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Fueling the talent that drives our economy.

Central Indiana Tech Workforce Study

April 2015

TECHPOINT

Funders

Central Indiana Tech Workforce Study
Table of Contents

- Overview and Purpose

- Structure and Growth of Tech Sector

- Demand for Computer and IT Talent

- Quantity and Quality of Computer and IT Talent

- Key Findings

- Appendix

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Overview and Purpose

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Overview and Purpose

- Hire Up, in partnership with TechPoint, reviewed real-time employment data and completed surveys with 71 Central Indiana companies to understand the talent demands of the region's tech sector and determine how well computer and IT talent is prepared to succeed.

- The study builds upon previous studies by EmployIndy and TechPoint to provide a deeper look at the demand for and supply of talent in Central Indiana's tech sector and provide a foundation of data and analysis of key talent needs to help grow the tech sector.

- The study outlines good news, challenges and opportunities to develop more technical talent for one of the fastest evolving industries in the nation and Central Indiana.

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The Good News and Challenges

- Good News
  - Central Indiana's tech sector spans the economy, is growing and pays significantly higher than most other industry sectors.
  - Local educational institutions have ramped up programs and production of graduates with associate, bachelor's and master's degrees, and students are graduating with fundamentals and basic skills needed for employment.

- Challenges
  - Employers recognize a skills gap, which is a unique challenge in an industry sector such as tech that changes rapidly. Employers need talented people who hold the right skill-sets in specific technologies.

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The Opportunities

- New, enhanced and multiple educational pathways are needed to bridge the information divide between the tech sector's demand for talent and graduates produced by our education system.

- The region needs to predict industry needs and respond to the many different skill-sets that are needed. With that information, the region can better align education with those specific industry needs.

- Student learning opportunities need to include exposure to and experiences with real-world technology application (e.g. internships).

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Key Building Blocks

- The research for this study uses a computer and IT occupational description of the tech sector from the Occupational Information Network (O*NET).

- Employment data describing the tech sector and its structure are from the Bureau of Labor Statistics for the Indianapolis-Carmel Metropolitan Statistical Area using the EMSI database.

- Data describing the demand for computer an IT talent and the type of skills required are from Burning Glass Labor Insight real-time job postings. Burning Glass gathers millions of job openings daily and then mines the text of each one to aggregate employer demand for positions, skills, and qualifications. The job postings for this study are for the Indianapolis-Carmel Metropolitan Statistical Area.

- A Tech Workforce Business Survey was sent to 200 companies in March 2015, of which 71 completed the survey for 36% response rate. The questions in the survey focused on skills in demand, hiring opportunities and challenges, and university preparation of computer-related talent.

- Data describing the supply of degree credentials produced by colleges and universities serving the regional labor market are from the National Center for Education Statistics and the IPEDS database.

- Qualitative data were gathered from a series of interviews with computer-related businesses, training providers, and colleges and universities.

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Structure and Growth of Tech Sector

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Structure and Growth of Tech Sector
The Good News

- Tech is pervasive across the Central Indiana economy.

- Tech is a key contributor to Central Indiana's growth and well-being.

- Computer and IT positions are a strong component of both tech-product and tech-services companies, as well as tech-enabled companies.

- Over the last five years, the regional growth in computer and IT positions increased at a much faster rate than all other occupations.

- The annual average salary for regional computer and IT jobs is almost double the pay of all other jobs.
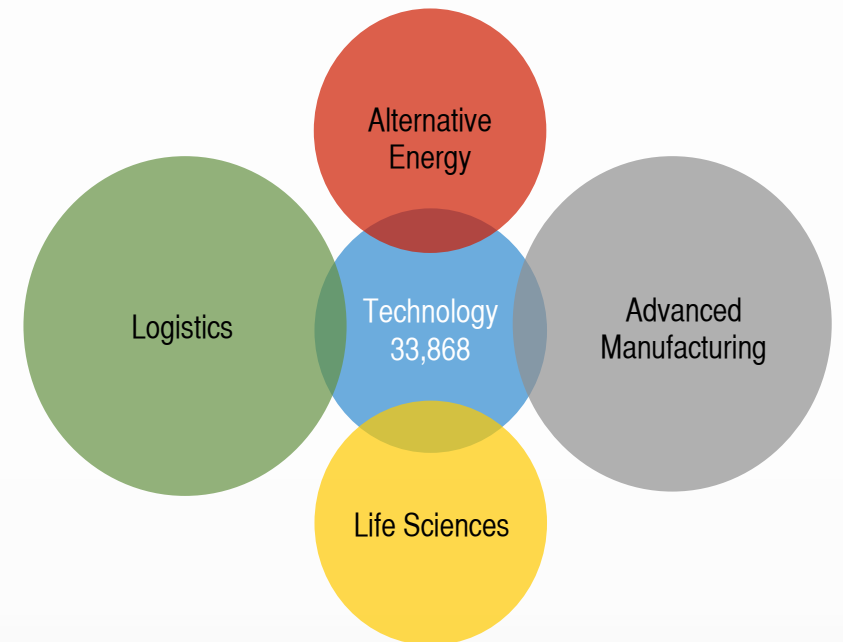
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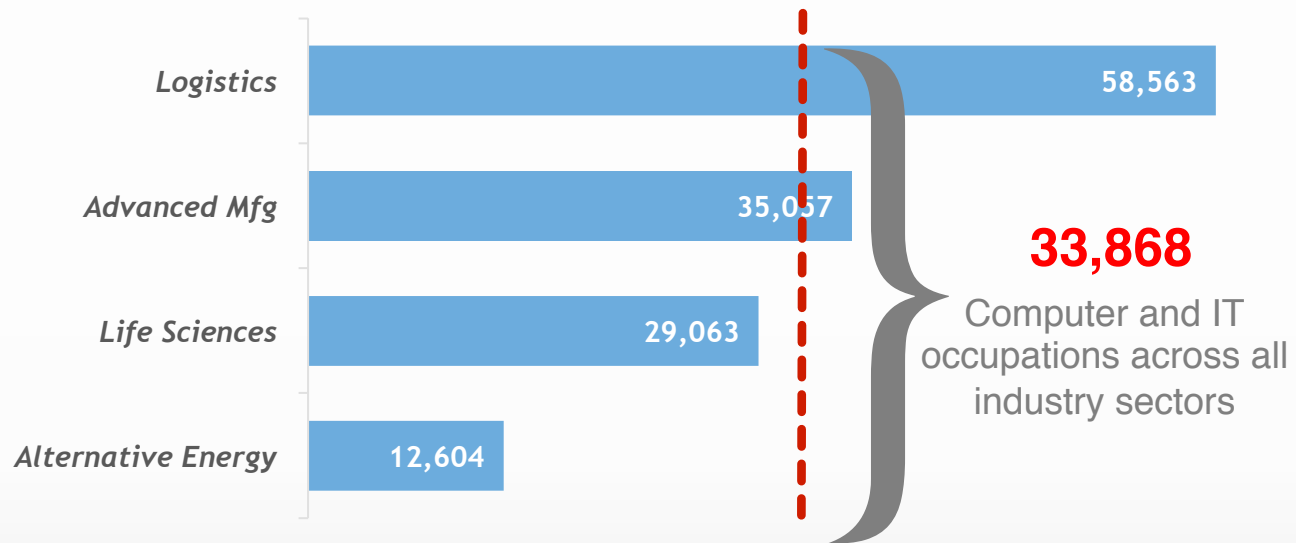# Structure and Growth of Tech Sector
The Challenge

- The tech sector is becoming a larger share of the economy. It has just about caught up to the nation as a whole, but still lags the top 25 metro areas.

- Sector growth will naturally lead to a higher demand for technically skilled workers. While increasing, our production of those workers still isn't high enough to meet projected demand.

Employment by Key Wealth Sectors

TOTAL EMPLOYMENT BY KEY WEALTH SECTORS IN CENTRAL INDIANA 2014

Logistics — 58,563

Advanced Mfg — 35,057

Life Sciences — 29,063

Alternative Energy — 12,604

33,868
Computer and IT occupations across all industry sectors

Alternative Energy

Logistics

Technology 33,868

Advanced Manufacturing

Life Sciences

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Wage Structure

Along with the other key wealth-driving sectors, jobs in computer and IT pay a high annual salary of more than $75,000.
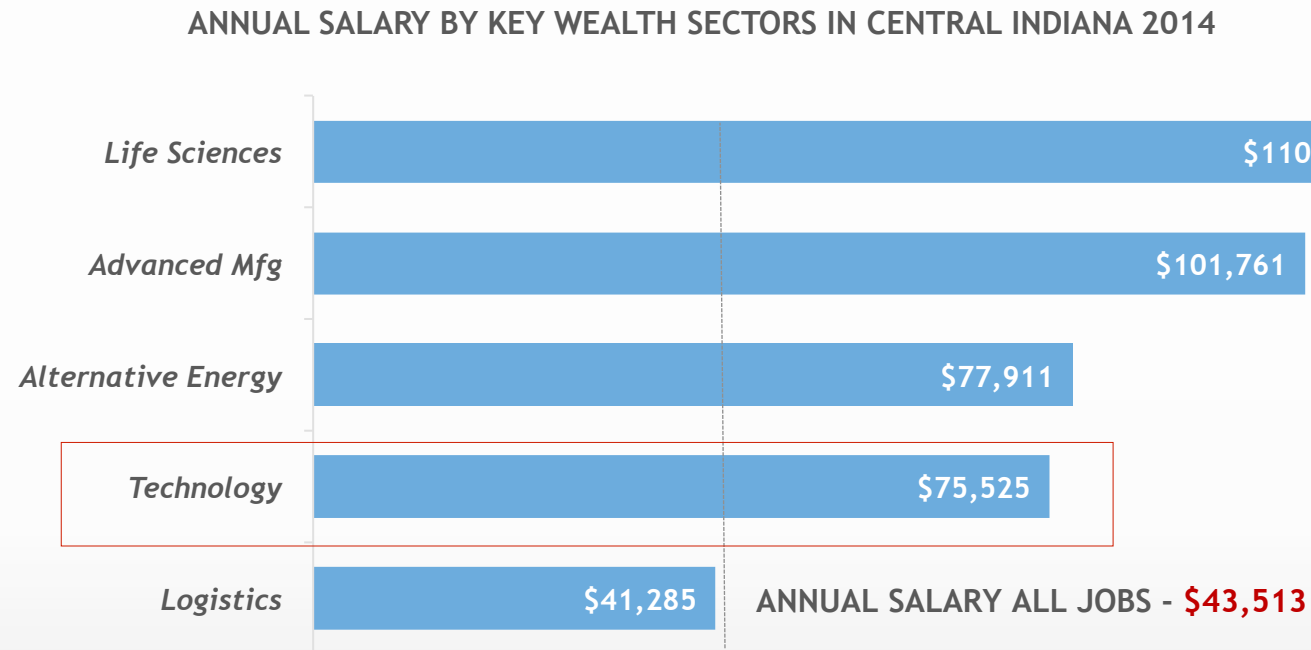
ANNUAL SALARY BY KEY WEALTH SECTORS IN CENTRAL INDIANA 2014

Sector	Annual Salary
Life Sciences	$110,714
Advanced Mfg	$101,761
Alternative Energy	$77,911
Technology	$75,525
Logistics	$41,285

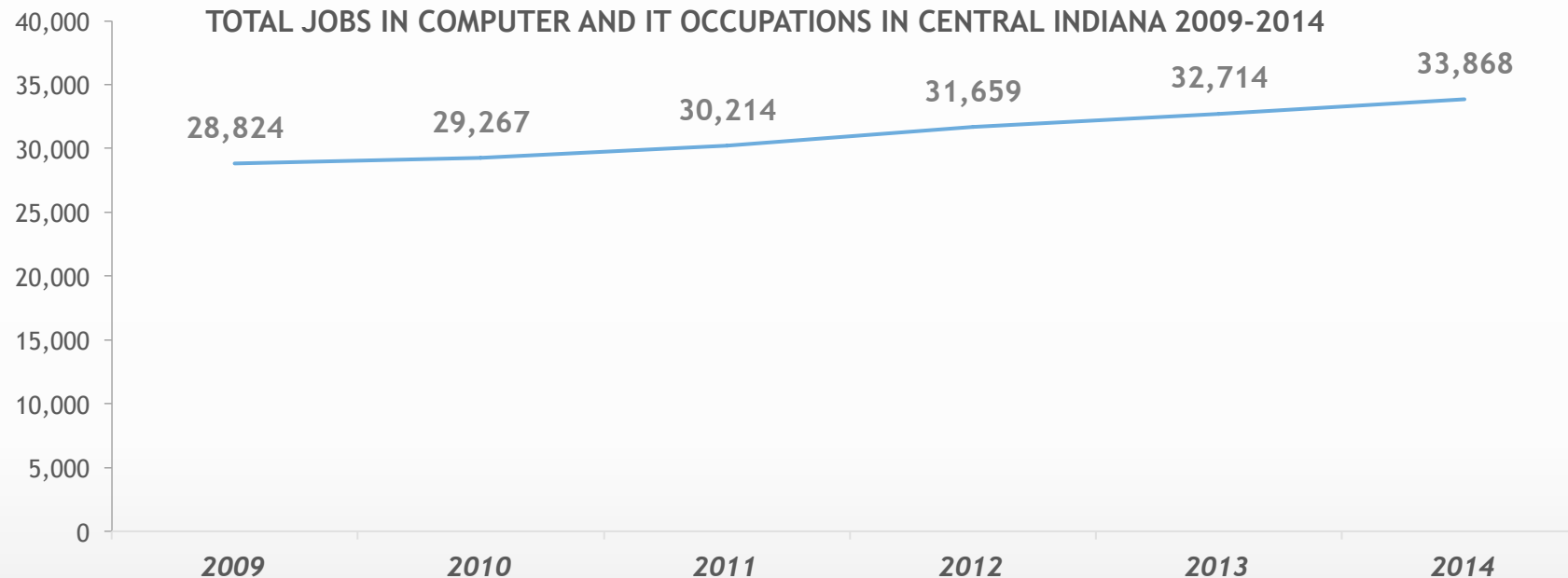ANNUAL SALARY ALL JOBS - **$43,513**

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Wage Structure

In 2014, computer and IT occupations paid an annual average salary that is almost double the pay for all jobs in Central Indiana as a whole.

