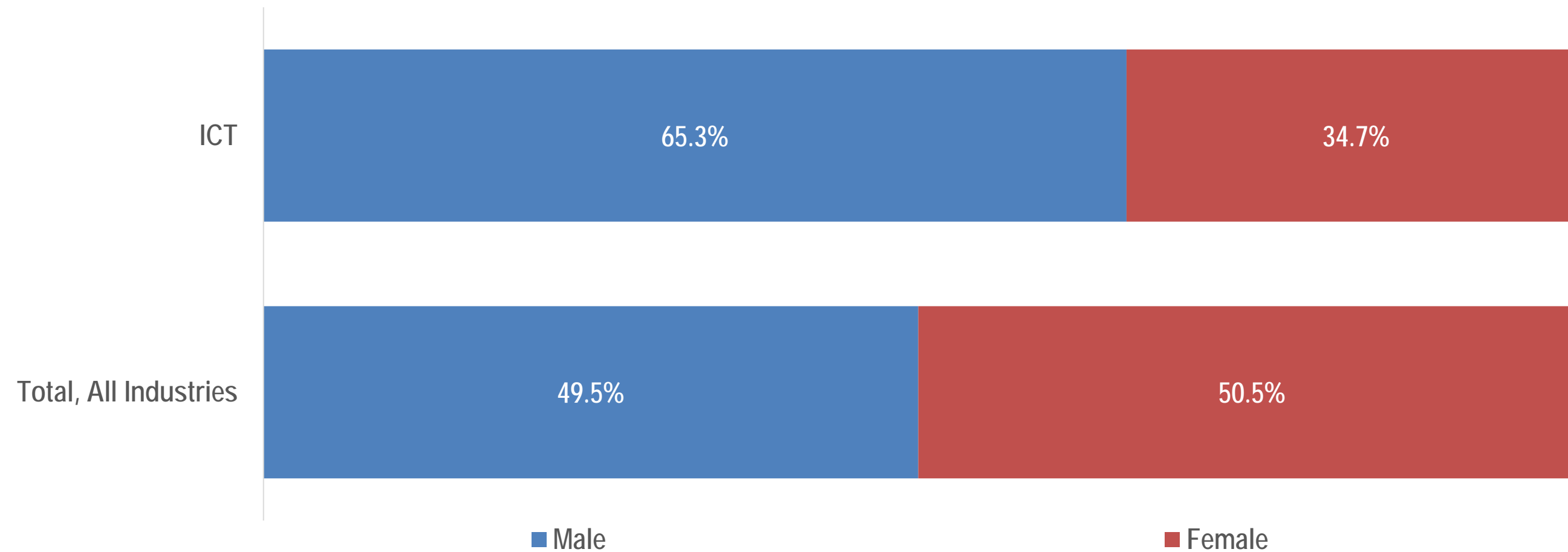
Source: PUMS

Female workers are underrepresented in Information and Communications Technology industries compared to other industries in Los Angeles County, with 15.8 percent fewer female workers.

Occupations Demographics

Metric		Computer Support Specialists	Network and Computer Systems Administrators	Information Security Analysts	Web Developers
Sex	Male	79.0%	79.6%	78.5%	72.1%
	Female	21.0%	20.4%	21.5%	27.9%
Education	Less than HS	1.1%	0.2%	0.0%	0.6%
	High School	7.8%	4.0%	1.8%	5.0%
	Some College/Associates	37.0%	34.0%	21.7%	26.7%
	Bachelor's	44.0%	48.6%	56.7%	48.9%
	Graduate School	10.0%	13.2%	19.8%	18.8%
Age	<25	7.6%	5.4%	12.2%	6.4%
	25-39	48.2%	34.7%	42.3%	54.6%
	40-54	27.8%	36.3%	29.3%	25.2%
	>54	16.4%	23.6%	16.2%	13.8%
Race	Hispanic/Latino	28.0%	23.9%	21.1%	20.9%
	White	37.0%	37.9%	36.6%	45.6%
	Asian	23.5%	29.9%	20.0%	24.4%
	Black	7.6%	6.1%	13.5%	4.0%

Source: PUMS

These occupations are accessible to workers with some college/AA degree or a Bachelor's degree, with about 75 to 82 percent of workers in these occupations with similar levels of education. Hispanic/Latino and Female workers are underrepresented across all 4 occupations, with about 20 to 30 percent less Hispanic/Latino and Female workers than the average for other industries in Los Angeles County.

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Key Takeaways

- Real wages have grown 30 percent since 2011

- All industries pay a living wage in Los Angeles county.

- Employment is expected to grow 7 percent on average across all Information and

  Communications Technology industries through 2028.

