

The Arizona IT Workforce

Paul Shannon

Director

Arizona Office of Economic Opportunity

10/06/16



OFFICE *of* ECONOMIC OPPORTUNITY

Outline

- Wages and Employment Growth
- Projected Employment Growth
- Employment Concentration
- Hiring Trends

Occupation vs Industry

Occupation	Industry
“the kind of work a person does to earn a living” ~ US Census definition	“The type of activity at a person’s place of work” ~ US Census definition
Standard Occupational Classification (SOC) classifies workers into occupational categories for the purpose of collecting, calculating, or disseminating data.	North American Industry Classification System (NAICS) classifies business establishments into a 2- through 6-digit hierarchical classification system, offering five levels of detail for industries
Organized by SOC Codes <ul style="list-style-type: none">• 23 major groups → 97 minor groups → 461 broad occupations → 840 detailed occupations	NAICS Codes have <ul style="list-style-type: none">• 20 major sectors → 99 subsectors → 312 industry groups → 713 industries → 1066 U.S industries

Observing OCCUPATIONS using SOC

Level of Detail	Digit	Example
Major Group	1 & 2	15-0000 (Computer and Mathematical Occupations)
Residual Minor Group	3	15-1100 (Computer Occupations)
Broad Occupation	4 & 5	15-1120 (Computer and Information Analysts)
Detailed Occupation	6	15-1122 (Information Security Analysts)

- Occupations where the primary economic activity of the worker is related to computers are listed in 15-1100
- Computers are relevant to most industries today, and IT professionals are found in most industries

Overview:

- IT-related **employment** grew by 79.3% from 2005 to 2015, while all occupations only grew by 15.6%
- **Wages** for IT-related occupations grew faster than wages for all occupations (34.3% vs. 29.4%)
- Arizona ranks in the **top 10** states for IT job density
- All 13 IT-related occupations pay **above-average wages** in Arizona
- IT-related occupations are projected to outpace total employment growth in the state

Average Annual Wage and Education Requirements For Computer Occupations (Arizona, 2015)

SOC	Title	Average Annual Wage	Educational Requirements
15-1111	Computer and Information Research Scientists	\$118,670	Doctoral or Professional Degree
15-1133	Software Developers, Systems Software	\$96,570	Bachelor's Degree
15-1143	Computer Network Architects	\$96,200	Bachelor's Degree
15-1132	Software Developers, Applications	\$90,830	Bachelor's Degree
15-1121	Computer Systems Analysts	\$89,560	Bachelor's Degree
15-1131	Computer Programmers	\$82,400	Bachelor's Degree
15-1122	Information Security Analysts	\$80,850	Bachelor's Degree
15-1141	Database Administrators	\$80,360	Bachelor's Degree
15-1142	Network and Computer Systems Administrators	\$76,900	Bachelor's Degree
15-1199	Computer Occupations, All Other	\$76,740	Bachelor's Degree
15-1134	Web Developers	\$70,570	Associate's Degree
15-1152	Computer Network Support Specialists	\$68,060	Associate's Degree
15-1151	Computer User Support Specialists	\$49,840	Some College, No Degree
00-0000	Total, All Occupations	\$45,310	N/A

Historical Occupational Data (Arizona, 2005 and 2015)

