

TECHCONNECT

ARIZONA'S TECHNOLOGY MAGAZINE



THE

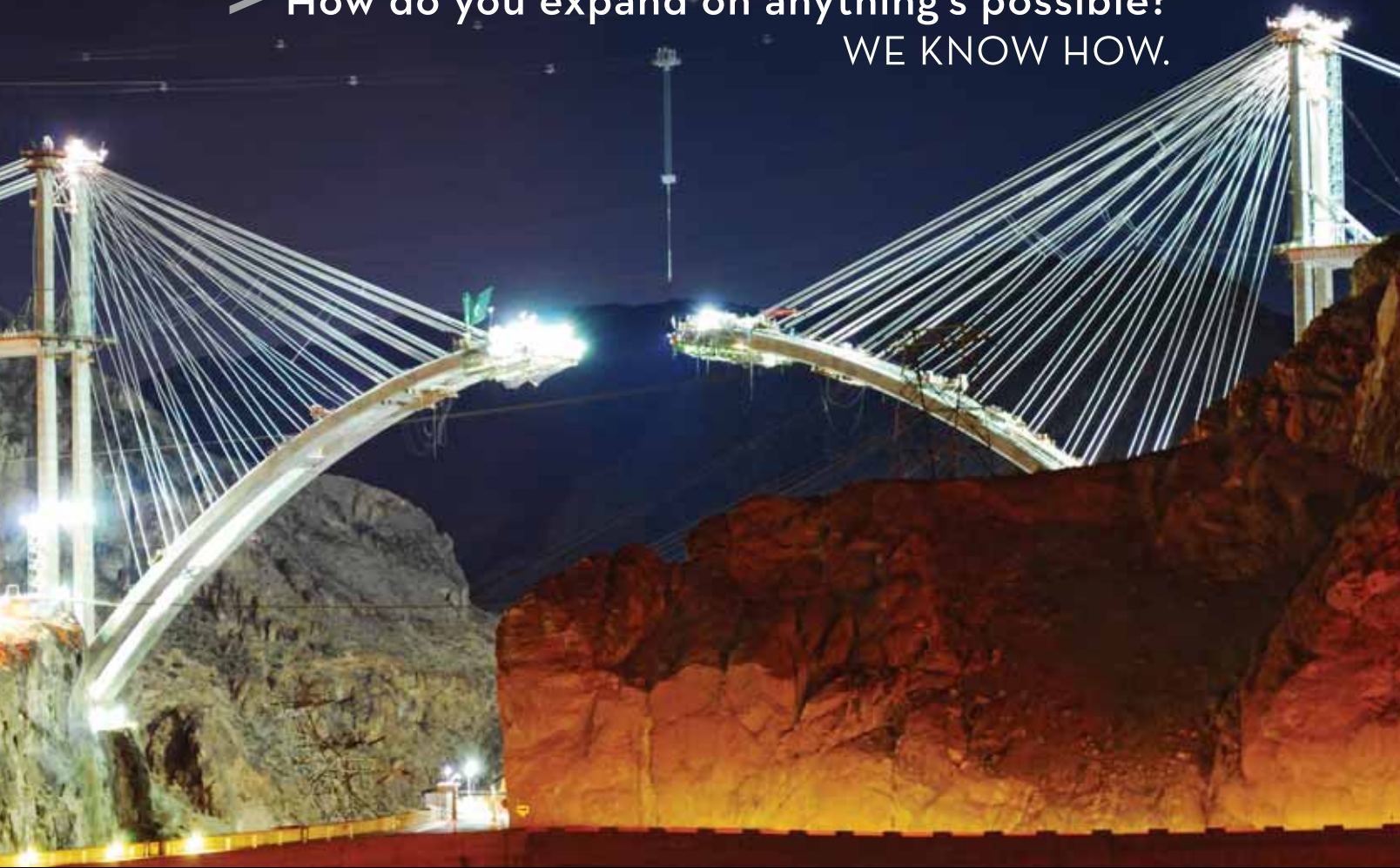
ECONOMIC DEVELOPMENT

ISSUE



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Arizona has long been a land of infinite possibilities and new beginnings. We boldly embrace the most innovative ideas with the most profound implications - innovations such as the Mike O'Callaghan-Pat Tillman Memorial Bridge. This engineering triumph now creates a secure bypass for the Hoover Dam. Today we're bridging business relationships like never before. Expansion is at an all-time high. Existing businesses are flourishing. Startups are thriving. Government, industry leaders and academia have joined forces to create the most highly resourced, pro-business climate in the country. Aggressive incentives and new tax reductions are in place. Opportunities for success are endless. No state connects with business quite like Arizona.

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SANDRA WATSON
President & CEO, Arizona Commerce Authority

STEVEN G. ZYLSTRA
President & CEO, Arizona Technology Council

Welcome to the new **DIGITAL EDITION OF TECHCONNECT!**

We have been covering Arizona technology since spring 2005, and with an economic recovery helping to heat up our state's tech scene, there is much to share. Our new format helps us build on roots that are firmly vested in innovation. In this issue we will focus on economic development, strengthening Arizona's global competitiveness and highlighting the growth of our entrepreneurial ecosystem.

The new *TechConnect* extends the strong partnership between the Arizona Commerce Authority and the Arizona Technology Council. One of our best-known joint events has been the Governor's Celebration of Innovation, which has become the premier annual event to recognize the best in our

state's science and technology community.

We're pleased to have the support of writers from what have become centers of innovation: Arizona State University, Northern Arizona University, The University of Arizona, the Translational Genomics Research Institute and Science Foundation Arizona. Additional contributions will be drawn from experts who will cover such topics as international trade, mobile marketing, the startup ecosystem and much more.

So what's new? For one, our delivery. Publishing in a digital format lets us reach more eyes throughout Arizona — and beyond. Definitely new is the online component of *TechConnect* that will keep you informed between digital editions. In this blog format, you'll hear from us more often plus

find out about Arizona's leadership and how our state fits into the national and global technology landscapes.

With the Council's and Authority's network of sources, you can count on regularly learning what's happening in our backyard. You'll also hear from the two of us as we offer our views on the tech scene. We invite you to explore *TechConnect* and are excited to see it become your regular source of information when it comes to technology in Arizona.

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World View passenger capsule



Top of the World

Spaceflight offers new economic opportunity in Arizona

What seems on the surface like a step back to a slower pace actually could lift Arizona into a new era with the launch of a spaceflight industry.

Balloon power is at the heart of the World View project, which will take six passengers and a two-person crew to the edge of the stratosphere and back. Testing currently is underway with a one-tenth scale of the passenger capsule that balloons will carry skyward, with plans for unmanned full-scale flights by next year, says Taber MacCallum, chief technology officer and co-founder of the Tucson-based World View Enterprises. The first commercial flights should launch by the end of 2016, MacCallum says. While he cannot give the exact number of people who have signed up so far, there are enough passengers for

at least three flights.

That doesn't mean there will be a wait for the first payload. Researchers who would like to use the unmanned flights for such work as testing instruments for satellites, weather monitoring and meteoritics already have contacted World View, MacCallum says. The plus is all instruments would be returned for the researchers to check results. "This is a perfect example of new industry," he says. "Unmanned work could be bigger than manned work."

For balloon makers, "we're really going to change the demand curve," MacCallum says, noting that since NASA scaled back its projects, balloon flights have dropped to 15 to 20 flights a year. "We'll see resurgence in use of balloons," he says, citing Google's Project Loon as another example. Google

has proposed creating a network of balloons traveling in the stratosphere to beam Internet connectivity to areas not reached by traditional networks.

It's Own Place

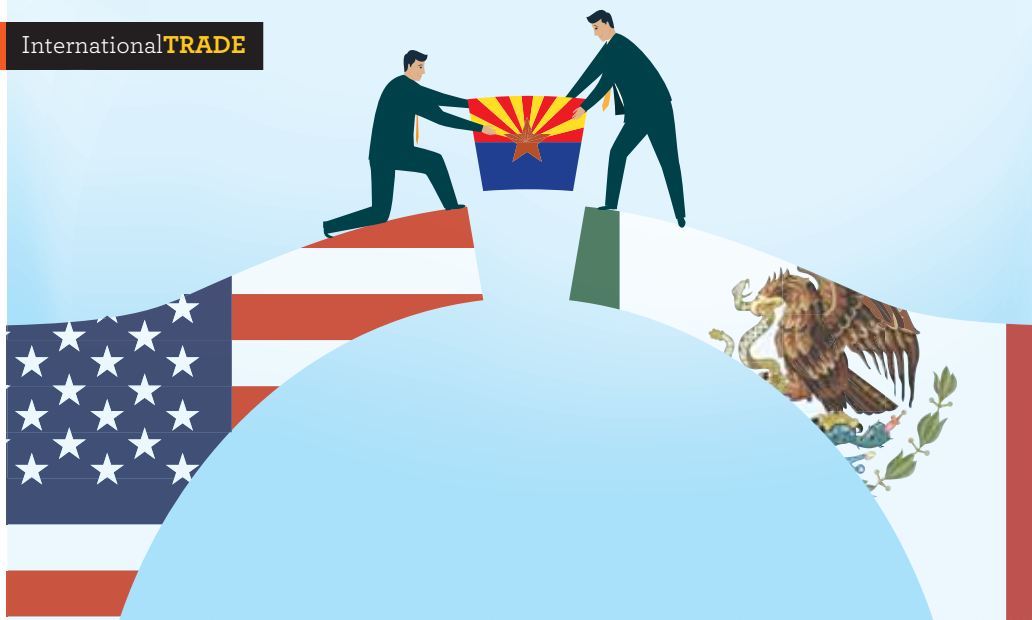
To meet World View's demand, MacCallum said the company would like to find a site for manufacturing its own balloons. Besides needing a building that's at least 700 feet long, "it's really economic support," that will help the company decide the location. While MacCallum says he would



really love to stay in the Tucson area, where he has lived for 28 years, World View is open to different locations for balloon manufacturing. For example, it has had "crazy, good" interest in Texas. In Midland alone, the city can offer seven-figure incentives for aerospace projects. "And the state jumps in on top of that," he says.