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All 19 community colleges offer <u>information technology</u> programs across several disciplines

- Computer Programming
- Computer Networking
- Computer Information Systems
- Computer Infrastructure and Support
- Computer Systems Analysis
- World Wide Web Administration
- Computer Software Development
- Database Design and Administration
- E-Commerce (Technology emphasis)
- Cybersecurity
- Cloud Computing/Amazon Web Services
- Data Science/Analytics
- Artificial Intelligence and Machine Learning

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The number of completions for Information & Communication Technologies-Digital Media (ICT-DM) students at LA community colleges has steadily increased since 2013-14, growing to 1,745 student completions in the 2020-21 academic year.

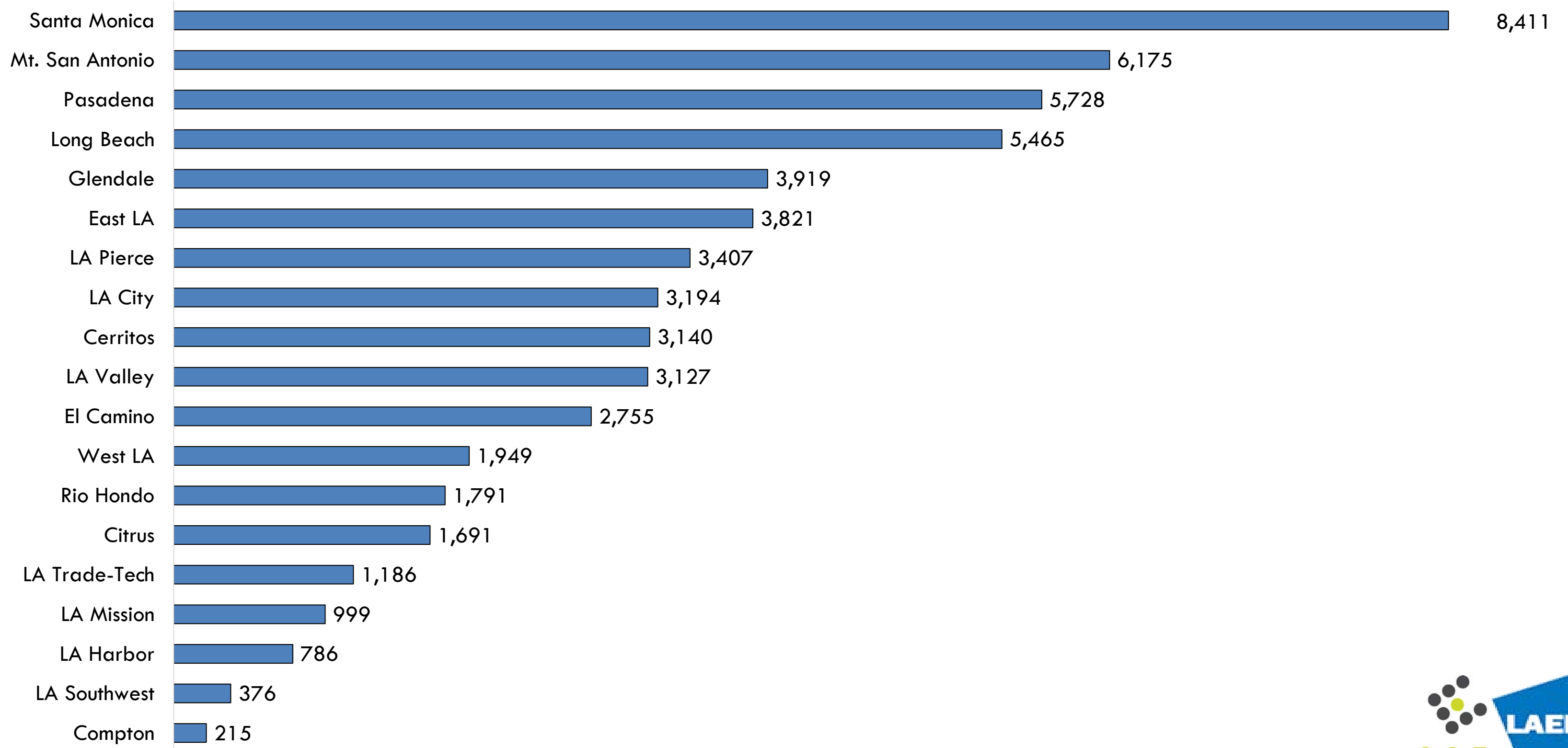**LA ICT-DM Students who Earned a Degree or Certificate
2011-12 to 2020-21**

Year	Completions
2011-12	816
2012-13	1,013
2013-14	980
2014-15	1,030
2015-16	1,143
2016-17	1,189
2017-18	1,312
2018-19	1,514
2019-20	1,761
2020-21	1,745