ANNUAL AVERAGE SALARY IN CENTRAL INDIANA 2014

All Occupations	$43,513
Computer and IT	$75,525
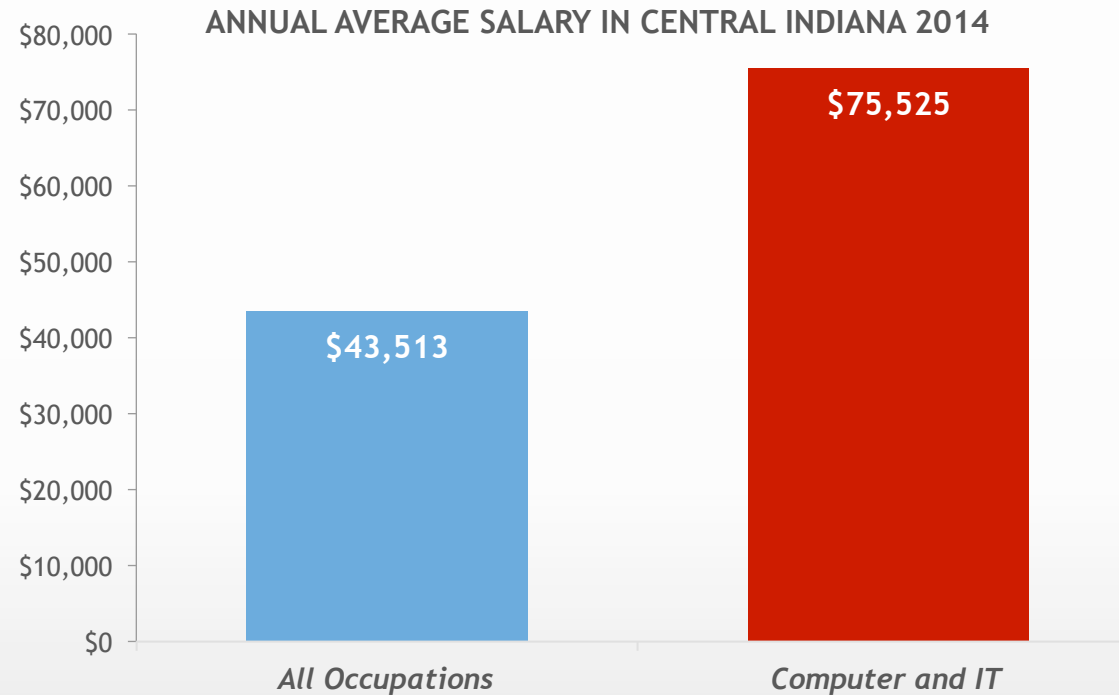
Source: EMSI, QCEW, 2014.

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Growth in Jobs

Computer and IT is also one of the fastest growing sectors in Central Indiana. Total jobs in computer and IT occupations grew by more than 5,000 jobs since 2009, increasing from 28,824 jobs in 2009 to 33,868 jobs in 2014.

TOTAL JOBS IN COMPUTER AND IT OCCUPATIONS IN CENTRAL INDIANA 2009-2014

	2009	2010	2011	2012	2013	2014
Jobs	28,824	29,267	30,214	31,659	32,714	33,868

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Growth in Jobs

Jobs in computer and IT occupations grew twice as fast as all jobs in Central Indiana from 2009 to 2014. Jobs in Central Indiana's computer and IT occupations grew by 17%, while all jobs in the region grew by 8% during this time.

GROWTH IN JOBS IN CENTRAL INDIANA 2009-2014

All Occupations	Computer and IT
8%	17%

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Growth in Jobs

This rate of growth is faster than computer and IT jobs in the U.S. and the average for the top 25 metro areas. Central Indiana's computer and IT occupational jobs grew 17% since 2009. Computer and IT jobs grew 10% in the U.S. and an average of 11% in the top metros during the same time.

RELATIVE GROWTH OF JOBS IN COMPUTER AND IT OCCUPATIONS IN CENTRAL INDIANA AND UNITED STATES 2009-2014

Legend:
- Indianapolis MSA
- Top 25 Metros
- United States

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Growth in Share of Economy

Central Indiana, which once lagged the nation, has caught up to the U.S. in the concentration of its economy that is made up of computer and IT occupations. Central Indiana's 33,868 jobs in computer and IT occupations make up 3.27% of the economy, which is just about the same as the U.S. but smaller than the top metros.

PERCENT OF COMPUTER AND IT OCCUPATIONS IN ECONOMY 2009-2014

- Indianapolis MSA
- Top 25 Metros
- United States

2009
- 3.00%
- 4.00%
- 3.17%
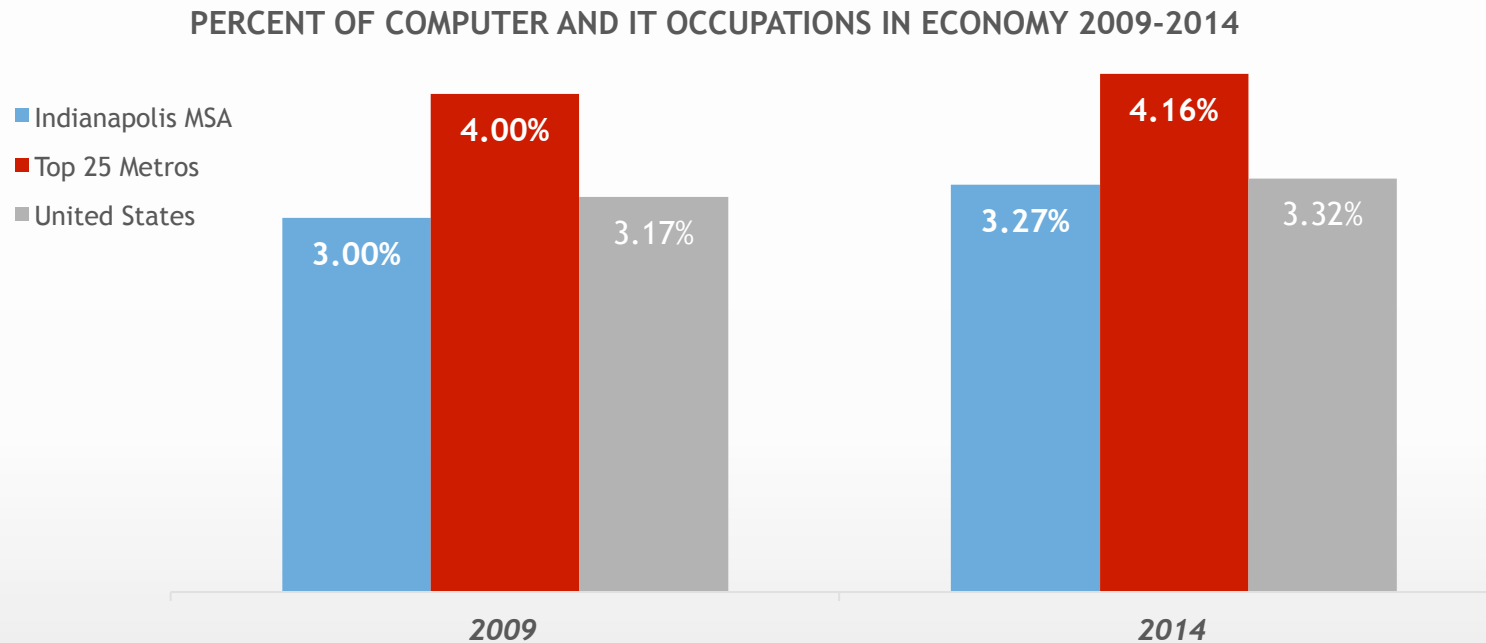
2014
- 3.27%
- 4.16%
- 3.32%

Source: EMSI QCEW, 2009-2014

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Job Structure by Industry

Among the 3 industry segments of the economy in which computer and IT workers are employed – tech-services, tech-product, and tech-enabled – most jobs are in companies that are in the tech-enabled segment (58% of the 33,868 computer and IT jobs in Central Indiana).

TOTAL COMPUTER AND IT RELATED OCCUPATIONAL JOBS BY INDUSTRY SEGMENT IN CENTRAL INDIANA 2014

Tech-Product/Services: 14,120 (42%)
Tech-Enabled: 19,748 (58%)

Total Computer-related Occupational Jobs, N=33,868

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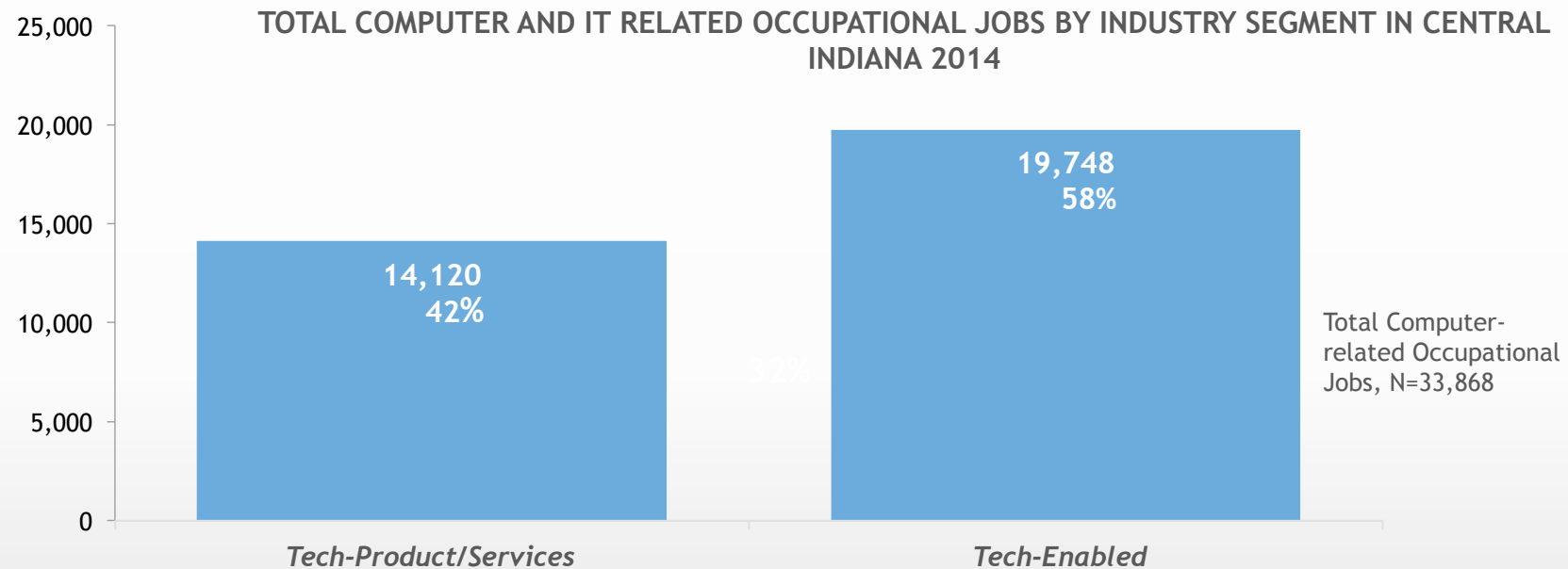
Job Structure by Industry

More than half of the top industries that employ computer and IT workers are in tech-enabled industries.

TOP INDUSTRIES FOR COMPUTER AND IT OCCUPATIONAL EMPLOYMENT IN CENTRAL INDIANA 2014

Industry	Value
Computer Systems Design Services	4,393
Computer Programming Services	3,602
Corporate/Regional Offices	1,344
Temporary Help Services	1,203
Software Publishers	879
Colleges/Universities (Public)	837
Health Insurance Carriers	786
Federal Government	718
Engineering Services	697
State Government	650
Wired Telecommunications	595
Local Government	538
Electronic Shopping	528
Insurance Carriers	525
Hospitals	508

Legend:
- Tech-Product or Tech-Service Industries
- Tech-Enabled Industries

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Demand for Computer and IT Talent

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Demand for Computer and IT Talent
The Good News

- Demand for computer and IT talent is growing; demand for talent is as strong from tech-enabled companies as it is from tech-product and services companies.

- There is very high demand among companies seeking talent related to software development, network and systems, and cybersecurity.

- There is increasing demand for new kinds of talent related to open, agile, and integrative languages and platforms.

- Approximately 20% of the most in-demand computer and IT positions in 2014 required less than a bachelor's degree.

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Demand for Computer and IT Talent
The Challenge

- Employers seek talented workers who can apply broad content competencies, demonstrate work-based experience in applying concepts and technologies, and use specific tools and technologies.

- More than 80% of surveyed regional computer and IT jobs in 2014 required a bachelor's degree or higher.

- More than 50% of surveyed regional employers are seeking candidates with more than 5 years' experience, making it difficult for recent computer and IT college graduates to obtain immediate employment in those companies.

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Growth in Job Postings

There has been a steady incline in demand for computer-related positions since 2010. In the last year, there were 10,628 job postings by Central Indiana companies seeking computer and IT workers, up from 6,877 job postings in 2010.

