Chapter 5

Leveraging the Intellectual Capacity of the University and Community College Systems in Arizona

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Athletic competition among our state universities – Northern Arizona University, Arizona State University and The University of Arizona – is an entertaining activity and generates fierce competition between the various supporters of each university. In athletics, this competition is healthy.

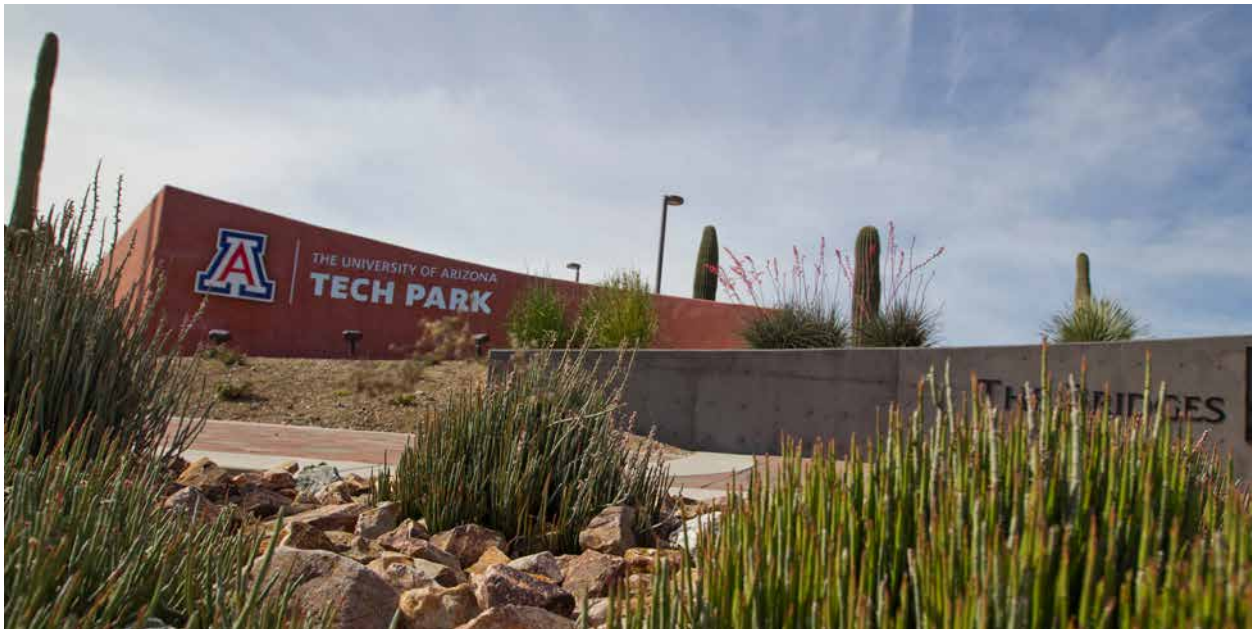
In economic development and growing jobs in Arizona, such competition is counter-productive and leads to potentially expanding and enhancing one region in the State at the expense of the remainder. There is no room in economic development for regional competition. We must all work together for one purpose; to expand Arizona's economy and increase new and high-wage jobs. The three state universities and Pima Community College must work as one system; and Pima County will work with each university and PCC to foster economic development in their own areas of expertise to create wealth and expand jobs.

Increasing employment opportunities within the region comes from three primary sources: 1) protecting and expanding our existing employers, 2) enticing employers to relocate from other areas of the country to Pima County, and 3) growing our own employment opportunities. "Growing our own" is an excellent strategy to diversify our economy and create high-tech, high-wage new economy jobs. The key to growing such high-wage employment opportunities is employing and leveraging the intellectual capacity of our state university and community college systems.