Source: California Community Colleges Chancellor's Office LaunchBoard

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REGIONAL PROGRAM ADVISORY
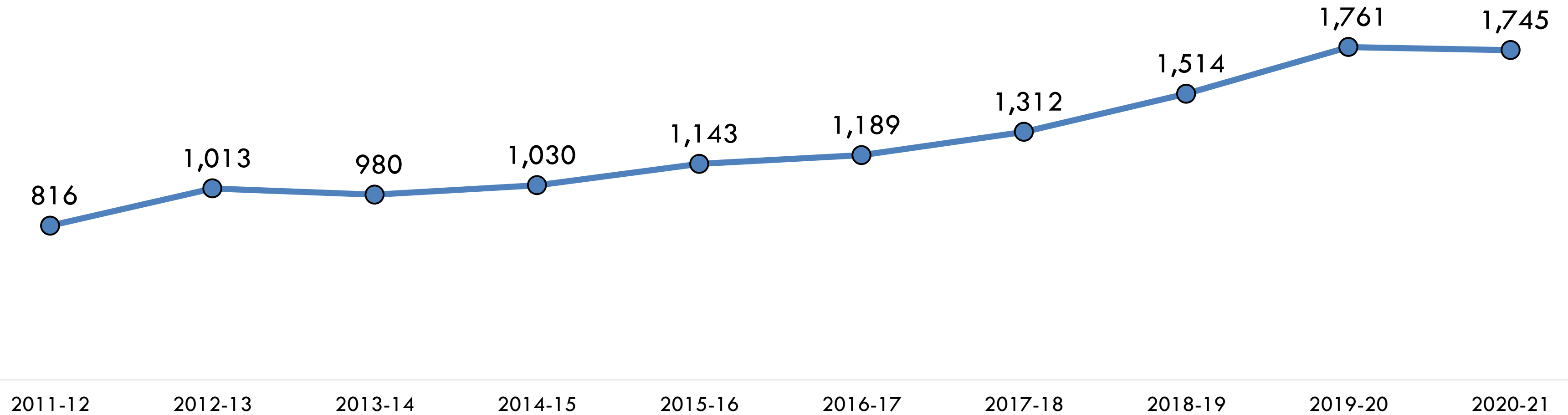
LA ICT-DM Student Enrollments by College, 2020-21

College	Enrollments
Santa Monica	8,411
Mt. San Antonio	6,175
Pasadena	5,728
Long Beach	5,465
Glendale	3,919
East LA	3,821
LA Pierce	3,407
LA City	3,194
Cerritos	3,140
LA Valley	3,127
El Camino	2,755
West LA	1,949
Rio Hondo	1,791
Citrus	1,691
LA Trade-Tech	1,186
LA Mission	999
LA Harbor	786
LA Southwest	376
Compton	215

Source: California Community Colleges Chancellor's Office LaunchBoard

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Gender

Unknown/Non-Respondent 2%

Male 52%

Female 46%
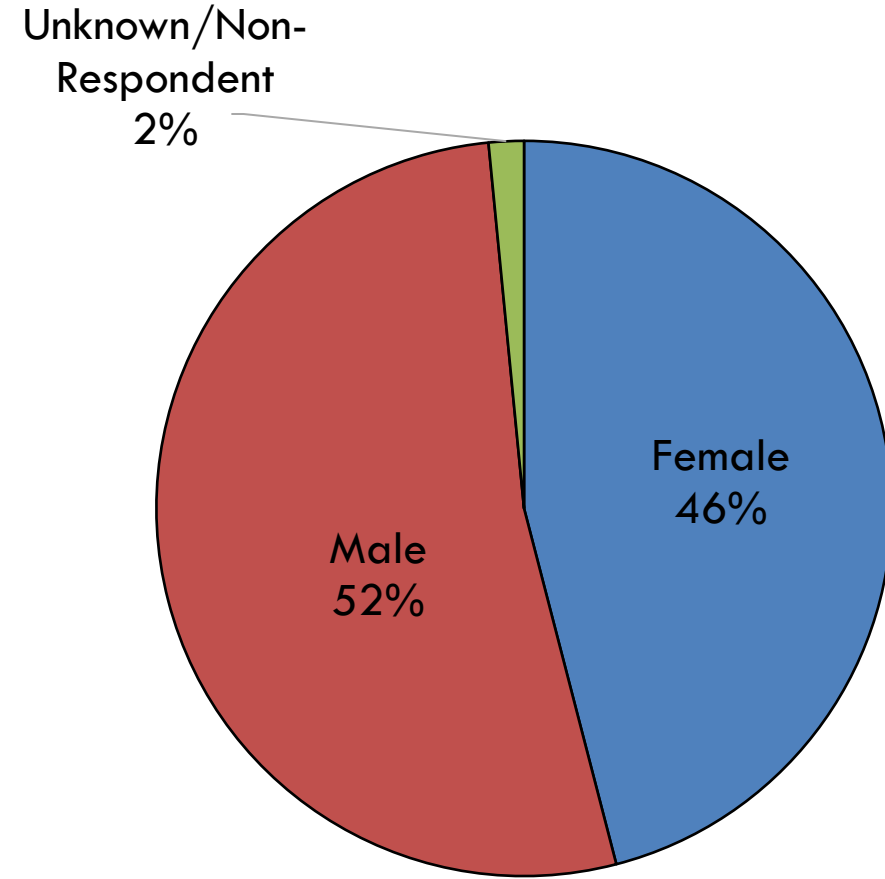
Just over half of ICT-DM students at the LA community colleges are male, nearly half identify as Hispanic, and more than half are 24-years-old or younger.