TOTAL COMPUTER-RELATED JOB POSTINGS IN CENTRAL INDIANA 2010-2014

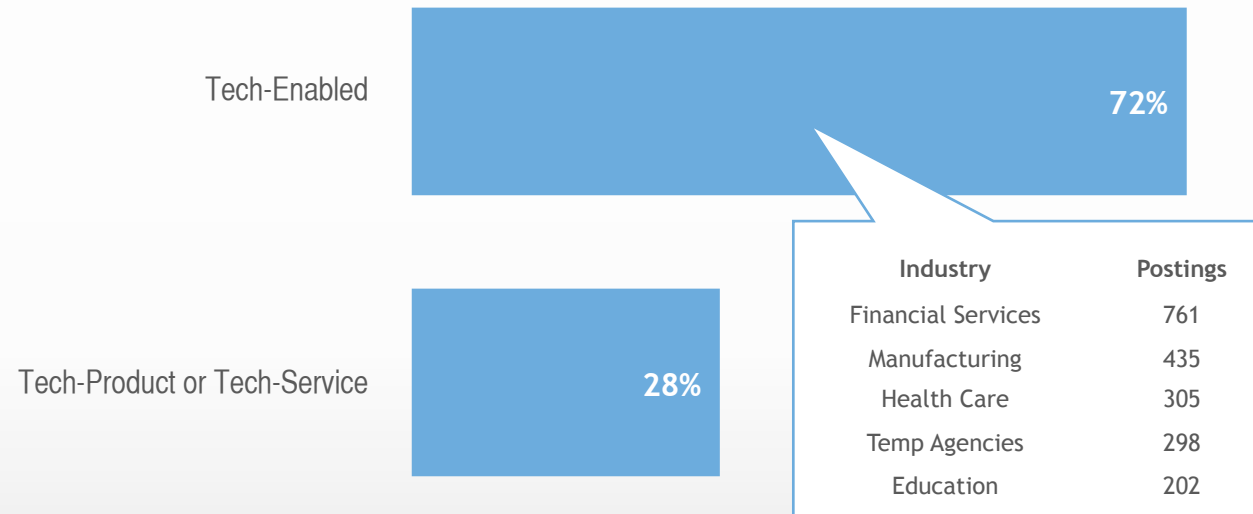|	2010	2014
	6,877	10,628
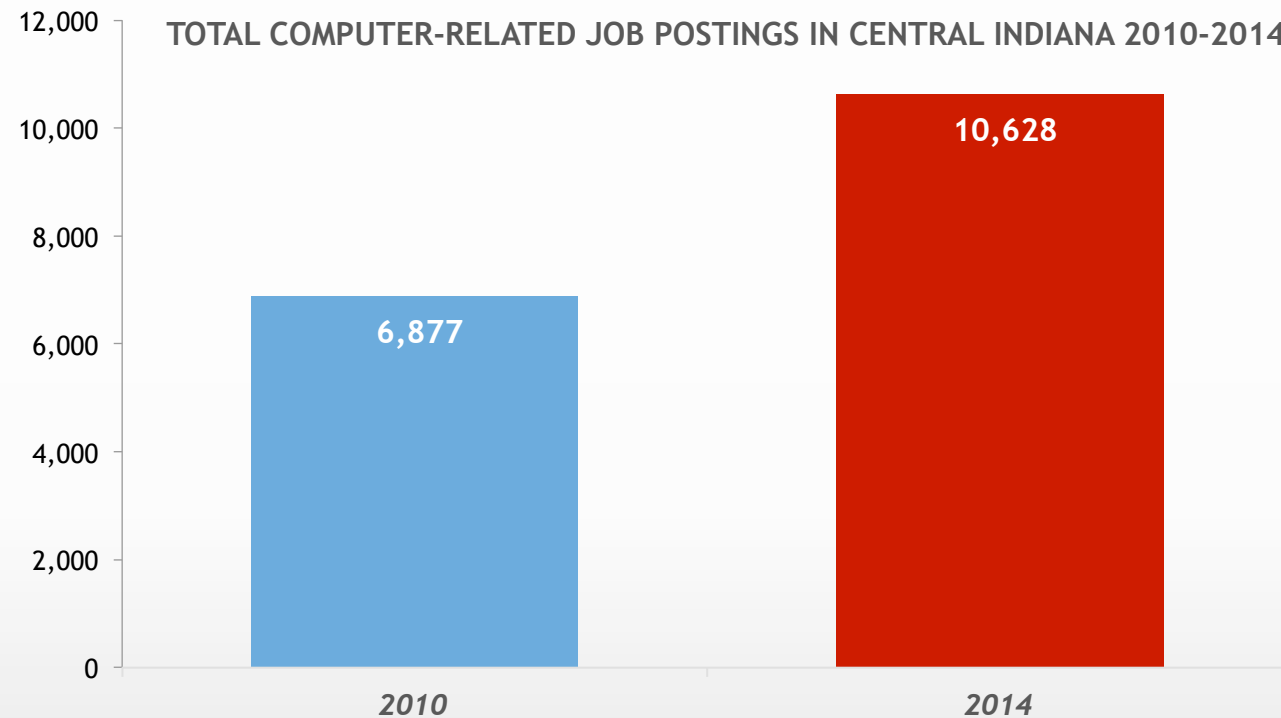
Source: Burning Glass Labor Insight, 2010-2014. Burning Glass uses its technologies to aggregate and categorize job postings from job boards, company websites, and other online forums into what is know as real-time labor market information. Burning Glass captures most, but not all, of the scale and intensity of demand for industries and occupations in the economy.

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Demand by Industry

Most demand for computer-related positions in the region comes from companies in tech-enabled industries. In 2014, 72% of the job postings were from tech-enabled companies in industries such as financial services, manufacturing, and health care.

TOTAL COMPUTER AND IT POSTINGS BY INDUSTRY SEGMENT IN CENTRAL INDIANA 2014

Tech-Enabled — **72%**

Tech-Product or Tech-Service — **28%**

Industry	Postings
Financial Services	761
Manufacturing	435
Health Care	305
Temp Agencies	298
Education	202

Source: Burning Glass Labor Insight, 2014.

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Demand by Companies

Companies seeking the most computer and IT related hires are headquartered in Central Indiana.

TOP COMPANIES WITH COMPUTER-RELATED POSTINGS IN CENTRAL INDIANA 2014

Company	Postings
*Wellpoint	169
*Interactive Intelligence	137
*Sales Force/Exacttarget	135
*Angies List	104
*Indiana University	97
*MMY Consulting	93
Teradata	82
*Eli Lilly	76
Ascension Health	72
UnitedHealth Group	63
Covance Incorporated	62
DFAS (Defense Finance)	59
*KAR Auction Services	54
Liberty Mutual	52

* Companies with Indiana Headquarters

Source: Burning Glass Labor Insight, 2014. Not all job postings indicate the company hiring, therefore these data are for the 6,553 computer-related postings with a company indicated.

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Demand by Position

Job postings by companies in the region show demand is greatest for positions in 4 general areas: software development; computer networking and systems; cybersecurity and risk analysis; and database administration and analysis.

TOP COMPUTER POSITIONS IN DEMAND BY JOB POSTINGS, CENTRAL INDIANA 2014

Source: Burning Glass Labor Insight, 2014. Total Postings, N = 10,682.

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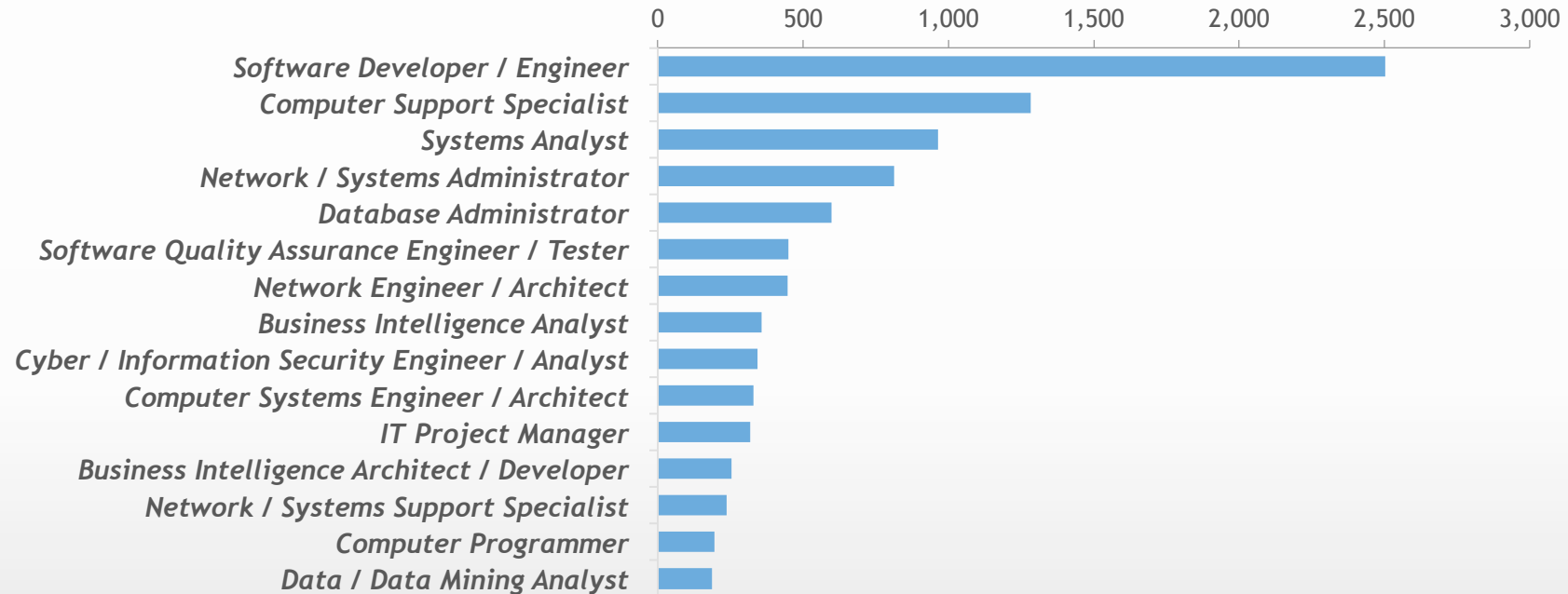
Demand by Position

The 2015 Tech Workforce Business Survey of Central Indiana tech-related companies shows that most new computer and IT hires planned for 2015 will be for software developers, computer and information analysts, and computer networking and systems.
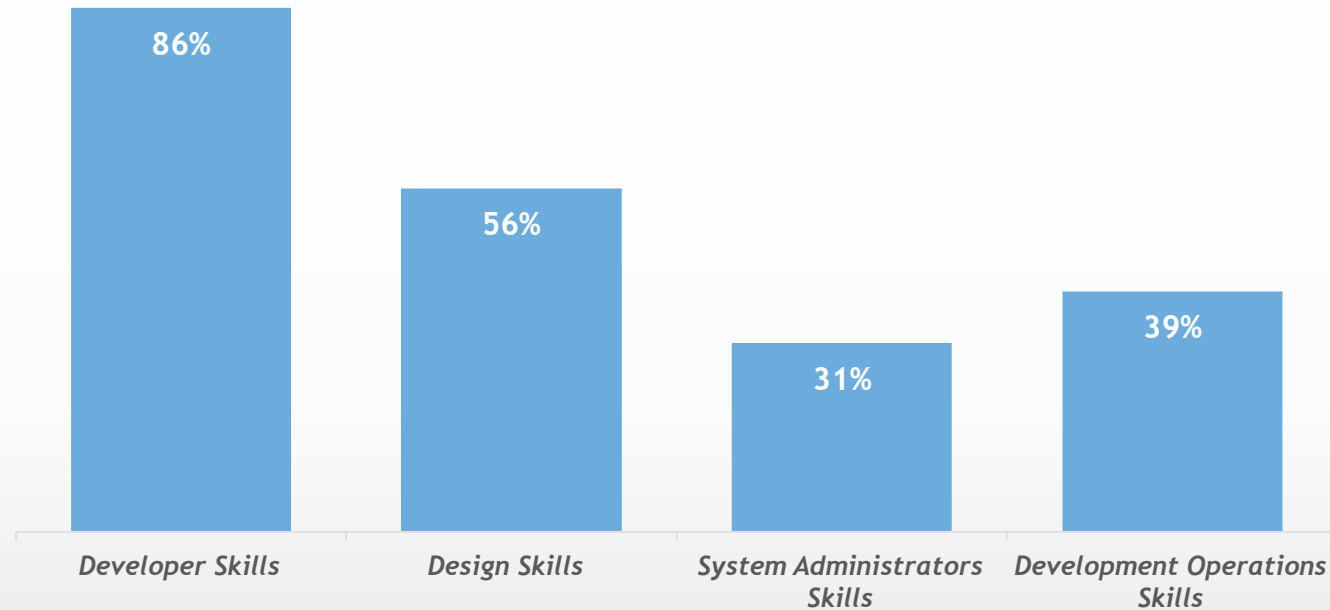
Companies Planned Hiring Computer-related Employees by Position 2015		
	Number of Total Planned Hires for Position 2015	Number of Companies Planning to Hire for Position 2015 (N=71)
Software Developers, Applications	177	44
Web Developers	117	34
Computer Programmers	113	15
Software Developers, Systems Software	99	21
Computer Systems Analysts	58	13
Medical Records and Health Information Technicians	44	5
Network and Computer Systems Administrators	39	10
Business Operations Specialists	36	14
Graphic Designers	35	23
Information Security Analysts	31	9
Computer Hardware Engineers	24	6
Computer User Support Specialists	23	10
Computer Network Specialists	23	5
Database Administrators	22	11
Computer and Information System Managers	22	7
Computer Network Architects	22	7

Same top positions as 2014

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Demand by Skills

The broad skill area surveyed companies identified parallel those positions most in-demand; 86% of companies surveyed identified they are seeking software developer skills.

