

## **Reviving our Economy: Supporting a 21st Century Workforce**

Testimony of Michael M. Crow

President, Arizona State University

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ASU Polytechnic Campus

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Thank you, Chairman Kline and Members of the Committee. I am honored to share with you my perspective on the importance of the role of higher education in developing the workforce of the twenty-first century. Our nation's research universities produce the broadly educated graduates who serve as the workforce for the twenty-first century economy as well as the ideas and technologies that create entire new industries. These institutions produce graduates with entrepreneurial perspective and a mastery of specialized cutting-edge skills requisite for success in the contemporary workplace; new knowledge to drive scientific discovery, technological invention, and understanding in all fields to guide us forward; cutting-edge ideas, products, and processes that move discovery into the marketplace, spurring both the personal success of graduates and national economic competitiveness.

As president of Arizona State University, I have led an institutional reconceptualization that among its other objectives prioritizes the expansion of broad accessibility to world-class academic excellence as a primary mechanism for both individual success and workforce development. During the past decade Arizona State University has undertaken a comprehensive institutional reconceptualization that represents an effort to reframe a large public university as the foundational model for a New American University, which is predicated not only on academic excellence but also inclusiveness to a broad demographic as well as maximum societal impact. In the global knowledge economy of the twenty-first century,

access to cutting-edge knowledge is requisite to the formation of a competitive workforce. Our success in establishing a prototype for an institutional platform capable of bringing competitiveness to the workforce must be understood in this broader context.

Arizona State University has successfully addressed challenges facing other large public universities and thus may serve as a case study relevant to other institutions. The motivations that impelled ASU to seek reconceptualization were various and interrelated. Rather than rely on historical models, ASU initiated an institutional design process undertaken to transform the institution as well as to establish a new model for the American research university. In response to the unprecedented transformation of the regional demographic profile and limited higher education infrastructure in one of the fastest-growing states in the nation, ASU sought to expand enrollment capacity, promote diversity, and provide access to world-class research and scholarship to a heterogeneous student body that includes a significant proportion of students from socioeconomically disadvantaged and underrepresented backgrounds, including first-generation college applicants. Associated challenges that motivated the establishment of a new institutional platform included an underperforming pre-K-12 educational system; limited public and private support for the university, including declining state government investment when measured on a per-student basis; and the need for research-driven, knowledge-based economic development in an economy insufficiently diversified to accommodate population expansion.

Arizona State University is the nation's youngest major research institution and largest university governed by a single administration. In response to enrollment demand, during the past decade ASU has increased enrollment by more than 33 percent and diversified its student body and faculty while simultaneously promoting new standards of academic excellence. ASU reached a record enrollment of 76,771 undergraduate, graduate, and professional students in

fall semester 2013. This represents a 33.4 percent increase over the 57,543 students enrolled for fall semester 2003. ASU has made remarkable progress in the academic profile and diversity of its student body. While the freshman class has increased in size by 42 percent since 2002, for example, enrollment of students of color has increased by more than 100 percent, and from academic year 2003 through 2011 the enrollment of low-income Arizona freshmen increased 647 percent.

ASU is committed to offering admission to all qualified Arizona residents regardless of financial means. In FY 2013, ASU awarded a record \$1 billion in all forms of financial aid to 66,551 students. Of that total, \$414 million was awarded in the form of scholarships and grants to 51,920 students. Total financial aid for undergraduate students grew from \$195 million in FY 2002 to \$773 million in FY 2013. The number of undergraduate students receiving financial aid grew from 25,594 in FY 2002 to 54,608 in FY 2012, a 113 percent increase. Pell grant recipients at ASU have grown from 10,344 during the 2002-2003 academic year to 26,074 in 2011-2012. These awards provide need-based grants to low-income undergraduate and certain post-baccalaureate students to promote access to postsecondary education. First-time freshman Pell grant recipients increased 205 percent from FY2003 to FY2011, from 1,209 to 3,688 students. In FY 2013, 78 percent of ASU undergraduate students received financial aid. The average student financial aid package for full-time Arizona resident undergraduate students with need was \$11,849. According to the College Board, average indebtedness of ASU undergraduates continues to be below the national average for public universities, which for the academic year 2011-2012 was estimated to be \$25,000.