Race/Ethnicity

Black or African American 7%

Unknown/Non-Respondent 5%

Asian 12%

White 20%

Filipino 3%

Two or More Races 4%

Hispanic 49%

Age

- 19 or Less — 22%
- 20 to 24 — 33%
- 25 to 29 — 17%
- 30 to 34 — 10%
- 35 to 39 — 6%
- 40 to 49 — 7%
- 50 and Older — 7%

Source: California Community Colleges Chancellor's Office LaunchBoard

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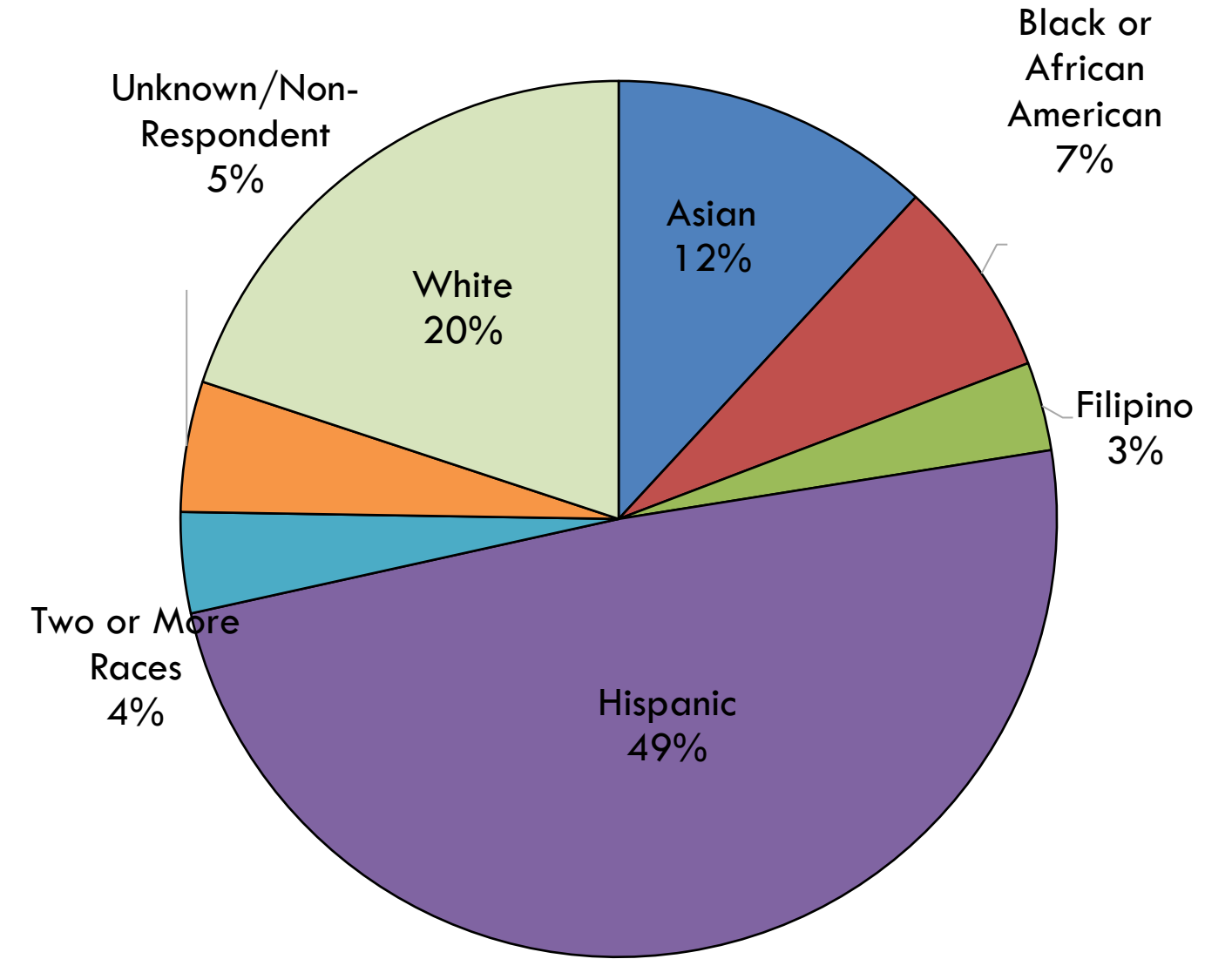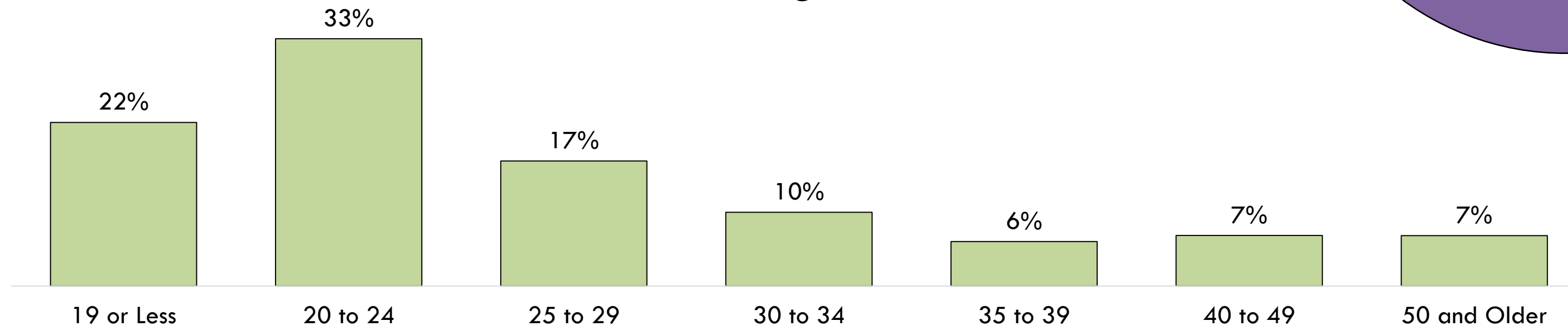
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IT Programs At-a-Glance