PERCENT OF COMPANIES HIRING FOR SKILL GROUP (N=71)

Developer Skills	Design Skills	System Administrators Skills	Development Operations Skills
86%	56%	31%	39%

Source: 2015 Tech Workforce Business Survey. 11. Which of the following skill groups have you attempted to hire for in 2014 and/or plan to hire for in 2015 (select all that apply)? N=71; Totals will not add to 100% because respondents were able to select more than one choice.

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Demand by Skills

Job postings show a trend for companies to seek specific skills that can integrate new and emerging technologies, utilize agile and open source platforms, and meet an increased focus on IT security and risk mitigation.

TOP EMERGING COMPUTER-RELATED SKILLS BY JOB POSTINGS IN CENTRAL INDIANA 2014

- 2011
- 2014

Skill	2011	2014
jQuery	197	497
JavaScript	701	997
Technical Support	941	1,218
Disaster Recovery Planning	214	403
Optimization	278	453
Firewalls	247	416
Scrum	138	280

Largest Relative Increase

30

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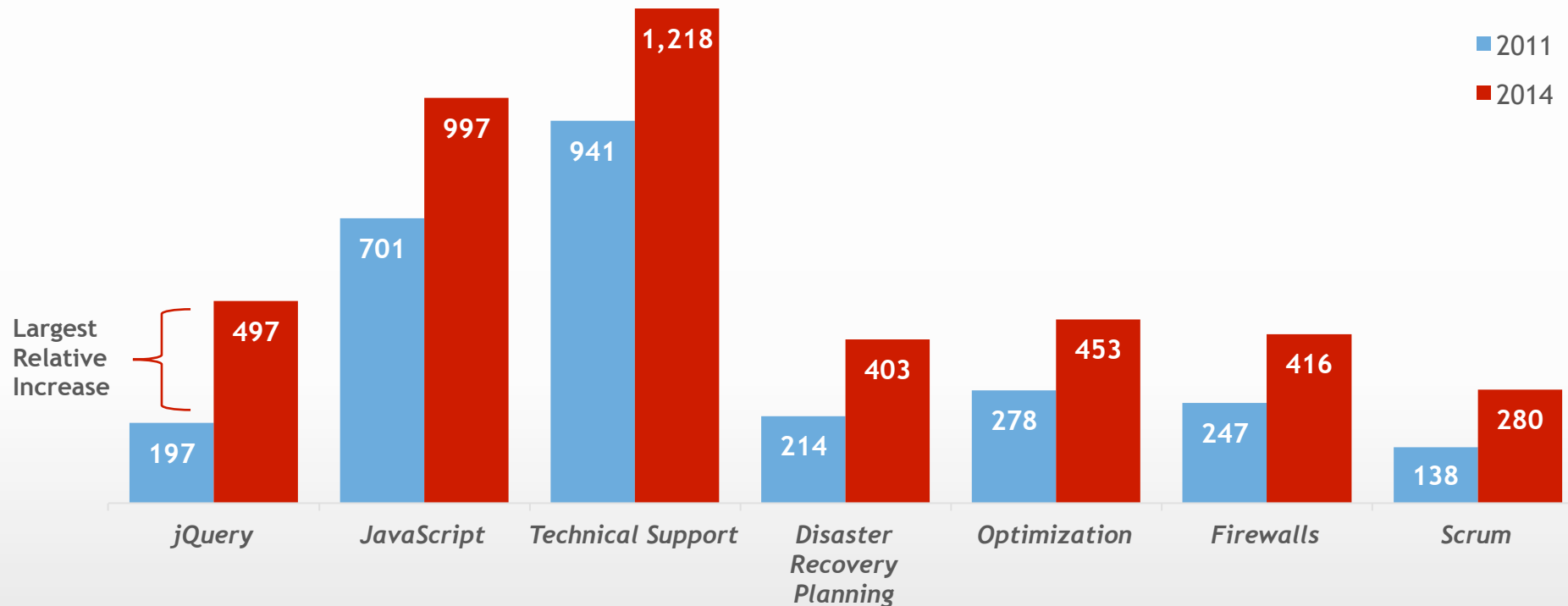
Demand by Skills

Companies responding to the survey also identified specific technologies they are seeking, such as those technologies that interface with database and applications, utilize new platforms, and operate with programming languages.

RECRUITMENT PRIORITIES FOR TECHNOLOGY SKILLS	
Technology	**High Recruitment Priority (N=71)**
SQL	37%
JavaScript	35%
.NET (C#)	30%
HTML	28%
CSS	24%
C#	24%
Java	20%
iOS	20%
Adobe Photoshop	20%
Ruby	17%
Ruby on Rails	17%
Adobe Illustrator	14%
AngularJS	13%
Android Development	13%

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Demand by Education Required

Most companies hiring computer-skilled talent are looking for highly educated workers. More than 80% of computer-related job postings require a bachelor's degree or higher.
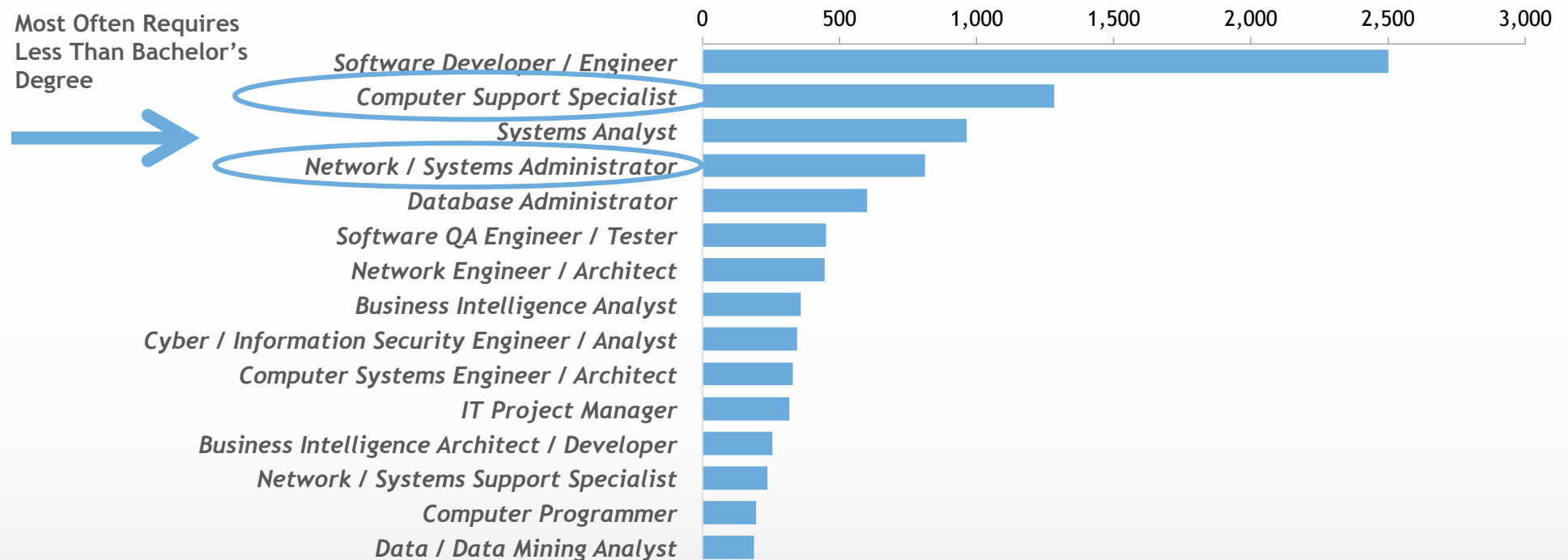
DEMAND FOR COMPUTER-RELATED JOBS BY EDUCATION REQUIRED IN CENTRAL INDIANA 2014

- Less than Bachelor's 18%
- Bachleor's or Higher 82%
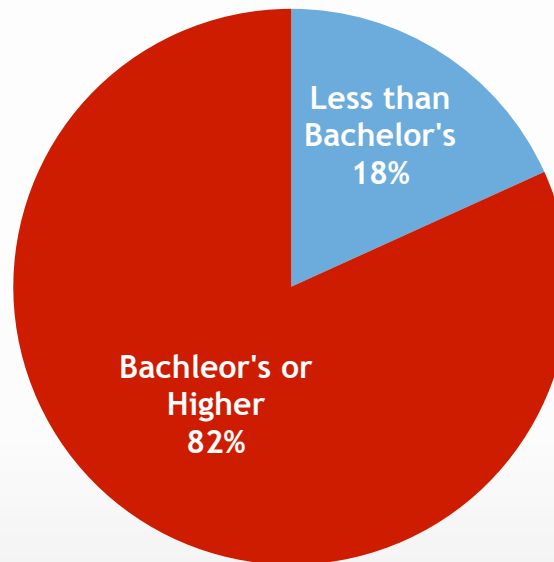
Source: Burning Glass Labor Insight, 2014. Total Computer-related Job Postings with Degree (includes some with both), N=12,949. A recent analysis by Burning Glass, "Moving the Goalposts: How Demand for a Bachelor's Degree is Reshaping the Workforce," suggests that the skill sets indicated in job postings don't include skills typically taught at the bachelor's level. This suggests that employers may be "upcredentialing" -- relying on a bachelor's degree as a broad recruitment filter that may or may not correspond to specific capabilities needed to do the job.

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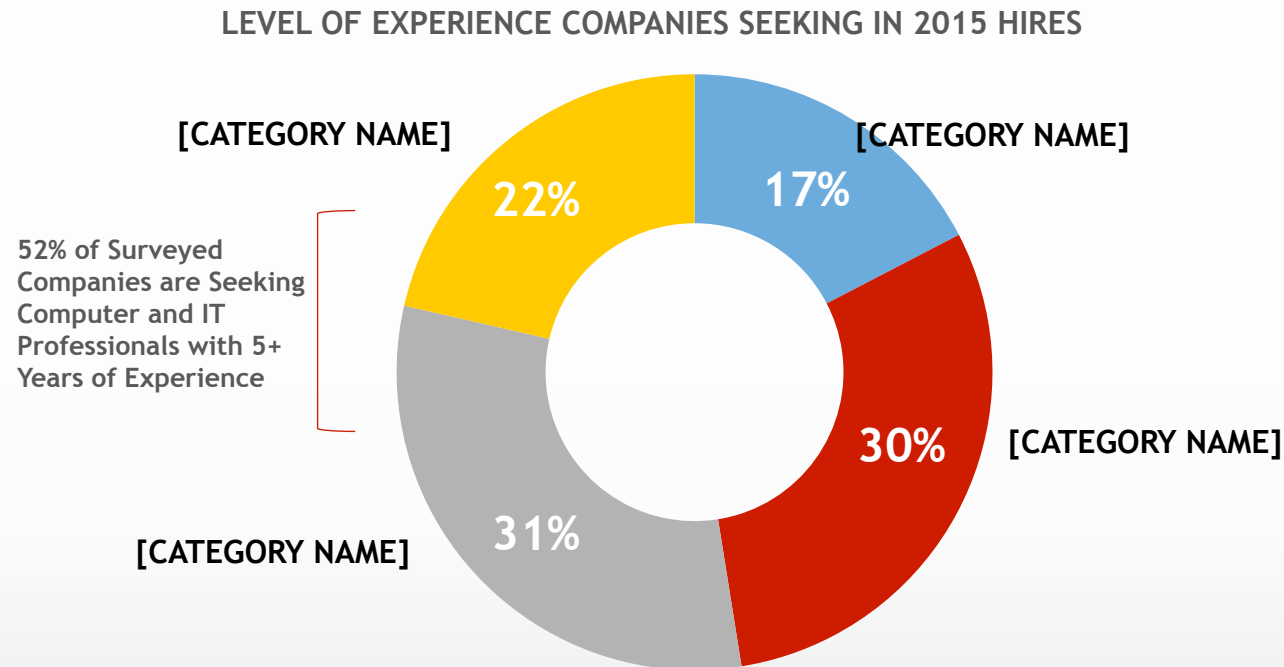HIRE UP! INDY

Demand by Education Required

At least two of the computer-skilled positions in high demand, computer support specialists and network administrators, are positions that often require a sub-baccalaureate degree.

Most Often Requires Less Than Bachelor's Degree →

Position	Demand (approx.)
Software Developer / Engineer	~2,500
Computer Support Specialist	~1,300
Systems Analyst	~950
Network / Systems Administrator	~800
Database Administrator	~600
Software QA Engineer / Tester	~450
Network Engineer / Architect	~450
Business Intelligence Analyst	~400
Cyber / Information Security Engineer / Analyst	~400
Computer Systems Engineer / Architect	~350
IT Project Manager	~350
Business Intelligence Architect / Developer	~300
Network / Systems Support Specialist	~250
Computer Programmer	~200
Data / Data Mining Analyst	~180

Chart axis: 0, 500, 1,000, 1,500, 2,000, 2,500, 3,000

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Demand by Experience

Employers also are seeking experience in the workplace. According to the Tech Workforce Business Survey, more than 50% of all planned computer hires sought by companies in 2015 are for candidates with more than 5 years' experience.

LEVEL OF EXPERIENCE COMPANIES SEEKING IN 2015 HIRES

[CATEGORY NAME]
22%

[CATEGORY NAME]
17%

[CATEGORY NAME]
30%

[CATEGORY NAME]
31%

52% of Surveyed Companies are Seeking Computer and IT Professionals with 5+ Years of Experience

Source: 2015 Tech Workforce Business Survey. 5. Of those you plan to hire in 2015 what level of experience are you looking for (select all that apply)?