ASU has attained international recognition as a major research university even while advancing an institutional commitment to accessibility and diversity. The research-intensive milieu of such an institution enhances undergraduate and graduate instruction, driven by the

interaction of students with faculty at the cutting edge of discovery in their fields and the exposure of undergraduates to personal research opportunities. Integrated university-based research, development, and education fuels our national economic competitiveness. At ASU, an ambitious expansion of the research enterprise has quadrupled expenditures during the past decade. ASU advances critical national research and has attained international prominence in such areas as earth and space science, renewable energy, advanced materials, microelectronics, healthcare, national security, sustainable development, and urban systems design. Major interdisciplinary research initiatives of strategic national interest such as the Biodesign Institute and Global Institute of Sustainability (GIOS) complement more than a dozen new transdisciplinary schools. To take but one example from our science and technology portfolio, our LightWorks initiative represents a multidisciplinary effort to advance solar-based energy, leveraging signature research in artificial photosynthesis, biofuels, and next-generation photovoltaics to lay the intellectual and technical foundations for a light-driven economy. In terms of levels of competitive funding, ASU now ranks among the top 20 universities in the nation without a medical school, according to the National Science Foundation.

In an era when learning has become the single most critical adaptive function for individual success, ASU is redefining the public research university as an egalitarian institution focused on improved educational outcomes, the needs of the workforce, and providing solutions to the challenges that confront Arizona. The challenges confronting higher education in Arizona informed the resolve to match academic excellence with broad access, promote diversity, and meet the special needs of underserved populations. And while the overarching institutional commitment remains to provide the best possible education for the students of Arizona, ASU represents a new paradigm for the solution-focused research university of the

future. ASU is determined to be of ever-greater service to our nation and the world, and to mount responses commensurate with the scale and complexity of the challenges that confront the global community. The indicators delineated in the attached compendium of university achievements (FY 2003 through FY 2013) demonstrate the success of the institutional transformation of Arizona State University.

**Statements specific to university-industry collaboration, entrepreneurship, engagement and innovation.**

Over the past ten years, Arizona State University has completely redesigned itself to embrace entrepreneurship, innovation and engagement in ways previously unrealized in American higher education. Our experiments in institutional design have proven successful thanks to a host of factors, not least among which is the wisdom of the ideas upon which they are founded. For example, Austro-Hungarian-American economist Joseph Schumpeter proposed ideas about economics and capitalism that stood at odds with prevailing views of his time. These included extensive thoughts on the nature of innovation. He considered not only new products, but also new methods of production, new markets, new sources of supply, and new organizations of industry as meaningful innovative activities. The agents of these innovative activities, he argued, were entrepreneurs. Schumpeter stated that entrepreneurs are motivated by a variety of factors, including “the will to conquer...to prove oneself superior to others” and the “joy of creating...of getting things done.”

The implications of Schumpeter's views for universities are twofold. First, universities should promote economic growth by continually generating new streams of knowledge. At ASU, we view this as an imperative for anxious engagement in use-inspired research. Second, according to Schumpeter, universities must bridge the gap between knowledge production and the agents of economic growth—entrepreneurs—to catalyze innovations. At ASU, we recognize that innovations are diverse and can emerge from any corner of the university knowledge enterprise. Accordingly, we have advanced our efforts in entrepreneurship, innovation and engagement along the following “design aspirations.”

The first design aspiration is to engage as many people as possible in entrepreneurship. Despite the strong national attention given to engineering and computer science-based innovation and entrepreneurship, we strongly believe that students in all disciplines have meaningful entrepreneurial ideas. As such, we offer entrepreneurial education and opportunities to all students in all programs and at all levels across the university. We are reaching out to diverse groups by highlighting the diverse forms of entrepreneurship, from traditional startups to impactful social innovations to intrapreneurship, and offering them resources to advance their ideas.

The second design aspiration is to leverage underutilized resources. A student body, the broader university that supports it, and the regional economy that surrounds it have tremendous endowments of physical, intellectual and human resources, much of which sit idle or unused. At every opportunity, we have sought ways to connect and network these underutilized resources, which can take the form of empty classroom spaces available to be converted to co-working spaces, local altruistic business leaders who would like to mentor startups, or allied organizations operating similar programs that can be further aligned for

greater impact. By linking these existing resources, we are working to unlock the true generative potential of Arizona at minimal cost to students and taxpayers.