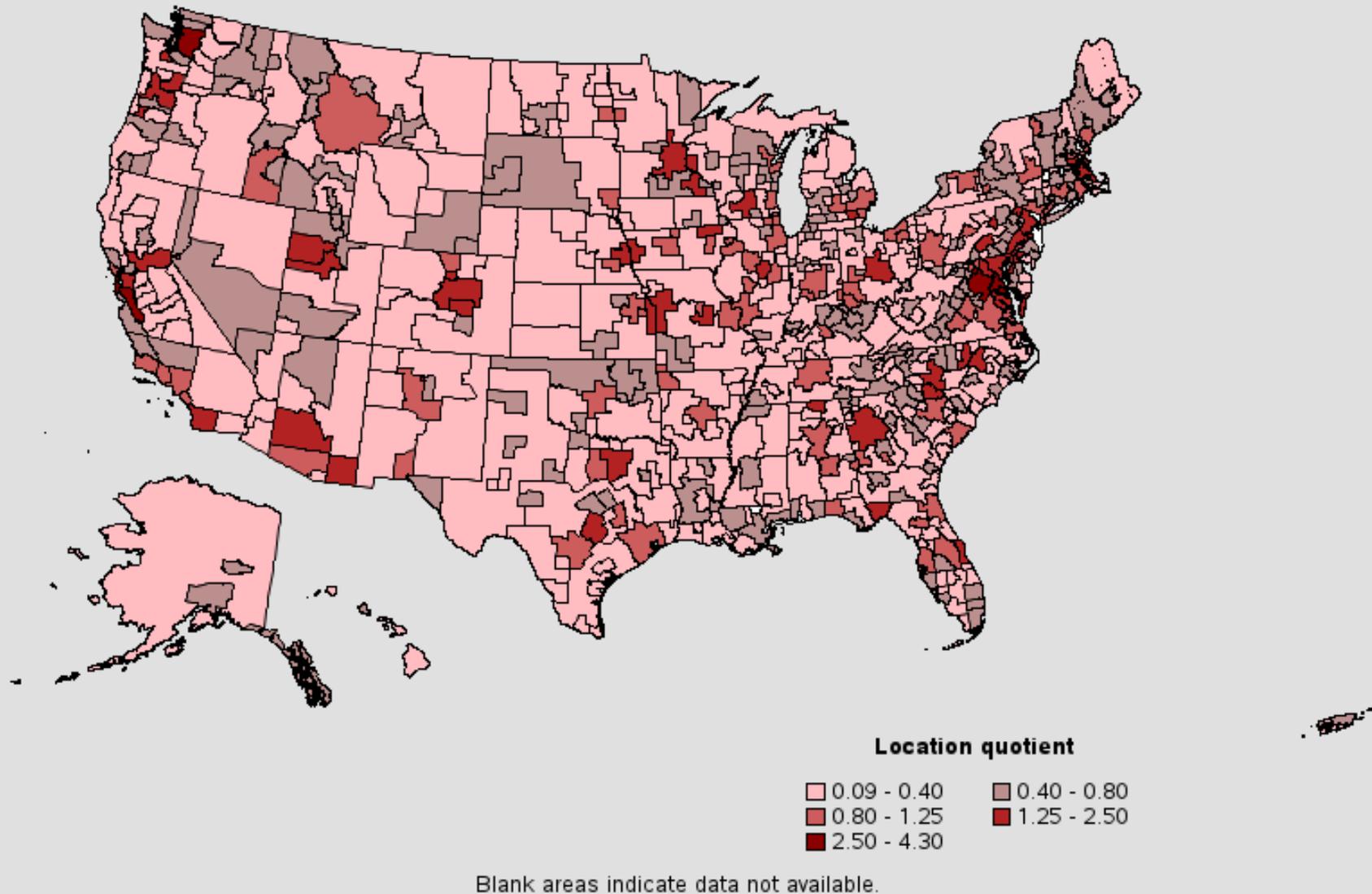
SOC	Title	2005 Mean Annual Wage	2015 Mean Annual Wage	Percentage Increase
00-0000	Total, All Occupations	\$35,028	\$45,310	29.4%
15-0000	Computer and Mathematical Occupations	\$59,576	\$80,020	34.3%

- From 2005-2015, mean wages for Computer and Mathematical Occupations increased at a faster rate than for All Occupations
- In 2005, mean wages for Computer and Mathematical Occupations were significantly higher than the mean wages for All Occupations
- A faster rate of growth accompanied by a higher starting point indicates that mean wages for Computer and Mathematical Occupations will continue to be higher than the average for All Occupations

Projected Growth for Computer Occupations (Arizona, 2014-2024)