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Quantity and Quality of Computer and IT Talent

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Quantity and Quality of Computer and IT Talent
The Good News

- In the last four years, the overall quantity of recent computer and IT graduates and certifications has almost doubled.

- Most of the increase among computer graduates can be attributed to more people attaining bachelor's degrees, leaving a significant growth opportunity in programs that require fewer than four years of study.
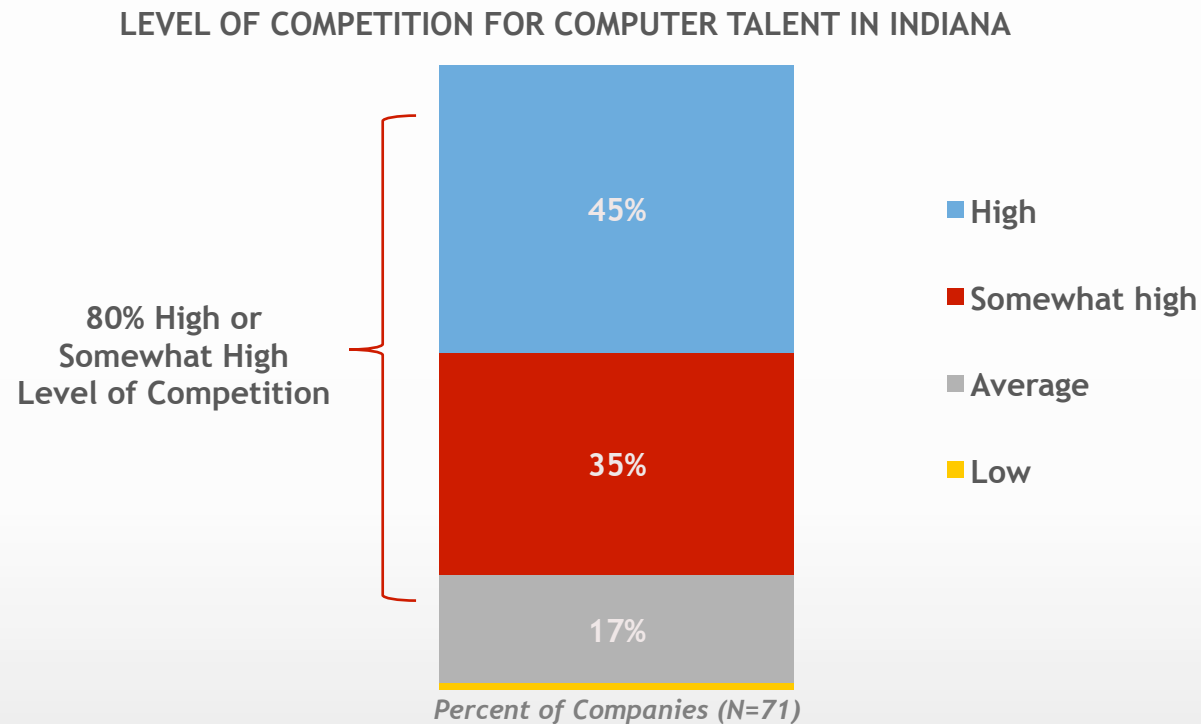
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Quantity and Quality of Computer and IT Talent
The Challenge

- 80% of surveyed regional companies report that competition for computer and IT talent is high.

- 75% of surveyed companies perceive a moderate skills gap in computer and IT talent in Central Indiana.

- Internships are a growing, yet still small, source of talent in the sector.

- Over 20% of surveyed companies rated the quality of graduates from colleges serving Central Indiana as fair/poor.

- 40% of surveyed companies rate the quality of computer and IT talent as better than average.

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Level of Competition for Talent

80% of respondents stated there is a high/somewhat high level of competition for computer talent in the region.

LEVEL OF COMPETITION FOR COMPUTER TALENT IN INDIANA

80% High or Somewhat High Level of Competition

45%

35%

17%

- High
- Somewhat high
- Average
- Low

Percent of Companies (N=71)

Source: 2015 Tech Workforce Business Survey. Q7. In your experience, how would you describe the current level of competition between Indiana companies for available computer skilled talent? N=71

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Quality of Computer Talent

65% of companies surveyed believe there is a moderate gap between the computer skills they are seeking and skills that job candidates have. 8% of surveyed companies believe there is a significant skills gap.

PERCEIVED GAP IN COMPUTER SKILLS

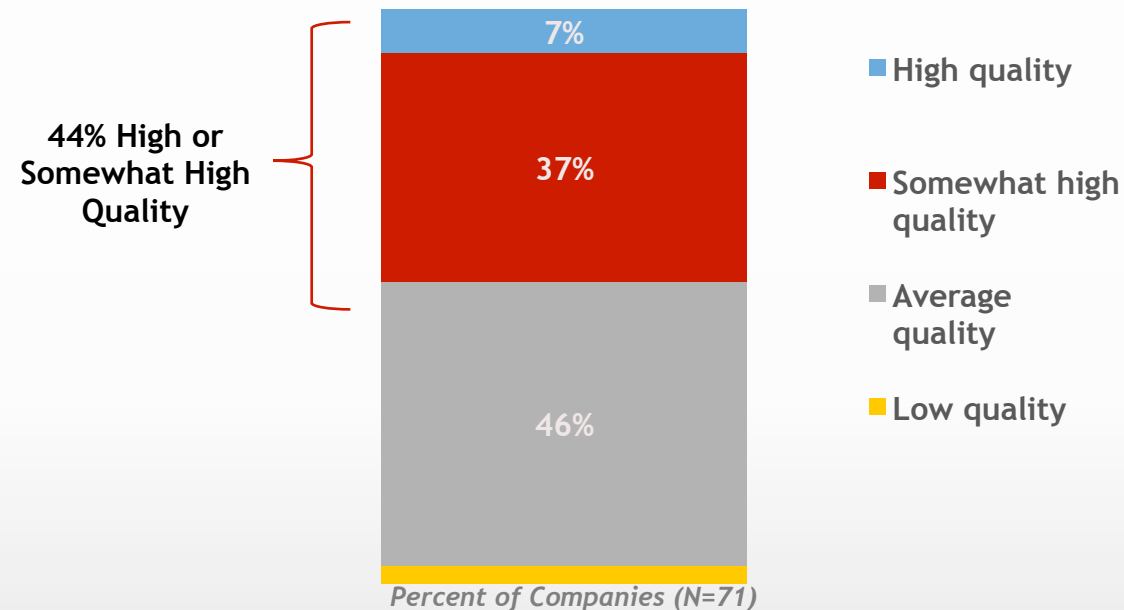|	
8%	■ Significant gap
65%	■ Moderate gap
18%	■ No gap
8%	■ Don't know
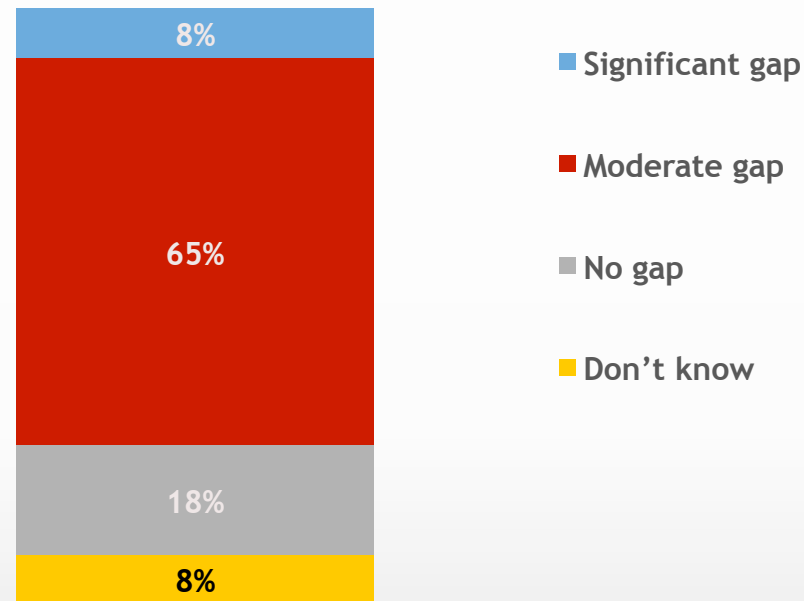
Percent of Companies (N=71)

Source: 2015 Tech Workforce Business Survey. Q10. In your opinion, is there a gap between the computer skills your company is seeking to hire and the skill sets that job candidates or new hires have? N=71

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Quality of Computer Talent

Companies described the region's computer skilled talent as either high/somewhat high (44%) or average quality (46%). 3% of surveyed companies believe the region has low quality computer skilled talent.

PERCEIVED QUALITY OF COMPUTER TALENT IN CENTRAL INDIANA

44% High or Somewhat High Quality

7%	High quality
37%	Somewhat high quality
46%	Average quality
	Low quality

Percent of Companies (N=71)

Source: 2015 Tech Workforce Business Survey. Q6. In your opinion, how would you describe the quality of available computer skilled talent in Indiana right now? N=71

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Quality of Computer Talent

When asked about quality of computer talent in the region, survey respondents cited a need for talent with the right skills and experience.

THREE MOST IMPORTANT BUSINESS COMMENTS ON QUALITY...

- ✓ Experience Needed
- ✓ Missing Technical Skills
- ✓ Not Enough Quality Talent

"Those that claim to have skills are not up to our standards. We've had to start hiring remote workers that are outside of Indiana."

"We are finding there is a significant shortage of good quality software development talent."

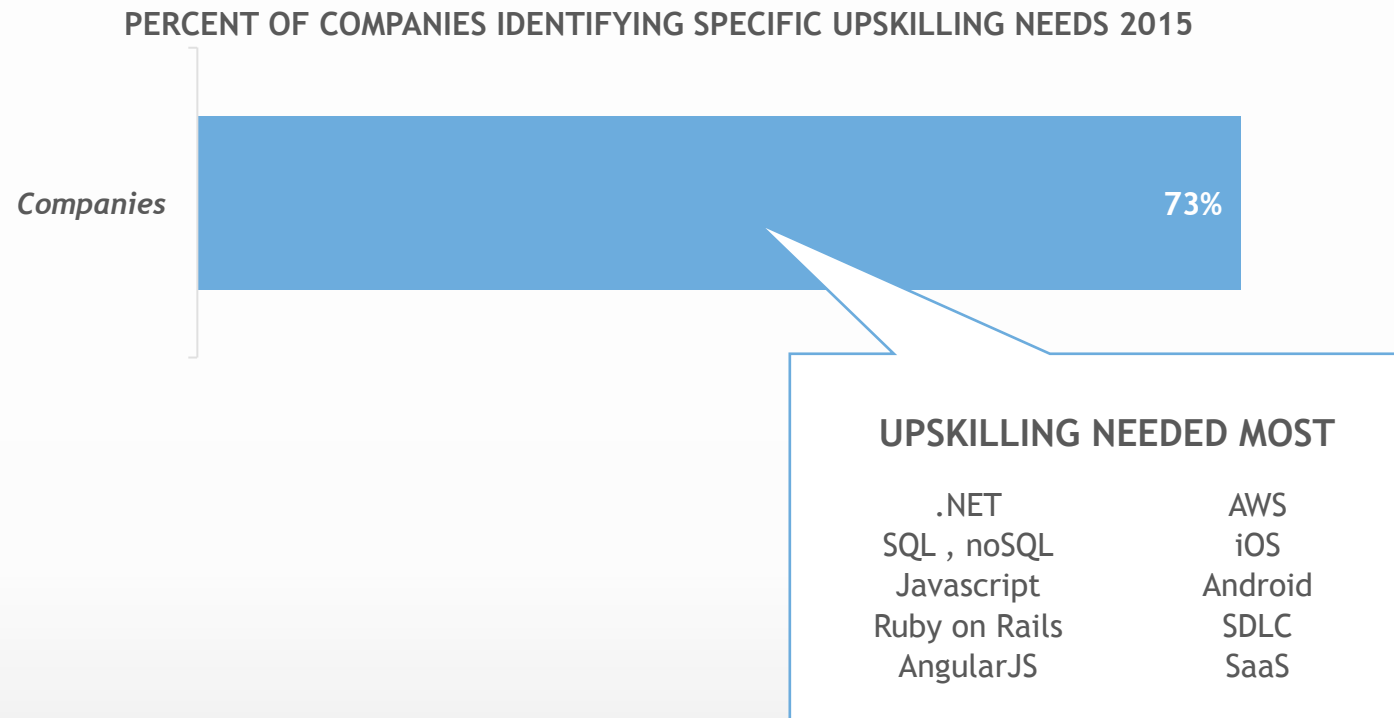*"We are seeking individuals with 5 or more years experience in development with various technologies."*

"There is ZERO AVAILABLE (meaning unemployed) high quality tech talent in Indiana."

"It's a competitive market and hard to find and hire the best anywhere, not just Indiana."