The third design aspiration is to move as much intellectual property out of the university as possible. The federal government invests over \$1 billion in Arizona research universities, who in turn generate almost 600 patents and technologies and launch about 20 start-up per year—a level of performance that exceeds many of our peers but remains insufficient from my perspective. We are taking a new approach, one of maximizing deal flow rather than university profit. It is our intention to transfer intellectual property from the university out to entrepreneurs and into the business community at unprecedented speed and volume.

The fourth design aspiration is to constantly embrace new approaches. It is true that most research class universities have entrepreneurship and technology transfer enterprises. However, it is also true that there is little diversity in their functional forms despite widespread diversity in the economies and communities in which they are situated. We reject these standard models in favor of more responsive and adaptive emergent models. We view new, untested approaches as incredible opportunities to explore rather than avoid. At the same time, we are swift to identify and jettison or retool ineffective programs. It is my view that this way of thinking should be embraced widely.

The establishment and expansion of the Entrepreneurship and Innovation (E&I) office at ASU is one important manifestation of these design aspirations. The E&I office is located at SkySong, ASU's 42-acre multipurpose innovation park in Scottsdale. Its activities revolve around helping students and staff across the university as well as the broader community to grow ideas, launch ventures, find resources, and build a community of innovation. The E&I

office launches, leads and supports many initiatives to advance ASU's entrepreneurship design aspirations.

The E&I office launched the Alexandria Coworking Network in partnership with public libraries in the cities of Scottsdale, Mesa, Phoenix and Glendale. The Alexandria collaboration spaces in each of these libraries are designed for local entrepreneurs, innovators, meet-up groups, inventors and others to network, connect, seek advice, meet potential team members, and work on their entrepreneurial ideas. ASU offers practical information to support venture development and growth through teaching modules and mentors. Local library staff, who go through specialized training at ASU, act as champions by offering information resources to their community of innovators. We expect to have six coworking spaces online by summer 2014 and we are exploring collaborations with other municipalities beyond the Phoenix metro region to build the southwestern regional entrepreneurial ecosystem.

We created numerous competitions to appeal to the spectrum of student and faculty-lead ventures. One such competition, the Innovation Challenge, provides opportunities for teams of undergraduate or graduate students to win up to \$10,000 to advance an innovative project, prototype, venture or community partnership that positively impacts local or global communities.

We also work at a broader scale with less developed venture ideas. For example, we developed the 10,000 Solutions internet platform to allow anyone to submit, view, react and act on ideas for advancing education, technology, community building, sustainability, economic wellbeing, health, human rights, and discovery.

We designed and launched the Arizona Furnace Technology Transfer Accelerator as one solution to address the glut of unused patents and technologies developed by universities. This program is led by ASU but involves universities across the state. Furnace takes unencumbered



intellectual property held by university technology transfer offices and develops it through a proprietary process. This process identifies exploitable ideas, recasts them in simple and accessible language and places them on a purpose-built social networking website in which participants can find promising ideas and form teams to exploit them. Teams, which are largely composed of individuals from outside the university, advance proposals to utilize specific technologies of interest to them. Winning teams receive the right to use the specific intellectual property as well \$25,000 for start-ups costs, free office space and mentoring services for ten months. The university technology transfer office may take an equity stake in the startup in exchange for the intellectual property. We are proud to report that the model, which is financially supported by the Arizona Commerce Authority and BioAccel, has attracted worldwide attention and that ASU was awarded a Department of Defense grant to adapt and extend the Furnace methodology to three Department of Defense labs.

ASU in partnership with the City of Chandler and TechShop—a membership-based organization that provides the public with sophisticated tools, equipment, training and access to a community of creative people—created the ASU Chandler Innovation Center in downtown Chandler. ASU uses the facility, which is owned by the City of Chandler, to offer a variety of courses in engineering, computing, entrepreneurship and product development for traditional and non-degree seeking students. Meanwhile, TechShop operates its TechShop Chandler program in the facility. This spring semester 300 students, faculty and staff have the opportunity to leverage a TechShop membership to prototype their ideas and create new products.

The campus we meet at today is home to Startup Village, a residential community open to ASU students of all majors who wish to live and work in a unique environment that promotes their startups' success. Startup Village meets the needs of student entrepreneurs by

providing living arrangements that promote collaboration, ideation and around-the-clock access to the human capital of fellow student entrepreneurs.