MacCallum acknowledges he would "love to see (spaceflight) as a new industry for Tucson." While optics and aerospace have been good, they are mature and heavily completed. "It's important for economic growth to catch the timing on the upswing" in order to grow quickly with much better returns, he says.

To draw the investors from around the world, "these are things accomplished with the refundable tax credit," says MacCallum, referring to the measure that has not made it to a floor vote in the Arizona Legislature. "The bill is the first step in getting new industries." A separate bill recently signed by Gov. Jan Brewer also limits the passenger liabilities such companies face in the event of a mishap. This will keep the state in the running for spaceflights. "It's the first step for Arizona to join an elite group of states," he says. 



GOLDEN OPPORTUNITY

Global Arizona drives economic prosperity for the state

WRITING BY × KAREN DICKINSON

job growth in Arizona historically has come from domestic sectors: real estate, retail and government. But times have changed. Economic growth in today's world is occurring outside the United States. In fact, 83 percent of global gross domestic product (GDP) growth will occur outside our nation from 2013 to 2018.

The global economy has also become more integrated and competitive. For example, multi-country supply chains have increased. Not only does Ford make cars in America but so do Toyota, Honda, Mercedes-Benz, BMW and Volkswagen—and those cars are exported around the world. With 90 percent of the fastest-growing markets located outside the U.S., Western Europe and Japan, foreign companies' investment in Arizona to manufacture and export products accelerates the state's global economic growth.

Increased exports by homegrown companies also grows jobs. Exports were responsible for 46 percent of U.S. GDP growth from 2010 to 2011 even though exports make up only 13 percent of the GDP. Small and mid-sized (SMEs) manufacturers that exported during the Great Recession grew revenues by 37 percent through 2009 compared to non-exporters' revenue declines of 7 percent. Exports of services such as accounting, consulting, education and architecture are growing; the U.S. is actually running a trade surplus in services. With Arizona's high tech sector, services such as software and technology development are naturals for global expansion.

For the past 20 years, Greater Phoenix consistently ranked as one of the fastest growing economies of all metro areas in the United States. However, the region's export performance has lagged: Manu-

facturing exports declined 18.5 percent from 2003 to 2010 while U.S. exports overall increased 74 percent. The drop is due to decline in the region's leading export sectors—computer and electronic exports totaled \$7.8 billion in 2003 but are \$3.2 billion today.

EXPORTS ARE KEY

In addition, all other Greater Phoenix exports increased 91 percent—from \$2.8 billion to \$5.5 billion. More Arizona companies increasing exports in more sectors to a larger number of countries is critical for our economic recovery and economic stability. We need more globally minded and export-oriented technology companies. We also must enhance the state's reputation as a globally oriented state and an innovative, competitive

trading region.

If the winners in the next economy will be those who tap new global markets, what can you do?

- **Think globally.** Don't just consider U.S. markets anymore.
- **Be creative.** Consider how your products, technologies and services could be used outside the U.S.
- **Get help.** There are resources in Arizona to help you begin your global expansion. Find out more at www.exportaz.org.

Everyone in Arizona—businesses, governments, educators and the general public—must adapt to this changing economic landscape. We all must be international ambassadors for Arizona products and services as well as tourism and investment here. Businesses must expand to markets outside the U.S. Educators must grow skilled workers to lead innovation. We need to leverage our international students and immigrant entrepreneurs. And, we need a competitive air, freight and technology infrastructure network.

Together, we can create bridges across borders to enhance Arizona's economic development efforts, which will create a better quality of life for ourselves and our children. 🇺🇸



KAREN DICKINSON is an international business and intellectual property attorney at Polsinelli, and chair of the Arizona District Export Council.



BRIGHT IDEAS

Smart cities create smart content

WRITING BY ✕ SHEILA KLOEFKORN

Every city wants to grow its local economy and achieve greater prosperity. Like any successful company, cities need to set themselves apart from everyone else. The goal of any smart economic developer should be to collectively market its city like a business, and all smart businesses create smart content.

Developing smart content starts by understanding that instead of using hard sales tactics, the best strategy is to deliver information that makes your prospects more intelligent. By delivering consistent, ongoing valuable information to your target market, you ultimately will be rewarded with their loyalty.

Austin, Texas, is an example of a city that effectively marketed and transitioned itself to a new economy driven by infor-

mation technology. The city created the South by Southwest (SXSW) festival that now pours more than \$200 million a year into the local economy as it draws more than 200,000 people from around the globe. Austin had a business plan for SXSW and made the festival a core component of its brand identity. The city acknowledged that its vibrant music scene combined with its entrepreneurial spirit and culture of innovation were unique differentiators. The city's goal for the festival was to create synergy to attract others to Austin's quality of life, uniqueness and personality.

In addition to understanding the essence of your city's brand story, you need to understand the persona of your customer. Personas are not simply the attributes of a population such as age, gender or race;


they identify the needs of the individual: desires, goals and behaviors. SXSW was designed as a place for technology enthusiasts, musicians and innovative marketers—all personas that Austin desired to attract.

MAP IT OUT

After you really know who your customers are, you need to map out a process how to deliver the right content to them at the right time. What do you want to say, what stories do you want to tell? The core of your content should revolve around the challenges you're trying to solve and your differentiating value. Your story will be unique to your city, your brand and the experience

you are trying to create. Other questions that need to be answered include when is the best time to start the conversation and what do you want them to do next? This is known as the engagement cycle but it's not linear. Your prospects will jump in and out of the cycle as they move closer to engagement but as they do, what they want will become more focused.

Now it's time to decide what channel you are going to use to distribute your content. Social media, earned media, blog posts, pay-per-click, podcasts, videos, web content, webinars, whitepapers and eNewsletters are all effective channels and you shouldn't be constrained to any one of them. There is no one-size-fits-all plan and the use of each channel will ebb and wane as you continue your process.

We're all in a global economy, making it more important than ever for cities and towns to make content marketing their primary priority. Developing a smart content strategy will help economic developers achieve the same type of success as their corporate counterparts. 



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Technology helps shape Arizona's economic development but not without challenges

WRITING BY × DON RODRIGUEZ

On the Right Path

When it comes to drivers of the international economy, technology is definitely right up there. And when it comes to economic development closer to home, the tech sectors have been as hot as an Arizona summer even as the recovery takes hold.

In the Phoenix market, semiconductors, aerospace and other exports have been the drivers in technology, says Barry Broome, president and CEO of the Greater Phoenix Economic

Council. Add to the mix web and software development, he says, noting the amount of software talent here is six times that of industrial engineering. Some newer economic contributors are academic technology companies.

To the south, the Tucson area offers one of the highest concentrations — 1 in 5 jobs — of aerospace and defense workers in the country, putting it in the industry's Top 5 metro areas nationwide, says Laura Shaw, senior vice president, marketing & communications of Tucson Regional Economic Opportunities. Another industry experiencing tremendous growth is bioscience/diagnostics, with southern Arizona's bioscience employment jumping 36 percent between 2002 and 2012 to account for 1,200 jobs.

In northern Arizona, biosciences also grew as technology overall became a larger part of the economy, says Richard Bowen, president and CEO of the Economic Collaborative of Northern Arizona. There are 5,300 people — more than 10 percent of all employment in Flagstaff — working in tech-related companies. “For the long term, we really see the tech sector growing as a percentage of the employment base,” he says.

NEW WORLD

Does such growth mean all were immune to the recession? Hardly. Broome says “venture capital was wiped out as we knew it” in the 1990s through turn of the decade. “It put the IPO market out of commission.” Even though Phoenix was down, it wasn't out. “It probably slowed us more than it hurt us,” Broome says. As the rebound takes hold in southern Arizona, the federal sequestration process is beginning to

“Economic development is a team sport and close partnerships are the key to success.” ”

have effects on A&D, Shaw says. The most notable is the ongoing debate surrounding the future of and funding for A-10 fighter jets, the staple of training at Davis-Monthan Air Force Base. While most private employers report holding their own through the sequestration effects, “we are certainly keeping an eye on it,” she says.

Seeming to fly under the radar during the recession in Flagstaff was incubation, with nearly two dozen tech firms getting their start at the Northern Arizona Center for Entrepreneurship and Technology (NACET). This summer the center announced plans for a 25,000-square-foot addition called the Innovation Mesa to serve the Tier II companies that have raised revenue in the market, hired employees and no longer rely on startup money, Bowen says. “They need a place to grow.”

But not everything is homegrown. Outside firms take an interest in Arizona for a variety of reasons. Broome cites the talent of technology employees being more affordable than other markets. For Tucson, Shaw says, companies want to make certain they have access to scientific and technical workers. That has been made possible with

- Laura Shaw, senior vice president, marketing & communications of Tucson Regional Economic Opportunities

universities and colleges stepping up their training. With Northern Arizona University becoming a research university over the past decade, Bowen finds “more important is just the general environment, the more entrepreneurial drive the community has now.”