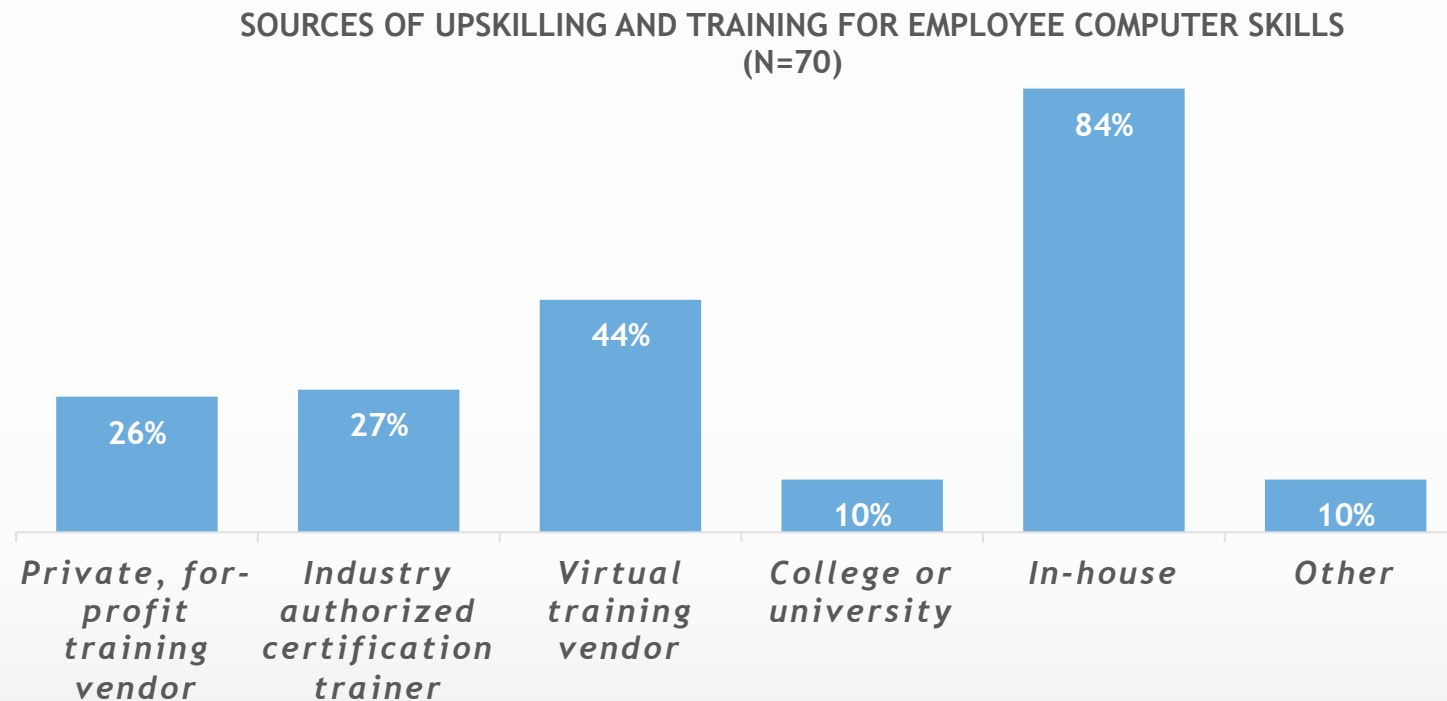*"Affordable experience is tough to find."*

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Upskilling Existing Talent

52 of 71 companies surveyed identified specific "upskilling" their existing computer and IT employees needed most.

PERCENT OF COMPANIES IDENTIFYING SPECIFIC UPSKILLING NEEDS 2015

Companies   73%

UPSKILLING NEEDED MOST

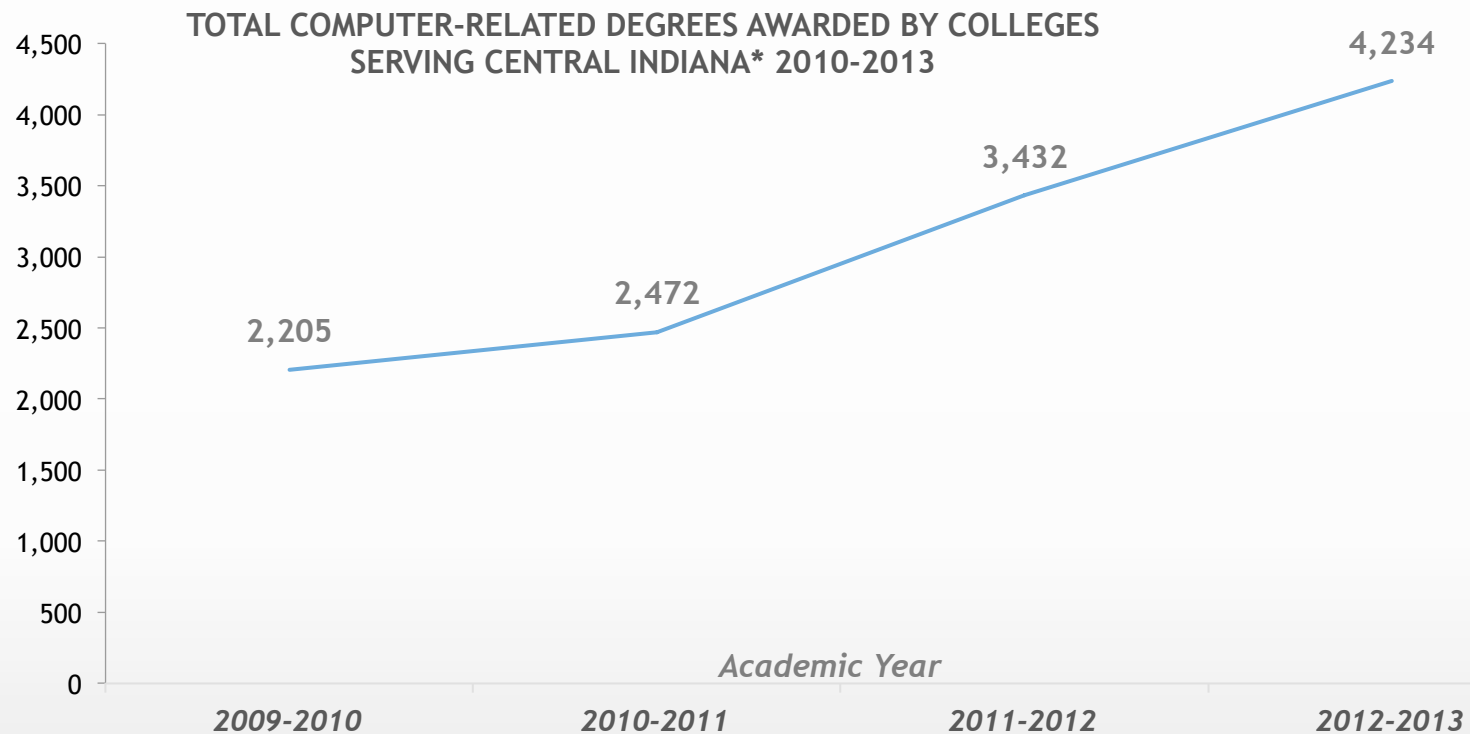|	
.NET	AWS
SQL , noSQL	iOS
Javascript	Android
Ruby on Rails	SDLC
AngularJS	SaaS

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Upskilling Existing Talent

84% of companies upskill their existing employees through in-house training methods. 10% use colleges or universities.

SOURCES OF UPSKILLING AND TRAINING FOR EMPLOYEE COMPUTER SKILLS
(N=70)

Private, for-profit training vendor	Industry authorized certification trainer	Virtual training vendor	College or university	In-house	Other
26%	27%	44%	10%	84%	10%

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Quantity of Graduates

4,234 computer-related degrees were awarded to students graduating from colleges serving the region in 2013, almost doubling the total degree output in computer fields from 2010.
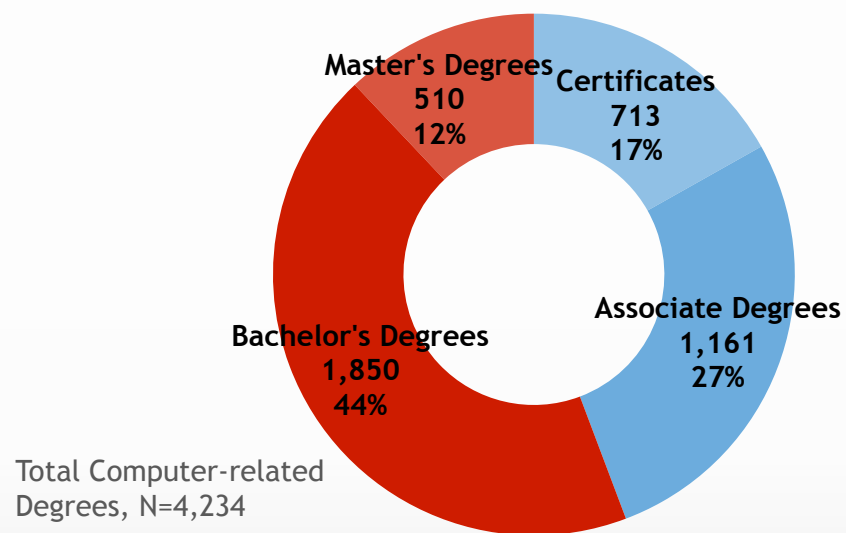
TOTAL COMPUTER-RELATED DEGREES AWARDED BY COLLEGES SERVING CENTRAL INDIANA* 2010-2013

Academic Year

2009-2010 — 2,205
2010-2011 — 2,472
2011-2012 — 3,432
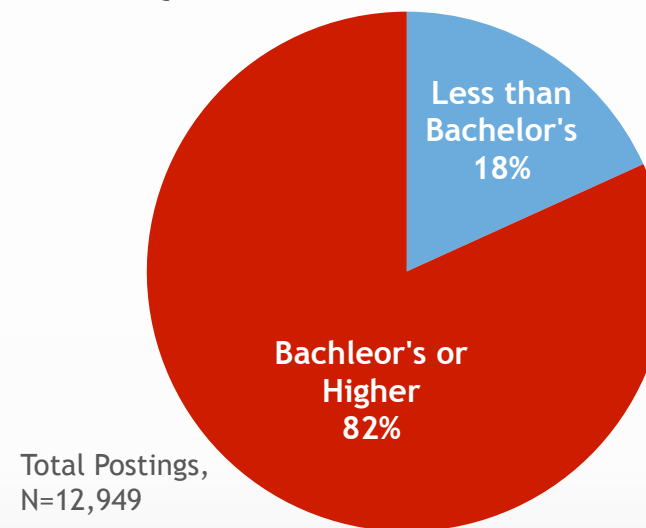2012-2013 — 4,234

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Quantity of Graduates

56% of the 4,234 total computer-related degrees awarded by area colleges were bachelor's or master's degrees. In 2014, 82% of the job postings required a bachelor's degree.

TOTAL COMPUTER-RELATED DEGREES AWARDED IN 2013

Master's Degrees
510
12%

Certificates
713
17%

Bachelor's Degrees
1,850
44%

Associate Degrees
1,161
27%

Total Computer-related Degrees, N=4,234

DEMAND FOR COMPUTER-RELATED JOBS BY EDUCATION REQUIRED IN CENTRAL INDIANA 2014

Less than Bachelor's
18%

Bachleor's or Higher
82%

Total Postings, N=12,949

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Quantity of Graduates

The largest aggregate increase in computer-related degrees were from bachelor's degrees and certificates. Over the past four years, degree production increased by 1,000 and certificate production increased by 500.

TOTAL COMPUTER-RELATED DEGREES AWARDED BY COLLEGES SERVING CENTRAL INDIANA*
2010-2013

Legend:
- Certificate
- Associate
- Bachelor's
- Master's

Bachelor's: 1,329 (2009-2010), 1,526 (2010-2011), 1,562 (2011-2012), 1,850 (2012-2013)
Associate: 957 (2009-2010), 1,156 (2010-2011), 1,139 (2011-2012), 1,161 (2012-2013)
Master's: 266 (2009-2010), 354 (2010-2011), 390 (2011-2012), 510 (2012-2013)
Certificate: 226 (2009-2010), 292 (2010-2011), 341 (2011-2012), 713 (2012-2013)

Academic Year: 2009-2010, 2010-2011, 2011-2012, 2012-2013

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Quantity of Graduates by College

CERTIFICATE AND ASSOCIATE DEGREES

The regional institutions producing the most computer-related sub-baccalaureate degrees were Ivy Tech producing more than 70% and ITT Technical Institute producing 15%.