To accelerate our own technology transfer, we launched the Rapid Startup School, which is aimed at Postdoctoral researchers, graduate school students, junior faculty, and alumni. This program creates an excitement and knowledge base around entrepreneurship at the university by offering a series of applied and practical mini-modules taught by successful entrepreneurs and investors from external organizations at the ASU campus and Alexandria locations. Specific learning outcomes include an orientation to practical entrepreneurship and training in business finance, IP issues facing new ventures and product and market feasibility. The program includes networking sessions throughout and concludes with one-on-one counseling on team creation and product development. Since 2011, the Rapid Startup School has offered 105 classes across 11 programs and engaged 1,166 attendees.

We have enjoyed great success in our efforts to stimulate entrepreneurship and innovation among our students and local community. Since 2011, ASU has helped to support over 83 student startups with just \$824,000 in seed funding. These student-led companies have attracted \$2,038,750 in additional seed funding from outside ASU. Over 90% of these companies are still in existence and they currently employ 78 people. Twenty-six are currently in revenue. Students in these ventures have filed for 18 patents to protect intellectual property associated with their start-ups.

Our external startups headed by non-students (but supported by ASU staff) have also enjoyed incredible success. Since 2011, we have supported 25 startups with \$250,000 in seed funding. These startups have leveraged our support to raise \$3,260,480 in additional funding. Eighty four percent of our external startups are still alive today and they currently employ 20 employees.

Although we diffuse entrepreneurship throughout the entire university structure, we still have discrete degree programs, certificates and classes for those who want focused instruction. The WP Carey School of Business offers a Bachelor's of Science degree in Business Entrepreneurship; the Ira A. Fulton Schools of Engineering offers a Bachelor's of Science degrees in Technological Entrepreneurship and Management; and the Herberger Institute for Design and the Arts offers a Bachelor's of Arts degree in Digital Culture with a concentration in Technological Entrepreneurship. ASU also has eight graduate degree programs that heavily feature entrepreneurship as part of the curriculum and we have a university-wide undergraduate certificate in Entrepreneurship that is accessible to any student in any major.

ASU has launched significant efforts in the area of traditional workforce development to affect local economic development outcomes. These efforts fall under the categories of increasing the size of the student pipeline, ensuring graduates are well matched to degrees that fit their interests and initiating new degree programs. Just as in our entrepreneurship programs, there are overall principals or design aspirations that guide our workforce development efforts.

The first design aspiration is to expose students to tangible careers and professions as soon as they enroll at the university. Some public officials have attempted to address workforce issues by increasing the visibility of salary estimates and other disembodied metrics of graduate success in the hopes of influencing degree choices of university students. While this may provide some information to students, we believe it is the wrong tactic to develop an educated and competitive workforce. In our efforts with students, we attempt to provide tangible real-world experiences and employer interactions so that students can understand careers and organizations and make informed decisions in the selection of majors that closely align with their interests and motivations. We believe graduates who are passionate and engaged in their

professions will add the most value to their organizations, seek out continued education opportunities and sustain a competitive regional workforce.

The second design aspiration is to be continually responsive to business needs. ASU leaders maintain regular contact with business leaders across the state. We view vigorous business engagement with academia appropriate and highly beneficial to our university and students. ASU has complex relationships with regional employers, from sponsored research projects, to operation of joint facilities, to faculty consulting and even specialized degree offering. Understanding their hiring and staffing needs not only helps us advance in other aspects of our relationship with them but also to ensure quality employment opportunities for our graduates. This strengthens our local economy, which in turn strengthens us.

A primary mechanism of influencing workforce development in Arizona is through the production of educated workers. Accordingly, we are strongly committed to expanding access to higher education in Arizona. We estimate that ASU will produce more than 13,000 bachelor's degrees in the 2013-14 academic year, sharply up from 8,566 in academic year 2002-3. We estimate that we will produce nearly 18,000 bachelor's degrees and more than 24,000 total degrees in academic year 2019-20.

Yet it is not enough for universities only to create more graduates. Universities must create more graduates who are also prepared to succeed in their chosen professions. To give the committee a sense of our efforts in how we provide opportunities for students to find majors and professions that fit their interest profile, I would like to highlight several exemplar projects in our Fulton Schools of Engineering.

As I previously mentioned, we engage students in career exploration early. Even before engineering students are admitted to Fulton Schools of Engineering, we offer peer career coaches and professional career staff and tools to guide in selecting majors that suit the

individual student's interests and values. Once admitted, incoming students form relationships with fellow engineering students, staff, faculty, the Dean and members of industry at "E2." This camp enables an early understanding of the professional culture of engineering, which leads to a host of long term benefits beginning with better grades and satisfaction with the college experience.