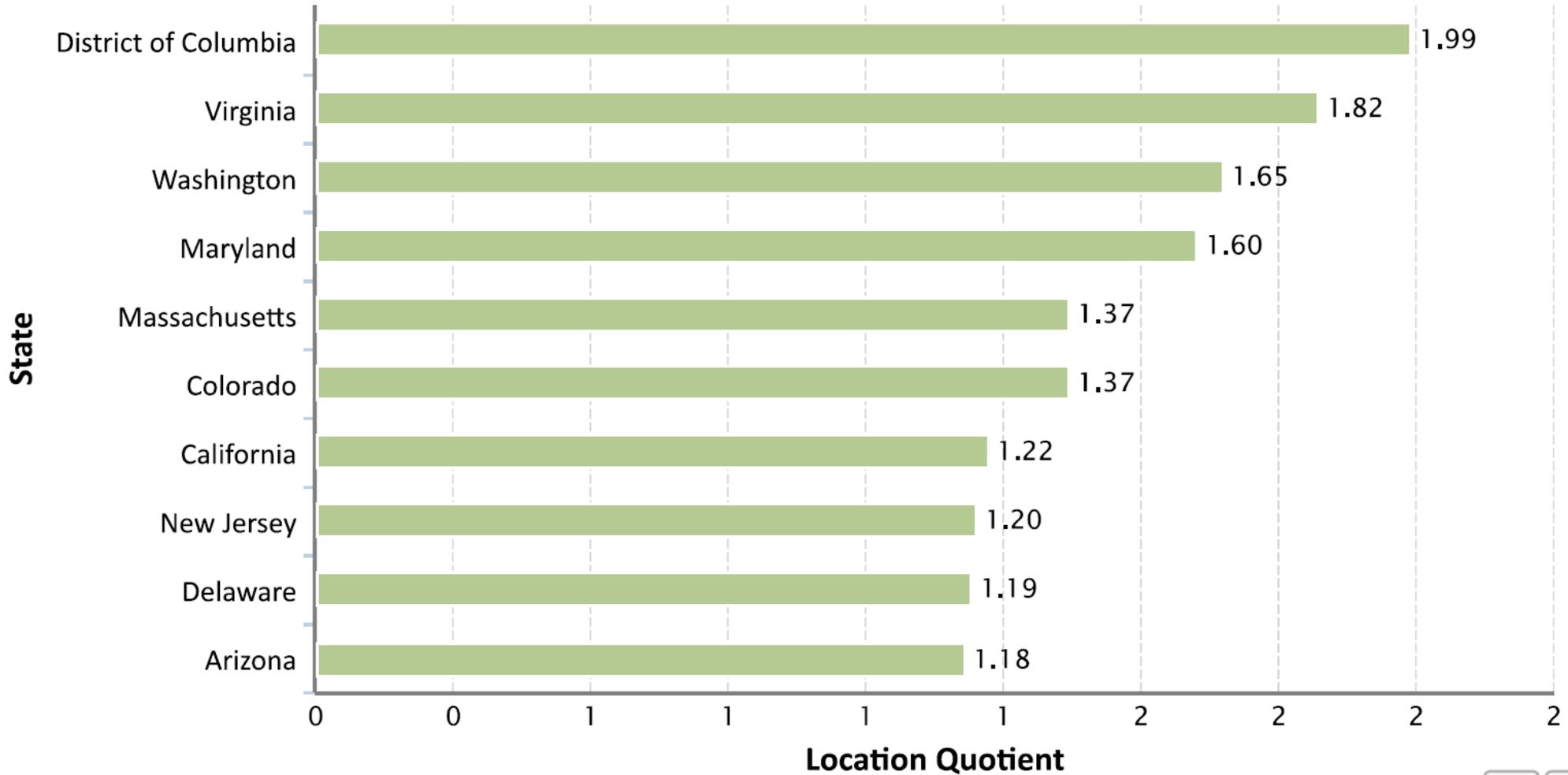
SOC	Title	Numeric Growth	2014 Estimated	2024 Projected	Percentage Growth
15-1121	Computer Systems Analysts	5,909	14,988	20,897	39.4%
15-1151	Computer User Support Specialists	4,131	14,430	18,561	28.6%
15-1132	Software Developers, Applications	4,125	13,881	18,006	29.7%
15-1133	Software Developers, Systems Software	1,813	8,951	10,764	20.3%
15-1142	Network and Computer Systems Administrators	1,796	7,375	9,171	24.4%
15-1152	Computer Network Support Specialists	1,408	5,675	7,083	24.8%
15-1134	Web Developers	1,244	2,717	3,961	45.8%
15-1143	Computer Network Architects	1,059	3,590	4,649	29.5%
15-1141	Database Administrators	893	3,605	4,498	24.8%
15-1122	Information Security Analysts	809	2,306	3,115	35.1%
15-1199	Computer Occupations, All Other	470	2,344	2,814	20.1%
15-1131	Computer Programmers	129	4,802	4,931	2.7%
15-1111	Computer and Information Research Scientists	30	151	181	19.9%
15-1100	Computer Occupations	23,816	84,815	108,631	28.1%
00-0000	Total, All Occupations	577,302	2,728,012	3,305,314	21.2%