TOP COMPUTER-RELATED PROGRAMS BY COLLEGES SERVING CENTRAL INDIANA 2013, CERTIFICATE AND ASSOCIATE DEGREES

College	Certificate	Associate
Ivy Tech Community College	651	722
ITT Technical Institute-Indianapolis		293
Vincennes University		74
Indiana University-Purdue University-Indianapolis	54	
International Business College-Indianapolis		[VALUE]
The Art Institute of Indianapolis		[VALUE]
ITT Technical Institute-Indianapolis East		[VALUE]
Purdue University-Main Campus		[VALUE]
Harrison College-Indianapolis		[VALUE]

- Certificate
- Associate

Source: IPEDS, Completions, 2012-2013. Certificates are 1 to 2 year academic credentials.
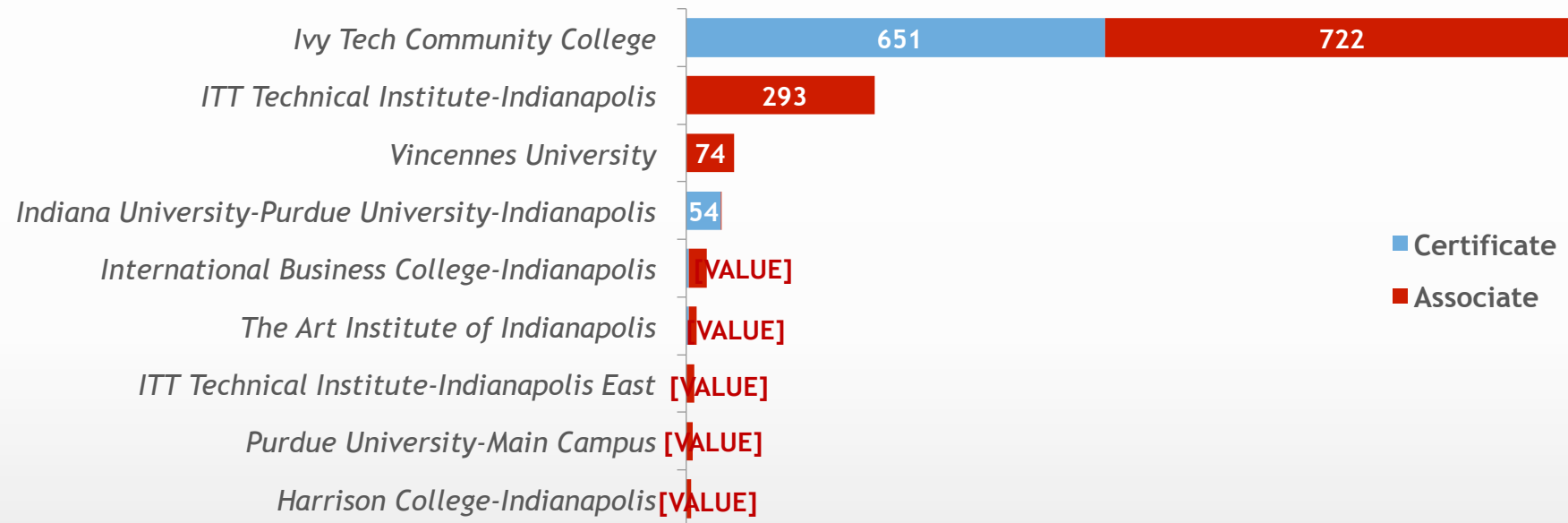*Includes 40 colleges serving Central Indiana (full list is in the appendix). Does not include Indiana Wesleyan University.
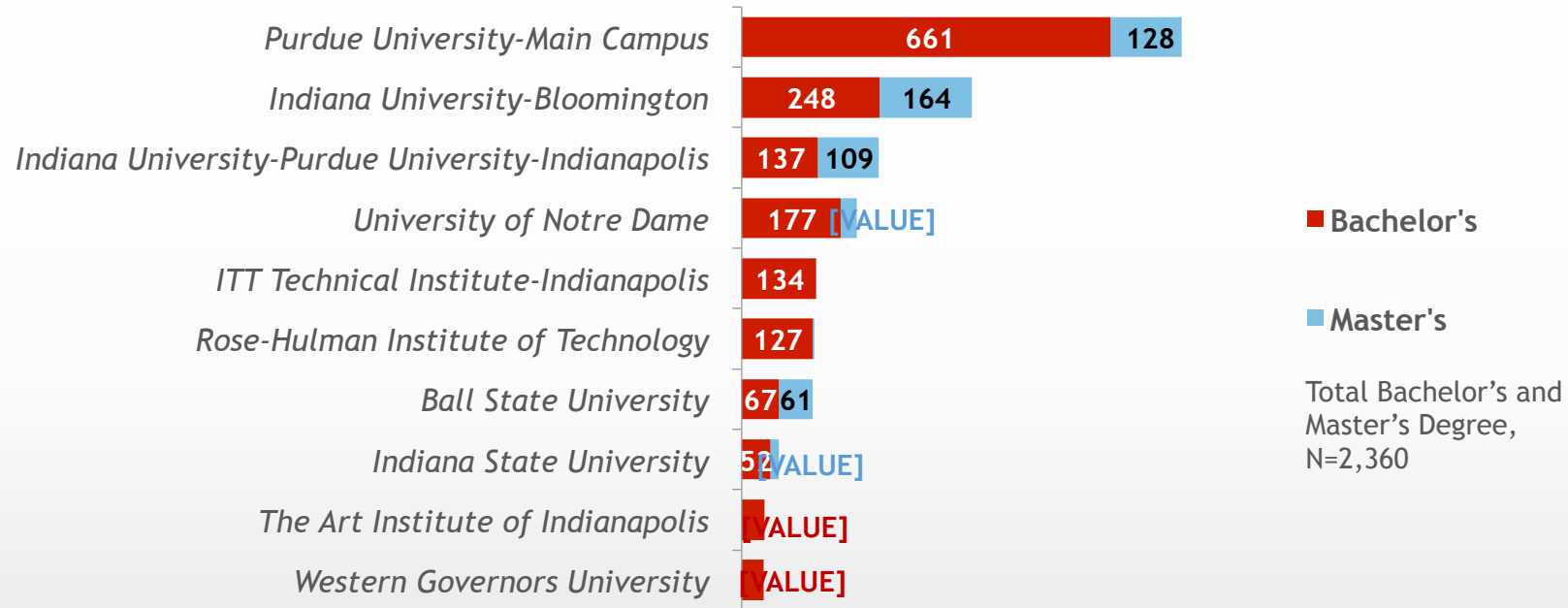
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Quantity of Graduates by College

BACHELOR'S AND MASTER'S DEGREES

The regional institutions producing the most computer-related bachelor degrees were Purdue University, producing 36%, and IU-Bloomington producing 13%.

TOP COMPUTER-RELATED PROGRAMS BY COLLEGES SERVING CENTRAL INDIANA 2013, BACHELOR'S AND MASTER'S DEGREES

College	Bachelor's	Master's
Purdue University-Main Campus	661	128
Indiana University-Bloomington	248	164
Indiana University-Purdue University-Indianapolis	137	109
University of Notre Dame	177	[VALUE]
ITT Technical Institute-Indianapolis	134	
Rose-Hulman Institute of Technology	127	
Ball State University	67	61
Indiana State University	52	[VALUE]
The Art Institute of Indianapolis	[VALUE]	
Western Governors University	[VALUE]	

■ Bachelor's

■ Master's

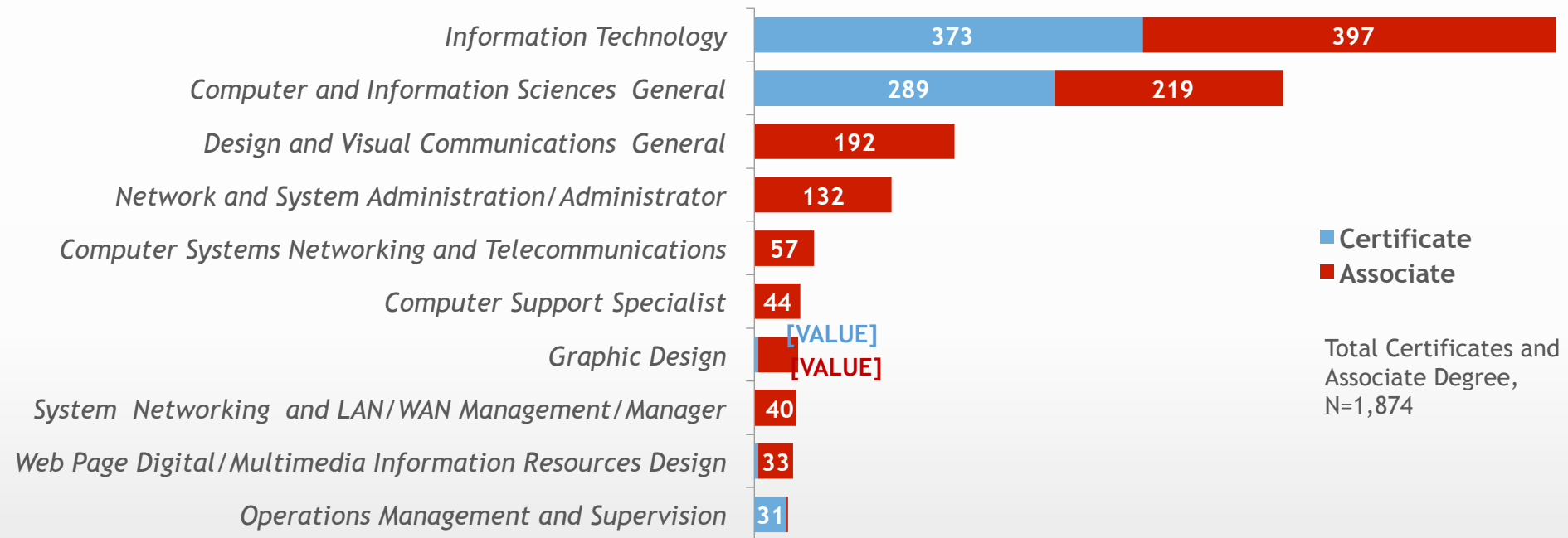Total Bachelor's and Master's Degree, N=2,360

Source: IPEDS, Completions, 2012-2013. Includes 40 colleges serving Central Indiana (full list is in the appendix). Data on Western Governors University are directly from WGU for 2014. WGU bachelor's and master's degrees were not delineated and, therefore, all degrees awarded from WGU were assigned a bachelor's award. Does not include Indiana Wesleyan University.

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Quantity of Graduates by Field

CERTIFICATE AND ASSOCIATE DEGREES

68% of the region's computer-related certificate and associate degree production is in information technology and general computer and information sciences fields.

TOP COMPUTER-RELATED PROGRAMS BY DEGREES FOR COLLEGES SERVING CENTRAL INDIANA 2013, CERTIFICATE AND ASSOCIATE DEGREES
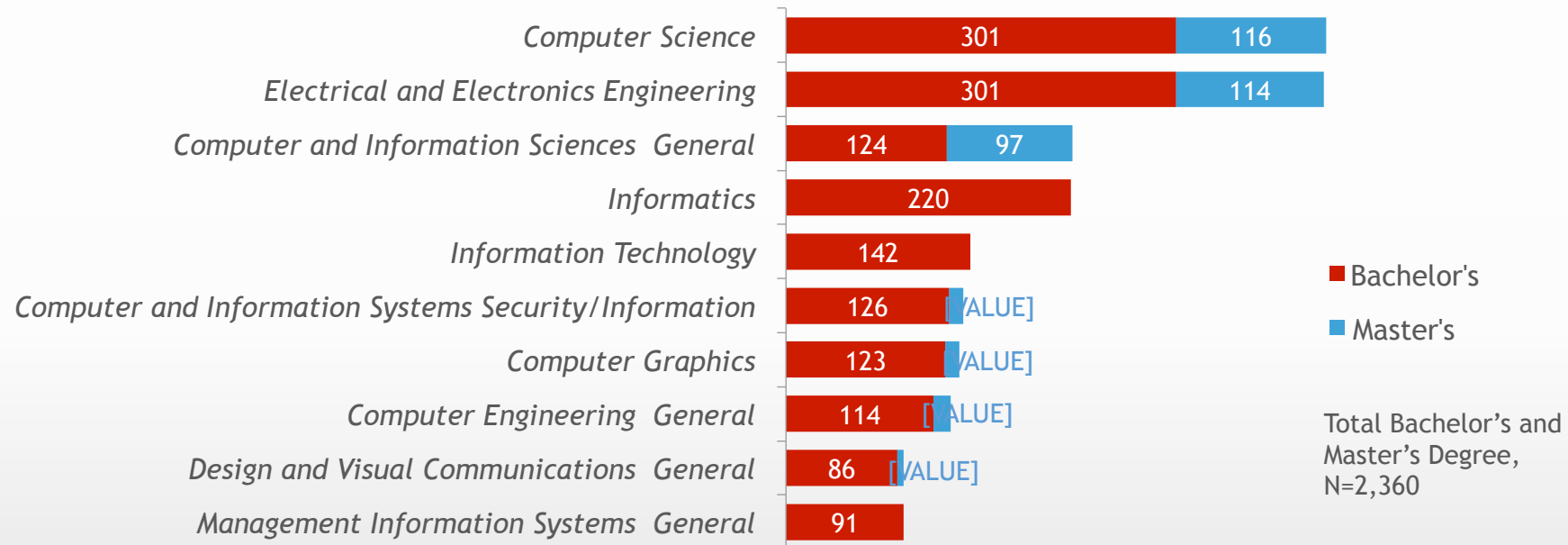
Program	Certificate	Associate
Information Technology	373	397
Computer and Information Sciences General	289	219
Design and Visual Communications General		192
Network and System Administration/Administrator		132
Computer Systems Networking and Telecommunications		57
Computer Support Specialist		44
Graphic Design	[VALUE]	[VALUE]
System Networking and LAN/WAN Management/Manager		40
Web Page Digital/Multimedia Information Resources Design		33
Operations Management and Supervision	31	

- Certificate
- Associate

Total Certificates and Associate Degree, N=1,874

49

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Quantity of Graduates by Field

BACHELOR'S AND MASTER'S DEGREES

44% of the region's computer-related bachelor degree production is concentrated in computer sciences, electrical and electronic engineering, and informatics. 64% of computer-related master's degree production were concentrated in computer science, engineering, and general computer and information sciences.

TOP COMPUTER-RELATED PROGRAMS BY DEGREES FOR COLLEGES SERVING CENTRAL INDIANA 2013, BACHELOR AND MASTER'S DEGREES

Program	Bachelor's	Master's
Computer Science	301	116
Electrical and Electronics Engineering	301	114
Computer and Information Sciences General	124	97
Informatics	220	
Information Technology	142	
Computer and Information Systems Security/Information	126	[VALUE]
Computer Graphics	123	[VALUE]
Computer Engineering General	114	[VALUE]
Design and Visual Communications General	86	[VALUE]
Management Information Systems General	91	

■ Bachelor's
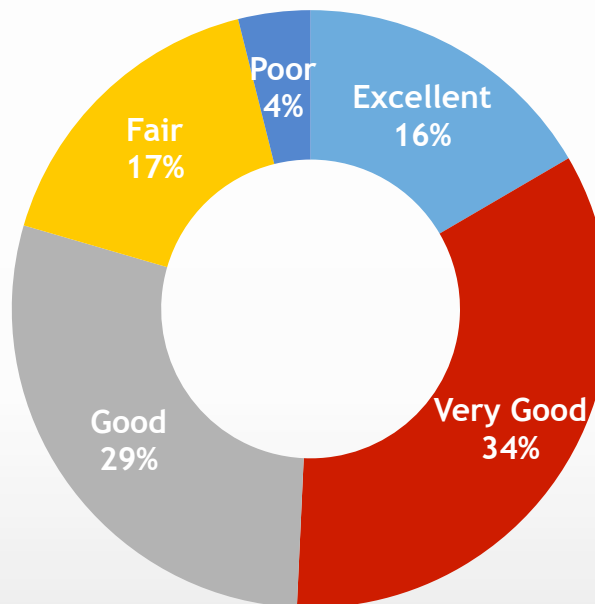■ Master's

Total Bachelor's and Master's Degree, N=2,360

Source: IPEDS, Completions, 2012-2013. Includes 40 colleges serving Central Indiana (full list is in the appendix). Indiana Wesleyan University not included.