Our Fulton Schools of Engineering offer an array of undergraduate and graduate degree programs in the traditional engineering disciplines but are organized into five interdisciplinary schools. This organizational structure maximizes learning and knowledge production by fostering meaningful collaboration. Undergraduates are able to learn the core principles taught in engineering programs across the country while graduates and faculty are able to conduct the interdisciplinary use-inspired research industry demands. The benefits are systemic and include the openness to new approaches spoken of early. By way of example, ASU Fulton faculty saw a need for a new delivery mode for BS degrees in electrical engineering. They swiftly assembled what became the first fully online accredited Bachelor's of Science degree in electrical engineering in the country. Demand is high—launched in August 2013, the program has enrolled more than 250 students.

University-wide, we have moved to make experience-based learning a core experience for the student. As of March 2014, ten of twelve colleges at ASU have at least one major that requires an internship or applied project for graduation. Fifty-two percent of bachelor's degree earners in our most recent class reported completing at least one internship before graduation.

As testament to these and other changes throughout the university, ASU graduates have been enjoying high and increasing levels of success in the labor market. In 2012-13, the 90-day undergraduate employment success rate was 86.5%, up from 83.4% in 2011-12. Our bachelor's degree recipients reported average earnings of \$44,030 in 2012-13, up 3.2% from the previous

year. We are proud to report that 78% of new degree recipients remain in Arizona after graduation. The attached document enumerates ASU's various achievements over the past ten years.

Thank you for the opportunity to share some our general approaches and some specific examples of how ASU is advancing entrepreneurship, innovation and workforce development.

## **Arizona State University Achievements**

### **FY2003 through FY2013 (2014-01-02)**

On July 1, 2002, Arizona State University initiated its transformation into an educational model that would serve as a new option for American higher education.

Our **New American University mission** – to prove that a university can be simultaneously excellent and broadly inclusive; that it should engage in use-inspired, as well as curiosity-driven, research; and that it can take significant responsibility for the economic, cultural and environmental health of the communities it serves – has been demonstrated.

In August 2008, *Newsweek* recognized the university's success by calling ASU "one of the most radical redesigns in higher learning."

### **Academic Excellence and Access**

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We measure ourselves by who we include, not who we exclude. We are committed to the belief that no student qualified to learn at the research-university level should be denied access to a college education of the highest order, so we have simultaneously pursued expanding institutional access to the historic levels of committed public research universities while increasing academic rigor and quality.

In FY2002, ASU was an emerging public research university with an uneven academic reputation. Since that time, we have received widespread external recognition for achievements in academic excellence.

- **Top university:** ASU was named among the best universities in the nation and the world by a number of different ranking organizations.
  - The Academic Ranking of World Universities, compiled by Shanghai Jiao Tong University, ranked ASU as 79<sup>th</sup> among the top 100 universities in the world in 2012. This assessment compares 1,200 higher education institutions worldwide and is considered

one of the most prominent world university rankings. ASU entered the rankings in 2003, achieved top 100 status in 2006. ASU ranked 46th among all universities in the United States and 26 among all public U.S. universities.

