

# Arizona: Understanding Skill Needs of Technology Occupations

Arizona is poised to become a hub for information technology (IT) over the next decade. The state has a growing startup community, increasing venture capital activities, and a rising need for IT talent in a wide range of industries that includes but also goes beyond jobs in the IT industry sector. The data show that Arizona currently ranks 18th among states in terms of number of IT jobs, and job postings for openings in tech occupations grew by 21 percent in the past year. In part because of this growth, leaders note that “the time is now” for IT in Arizona.<sup>1</sup>

Despite a positive growth outlook for IT in Arizona, there is local concern that the state lacks qualified workers to support the future of IT and that talent is leaving the area for professional opportunities elsewhere. Research conducted by the Arizona Commerce Authority and the Arizona Technology Council suggests that a significant workforce gap exists in the state’s supply of IT talent that, if left unaddressed, could diminish the potential growth of Arizona’s economy, including a range of industry sectors that rely on a growing supply of IT talent.

As a result, in 2014 the IT Sector Partnership was launched with the intention of engaging a wide range of stakeholders to address the state’s workforce gap. The partnership aimed to define the challenges facing employers—both within the IT industry and in other sectors employing IT workers—and then

## KEY TAKEAWAYS

- Creative approaches and new ways to gather information are needed in order to identify demand for occupations that cross traditional industry sectors, such as computer and technology workers.
- Engage with business early and often when scoping demand in these nontraditional sectors. Start by launching conversations around the larger issues that affect competitiveness, such as image and business climate.
- Use interactive technology, like “advanced electronic brainstorming,” to facilitate large group discussions, sustain engagement from a broad range of participants, and narrow in on a priority list of actionable solutions.
- Use these and ongoing interactions to build an intentional “trust platform” to foster business engagement and ownership of identifying workforce needs and implementing solutions as a sector.

develop and implement strategies to meet those needs. Two of the partnership’s initial areas of focus were to determine a method for deeply understanding the emerging skill requirements of Arizona’s IT talent and to develop a structure for improving connections

<sup>1</sup> <https://www.comptia.org/resources/cyberstates-2016>

between employers and the public, nonprofit, and education providers that design workforce training. In doing so, the partnership intended to address the gap between workforce supply and demand in Arizona's IT workforce and begin to develop a talent pipeline of training and work-based learning experiences to prepare local residents for IT occupations.

### THE CHALLENGE OF DEFINING IT

One challenge in determining the needs of IT employers is that IT occupations exist in many industry sectors across the economy. Beyond traditional employers of IT workers, sectors such as health care, defense, and finance are major employers of IT workers.<sup>2</sup> In Arizona, over half of tech occupation jobs exist outside the tech industry, and major employers of IT workers include the manufacturing, engineering, health care, and space and defense industry sectors. While IT professionals across industries may do work that is similar in scope, different industry

### Driving Questions From the IT Sector Partnership

- Are there more accurate, more relevant methods for understanding the specific skills requirements of companies that employ IT workers (beyond traditional labor market data analysis)?
- What is the best way to evaluate opportunities to improve connections between employers and existing talent?
- What characteristics would define a workforce that is well-prepared for anticipated growth in demand for IT jobs?
- What are the most effective working structures that enable stakeholders from business, education, and government to effectively work on implementation?

sectors often use different job titles and language, making it difficult to determine the common skills that underpin IT jobs in different sectors.

### COMMUNITIES THAT WORK PARTNERSHIP

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Seven regional teams were selected competitively in July 2015. Teams comprised three to four leaders and, importantly, included a private industry partner representing employer voice. The regional team in Arizona included the Arizona Commerce Authority, the Arizona Technology Council, and Cox Communications. The partners collaborated to advance industry-led workforce development strategies in their region. AspenWSI and a core management team facilitated peer learning and leadership development for the Communities that Work Partnership and documented their efforts in order to accelerate learning in the field. The seven Partnership Briefs are part of a package of learning materials to be released in the fall of 2016, available at [as.pn/communitiesthatwork](http://as.pn/communitiesthatwork).