Also helping to get companies outside the state to show interest in Arizona are new partnerships taking shape vs. the desire to be territorial when it comes to recruitment. “Economic development is a team sport and close partnerships are the key to success,” Shaw says. Key partners for her organization include the city, Pima County and the Arizona Commerce Authority. Bowen also credits the Authority in addition to Broome’s group. “When you’re in a state like Arizona with powerhouses like GPEC,” he says, “rural communities need to plug themselves in.”

ENTREPRENEURIAL SPIRIT

With so many positive factors in place, Broome believes this is the best time to start a company.

For investors, it offers good valuation, he says, while for startups “there’s going to be more money than opportunities” as those launching now are positioning themselves for 2016-2017. There are improved connections to private investors and government innovation money. For example, the Northern Arizona Business Capital Fund was started with \$750,000 in commitments from major institutions such as NAU and Bowen’s group. Money aside, mentoring networks such as NACET’s make available such professionals as patent attorneys, CPAs and other experts in their field at no cost to incubating companies. Tucson, too, is beginning to receive national recognition for its entrepreneurial culture. For example, Shaw says, *Entrepreneur* magazine recognized Tucson last August as one of the best cities for entrepreneurs.

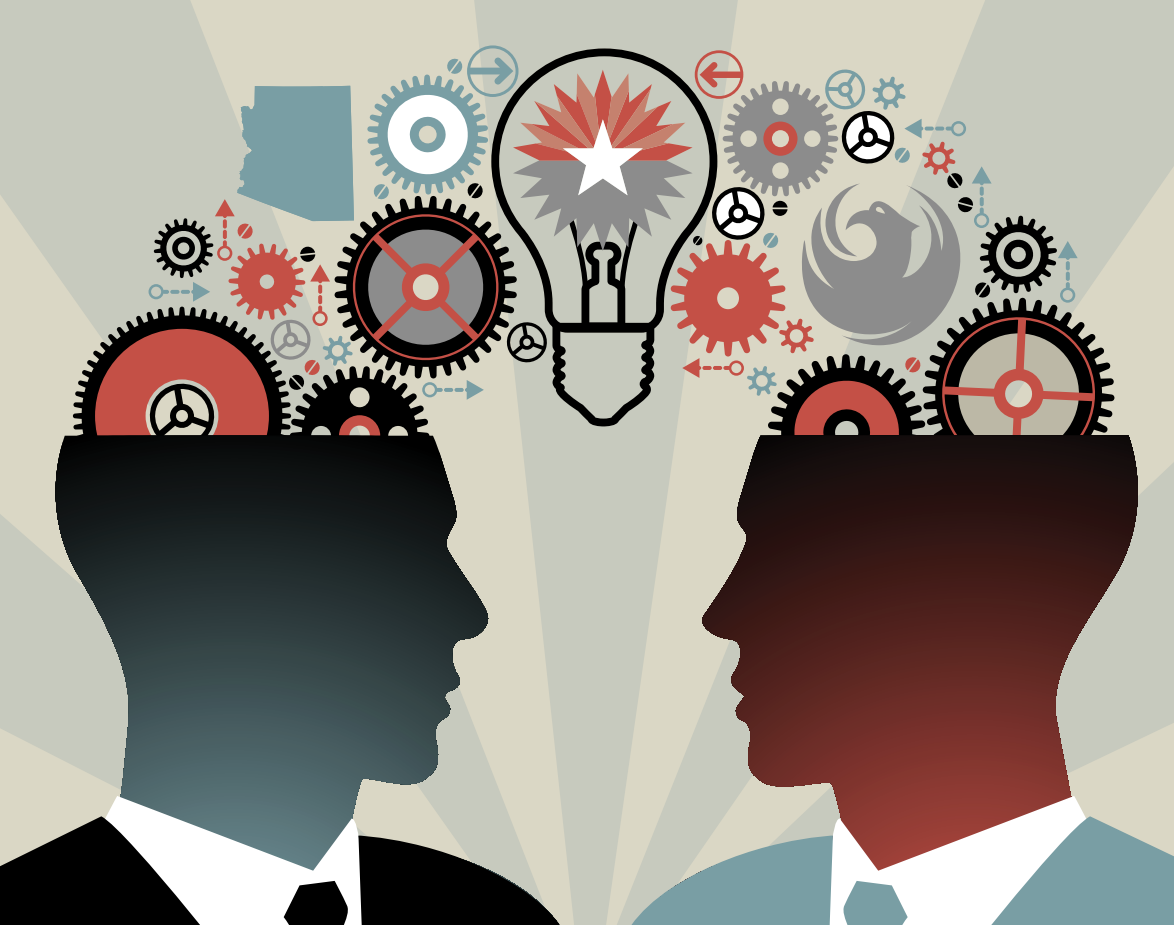
The observers are realistic to know other recessions still can happen. But Bowen feels “technology drives other businesses and makes them less vulnerable in a recession.” For example, the Nestlé Purina plant in Flagstaff is highly automated. Robotics is used, allowing the company to operate without the need to hire additional staff, he says. With such a high level of technology common there, even employees in maintenance have to have some knowledge of hydraulics. “Technology has made them more competitive,” Bowen says of the

pet food maker.

While technology-based companies are in a better position to handle a recession than most, Shaw says, members of the industry are going through the same conservative approach and self-analysis as everyone else. “Given the slow recovery we are experiencing here and nationwide,” she says, “there simply may be a ‘new normal’ of business operations and everyone must adapt.”

Economic diversification is critical to Arizona, Broome says. While software and digital have grown steadily over the past five years, he says, “we’re more dependent than we should be” on such sectors as housing and tourism. “There are much more sustainable ways to build an economy.”

The accompanying high salaries are another reason that technology jobs are important for economic development. Community leaders have begun to realize that as long as service/retail jobs are among the main economic drivers, Arizona will continue to suffer the consequences of a “population boom or bust” economy and economic recessions, Shaw says. “We now know that we have to shift our thinking from the *quantity* of jobs to the *quality* of jobs.” ☐



Arizona's Innovation Ecosystem Supports Economic Growth

Arizona has seen a tech explosion that is unmatched in the state's history, and the nation is taking notice. The expansions of world leading companies like Apple, GoDaddy and General Motors have generated national headlines and helped to bolster Arizona's reputation as a place where global giants do business.

The state's entrepreneurial ecosystem is also surging. Arizona is rich with innovative startups that make up the backbone of its growing technology landscape. Each year thousands of high-tech firms are choosing to establish in Arizona.

Supporting these early-stage innovators is a

community of more than 50 accelerators and incubators assisting technology, IT, biotech and manufacturing companies' advance from idea to commercialization. Local startups are finding success collaborating in working spaces designed to provide them technical expertise, mentorship and funding.

This support is a big reason Arizona last year ranked No.1 in the country for entrepreneurial activity (*Fast Company*).

"Arizona's innovation sector is blossoming," says Sandra Watson, president and CEO, Arizona Commerce Authority. "Companies continually seek resources to support

their commercialization efforts, and selecting the right business environment is critically important to achieving long-term success for startups."

PLATFORMS TO CONNECT

Two annual events are among the many avenues companies are using to plug into Arizona's tech community.

The Innovation Arizona Summit is one of the state's premier events nurturing startup firms. Kicking off this year on August 14 in downtown Scottsdale, the event is a joint collaborative of the Arizona SciTech Festival, the MIT Enterprise Forum

Phoenix and the Arizona Commerce Authority. More than 1,000 attendees including leaders from business, industry, education, and government will participate and explore the lifecycle of innovation—from Inspiration to Commercialization. Dialogue focuses on advances in STEM education, discoveries made in Arizona and technology transfer opportunities. Entrepreneurs and investors share best practices and examine the connections between science, technology, entrepreneurship and innovation.

"STEM skills are pillars of our education system as well as key drivers of business growth in today's global marketplace, and the link between businesses, educators and talent is critical to innovation and economic development," Watson says. "The event is another strategic way for startups to engage with the community around a unifying theme that straddles both the public and private sectors."

Similarly, Venture Madness, a unique business pitch competition held each spring brings together the Southwest's startup community, and provides important networking opportunities for entrepreneurs and attending investors to connect. Presented by Invest Southwest in partnership with the Arizona Commerce Authority, the best and brightest ventures in the region enter into a head-to-head competition for their share of \$50,000 in cash prizes to help their

businesses grow.

Gabriel Hyams, president and executive director of Phoenix-based tissue bank Pinnacle Transplant Technologies, last year's grand prize winner, states, "More than anything, Venture Madness gave us exposure. We haven't had a lot of community marketing or outreach because we've been developing the business for the last three years and the event allowed us to increase the awareness of who we are and what we do."

INCREASING INVESTMENT

Venture capital making its way to Arizona companies is reaching new levels and being pushed by statewide programs that include the Arizona Innovation Challenge, Arizona Innovation Accelerator Fund, Arizona Fast Grant and PIII Playbook. These programs help growth companies secure commercialization funding that also boosts their attractiveness for additional capital investment from the private sector.

According to a 2014 study conducted by California-based Silicon Valley Bank, companies in the innovation sector within the southwestern U.S. (Arizona, Nevada, Utah, Colorado, New Mexico, and Texas) reported the nation's highest rate of hiring as well as solid performance in 2013 and optimism for a better year ahead. Fifty-four

percent of survey respondents from the Southwest successfully raised private capital in 2013, which was a larger proportion than the national average. The majority of the private capital they raised reportedly came from venture capital and private equity investors.