| Program Title - TOP6	2019-20	2020-21	2021-22	Latest 3-Yr Avg
Computer Programming - 0707.10	217	218	278	**238**
Computer Science (Transfer) - 0706.00	147	222	259	**209**
Information Technology, General - 0701.00	172	167	182	**174**
Computer Information Systems - 0702.00	170	88	205	**154**
Computer Networking - 0708.10	145	136	141	**141**
Computer Infrastructure and Support - 0708.00	83	118	149	**117**
Computer Support - 0708.20	60	84	62	**69**
World Wide Web Administration - 0709.00	40	68	61	**56**
Database Design and Administration - 0707.20	23	47	46	**39**
Software Applications - 0702.10	29	12	24	**22**
Computer Systems Analysis - 0707.30	5	9	30	**15**
Other Information Technology - 0799.00	15	4	13	**11**
Computer Software Development - 0707.00	0	5	19	**8**
E-Commerce (Technology emphasis) - 0709.10	1	1	2	**1**
Total	**1,107**	**1,179**	**1,471**	**1,252**
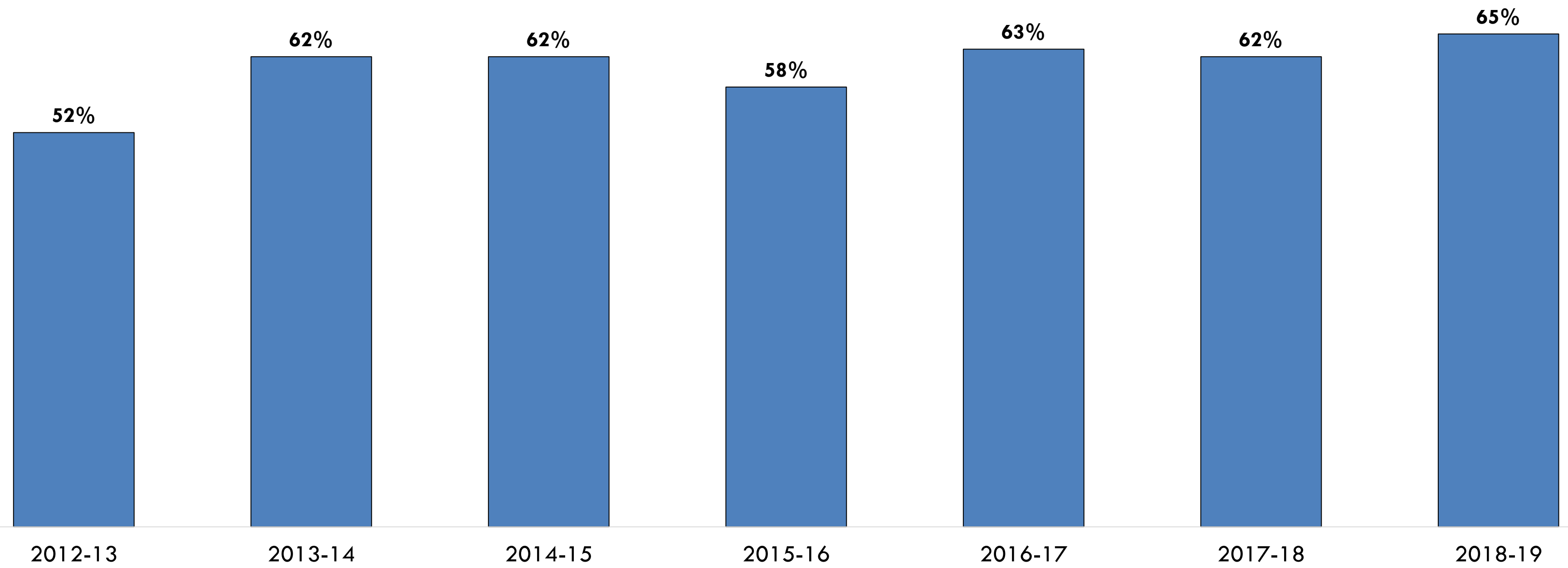
Source: California Community Colleges Chancellor's Office MIS Data Mart