<sup>2</sup> <https://www.comptia.org/resources/it-employment-midyear-update-2015>, <https://www.comptia.org/resources/cyberstates-2016>

## THE PARTNERSHIP AND ITS APPROACH

To better understand the specific needs of IT employers in Arizona, the IT Sector Partnership was formed to engage and create initiatives among business, education, and government for the purpose of developing and retaining the state's IT workforce. The partnership is led by two major organizations: the Arizona Commerce Authority and the Arizona Technology Council. The Arizona Commerce Authority, the economic development arm of the State of Arizona, focuses on economic and workforce development activities statewide. The Arizona Technology Council is a statewide employer association that represents more than 800 companies that collectively employ 100,000 technology workers in a wide range of industries across Arizona.<sup>3</sup> The council represents the technology sector and promotes member companies through services and events. Cox Communications, the third-largest cable TV provider in the country, is an active member of the IT Sector Partnership.

The partnership began by commissioning a labor market analysis of IT services in Arizona—first for Arizona's IT industry and then for IT occupations. However, the partners found it difficult to develop actionable talent development plans using this traditional market analysis. As one partner put it during interviews with AspenWSI, "It is hard to collect labor data because different companies call the same job different things." Partners noted that to guide labor market analysis of this type, workforce practitioners need a "tool box" that combines both traditional labor market analysis and direct industry engagement.

In search of more detailed input from a wide range of Arizona employers across industry sectors, the team turned to a new approach—the use of interactive technology to facilitate large group discussions.

<sup>3</sup> <https://www.aztechcouncil.org>

## Five Areas of Focus for the Summits

**Assets** What is in our favor as an industry sector in Arizona?

**Challenges** What is in our way?

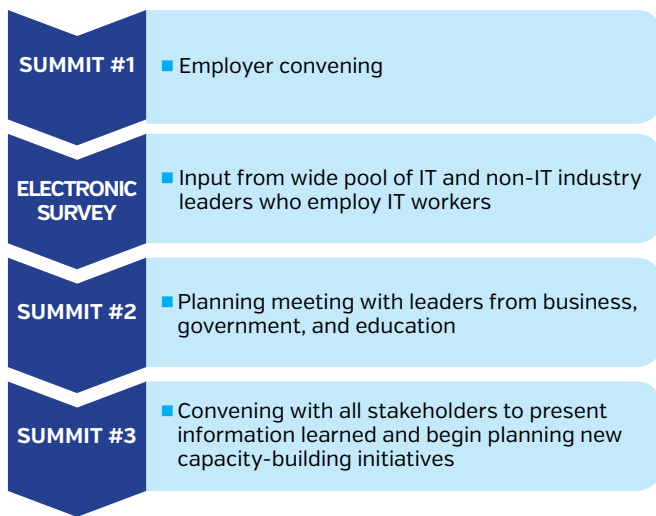
**Potential** What could the IT sector in Arizona become if we effectively apply the resources at our disposal?

**Skills Gap** On what skills does our IT sector rely? How will this skills profile evolve over the coming years, and what should education and training providers do to be better aligned with this skills demand?

**Strategies** What do you recommend we do as a state to address these challenges, leverage these assets, and maximize the potential of Arizona's IT sector?

## THE PROMISE OF INTERACTIVE TECHNOLOGY

Engaging employers to learn about their workforce needs is challenging. Conducting interviews and focus groups is time-consuming and resource-intensive. Interviewers must speak with a wide range of individuals to learn about different viewpoints and experiences, and it takes time for service provider staff to prepare themselves to lead engaging and informative discussions. Workforce and economic development organizations may have limited numbers of staff who are in a position to develop this type of expertise. Convening large groups of employers in traditional meetings is also challenging. Facilitators for meetings of this type must develop some level of expertise if they hope to guide conversations that will both be useful for gleaning the type of information they need for planning and also sustain participating employers' attention by providing an experience they find engaging.



By incorporating interactive technology, the IT Sector Partnership was able to drill down to a level of specificity not captured by traditional labor market analyses, while sustaining engagement from a broad range of participants. Over the course of three summits, the IT Sector Partnership employed “advanced electronic brainstorming,” an approach designed to support open group brainstorming sessions while allowing the opinions and perspective of participants to be explored in depth.<sup>4</sup>

More than 200 professionals with an interest in exploring IT workforce challenges in Arizona participated in sessions convened by the IT Sector Partnership. Over 70 percent of the participants represented the private sector, with others from government, community-based organizations, and education.