Silicon Valley Bank's Arizona-based banking team, which works with local innovators such as Infusionsoft and WebPT, is also seeing increased activity within the state. This growth has prompted Silicon Valley Bank to make a commitment to lend or invest at least \$100 million to technology and life science companies based in Arizona over the next five years.

"Momentum is the word I would use to describe the local innovation economy," says Dax Williamson, managing director for Silicon Valley Bank in Arizona. "We're seeing a steady pace of new company formation locally and the mood is positive. Similarly, our own business continues to expand around the world so we're growing and expanding our operations in Arizona to support our global business."

Weebly, a global website service based in San Francisco, also found Arizona's tech community and local talent a match for its own growth plans. The company recently announced an expansion to Scottsdale that will create an

economic impact estimated to be \$256 million over the course of the next five years. The company operates more than 20 million Weebly sites worldwide.

David Rusenko, co-founder of Weebly says in a statement: "We're extremely excited to open our new customer operations headquarters in Scottsdale. There is an amazing pool of quality talent in the area."

The company will bring over 250 new positions to the city during the next three years. Each new employee will become part of the company's larger mission to help entrepreneurs easily build a business, website, blog or online store to bring their unique ideas to the world.

RESEARCH & DEVELOPMENT

Adding to this promising outlook for startup growth is the fact that Arizona is committed to advancing research and development in the high-tech industry. Arizona's three public universities increased total R&D expenditures by nearly 25 percent from 2008-2012, with more than \$4.7 billion in research conducted during the same period.

This year, the Arizona Board of Regents (ABOR) partnered with the ACA, to unveil SciVal Experts, an online database that provides real-time access to research taking place within Arizona's university system to attract additional R&D investment,

as well as create new tech transfer opportunities and spinoff companies.

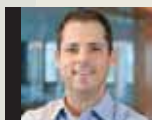
"University research plays such an enormous role in driving the state economy," says Eileen I. Klein, ABOR president. "We have aggressive goals aimed at helping Arizona strengthen its position in the global marketplace, one of which is to double university research expenditures to \$2 billion annually by 2020."

The system is designed to give fresh opportunities to university researchers, students, innovative companies, industry and entrepreneurs who are seeking to access the scholarly work taking place at ASU, NAU and UA.

"SciVal will help us attract and retain top-tier research faculty and maximize our ability to attract future research funding," adds Klein.

Arizona's high-tech ecosystem generates hundreds of thousands of direct jobs for the state. It has become an asset supporting attraction efforts for global companies while positioning Arizona as a hub of innovation and a best place for business.

"Our state provides targeted programs for startup growth and its vibrant tech ecosystem connects innovators with strategic partners to help them succeed. Together this creates a statewide platform that propels businesses forward," says Watson. 



DAX WILLIAMSON
Managing Director, Silicon Valley Bank, Arizona



EILEEN I. KLEIN
President, Arizona Board of Regents (ABOR)



SANDRA WATSON
President and CEO, Arizona Commerce Authority



STRENGTHENING ARIZONA'S GLOBAL COMPETITIVENESS

WRITING BY ×
GOV. JAN BREWER, STATE OF ARIZONA

i tell business leaders all the time that Arizona's success depends on *their* success. As Governor, I have made it my mission to encourage investment, expansion and job growth, strengthen our competitive edge and position Arizona as the BEST place in the nation to do business. And we are well on our way.

We know through prudent policy-making—and listening to you, the business community—

what it takes to create and promote a flourishing economy and successful business climate: low and fair taxes, lean regulations, a ready workforce and a government that gets out of the way and lets the free enterprise system do what it does best: create jobs!

When I became Governor in 2009, Arizona's budget was \$3 billion in the red, with mounting debt and paltry revenue coming in well under projections. In five years, we eliminated that deficit, reduced our

overall debt and set aside nearly a half-billion dollars in our Rainy Day Fund.

The Arizona Comeback is no accident. Rather, we have created a model for economic recovery based on the philosophy and practicality of my hero, Ronald Reagan.

Together with the state Legislature, I took immediate steps to lower and simplify taxes, eliminate and streamline regulations, and pursue and identify ways to improve Arizona's competitiveness.

For example, we lowered business property and equipment taxes, corporate income taxes and capital gains taxes; simplified our state sales tax and formed the Arizona Commerce Authority, a public-private partnership, to provide innovative leadership in helping companies find new ventures and greater success in Arizona.

It is a focused effort we must continue for Arizona to remain one of the most competitive locations globally.

For example, this past legislative session, I signed a bill to eliminate the tax on power that manufacturers use to produce products. It was one of my top priorities because we want manufacturing in Arizona and we will do everything reasonable to make Arizona worth the investment.

We have been able to attract such international

icons as Apple, GM and Silicon Valley Bank. Industry has taken note. Forbes magazine rates Arizona as the No. 1 state for expected job growth!

Today, Arizona has been rewarded for our reforms and strong policies with greater economic stability—and with national recognition as one of the best states for business.

The Arizona Commerce Authority stands ready with a host of resources to help businesses, innovators and entrepreneurs across our state grow and develop more profitable operations.

We have created a complete system from idea to development to manufacturing—all right here in Arizona. It includes our base industry partners, our universities, manufacturing companies, medical facilities and many others. We have cultivated a culture where innovation is encouraged, where entrepreneurs enjoy an environment that spurs creativity, and where businesses are liberated from oppressive government red tape.

I know we can build on our success, continue pursuing tomorrow's potential and keep Arizona among the best places in the world for businesses to thrive.

Arizona is on a steady path to prosperity, and our message is loud and clear: Arizona is Open for Business! 🇺🇸



Return on Investment

Visitors and collaborators say annual statewide STEM celebration delivered

Time and money are tight, so an investment in either one had better bring results. For visitors and collaborators of this year's Arizona SciTech Festival, the numbers are in and they indicate each group gained the return they expected.

The third annual SciTech Festival held Feb. 1 through March 29 was a statewide celebration of science, technology, engineering and math (STEM). As in previous years, the goal was to help create awareness about STEM (or when art was included, STEAM) and its importance for Arizona residents as well as support the state's education, economic and workforce needs related to STEM.

The festival was coordinated by the Arizona Commerce Authority, Arizona Technology Council Foundation, Arizona Science Center, Arizona Board of Regents, Arizona State University and The University of Arizona in collaboration with hundreds of organizations statewide.

But it seemed that the entire state was behind this year's successful festival. "I am continually impressed how organizations and communities have so quickly embraced the concept of the Arizona SciTech festival and made it their own," says Jeremy Babendure, the festival's executive director. "This year we saw a 125 percent increase in the number communities that embraced the Festivals a regional initiative."

To gather feedback, the primary evaluation methods were in-person

surveys with online follow-up surveys. The initial "short" visitor survey was distributed during or after an event to participants. A total of 1,109 visitors were surveyed or provided e-mail addresses for follow-ups. Results were reported to festival organizers by Arizona Evaluation & Research Associates.

VISITORS

People attending the events came from a cross-section of the population. Closest to the topics offered were the thirteen percent who had occupations or were studying for careers related to STEM. The majority (45 percent) of visitors indicated their professions were in education (school system or college/university) or Arizona municipalities (22 percent). On the other end of the spectrum, 10 percent were from businesses and 11 percent were from cultural organizations.

As might be guessed with such a professional mix, many visitors (47 percent) reported having postsecondary degrees. They were highly interested in the variety of activities with 52 percent attending multiple events. And a reflection of the festival's family atmosphere was 43 indicating they attended with one or more children aged 5 to 16.

In fact, children appeared to be key drivers for getting people to participate in an event. The most highly cited reason (39%) for attending was to support the learning experience

of children or others. (Worth noting is 98% of those surveyed indicated learning as a family is important.) It was followed by 13 percent who said they were out with family and/or friends when they stopped at an event. General interest in science, specific interest related to professions or hobby, and "it seemed like a fun thing to do" were the reasons cited by each of three groups representing 9 percent of the respondents.

All in all, how were their experiences? Ninety-two percent of the visitors surveyed indicated the event they attended met their expectations. In fact, 99 percent said they would recommend the event to a friend. When it came to promoting science and technology related learning, 96 percent indicated the festival event was successful at doing just that.

COLLABORATORS

Involvement in the demonstrations and exhibits were more than 300 partners or collaborating organizations. They represented industry, academia, arts, civic organizations, community groups, and K-12 schools and districts. A good sign that they expected a good experience was that 75 percent indicated they participated in the 2013 festival.

The collaborators' involvement varied. The majority (61%) of respondents stated they helped by presenting an event or activity. Fifty-four percent of the collaborators indicated they helped get the word out about the

festival while 46 percent hosted an activity or event. Additionally, 17 percent were sponsors and 16 percent provided volunteers or event hosts. An overwhelming majority (92%) reported they also attended their own organizations' events.

Why did they get involved? The reasons were varied. Some of the more noteworthy comments were:

- Being able to network and gain support from other STEM organizations.
- Promote economic growth in Arizona.
- Promote the businesses in our town and the role that STEM plays in their activities.
- Closer connection with our community.
- Providing possible career/college options in STEM.
- Give people the pride and joy that comes from living somewhere driven by thinkers and doers.