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Student Employment Outcomes

Median Change in Earnings for Exiting LA ICT-DM Students

18% — 2011-12
17% — 2012-13
23% — 2013-14
30% — 2014-15
25% — 2015-16
23% — 2016-17
23% — 2017-18
21% — 2018-19
21% — 2019-20

Source: California Community Colleges Chancellor's Office LaunchBoard

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Student Employment Outcomes
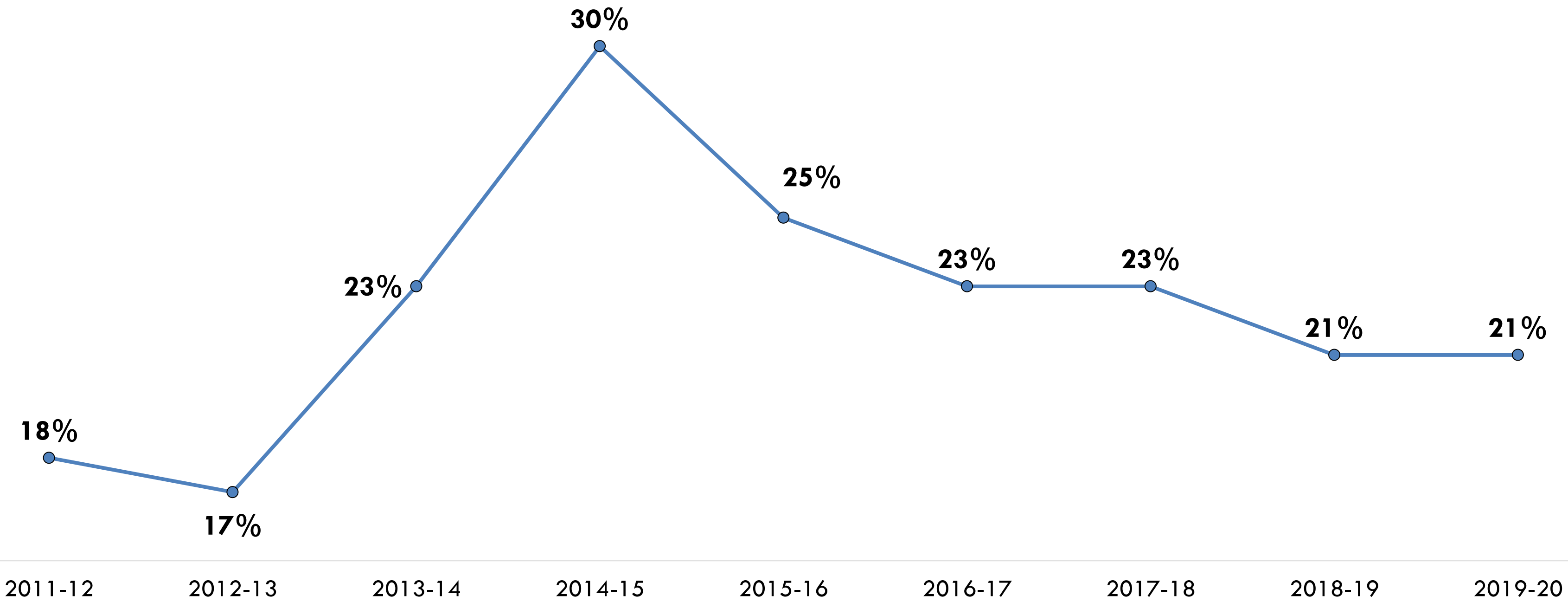
Exiting ICT-DM Students Who Attained the Living Wage