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Quality of Graduates

50% of companies responding to the Tech Workforce Business Survey rated the quality and preparedness of computer-skilled graduates as excellent or very good from colleges serving Central Indiana. 29% rated the quality and preparedness as good.
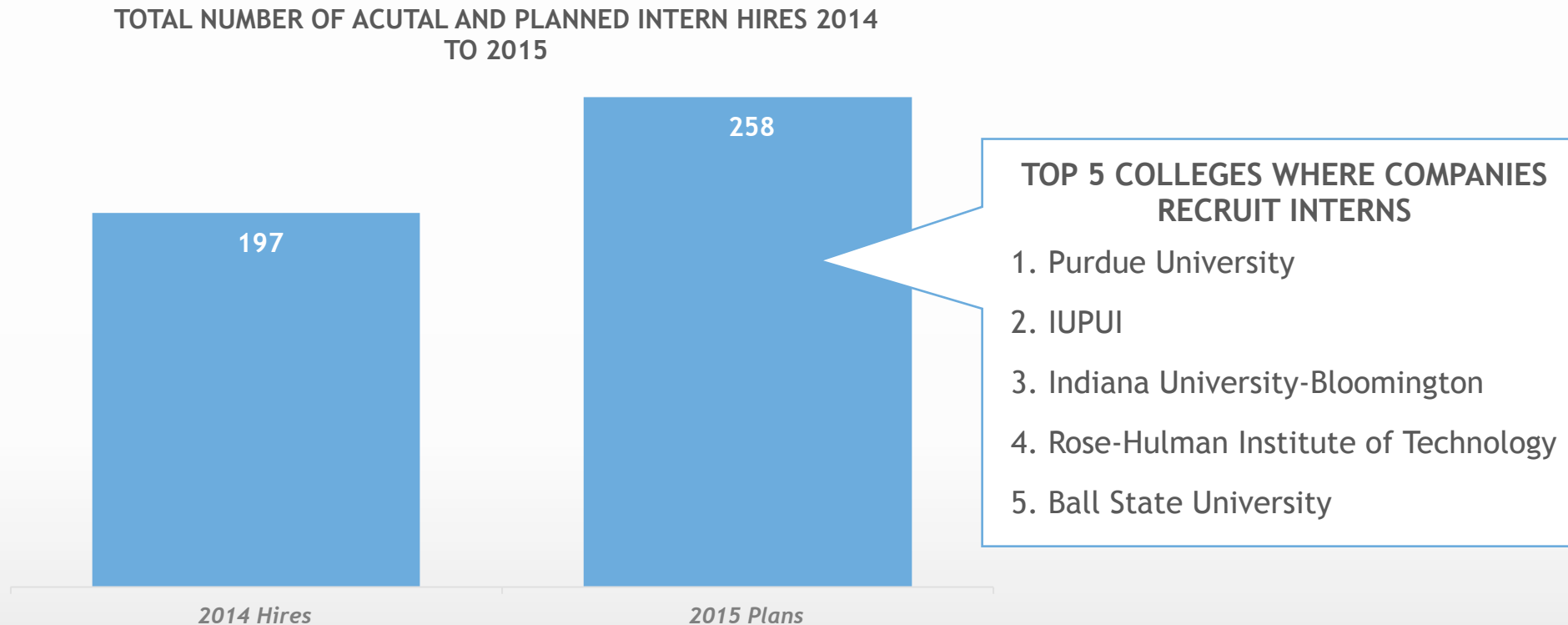
RATING OF QUALITY AND PREPAREDNESS OF GRADUATES FOR COMPUTER SKILLED POSITIONS

Poor
4%

Excellent
16%

Fair
17%

Very Good
34%

Good
29%

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Quantity of Internships

Companies responding to the Tech Workforce Business Survey stated a willingness to hire more computer interns in 2015. The per median for hiring interns in 2015 is two interns per company.

TOTAL NUMBER OF ACUTAL AND PLANNED INTERN HIRES 2014 TO 2015

258

197

2014 Hires   *2015 Plans*

TOP 5 COLLEGES WHERE COMPANIES RECRUIT INTERNS

1. Purdue University

2. IUPUI

3. Indiana University-Bloomington

4. Rose-Hulman Institute of Technology

5. Ball State University

Source: 2015 Tech Workforce Business Survey. Q17a. About how many total computer skilled student interns did your company hire in 2014? N=71; 17b. About how many computer skilled student interns is your company willing to hire in 2015? N=71

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Key Findings

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Key Findings
The Good News

- Central Indiana's tech sector spans the economy. Computer and IT workers are critical components of tech companies in software and IT services as well as tech-enabled companies in healthcare, manufacturing, and financial services.

- The technologies—like software, languages, and applications – are diverse and constantly evolving and improving to better meet consumers' needs.

- If current rates of growth in Central Indiana's tech sector continue as expected, Central Indiana could soon surpass the rest of the nation's concentration of tech employment.

- An increase in tech employment means an increase in individuals earning salaries significantly higher than those in most other sectors of our regional economy.

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Key Findings
The Good News

- As the demand for computer and IT talent has grown in Central Indiana, local educational institutions offering associate, bachelor's and master's degree programs have ramped up the production of graduates with degrees in tech fields in an effort to meet demand.

- Employers applaud this increase and generally agree colleges are providing students the fundamentals and basic skills needed for employment within the sector.

- Employers are aware of a skills gap and increasing demand for the right talent and want to engage with educational institutions and training providers to further cultivate a technically skilled workforce.

- Internship opportunities for students and upskilling options for the incumbent workforce are helping to address the experience gap.

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Key Findings
The Challenge

- The tech sector holds unique challenges in talent development due to the wide range of skills employees must possess and because the sector itself is highly diverse.

- Employers note the difficulty associated with keeping up with rapidly changing technologies and sector needs. Changes in technology and tools to produce new products and services sweep through the sector at roughly the same rate as new products and services appear.

- The labor market data and Tech Workforce Business Survey respondents illustrate the recognition of a gap in both skills and experience versus that which job applicants and current employees possess.

- Employers need more talented people to join the tech workforce and, in particular, they want more people who hold the right skill-sets in specific technologies.

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Key Findings
Strategies

- Respond to diversity of demand from companies, predict industry needs and equip talent with the skills to adjust to real-time technology advancements.

- Develop new and enhance existing pathways to bridge the information divide between the tech sector's demand for talent and graduates.

- Develop talent that includes the fundamental learning central to degree-based programs, exposure to and experiences with real-world technology application, and more rapid acquisition of skills in specific technologies for quickly changing application.

- Identify means to support multiple and targeted ways students, employees, and companies can access the "right" kind of skill development.

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Key Findings
The Opportunity

- ## Smart Choices

  - Hire Up will identify ways to influence more students to enter and complete pathways that prepare them for careers in the tech sector.

- ## Skills that Matter

  - Hire Up will elevate data analysis to highlight tech workforce needs and opportunities.

  - Hire Up and TechPoint will initiate skills mapping for the tech industry to better align the curriculum and educational content with skills and knowledge required by Central Indiana's tech employers.

- ## Talent Highways

  - Hire Up and TechPoint will work together lead an effort to expand work-based learning opportunities and internships in the region.

  - Hire Up will help grow or replicate innovative learning models like coding academies and online degree programs to upskill the current workforce to respond to rapid technological advances in this ever-evolving sector, and to ensure adults and students can accelerate degree and credential completion.

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Appendix

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Sources and Methods
Definitions

- The research for this study uses a computer and IT occupational description of the tech sector from the Occupational Information Network (O*NET), which is developed under the sponsorship of the US Department of Labor/Employment and Training Administration (USDOL/ETA). Defining employment on the occupational level, rather than the industry level, allows us to take a comprehensive look at the supply and demand for technically skilled talent.

- The description of the wealth driving sectors identified in this study (life sciences, advanced manufacturing, alternative energy, and logistics) use an industry classification of these sectors from the North American Industry Classification System (NAICS). NAICS was developed under the auspices of the United States Office of Management and Budget (OMB). An industry description is the most common way to describe and identify these sectors.

- The study further defines the tech sector into three segments:

  - "Tech-product" is the portion of the sector that consists of companies which create/sell a computer hardware and/or software-based product;

  - "Tech-service" consists of those companies which provide outsourced technology services; and

  - "Tech-enabled" consists of those companies where computer/technology is a critical component of their business and thus requires computer-related employees.

Sources and Methods
Data Sources

- Employment data are from the Bureau of Labor Statistics Quarterly Census Employment and Wages using the EMSI database. All employment data are for the Indianapolis-Carmel Metropolitan Statistical Area.

- Jobs postings are drawn from Burning Glass's Labor Insight database of online job postings. Burning Glass gathers millions of job openings daily from more than 40,000 websites and then mines the text of each one to analyze each employer's specific requirements, including location and the particular skills, qualifications, and experience required in real-time job postings. All job posting data are for the Indianapolis-Carmel Metropolitan Statistical Area.

- Postsecondary degree completions are from the National Center for Education Statistics IPEDS database for a universe of 40 colleges and universities serving the Central Indiana labor market. Data are for all degrees produced for all student types from the universe of colleges and universities.

- Postsecondary enrollment data are from Indiana Commission for Higher Education for a universe of 41 colleges and universities serving the Central Indiana labor market.

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Sources and Methods

- Burning Glass, "Moving the Goalposts: How Demand for a Bachelor's Degree is Reshaping the Workforce," September 2014.

- TechPoint, "Technology Workforce Report 1: Employment Trends and the Demand for Computer Related Talent in Central Indiana," March 2014.

- TechPoint, "Technology Workforce Report 2: Defining the Demand – the Tech Skills Central Indiana Companies Need to Grow," July 2014.

Sources and Methods

INDIANA COLLEGES IN SAMPLE		
Anderson University	Indiana University-East	MedTech College-Greenwood Campus
Aviation Institute of Maintenance-Indianapolis	Indiana University-Kokomo	Purdue University-Main Campus
Ball State University	Indiana University-Purdue University-Indianapolis	Rose-Hulman Institute of Technology
Brown Mackie College-Indianapolis	Indiana Wesleyan University	Saint Josephs College
Butler University	International Business College-Indianapolis	Saint Mary-of-the-Woods College
DePauw University	ITT Technical Institute-Indianapolis	Taylor University
DeVry University-Indiana	ITT Technical Institute-Indianapolis East	The Art Institute of Indianapolis
Earlham College	Ivy Tech Community College	University of Indianapolis
Franklin College	Kaplan College-Indianapolis	University of Notre Dame
Hanover College	Lincoln College of Technology-Indianapolis	University of Phoenix-Indianapolis Campus
Harrison College-Indianapolis	Manchester University	Vincennes University
Huntington University	Marian University	Wabash College
Indiana State University	Martin University	Western Governors University
Indiana University-Bloomington	MedTech College	

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Sources and Methods

Tech Workforce Business Survey

- FutureWorks, in consultation with HireUp and TechPoint developed the 2015 Tech Workforce Business Survey off the previous TechPoint survey of membership in 2014. The questions in the Tech Workforce Survey focused on skills in demand, hiring opportunities and challenges, and university preparation of computer-related talent

- Companies included in the universe of prospective survey participants were Central Indiana-based firms that fall in one of three industry categories: tech product, tech service, or tech-enabled. There were 200 companies in the universe.

- Surveys were sent electronically by Loyalty Research Center on February 24, 2014 to 200 companies. Of those companies, 71 completed the survey by the March 16, 2015 deadline, a 36% response rate.

Tech Workforce Business Survey Participants

Orbis Education
The RND Group
Indiana Health Information Exchange
roundpeg
SmallBox Web
One Click Ventures
Zucker Business Communications
Ontario Systems
TrendyMinds
Raidious
Angie's List
LeadJen
Bluelock, LLC
Eli Lilly and Company
WDD Software
NextGear Capital
Kinney Group
HealthPro
Orchard Software
Metonymy Media
MMY Consulting
Balance Digital Marketing
The Schneider Corporation
Borshoff

Miles Design
PolicyStat, LLC
Smarter HQ
KA+A
First Databank
Healthiest Employer, LLC
Connect Think
PAN (Performance Assessment Network)
stlogics
RICS Software
T2 Systems, Inc.
KSM Consulting
Indigo BioSystems, Inc.
PERQ
hc1.com
Inverse-Square
DoubleMap, Inc.
Standard For Success
Telamon Corporation
SensorHound
Mimir LLC
Interactive Intelligence
Fifth Gear (acquired by Speed Commerce)

Springboard Marketing
DyKnow
Hanapin Marketing
My Mobile Fans
eceptacle
Haiku Learning
Extension Healthcare
Marketpath, Inc.
Archon Apps
DPS
pi lab
Boxfox
AppealTrack
Right On Interactive
SmartIT
State of Indiana - FSSA
Appirio
eImagine Technology Group
Apparatus
Lesson.ly
Teradata
The Odyssey
Eleven Fifty
Sticksnleaves