For return on investment, 95 percent of the collaborators felt satisfied with theirs. Separately, 93 percent of respondents indicated their expectations were met. Broken down further, 73 percent found opportunities for new partnerships while 72 percent felt the festival increased public awareness about their organizations.

Overall, the outlook for what the 2015 festival will bring is positive. That was apparent with 88 percent of respondents indicating their organizations planned to participate next year. ☑

BY THE NUMBERS		300+ venues	65 sponsors
320,000+ total attendance	52% of visitors attended multiple events	40 Arizona cities and towns with events	99% visitors recommended
500+ statewide events		164,245 visitors to AZSciTechfest.org	



TECH POLICY IN ARIZONA

A review of successes and challenges in 2014 Legislative

WRITING BY × MOLLY CASTELAZO

in the course of the second regular session of the 51st Legislature, which began Jan. 13 and ended April 24, Arizona policymakers delivered some victories as well as some defeats for the Arizona Technology Council and its members. Here, we recap the key technology- and other business-related bills introduced during this legislative session.

2014 Tech-Related Legislative Victories

DEFEAT OF "RELIGIOUS FREEDOM BILL"

BILL TITLE SB1062 (exercise of religion; state action)

PURPOSE Amend existing law to give any individual or legal entity an exemption from any state law if that law substantially burdened their exercise of religion. Supporters said the legislation was intended to give business owners the right to refuse services based on religious objections (under the First Amendment right to free exercise of religion). Critics of the bill said it was designed to enable businesses to discriminate against certain groups, and targeted at the LGBT community.

SPONSOR Sen. Steve Yarbrough

STATUS Vetoed by Gov. Jan Brewer on Feb. 26.

PASSAGE OF RENEWABLE ENERGY FACILITY TAX CREDIT FOR MANUFACTURERS

BILL TITLE SB1484 (tax credit; manufacturers; renewable energy)

PURPOSE Creates a corporate and individual tax credit for investment in new renewable energy resources if the power will be used primarily for manufacturing. Eligibility requirements include: the taxpayer invests at least \$300 million in new renewable energy facilities, at least 90% of the energy produced is used for self-consumption in the state and the energy is used primarily for manufacturing. Apple did not openly support the bill but its passage will significantly benefit the company as it builds its new facility in Mesa.

SPONSOR Sen. Bob Worsley

STATUS Signed by Gov. Brewer as part of the budget package on April 11.

PASSAGE OF ENERGY SALES TAX EXEMPTION FOR MANUFACTURERS

BILL TITLE SB1413 (taxes; manufacturers' electricity sales; exemption)

PURPOSE Exempts manufacturing and smelting facilities from paying transaction privilege (sales) taxes on the electricity or natural gas they buy in order to create their products.

PRIME SPONSORS Sens. Steve Yarbrough, Bob Worsley and Kimberly Yee; and Rep. Debbie Lesko

STATUS Signed by Gov. Brewer as part of the budget package on April 11.

PASSAGE OF COMPUTER SCIENCE FOR MATH CREDIT

BILL TITLE HB2265 (computer science courses; math credit)

PURPOSE Allows the State Board of Education, school district governing boards, and charter school governing bodies to approve a rigorous computer science course that will satisfy a mathematics requirement. The law is essential to prepare Arizona's next generation for work in technology fields that increasingly rely on programming skills.

SPONSOR Rep. Tom Forese

STATUS Signed by Gov. Brewer on April 22.

PASSAGE OF UNIVERSITY INTELLECTUAL PROPERTY TRANSFER RULES

BILL TITLE SB1392 (universities; intellectual property)

PURPOSE Provides a framework within which a university employee can establish and maintain a substantial

interest in a private entity which supplies equipment, materials, supplies or services to the university in order to facilitate the transfer of technology developed by the employee to commercial and industrial enterprises for economic development of the state and public benefit.

PRIME SPONSORS Sen. Kimberly Yee and Rep. Lela Alston

STATUS Signed by Gov. Brewer on April 23.

PASSAGE OF EXPANDED ANGEL INVESTMENT TAX CREDIT PROGRAM

BILL TITLE HB2272 (tax credits; capital investments; employment)

PURPOSE Extends the life of the Angel Investment tax credit program by five years, increases the amount of qualified investment from \$250,000 to \$500,000 and provides employers a 90-day window to replace job vacancies to maintain benefits of the qualified job tax credit program.

SPONSOR Rep. Tom Forese

STATUS Signed by Gov. Brewer on

April 23. However, fund recapitalization must occur in the 2015 legislative session to keep the program going because the ACA will hit the \$20 million cap on the program before the end of the year.

DEFEAT OF CORPORATE TAX CREDIT ANNUAL REPORTING REQUIREMENTS

BILL TITLE HB2586 (corporate tax credit; annual reporting)

PURPOSE Would have required the Department of Revenue to submit public annual reports showing every corporation that claimed any of the following tax credits (and the amount claimed): Quality Jobs Tax Credit; Qualified Facility Tax Credit; Research and Development Tax Credit; the Credit for the Renewable Energy Industry; and the Renewable Energy Production Tax Credit.

PRIME SPONSORS Reps. Darin Mitchell, John Allen, Adam Kwasman and Steve Montenegro

STATUS The bill was defeated in the

Senate Commerce, Energy and Military committee, and then again when there was an attempt to amend it on to the Angel Investment tax credit bill in the Senate Appropriations committee.

PASSAGE OF LIMITED LIABILITY FOR SPACE FLIGHT ACTIVITIES

BILL TITLE HB2163 (limited liability; space flight activities)

PURPOSE Provides the statutory framework necessary for commercial space flight operators (including Tucson-based Tech Council member WorldView) to operate in Arizona. The legislation states that a space flight entity and space flight participant may enter into a legally valid liability release agreement in Arizona, thus providing insurance companies with the security they need to insure commercial space flight activities.

PRIME SPONSORS Reps. Ethan Orr, Mark Cardenas, Jeff Dial, Andrew Sherwood and Victoria Steele

STATUS Signed by Gov. Brewer on April 23.

2014 Tech-Related Legislative Defeats

DEFEAT OF REFUNDABLE R&D TAX CREDIT PROGRAM EXPANSION

BILL TITLE HB2219 (tax credit; research activities; refunds)

PURPOSE Increase the annual maximum R&D tax credit program refund from \$5 million to \$10 million in 2015 and \$15 million in 2016 and thereafter. The Refundable R&D Tax Credit Program as it currently exists enables the Arizona Commerce Authority to award up to \$5 million in income tax refunds to taxpayers for qualified research and development activities.

SPONSOR Rep. Karen Fann

STATUS The bill passed out of the House of Representatives and was assigned to the Senate Finance committee and Senate Government & Environment committee but neither committee heard the bill.

DEFEAT OF STATE-SPONSORED EARLY STAGE FUND FOR TECHNOLOGY COMPANIES

BILL TITLE HB2432 (tax credit; insurance; investment fund)

PURPOSE Establish an insurance premium tax credit for investments by the insurer in the newly established

Technology Business Investment Fund. The bill would have created a one-to-one insurance premium tax credit of \$10 million in 2015, \$20 million in 2016, and \$20 million in 2017. After the initial \$50 million from the state was repaid, the fund would be continually replenished by new returns from existing investments.

PRIME SPONSORS Reps. Bob Thorpe, Lupe Chavira Contreras, Jeff Dial, David Livingston, Ethan Orr and David Stevens

STATUS The bill was assigned to the House Ways and Means committee but was never heard. 

This information was synthesized by Molly Castelazo, chief content strategist at Castelazo Content, from the "2014 Arizona Legislative Wrap-Up" prepared by Public Policy Partners.

HIGH FLYING PROJECT

WRITING BY > CLARA BUCHANAN

Unmanned aerial vehicle to bring remote sensing closer to home

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or remote sensing ecologist Temuulen “Teki” Sankey, the acquisition of a low-flying unmanned aerial vehicle (UAV) brings high-tech, high-resolution imaging closer to home.

Sankey has been studying land use and vegetation through satellite images since earning her Ph.D in Land Resources and Environmental Sciences from Montana State University in 2006. Remote sensing allows her to observe widespread changes in vegetation over time, track the impact of changing weather patterns on the forest, and estimate the biomass and carbon storage of individual trees.

Satellite Imaging is ideal for projects with a global or regional scale, such as her ongoing endeavor to map global cropland distribution, but has its limitations when it comes to representing local details, Sankey says. “NASA offers a wonderful, amazing archive of free satellite images, but the resolution is very coarse—each pixel is 250 x 250 meters,”

she explains. “When all of your trees fall into one pixel, there’s not much you can do with it.” The pixels are getting smaller, but fine-resolution data isn’t free—a single image from a satellite sensor or manned aircraft can cost tens of thousands of dollars.

Enter Sankey’s UAV. Funded through Arizona’s Technology and Research Initiative Fund (TRIF), the custom-engineered drone is equipped with a unique combination of the latest in hyperspectral cameras and lidar scanning capabilities, each of which gives the low-flying UAV a unique imaging capacity suited to detailed investigation without incurring repetitive costs.

A BETTER WAY

The hyperspectral sensor on her UAV offers a vast improvement on the resolution available through free satellite imaging. Each pixel displays just five centimeters of surface area and 350 spectral bands, or colors—over 40 times the number of bands in a typical satellite image. “With the hyperspectral sensor,



Temuulen “Teki” Sankey

Photo by Monika Saaty, NAI/IDEA Lab

you’re really able to see differences in individual plants,” Sankey explains. “You go from ‘I see a lot of green plants’ to ‘I see five different plant species.’”