Year	Percentage
2015-16	33%
2016-17	34%
2017-18	35%
2018-19	38%
2019-20	39%

Source: California Community Colleges Chancellor's Office LaunchBoard

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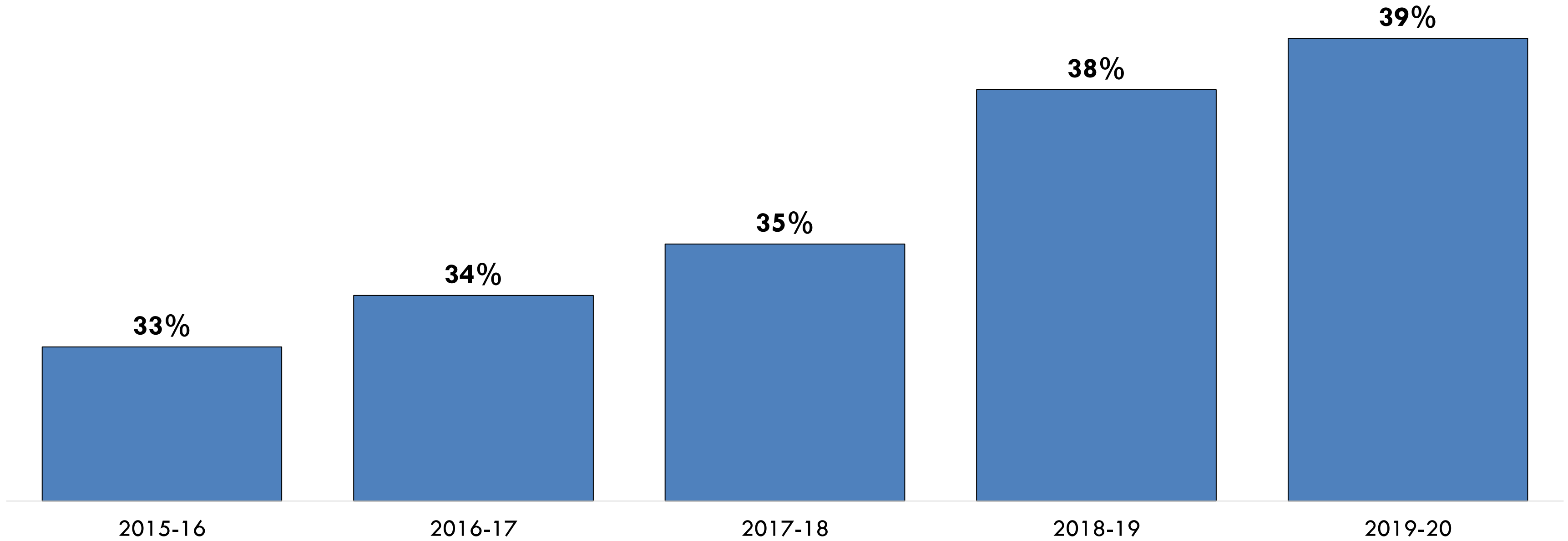
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Target DME Occupations

Occupation	2021 Jobs	2026 Jobs	2021 – 2026 % Change	Avg. Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Software Developers	37,484	43,412	16%	3,841	$45.92	$61.13	$76.62
Computer Occupations, All Other	19,803	21,060	6%	1,702	$27.68	$38.03	$60.93
Computer User Support Specialists	16,426	17,854	9%	1,607	$22.33	$29.34	$38.50
Computer Systems Analysts	13,686	14,559	6%	1,162	$37.95	$49.88	$65.63
Network and Computer Systems Administrators	6,737	7,125	6%	543	$35.36	$45.80	$57.91
Web Developers	5,422	6,348	17%	620	$20.49	$34.19	$47.06
Computer Programmers	5,328	5,456	2%	409	$27.07	$45.67	$61.61
Software Quality Assurance Analysts and Testers	5,033	5,626	12%	496	$35.98	$48.23	$61.66
Web and Digital Interface Designers	4,822	5,792	20%	634	$21.10	$33.58	$52.52
Computer Network Architects	4,221	4,383	4%	302	$38.58	$54.44	$73.73
Computer Network Support Specialists	3,790	4,119	9%	370	$25.70	$31.31	$39.83
Information Security Analysts	2,681	3,218	20%	318	$45.11	$57.80	$67.24
Database Architects	2,453	2,586	5%	198	$36.89	$36.89	$57.72
Database Administrators	2,152	2,338	9%	190	$35.08	$47.62	$62.55
Total	**130,038**	**143,875**	**11%**	**12,391**	-	-	-

Source: Lightcast, datarun 2023.1

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Occupation	Postings
Software Developers	30,624
Computer Occupations, All Other	19,718
Computer User Support Specialists	8,922
Computer Systems Analysts	6,029
Web Developers	5,444
Information Security Analysts	4,427
Database Administrators	3,439
Network and Computer Systems Administrators	3,431
Software Quality Assurance Analysts and Testers	3,356
Computer Network Architects	2,408
Computer Programmers	1,960
Database Architects	1,904
Web and Digital Interface Designers	1,168
Computer Network Support Specialists	651