- The *Times Higher Education World University Rankings*, using data supplied by Thomson Reuters, placed ASU in the top 200 in the world in 2010, using measures of excellence from all three core elements of a university's mission: research, teaching and knowledge transfer. In 2011, ASU was ranked 21<sup>st</sup> in the world in mathematics, above Columbia, Cornell, Oxford, MIT and Cambridge.
- *U.S. News & World Report* ranked ASU in the top tier of national universities from 2008 through 2013. It was also named one of the top "Up and Coming Schools," from 2009 through 2013 and second in the 2011 edition of "America's Best Colleges" – a ranking highlighting schools to watch in terms of promising and innovative changes in academics, faculty, students, campus life, diversity and facilities. In 2012, the magazine ranked ASU #1 in the nation for online student services and technology.
- A *Wall Street Journal* ranking published in Sept. 2010 named ASU number five in the nation among corporate recruiters for producing the best-qualified graduates – those that are the most prepared and academically well-rounded, who fit in well with the companies' cultures and produce the best track records.
- In 2009 and 2010, *Forbes* placed ASU on its list of 100 of "America's Best Colleges," based on students' satisfaction with their course instruction, indicators of their post-graduate employment success, four-year graduation rates, student and faculty success in competitive academic and research awards, and the four-year debt load for typical student borrowers.
- Arizona State University was selected by *G.I. Jobs* magazine as a "Military Friendly School" for four consecutive years, from 2010 through 2013. The list honors the top 15 percent of colleges, universities and trade schools that are doing the most to embrace America's veterans as students.
- *The Princeton Review*, one of America's most widely known education services and test preparation companies, has named ASU one of the "Best 377 Colleges" in the nation for four consecutive years, from 2010 through 2013. *The Princeton Review* calls ASU "a leading research institution and a dynamic public university" and commends it for its "outstanding honors college" and leadership in entrepreneurial education.
- ASU continues to be one of the top choices for international students, placing 20th in the nation in 2011 and 2012 among all colleges and universities, according to the Institute of International Education (IIE). International student enrollment has grown by 44.9 percent, from 3,544 in FY2003 to 5,137 in FY2013. International graduate students comprise 20 percent of the graduate student population. Graduate international enrollment increased by 26.9 percent, from 2,220 in fall 2002 to 2,818 in fall 2012.
- ASU received numerous honors for its nation-leading efforts in sustainability:
  - *Princeton Review* Green Honor Roll: For the fifth consecutive year (from 2008 through 2012), ASU received the highest possible score in its Green Rating and was one of only 21 universities to receive a perfect score in 2012.
  - *Sierra Magazine* "Coolest Schools," a survey that ranks the greenest college campuses in the nation, recognized ASU's leadership in sustainability from 2007 through 2011.
  - *Kaplan College Guide 2009* Top 25 Green Colleges: Aug. 2008
  - ASU earned a STARS Gold rating from the Association for the Advancement of Sustainability in Higher Education (AASHE). ASU was one of only 22 institutions out of 117 to receive a gold rating. STARS, the Sustainability Tracking,

Assessment & Rating System, is a transparent, self-assessment framework for colleges and universities to gauge relative progress toward sustainability.

- In 2010, *Time Magazine* named ASU President Michael Crow as one of the 10 best college presidents in the U.S. based on the achievements of ASU under his leadership.
- **Top programs:** Individual academic programs at ASU also have been ranked among the best in the world:
  - The W. P. Carey School of Business is recognized as one of the best in the world.
    - In 2003, the school started its impressive executive MBA program in Shanghai, which educates some of China's top business and government leaders. The program now ranks No. 21 worldwide, according to the Financial Times. It has more than 700 alums in China and is an exemplary part of ASU's global engagement mission.
    - The W. P. Carey School also launched its online MBA program in 2003. The program now ranks an incredible No. 2 among the nation's online MBA programs, according to U.S. News & World Report.
    - In 2008, the school's full-time MBA program broke into the Top 25 in the nation, according to U.S. News & World Report, only 17 years after graduating its inaugural class. The full-time MBA program is now ranked No. 30; the evening MBA is ranked No. 22 for part-time MBA programs, and the undergraduate business program was ranked No. 24 in its category in fall 2012.
    - As far as consistency, the school repeatedly ranks Top 30 in the nation for both undergraduate and MBA programs, according to *U.S. News & World Report* – six years in a row for the full-time MBA program and nine of the last 10 years for undergraduate.
    - The W. P. Carey School's Arizona-based executive MBA program ranked 13th on *The Wall Street Journal's* Top 25 list in 2010.
    - The Center for World-Class Universities at Shanghai Jiao Tong University ranked W. P. Carey No. 18 in the world for economics/business in summer 2012.
    - Many of the school's departmental programs consistently rank Top 25 in the nation for quality, including accountancy, information systems and supply chain management. The school's supply chain management programs routinely rank Top 10 in the nation.
    - The W. P. Carey School's research productivity reaches exceptional levels, resulting in practical knowledge that helps to boost the business world and students' classroom experience. The school achieves Top 25 North American rankings/Top 30 worldwide rankings for business-school research productivity.
  - In 2012, ASU Online was named the Pearson Product of the Year Award winner. It was the first time in the award's history that a service-based educational partnership received the award rather than a piece of educational content, such as a textbook or software.
  - The School of Public Affairs, ranked at #25 in U.S. News & World Report's 2011 and 2012 rankings, jumped to #16 in the 2013 edition. Five of its programs ranked within the top 20 in the nation, including #2 in city management and urban policy and #10 in environmental policy and management.
  - The Mary Lou Fulton Teachers College continued its climb in the 2013 *U.S. News* rankings of the nation's highest-rated graduate programs in education, coming in at No. 14 among public graduate schools of education and 24th among all public and private



graduate programs in the field. In 2012, ASU's graduate education programs ranked 16th and 26th, respectively.