The three-dimensional mapping provided by the UAV’s lidar scanner is also a step up from technologies available on manned vehicles. Flying low to the ground, the UAV’s 32 laser points per square meter can show high resolution details in individual shrubs and herbaceous undergrowth—a feature that’s particularly useful to, say, an ecologist concerned with the change in distribution of a species too fragile or dense to measure from the ground. “The applications of this technology are so varied in so many different fields,” says Sankey, using a collaboration with

the university’s Four Forest Restoration Initiative (4FRI) as an example.

According to Sankey, it’s the novel combination of the two technologies on one vehicle that really represents an interesting opportunity in research and innovation. “I want to find a way to combine these two very different sets of data,” she says, noting that the university’s new Monsoon cluster will be an invaluable resource for processing the huge amounts of data generated by the UAV.

Data fusion on this scale will be a complex task, but it doesn’t intimidate Sankey. “I want to push the limit. I don’t want to just do what’s easy to do,” she says. “I want to take on new challenges in science.”

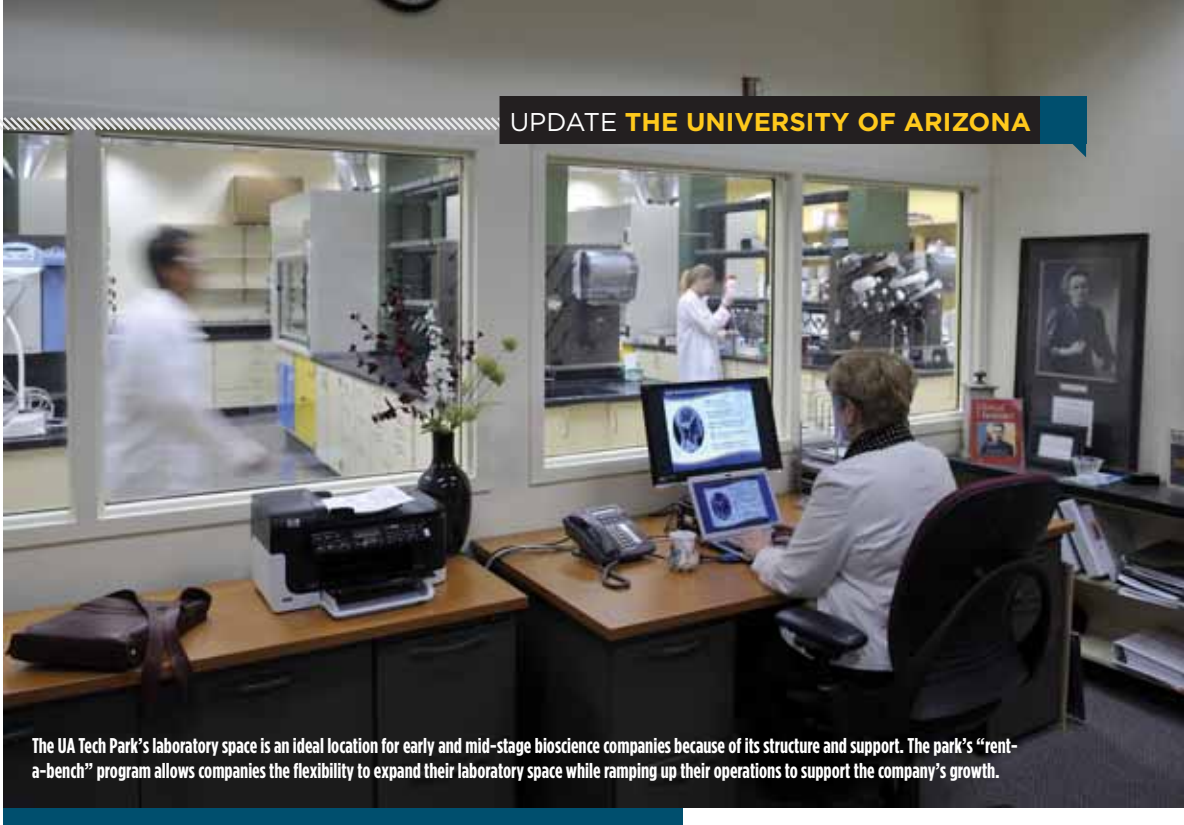
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t's all about innovation.

Tech Parks Arizona, a unit of Tech Launch Arizona at The University of Arizona (UA), focuses its strategy on bringing in targeted companies that complement the university's research strengths. It offers them an attractive array of services and programs to give them a business advantage. Ultimately, the goal is to contribute to advancing the economic development goals of the university and Southern Arizona.

UA is a premier public research university with regional roots and global impact. It is a national force in education, knowledge creation and dissemination as well as innovation. Tech Launch Arizona (TLA), an office that reports directly to President Ann Weaver Hart, focuses on the UA's technology commercialization and industry-sponsored research efforts; it moves knowledge and inventions developed by students and faculty from the lab to the marketplace where they can have a tangible impact on the region's economy.

In line with that strategy, Tech Parks Arizona has aligned its economic development activities with the university's research strengths in fields like advanced energy; mining technology; defense and security; bioscience; and agriculture, arid lands and



The UA Tech Park's laboratory space is an ideal location for early and mid-stage bioscience companies because of its structure and support. The park's "rent-a-bench" program allows companies the flexibility to expand their laboratory space while ramping up their operations to support the company's growth.

RIGHT COMBINATION

WRITING BY >> BRUCE A. WRIGHT

*Tech Parks Arizona
developing interactive ground*

water. These specializations make the UA and Tech Parks Arizona a prime choice for companies in the cross-cutting industry sectors such as sustainability, optics and imaging, advanced manufacturing and informatics.

RECRUITMENT EFFORT

But companies don't simply flock to the parks. Tech Parks Arizona actively recruits them, leveraging focused attraction teams that bring key individuals together to work with prospective companies. Teams consist of a University of Arizona researcher, industry expert, a business development leader from Tech Parks Arizona,

a representative from an economic development organization and UA student interns. The targeted industries not only complement the university's areas of research but also the region's broader economic development strategy.

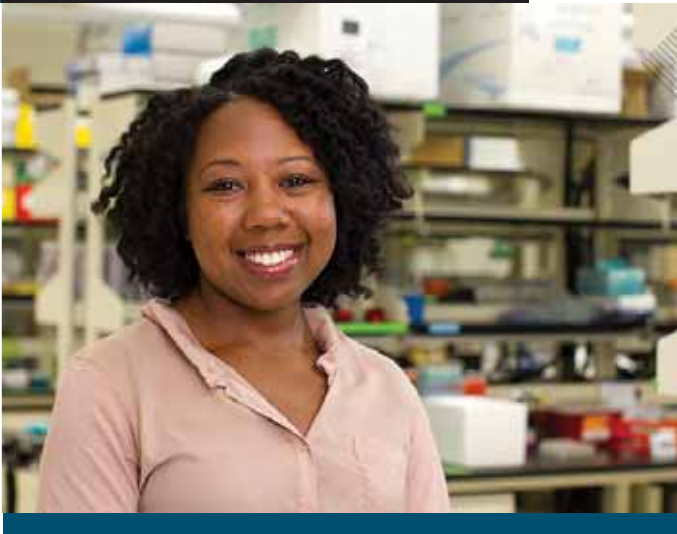
Tech Parks Arizona offers something unique to companies: connectivity to the people and resources of UA. Academic researchers are critical to advancing industry because of their ability to innovate, test and evaluate technology—all from an expert, impartial perspective. Technology concepts need to be validated before they are applied in the market.

Tech Parks Arizona also offers business

development programs including market access assistance, business incubation and product development. For example, through the Global Advantage initiative, companies can conduct advanced research and development at the UA Tech Park and then be connected to high-tech manufacturing, supply chain integration and other value added services in nearby Sonora through the park's connection with The Offshore Group, a comprehensive provider of Mexico outsourcing solutions.

This innovative strategy dovetails with Tech Parks Arizona's *Interactive Ground* approach—the concept of building connections between the UA, industry and the community—to promote technology innovation and commercialization, and support the attraction and growth of technology companies. 

Bruce A. Wright is associate vice president of Tech Parks Arizona.



ASU synthetic biologist Karmella Haynes leads a project to develop a vast database on knowledge about engineered DNA that promises to aid researchers worldwide. Photo by Jessica Hochreiter/ASU

BLENDED LEARNING

WRITING BY × JOE KULLMAN

ASU synthetic biology project has potential to speed up search for medical solutions

a project promising to aid researchers around the world in accelerating biomedical innovation is under way at Arizona State University.

Karmella Haynes is leading the effort to develop a vast online database as part of an “open-science crowd-sourcing” platform for colleagues working to make breakthroughs in her field – synthetic biology – a rapidly emerging specialty that combines biology, mathematics, engineering and computer science. Called Synthetic Biology at ASU, or SB.ASU, the platform is being designed to enable scientists and engineers to widely and rapidly share what they’re learning in their laboratories.

The trove of information should offer findings that “don’t always make it

into the research journals,” but could still be vital in helping researchers solve challenges that are hindering their progress, said Haynes, an assistant professor in the School of Biological and Health Systems Engineering, one of ASU’s Ira A. Fulton Schools of Engineering. If it can accomplish that, Haynes said, SB.ASU could play a significant role in building and sustaining the momentum necessary to ensure continued progress toward solutions to major health problems.