93,481 online job postings

April 2022 – March 2023

Source: Lightcast Job Postings, datarun 2023.1

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Employer Job Postings

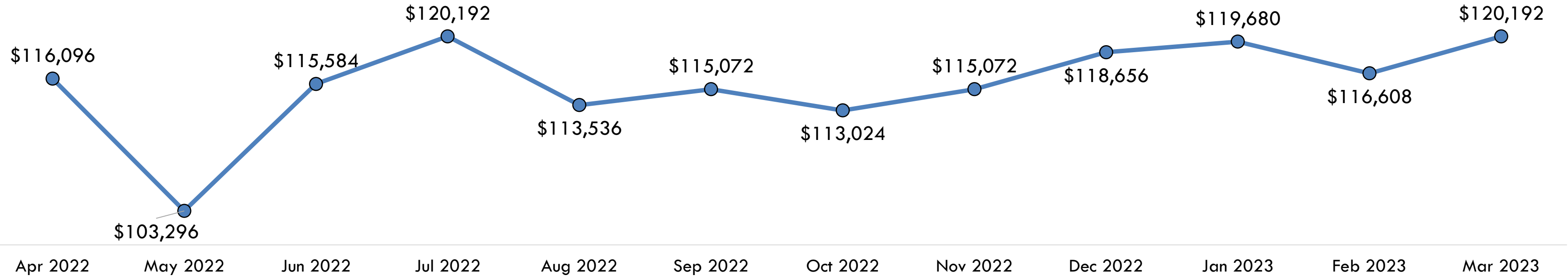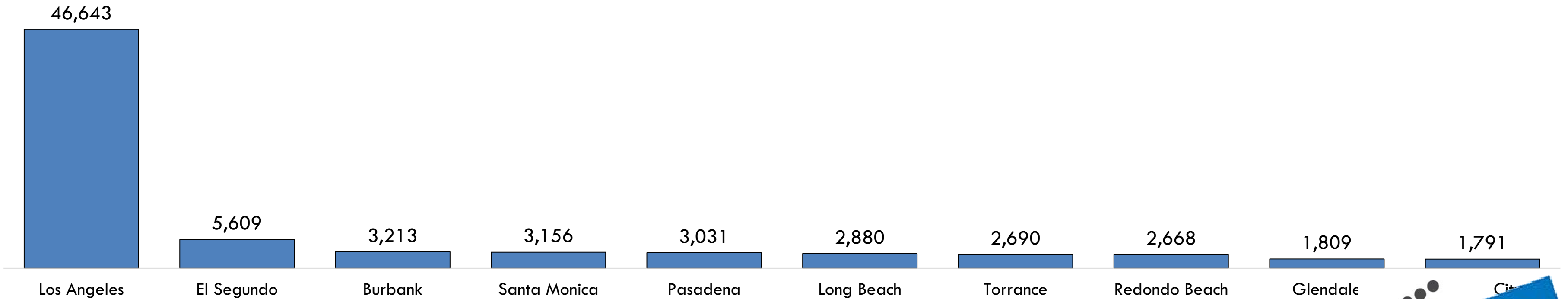| Job Title	Job Ads	Employer	Job Ads
Software Engineers	3,361	Northrop Grumman	3,621
Systems Engineers	1,407	Boeing	3,526
Data Engineers	1,064	CyberCoders*	2,262
Principal Software Engineers	980	Motion Recruitment*	2,180
Principal Systems Engineers	856	Jobot*	1,564
DevOps Engineers	809	Amazon	1,376
Network Engineers	726	Disney	1,252
Systems Administrators	696	Robert Half*	1,153
Software Development Engineers	662	Randstad*	1,018
Software Developers	588	Deloitte	902
Business Systems Analysts	570	Elevance Health	789
Full Stack Developers	553	UnitedHealth Group	780
Full Stack Software Engineers	507	Raytheon Technologies	708

*Staffing/Employment agency

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Employer Job Postings

Top Qualifications	Job Ads
Certified Information Systems Security Professional (CISSP)	2,516
CompTIA Security+ Certification	1,453
Project Management Professional (PMP) Certification	1,371
CompTIA A+ Certification	1,353
Cisco Certified Network Associate (CCNA)	1,118
Certified Information Security Manager (CISM)	1,028
GIAC Cyber Security Certifications	958
Certified Information System Auditor (CISA)	909
Cisco Certified Network Professional (CCNP)	858
Microsoft Certified Systems Engineer (MCSE)	712

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Advertised Wage Trend Over Last 12 Months

$116,096		$115,584	$120,192		$115,072			$118,656	$119,680		$120,192
	$103,296			$113,536		$113,024	$115,072			$116,608	
Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023	Mar 2023

Top Job Postings by City

Los Angeles	El Segundo	Burbank	Santa Monica	Pasadena	Long Beach	Torrance	Redondo Beach	Glendale	City
46,643	5,609	3,213	3,156	3,031	2,880	2,690	2,668	1,809	1,791

Source: Lightcast Job Postings, datarun 2023.1

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THANK YOU!
WWW.COMPETITIVEWORKFORCE.LA

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