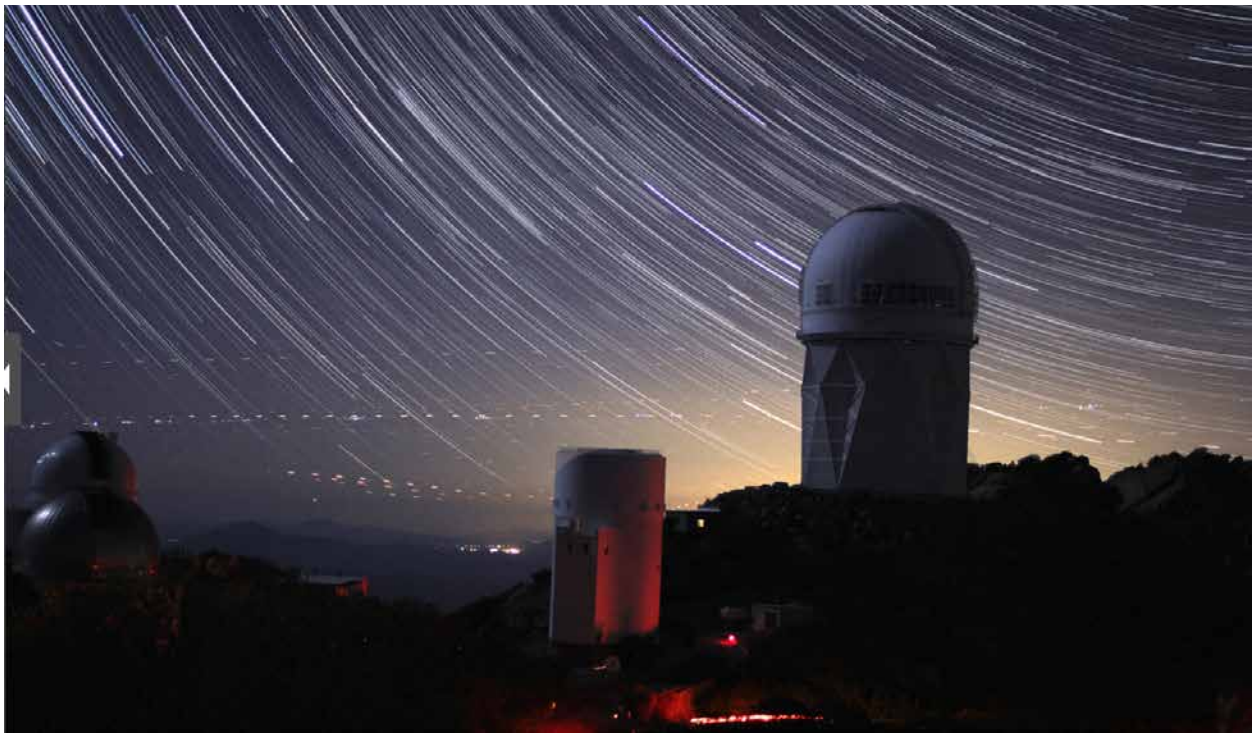
A. The University of Arizona

The University of Arizona (UA) alone receives more than $620 million annually in research and development funding and partners with businesses to help ensure innovative ideas become reality and produce business opportunities in the new world market.

In addition to continuing our work with the UA in areas such as physician training, medical diagnostics and biosciences, the University's intellectual capacity and science professionals can serve as key partners in expanding our aerospace industry, as well as growing new products and services for markets such as engineering, water resources, solar and alternative energy development and new concepts in urban form and development. Our largest area employer, Raytheon, recruits more of its engineers from the UA than from any other institution.



The University of Arizona receives more than $600 million a year in research grants.



The University of Arizona's investments in scientific research, such as the observatories on Kitt Peak, are also major contributors to the region's economy.

We need to provide the environment to attract a larger percentage of graduates.

The UA created Tech Launch Arizona (TLA) to advance University discoveries into intellectual property, inventions and technology. TLA will move knowledge and inventions developed by students and faculty into the market, with the primary goal of unifying UA researchers and the business community to significantly enhance the impact of University research, technological innovation and tech park assets.

B. Arizona State University

Arizona State University (ASU) has been very active in promoting economic development and job creation in the Phoenix metropolitan area. The SkySong Center, an ASU employment incubator in Scottsdale, is located, three miles from ASU's main campus. It is a mixed-use development with 1.2 million square feet of space and has provided a platform for early stage startups and larger merging companies and technologies with variable space offices and support systems for entrepreneurial activities.

In addition, ASU has made significant investments in bioscience with their biodesign facilities located on the main campus and fostered engineering technologies at their new Polytechnic Campus, which grew out of the closure of Williams Air Force Base. ASU has also been active in the Tucson metropolitan area with their School of Social Work, which offers a Master's Degree program. Many of its graduates are employed by public and medical agencies. In fact, Pima County employs a number of these individuals in our medical and justice service areas.

C. Northern Arizona University

Although it is the smallest of our three universities, Northern Arizona University (NAU) is a major research university in its own right and has created numerous programs and economic initiatives that benefit all of Arizona.

NAU has 36 satellite campuses throughout the State, including Tucson, and is poised for additional growth and influence beyond Flagstaff. The Arizona Board of Regents has set goals to increase NAU's student body from the current enrollment of 19,300 to 25,000 and double its research budget by 2020.

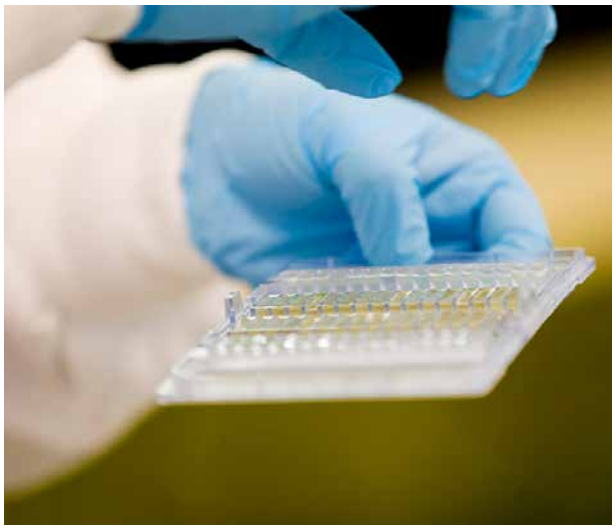
NAU has a strong focus on technology development, tech transfer, entrepreneurial education, business incubation and business acceleration that benefits the economies of our State and region. In addition, the W.A. Franke College of Business is a nationally recognized business school that provides education, research and outreach in many areas Pima County will require for a well-rounded economic development strategy. Some of these programs particularly suited for our region include the Arizona Rural Policy Institute, Center for American Indian Economic Development, Arizona Hospitality Research and Resource Center and the NAU Center for Business Outreach. NAU also offers degrees in small business management at its Tucson campus.