Women & Philanthropy, a philanthropic program of the ASU Foundation for A New American University, is convinced about the potential of the endeavor. The group recently awarded Haynes more than \$75,000 to jumpstart the project.

Synthetic biologists

engineer body cells by designing DNA – deoxyribonucleic acid, a basic building block of life – with the capability of instructing cells to act in various beneficial ways, such as detecting diseases and performing therapeutic functions.

NEW LESSON

“Synthetic biology has taught us how to deconstruct a gene so that we can use DNA modules, the various working parts of a gene,” Haynes explains. But what biologists don’t have is a single large repository of verified data that provides details on how DNA fragments of various kinds will interact when integrated into living body cells.

“What we care about is when you make a DNA sequence combining these fragments, how do you integrate these parts into a larger working system and what will happen when you do that?” she said. “How do these DNA parts control and interact with the cells into which you introduce them, and what does that integration produce?”

With answers to such questions readily available on the SB.ASU platform, researchers could streamline their efforts to “find

the recipes” for engineered DNA that would help fight various diseases or provide other specific health and medicinal benefits.

Haynes will collaborate on her project with Catherine Seiler, an associate research professor at the Biodesign Institute at ASU.

Seiler has developed DNASU, a large and growing repository of DNA parts, sequences and genome collections that are essential to much of modern biomedical research.

Scientists and engineers today can build DNA at low costs, but the development of bioengineered systems that are optimally effective remains relatively low, Haynes said.

SB.ASU will offer researchers an archive of detailed information about the characteristics of DNA fragments and how they can be expected to behave when combined. Knowledge derived from such data will help synthetic biologists assemble DNA sequences that are increasingly capable of fulfilling their medical purpose. **E**

Joe Kullman is the senior media relations officer for the Ira A. Fulton Schools of Engineering at Arizona State University.

BISGROVE SCHOLARS NAMED

WRITING BY × WILLIAM HARRIS

Strengthening Arizona's science and engineering entrepreneurship

Science Foundation Arizona's (SFAz) Bisgrove Scholar program is dedicated to identifying top science and engineering talent to lead research at Arizona institutions to strengthen the state's entrepreneurship in these fields. Now in its fourth year, SFAz recently awarded three nationally and internationally recognized Ph.D. candidates and early-career tenure track faculty with its prestigious Bisgrove Scholars award.

With the future of Arizona linked to the creativity and competitiveness of the next generation of academic researchers in science and engineering, this program aims to attract and retain exceptional individuals who have demonstrated substantial achievement and possess the potential to transform ideas into great value for society.

The three selected for the 2014 Bisgrove Scholars Award are:

- **Dr. Muhammed Murtaza** will be an Early Career Scholar at Translational Genomics Research Institute (TGen) and Mayo



Dr. Muhammed Murtaza

Clinic, Scottsdale with a focus on tumor DNA analysis. His research could potentially lead to circulating DNA-based cancer blood tests for human patients allowing better disease tracking and more informed treatment decisions.

- **Cody Routson** will be a Postdoctoral Scholar at Northern Arizona University with a focus on local and hemispheric climate changes. Along with his mentor, he will study Northern Hemisphere climate drivers, including Arctic weather patterns and sea ice fluctuation which have major implications



Cody Routson

for both local and hemispheric climate. This work will help characterize the risk of extreme events and inform adaptation strategies to cope with climate change.

- **Rachel Rowe** will be a Postdoctoral Scholar at Phoenix Children's Hospital with a focus on traumatic brain injury (TBI). Rowe will study endocrine dysfunction following diffuse brain injury. The data from the planned experiments will help with the development of therapeutic approaches that can



Rachel Rowe

improve the lives of individuals living with TBI.

PAST SUCCESSES

Many successes have stemmed from SFAz's Bisgrove Scholars program, which has supported a total of 14 high-level researchers during the last four years. For instance, 2012 Bisgrove Postdoctoral Scholar Dr. Sarah Leung helped develop improved imaging processes for earlier detection of colon cancer at The University of Arizona.

In addition, 2013 Bisgrove Early Career Track Scholar Dr. Carole Jean Wu of Arizona State University has been focused on understanding the heat dissipation processes and potential energy harvesting strategies that can be utilized in the functioning of high performance central processing units (CPUs) in computer systems. Her work has direct application to CPU manufacturers so she's been developing strong collaborative efforts with industry partners such as Intel.

Arizona's top research institutions will receive the new scholars and research funding by fall 2014. The program is named in honor of businessman and philanthropist Jerry Bisgrove, who helped fund the launch of SFAz in 2006 and is a longtime proponent of science and its link to global competitiveness. 📖

William Harris is president and CEO of Science Foundation Arizona.

TGEN AS AN 'ECONOMIC DRIVER'

WRITING BY × STEVE YOZWIAK

2014 IMPACT Awards recognize ability, tenacity and sense of community



Tess Burleson,
TGen's chief operating officer

The Greater Phoenix Chamber of Commerce selected the Translational Genomics Research Institute (TGen) for one of its 2014 IMPACT Awards in the small-to-medium business category of Economic Driver.

"These companies represent the spirit of the entrepreneur — a spirit that truly makes an impact on our community and our Chamber," says Chamber President and CEO Todd Sanders. "It's a privilege to honor those who continue to innovate, take risks, boost our economy and create jobs. Their ability, tenacity and sense of community are an inspiration to all."

The IMPACT Awards honor the accomplishments of small and large businesses and the impact they have on the Valley's business community and economy.

"TGen is honored to be recognized by the Great-

er Phoenix Chamber of Commerce. Through our research into the human genome, we strive to not only make an impact on the Arizona economy, but also endeavor — though precision medicine — to help develop new tools, capabilities and therapies that benefit our patients, and benefit Arizona patients first," says Tess Burleson, TGen's chief operating officer.

TGen is a Phoenix-based non-profit organization focused on helping patients with cancer, neurological disorders and diabetes, through cutting edge translational research — the process of rapidly moving research towards patient benefit.

TGen is a key economic driver in Arizona's biomedical economy. Because of its collaborative approach to research, TGen's partnerships create economic opportunities, not only for itself, but for its partners as well, includ-

ing all three of the state's major universities, many of Arizona's largest hospital networks, and private businesses.


NEW DOLLARS

These are economic opportunities that would otherwise not exist and that often result in drawing new money to Arizona from across the nation and from around the globe.

TGen is the literal and operative heart of the Phoenix Downtown Biomedical Campus, which since the creation of TGen now also includes The (recently expanded) University of Arizona College of Medicine-Phoenix; the Arizona State University-UA Biomedical Collaborative; Northern Arizona University physical therapy, occupational therapy and physician assistant programs; and The University of Arizona Cancer Center-Phoenix, which will serve upwards of 60,000 patients each year after its

construction is complete.

TGen's economic impact is spread out across the state. In addition to its headquarters in downtown Phoenix, TGen occupies laboratory space at the Mayo Clinic Collaborative Research Building in Scottsdale, which houses TGen's for-profit spinoff, Translational Drug Development (TD2). TGen also has a clinical partnership with Scottsdale Healthcare at the Virginia G. Piper Cancer Center Clinical Trials. And, TGen North, a pathogen genomics and biodefense research facility in Flagstaff, was developed in partnership with NAU.

According to independent economic research firm Tripp Umbach of Pittsburgh, TGen-led research and commercialization have resulted in an annual return on investment of \$14.40 for every \$1 invested by the state of Arizona. In addition, TGen efforts have resulted in more than 1,100 jobs, \$10.1 million in annual state tax revenues, and an overall annual economic impact on Arizona of \$137.7 million. 

Steve Yozwiak is senior science writer at the Translational Genomics Research Institute (TGen).

Able Engineering & Component Services and Able Aerospace are focused on safely reducing aircraft operating costs by providing resourceful component repair, overhaul and approved replacement solutions. www.ableengineering.com

addingmachine.com empowers its clients to leverage accounting and tax strategies in order to reach their financial goals. addingmachine.com

Alert Logic, the leading provider of Security-as-a-Service solutions for the cloud, provides solutions to secure the application and infrastructure stack. www.alertlogic.com

Alpha Performance Coaching improves the lives of owners, leaders and teams through transformational interactions that positively impact business performance. alphaperformancecoach.com

Amazon strives to be Earth's most customer-centric company where people can find and discover virtually anything they want to buy online. www.amazon.com

Amazon Web Services provides businesses with a secure, reliable, low-cost, easy-to-scale, global IT infrastructure "in the cloud." aws.amazon.com

The Arizona Hispanic Chamber of Commerce serves as the primary advocate for Latino-owned businesses statewide. www.azhcc.com

Arizona Lithographers is Southern Arizona's largest commercial printer. www.azlitho.com

Arizona State University's Career Services is dedicated to the career development of ASU students and alumni. www.asu.edu/career

Avolve Software helps state and local governments, and architecture engineering and construction firms transform the way they manage and conduct built environment business. www.avolvesoftware.com

B3 Strategies provide clients with the development and implementation of public policy strategy at the local, state and federal levels. www.b3strategies.com

BeyondTrust provides context-aware privileged account management and vulnerability management software solutions that deliver the visibility necessary to reduce IT security risks and simplify compliance reporting. www.BeyondTrust.com

Biz Data Solutions aims to improve operational efficiencies and business performance by easily deploying flexible business processes spanning multiple applications, platforms and business partners. www.bizds.com

Bizzcam is a mobile app company that offers business owners an easy solution to upload videos directly to their websites and share on social media outlets. www.bizzcam.com