Location quotient of computer and mathematical occupations, by area, May 2015



- Location Quotient is a measure of density of an occupation or industry in an area
- A value greater than 1.0 indicates a higher concentration in the area
- Phoenix MSA, Tucson MSA, and Sierra Vista-Douglas MSA all show concentrations of IT occupations greater than the national average

States with the highest location quotients for Computer and Mathematical Occupations, May 2015



Source: Bureau of Labor Statistics



Computer Occupations by Location Quotient (Phoenix MSA, 2015)

SOC	Title	Location Quotient
15-1122	Information Security Analysts	1.92
15-1121	Computer Systems Analysts	1.73
15-1141	Database Administrators	1.68
15-1152	Computer Network Support Specialists	1.68
15-1143	Computer Network Architects	1.48
15-1133	Software Developers Systems Software	1.44
15-1134	Web Developers	1.36
15-0000	Computer and Mathematical Occupations	1.33
15-1151	Computer User Support Specialists	1.31
15-1132	Software Developers Applications	1.14
15-1142	Network and Computer Systems Administrators	1.10
15-1131	Computer Programmers	1.05
15-1199	Computer Occupations All Other	0.58

IT Hiring Trends

Top Job Postings for Computer Occupations Maricopa County August 2016

Occupation	Volume
Computer User Support Specialists	611
Network and Computer Systems Administrators	543
Computer Systems Analysts	535
Software Developers, Applications	530
Web Developers	436
Information Technology Project Managers	297
Software Quality Assurance Engineers and Testers	230
Computer Programmers	217
Information Security Analysts	153
Computer Systems Engineers/Architects	125
Others (12)	266
Total (22)	3943

Industry Groups for Computer Occupation Job Postings Maricopa County August 2016

Industry Group	Volume
Computer Systems Design and Related Services	561
Employment Services	351
Depository Credit Intermediation	208
Management, Scientific, and Technical Consulting Services	196
Insurance Carriers	59
Other Support Services	56
Business Support Services	53
Colleges, Universities, and Professional Schools	43
Scheduled Air Transportation	41
Other Ambulatory Health Care Services	38
Personal Care Services	35
Semiconductor and Other Electronic Component Manufacturing	32
Waste Treatment and Disposal	30
Unclassified, Unavailable, and Other Establishments	1955
Total (133)	3943

Top Employers for Computer Occupations Maricopa County August 2016

Advertiser	Volume
Wells Fargo	184
TEKsystems	78
Kforce Professional Staffing, Inc.	67
American Express	51
HALLMARK GLOBAL TECHNOLOGIES INC	47
Cognizant Technology Solutions	43
American Airlines	41
EXPERIS	38
Robert Half International	38
Matrix Resources	37
Unspecified	344
Others (918)	2975
Total (929)	3943

Historical Employer Job Postings Maricopa County 2013-2016

Wells Fargo	American Express
5,992 jobs	3,563 jobs
CVS Health	DIGNITY HEALTH
2,385 jobs	1,729 jobs
Unitedhealth Group	Banner Health
1,466 jobs	1,448 jobs
SMCI	Aetna Inc.
1,327 jobs	1,274 jobs
Intel	ACCENTURE
1,267 jobs	1,051 jobs

Top Certifications Requested by Employers Maricopa County

Certified Information Systems Security Professional (CISSP)
Driver's License
Secret Clearance
Project Management Professional (PMP)
Cisco Certified Network Associate (CCNA)
Cisco Certified Network Professional (CCNP)
Microsoft Certified Systems Engineer (MCSE)
System Administrator (EMCSyA)
Business Process Management Programming Languages (BPM)
Project Management Institute (PMI)

Top Skills Requested by Employers Maricopa County

Java
Structured query language (SQL)
Linux
JavaScript (JS)
Systems Development Life Cycle (SDLC)
Quality Assurance (QA)
Microsoft SQL Server (MS SQL)
UNIX
Web services
Microsoft .NET Framework

Conclusion:

- IT-related jobs are projected to grow at a faster rate than other occupations
- IT-related jobs pay higher wages
- Education is a critical component of most IT-related jobs
- Arizona and the Phoenix metro area have a high concentration of IT-related jobs

Questions?

Contact Information:

Labor Market Data: LaborStats.AZ.Gov

Website: OEO.AZ.Gov

Office Contact: 602-771-1122