D. Pima Community College District

PCC is one of the largest multi-campus community colleges in the nation. Pima is a public, two-year accredited community college that offers college transfer, career training and occupational education.

PCC has developed transfer agreements to UA, ASU and NAU and prepares students for college-level academic work to later transfer to a four-year university. Strong programs also include Nursing, Engineering, Business, and Aviation Technology. The Aviation Technology Program at PCC is a nationally respected training leader, and PCC is the only school in the United States offering training in aircraft structural repair. PCC offers over 100 certificate and degree programs at flexible schedules to meet the needs of a diverse student population.

A new international development approach at PCC is providing new opportunities for growth and economic development. PCC is a current participant of the 100,000 Strong in the Americas Initiatives and has established partnerships with private and public Mexican institutions, including Televisa Foundation, the SEP-Bécalos Santander Universia International Program, the Institute for Mexicans Abroad, and Proyecta 100,000. Moreover, PCC recently signed a Memorandum of Understanding with the Instituto Tecnologico de Sonora to establish an ongoing academic partnership.



Bioscience and Biotechnology is a rapidly growing high-wage job provider in Pima County.

E. Major University System Emphasis Areas for Job Development: Biosciences, Defense and Mining Technology

These three areas appear to have great promise for transferring university innovation and technology into new employment within the Tucson metropolitan region, primarily due to existing job centers in these specialty areas.

Given the presence of Raytheon and its emphasis on defense, aerospace and technology, the region has a unique opportunity to develop more defense-related job centers; particularly if a relationship is developed with the Defense Advanced Research Projects Agency, or DARPA. Such a secure defense and industrial research and testing facility in the Aerospace Corridor adjacent to Raytheon would strategi-

cally position the region to expand private sector industrial research projects and programs in this area.

Bioscience and emerging bioscience technology has proven to be an important high-wage, high-tech job stimulator in Pima County. Sanofi and Ventana Medical Systems are examples of global organizations that are leaders in bioscience and life science technology. Accelerate Diagnostics, which relocated from Colorado to Pima County's Abrams Public Health Center, is an excellent example of startup technologies growing into high-wage employment opportunities.

Finally, mining technology should receive more attention, primarily because of the mining activities prevalent in eastern Pima County. Mining technology, extractive resource optimization, reuse and mitigation of mine tailings, reclamation and clean mining technology are all viable areas for research and job growth in the mining sector.

F. Funding Arizona's Higher Education System

It is generally accepted that higher education plays a significant role in growing the State and County economies. Economic growth requires an educated workforce and high-level university-based research that leads to new commercial entities and job opportunities. It is time to recognize the contribution of higher education in Arizona and provide a reasonable level of dependable funding for the State university system.

Unfortunately, total State funding cuts to higher education totaled $99 million for Fiscal Year (FY) 2016 – more than 10 percent of State higher education funding. The State also eliminated all funding to Arizona's two largest community colleges at a time when other states are developing strategies to increase funding for community colleges. According to the January 2015 Educator Retention and Recruitment Report prepared by the Arizona Department of Education's taskforce on the subject, Arizona now "ranks first in the country in steep cuts to higher education budgets."

State funding for the UA was cut by $28 million in the adopted State budget for FY 2016. This is in addition to significant cuts to Arizona's University System during the Great Recession. Between FY 2008 and FY 2016, State funding for higher education was cut 55.6 percent, while tuition increased 87.8 percent. During the same period, enrollment and credit hours taught at the University have increased.

Reducing State funding assistance to the university and community college systems is counterproductive to economic growth. The taskforce's report warns that without the State's commitment to increased education funding across the board, "Arizona will not be able to ensure economic prosperity for its citizens and create the workforce of tomorrow."

We cannot cut our way to prosperity.

ACTION ITEMS

5.1 Actively support increased State funding for all public education programs, particularly for the university and community college systems.

5.2 Encourage action and public, as well as, private funding of higher education to minimize future increases in tuition and fees.

5.3 Encourage technology transfer from all three Arizona universities and PCC, as well as economic development investment from all three universities, into enterprises within Pima County – either existing employers or emerging new employers.

5.4 Encourage collaboration among all higher education institutions to focus on workforce development congruent with major industrial growth throughout the State.

5.5 Foster collaboration between Arizona's three universities, government and the private sector in support of university-level degree programs related to and in support of technical employment clusters in the region.