Body Shop Nation helps independent collision shops stay independent. www.bodyshopnation.com

C7 data centers' clients represent virtually every industry in the world and offers operating production, disaster recovery, cloud, and storage solutions. www.c7dc.com

Campas Performance Engineering offers complete design cycle support, from concept to prototype and on to production. www.CampasEngineering.com

Cannon & Wendt Technologies provides high performance structured cabling systems, telephone systems and security solutions. www.cannon-wendt.com

CCI Systems is a value added reseller and integrator of products for voice, video and data solutions, and has engineering expertise behind every solution. ccisystems.com

CenturyLink is the third largest telecommunications company in the United States and is recognized as a leader in the network services market by technology industry analyst firms. www.centurylink.com

A global leader in cloud and managed solutions, **CenturyLink Technology Solutions** helps make businesses more agile, secure and sustainable. www.centurylink.com

Certification Partners produces the CIW Certification Program, the leading series of vendor-neutral certifications for IT and web development/design, networking, security and marketing. www.ciwcertified.com

CH2M HILL performs full-service advanced planning, architectural, engineering, construction, procurement, and operations and management projects. www.ch2m.com

Chandler-Gilbert Community College serves more than 19,000 students annually, offering associate degrees, university transfer and career training programs. www.cgc.edu

City of Tempe is one of the only communities in the state strengthened by being a net importer of jobs. www.tempe.gov

Cloud-Broker provides the IT decision maker the ability to search, compare and, in some cases, immediately consume comprehensive IT services from 2,500 proven worldwide providers. www.cloud-broker.net

Communit is a full-service managed information technology services and support partner serving the nonprofit and business sectors of Arizona. azcommunit.com

CollabraTech Solutions is a fully integrated engineering and manufacturing solutions company. www.collabratech.com

Commercial Real Estate Group of Tucson represents tenants exclusively to save companies thousands of dollars negotiating their leases. www.cretucson.com

Contact Solutions provides enterprises access to real-time business intelligence and data analytics that are delivered to provide insight and superior value. www.contactsolutions.com

CREST Insurance Group serves the risk and insurance needs of technology firms by working proactively, always thinking ahead to the newly emerging risks facing the fast-paced industry. www.crestins.com

Crexendo provides web hosting, hosted telecommunications services, e-commerce software, website development and broadband Internet services for businesses and entrepreneurs. www.crexendo.com

Delphix addresses the largest source of inefficiency and inflexibility in the data center: provisioning, managing and refreshing data for business-critical applications. www.delphix.com

Digital Financial Group is a local merchant service provider for everything from small simple business models to large corporate integrated designs. www.merchantservicesaz.com

DMB's business practices are predicated on creating sustainable, legacy communities that are truly livable. www.dmbinc.com

DTI has grown to be the largest independent provider of litigation, discovery and managed support services for the legal and corporate markets in the nation. www.dti-global.com

Execute to Win links every employee to the strategy, mission and desired behaviors of an organization in real time. etw.com

ExhibitOne is recognized as a leader in the design, engineering and integration of custom A/V and video conferencing systems. www.exhibitone.com

Extreme Integration's technology solutions improve how people communicate and are designed to increase productivity, reduce costs and positively impact how you do business. www.extremeintegration.net

FacilitySource encompasses the very best in real-time facility support software as well as robust transaction centers for customer relations and service provider management. www.facilitysource.com

Finetech is a leading manufacturer of equipment for high-precision assembly, bonding and die attach as well as SMT component rework. www.finetechusa.com

First American Stock Transfer offers shareholder recordkeeping, maintenance, issuance and transfer share activity in a format acceptable to audit personnel and governmental authorities. www.firstamericanstock.com

Ghost Armor's polyurethane films offer the ultimate protection for personal electronics. www.ghost-armor.com

Gingerbread Shed provides technology solutions to manage ticketing, marketing and event services for the rapidly growing music festival market. www.gingerbreadshed.com

Globalscape designs and delivers SMB and enterprise file transfer software and services. www.globalscape.com

GoDaddy was created to give people an easy, affordable way to get their ideas online by helping them easily start, confidently grow and successfully run their ventures. www.godaddy.com

Google's mission is to organize the world's information and make it universally accessible and useful through its search engine optimizer. www.google.com

GPS Insight provides GPS fleet tracking hardware and services to commercial and government fleets. www.gpsinsight.com

The Hartford helps customers identify, understand and select coverage options that are "just right" for them when accidents or disasters strike. www.hartfordlife.com

Hunter Wise Financial Group's services include merger, acquisition, capital formation, business valuations and associated corporate finance. www.HunterWise.com

Ideas Collide is a marketing and communications firm founded on the idea that effective marketing strategies result when creative insight couples with research and analytics. ideascollide.com

Wherever data, documents and decisions are involved, **ImageTag's KwikTag** helps achieve control, improve visibility, and drive personal and professional productivity. www.imagetag.com

Indecomm Global Services is a next generation software product development services company that focuses in niche areas such as analytics, big data, security, mobile, cloud/SaaS and test automation. www.indecomm.net

Information Builders' WebFOCUS Business Intelligence and Analytics platform empowers everyone in an organization to make smarter, more confident decisions. www.ibi.com

InStock is a national reseller and services provider of data storage equipment to include tape libraries, disk arrays and storage network equipment. www.instockinc.com

NEW MEMBERS

itsynergy leverages the latest Microsoft technology to build, develop, deploy and support solutions that efficiently drive bottom-line results. www.itsynergy.com

ITT Technical Institutes is a leading private college system focused on technology-oriented programs of study. www.itt-tech.edu

ITWatchDogs manufactures environmental monitoring systems to check server room conditions through a web browser with live video feed and sensor data. www.ITWatchDogs.com

Iveda offers real-time IP video hosting and remote surveillance services with a Safety Act Designation by the U.S. Department of Homeland Security. www.ivedasolutions.com

Jobing.com is the nation's leading, locally focused employment media that provides online solutions for local employers for recruitment and other services, including career expos. www.jobing.com

KBKG provides turn-key tax solutions to businesses and CPAs, focusing exclusively on value-added tax services that complement traditional tax and accounting teams. www.kbkg.com

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Marcus Engineering offers advanced technological design services, including embedded systems design, PCB layout and product development. www.marcusengineering.com

Maricopa Community Colleges include 10 colleges, two skill centers and numerous education centers—all dedicated to educational excellence and to meeting the needs of businesses and citizens. www.maricopa.edu

Market Advocates are business consultants who offer everything needed to make your case in the market: innovation, management and communications. www.marketadvocates.net

Megaplan-IT is an information security and compliance firm specializing in more than 30 high-level services designed to protect cardholder data, secure networks and websites. www.megaplanit.com

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Mobinnov's team is product-design oriented and understands how to combine technology, business and design for successful mobile services implementations. www.mobinnov.net

Through coaching, experiential workshops and deep engagements, **Moves The Needle** helps enterprises transform their innovation capabilities from within. www.movestheneedle.com

Mswilsondesign's engineering services company specializes in 3D design, 2D drawing, documentation, fabrication assistance and rapid prototyping. mswilsondesign@gmail.com

MWI Laboratories provides non-destructive/non-contact/in-process quality control and laboratory quality assurance testing services. www.mwilab.com

MyFuelUp is a free web/mobile application providing nutrient-timed, flexible meal planning to support body, lifestyle and health/fitness goals. www.myfuelup.com

Northern Arizona University's College of Engineering, Forestry and Natural Sciences is engaged in research and innovation leading to product development in genomics, bioengineering and renewable energy. www.nau.edu/cefn

PayPal is the faster, safer way to pay and get paid online via a mobile device and in store without sharing financial information. www.paypal.com

As the only licensed independent children's hospital in Arizona, **Phoenix Children's Hospital** provides care in more than 75 pediatric subspecialty fields to children throughout region. www.phoenixchildrensfoundation.org

Phoenix Strategic Performance's approach to strategic human capital planning brings together business initiatives and people's performance in one strategic and integrated people assessment tool. www.phoenixstrategicperformance.com

Picmonic's patent-pending system utilizes learning through strikingly memorable mnemonic imagery to improve long-term memory retention by more than 300 percent. [picmonic.com](http://www.picmonic.com)

Pinnacle Transplant Technologies is a multi-service tissue bank dedicated to ethical participation in the donate life process. www.pinnacletransport.com

Whether it's on television, online or outdoor, creative agency **Point in Time Studios** has you covered. www.pointintimestudios.com

Rainey & Associates provides technology-based economic development strategies and implementation plans. www.rainey-associates.com

Raymond James Financial Services helps preserve your wealth by creating a plan to reach personal and financial goals now and in the future. www.wealthmanagementaz.com

RKL eSolutions perfects the design, implementation and support of advanced ERP software and information technology systems to improve business operations. www.rklesolutions.com

R.P. Ryan Insurance is a full-service independent agency offering financial services, group benefits and commercial coverage for high-tech companies. www.rpryan.com

Telecom brokerage firm **Sandler Partners** provides its customers with the best solutions and pricing for their voice, data and Internet needs. www.sandlerpartners.com

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Target Market Media specializes in creating local-focused trade publications for various professional industries. www.c-levelmagazine.com

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TIBCO Software is a global leader in infrastructure and business intelligence software with a broad mix of innovative products and services. www.tibco.com

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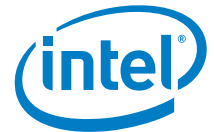
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