### THE NEXT STEP: IT PARTNERSHIP SUMMITS

The first IT Sector Partnership Summit was held in spring 2014, with approximately 30 business leaders participating. The facilitator began by asking employers about their perceptions of Arizona’s public image and overall impressions of the workforce environment. This broad (but relevant) conversation starter engaged business leaders’ attention and created a pathway to more specific questions. It asked

about their thoughts on whether the state has an IT workforce gap, how they would characterize that gap, what they see in terms of emerging IT skill needs, and potential solutions to address the workforce challenges business leaders identify together. Using a real-time electronic format, participants’ responses to each question were displayed (anonymously), allowing them to scan the input of everyone in the room. Responses were then aggregated into shorter lists of themes. Following this, the group reviewed and ranked themes from most to least important, yielding a list of priorities based on input from all industry leader participants.

In spring 2014, the IT Sector Partnership conducted an online survey of approximately 200 IT and industry sector professionals, revealing what attracted them to Arizona, what would encourage them to remain in the state, and what they felt was needed to support the IT workforce ecosystem. A second IT Sector Partnership Summit brought together

### Strategies to Support Arizona’s IT Workforce, Ranked by Employer Priority

- Expand offerings of mentorship, internship, and externship programs within Arizona
- Encourage IT company involvement in curriculum development in our educational institutions
- Involve highly visible leaders of Arizona IT companies in the development of the IT workforce strategy
- Develop an outreach program that partners with our education institutions to help educate and attract Arizona IT students

<sup>4</sup> Sessions were facilitated by the Advanced Strategy Center: <http://www.advancedstrategycenter.com/>

60 business, education, and workforce professionals. This group used the same facilitated interactive technology to brainstorm about initiatives that could strengthen the IT sector and address workforce needs. In winter 2015, a third summit was held to present findings from the partnership's information-gathering work and to begin a collaborative initiative-planning process.

### SUMMIT TAKEAWAYS

While sustaining and deepening employer engagement is challenging, the IT Sector Partnership left the summit process with a large group of employers eager to continue being involved in the group's work. And, at the end of the process, the IT Sector Partnership had very specific input and buy-in from a wide range of employers that led to a high-priority list of workforce skills to address and solutions to implement.

### GOING FORWARD

Through the summits, the IT Sector Partnership has built new relationships among business, government, and education partners who are now participating in longer-term strategy development for the initiative. Three new working committees, each chaired by a representative from the Arizona business community, are working to move forward strategies that address the following:

- **Branding and Visibility**, focused on the image and branding of Arizona as a highly attractive location for IT workforce talent;
- **Education and New Graduates**, focused on the role of education in developing relevant curricula so that students graduate with skills and knowledge aligned to the needs of companies that employ IT talent; and
- **Retain and Strengthen**, focused on current IT professionals in Arizona, and the need to create a vibrant IT ecosystem that will retain

### Emerging IT Skills Ranked by Employer Priority

- Cybersecurity
- Big data/analytics
- Cloud enablement
- Compliance (HIPAA, etc.)
- Data architecture
- Mobile apps
- Business intelligence
- Virtual infrastructure
- Large-scale project management
- Open source software

these professionals and attract other IT professionals from around the country.

These committees are working on developing strategies among workforce development organizations, educational institutions, and business with an eye toward including six priority focus areas:

- Filling industry's near-term workforce needs
- Overcoming barriers for lower-wage workers in target sectors
- Employer-validated career pathways in target sectors
- Work-based learning models
- Continuous improvement through data-informed self-evaluation
- Sustainable funding for established and expanding sector partnerships

Responses gained from using interactive technology at the summits have also helped form the basis of a new talent development model. This model would support out-of-school, out-of-work youth to enter and complete accelerated training programs in four career pathways: cybersecurity, cloud and networking technologies, software development, and

mobile technologies. Participants in these accelerated programs would earn industry-recognized credentials and participate in internships or on-the-job training. The Arizona

IT Sector Partnership, supported by a number of business leaders identified through the IT summits, is currently exploring options to implement the career pathways model.

## ARIZONA IT SECTOR PARTNERHSIP FOCUS

Critical workforce and economic drivers for the state: the information technology workforce, including entrepreneurial technology startups, emerging IT companies, larger corporations, and public sector companies that have significant IT workforce needs.