- *U.S. News & World Report* ranked the Ira A. Fulton Schools of Engineering undergraduate and graduate engineering programs in the top 50 in the nation.
- The Herberger Institute for Design and the Arts is recognized as one of the best in the nation:
  - The institute was ranked number 22 in the nation in 2013 in fine arts programs by *U.S. News & World Report*. Its industrial design program entered the top 10 in 2008. Its graduate printmaking program has been in the top seven since 2003, and its photography program has been in the top 11 since 2002. In 2013, its ceramics program ranked #7.
  - The institute's undergraduate interior design program was ranked 9th and its graduate program 6th by *America's Best Architecture & Design Schools* in 2008. The industrial design undergraduate program was ranked 13th and graduate program ranked 10th.
- More than half of ASU's doctoral programs placed in the top 25 percent in the nation in a report released in Sept. 2010 by the National Research Council, one of the National Academies. The highest rated programs include psychology (peer group includes the University of Washington, the University of Southern California, University of Texas Austin, Michigan State, and Penn State); geography (peer group includes UCLA and UC-Berkeley); electrical engineering (peer group includes USC, Carnegie Mellon, Ohio State, and Johns Hopkins); civil and environmental engineering (peer group includes CalTech, Cornell, USC, Ohio State, and Duke); materials science and engineering (peer group includes UCLA, Duke, Michigan, Carnegie Mellon, Georgia Tech, and Johns Hopkins); chemistry (peer group includes Texas A & M, University of Maryland, and Emory). Spanish (peer group includes UC-Berkeley and NYU); communication (peer group includes University of Texas-Austin and University of Missouri); and public administration (peer group includes Harvard and University of Texas-Austin). Other programs ranked highly were history, economics and English.
- The Walter Cronkite School of Journalism and Mass Communication has the best overall record in the national Society of Professional Journalists Mark of Excellence competition for the past eight years and has taken first place in its region for 13 consecutive years. The school has finished in the top 10 nationally in the Hearst Journalism Awards, often called the Pulitzer Prizes of college journalism, for 10 consecutive years, including first-place finishes in 2008–2009 and 2006–2007. The school has placed first in the Hearst intercollegiate broadcast competition two out of the past three years and three out of the past six years. The Cronkite School has won more awards in the Broadcast Education Association's Festival of Media Arts competition than any other school in the country for four consecutive years. Cronkite students have also won the prestigious Robert F. Kennedy Journalism Award three out of the past five years.
- In 2013, ASU's Entrepreneurship and Innovation Group was named one of the world's top university business incubators by the University Business Incubator Index, which ranked ASU 10th in the United States and 18th in the world. ASU also received the 2013 Most Promising Technology Based Economic Development Initiative award from the State Science and Technology Institute. Spinout companies based on technologies developed by ASU researchers raised \$68 million in external funding during the 2013 fiscal year. ASU students were among the finalists in *Entrepreneur* magazine's "College Entrepreneur of the Year" competition in 2011, 2012 and 2013, and the overall winner in 2011 was from ASU. ASU student startups also were among the finalists in *Inc.* magazine's "Coolest College Startups" competition in both 2012 and 2013, with an ASU

startup taking home the top prize in 2012. Inc. also named the Arizona Furnace Technology Transfer Accelerator, of which ASU is a founding partner, “one of three college town incubators to watch” in 2013.

- The Sandra Day O'Connor College of Law has moved up significantly in *U.S. News & World Report* rankings. In 2013, it was rated the 29th best law school in the nation. Its legal writing program also was ranked fifth best by *U.S. News & World Report*.
- The College of Nursing and Health Innovation achieved the following recognition:
  - In 2011, the college ranked 21 for its master’s programs in nursing by *U.S. News & World Report*.
  - Graduate nursing programs are ranked top 4 percent in the nation by *U.S. News & World Report*.
  - The Department of Speech and Hearing Science has one of the largest programs in the country. In 2012, the audiology program was ranked 17<sup>th</sup> in the country by *U.S. News & World Report*. The speech and hearing pathology program is ranked 21st by *U.S. News & World Report*.
  - The School of Nutrition and Health Promotion has the second largest dietetics program in the country. Dietetics has a 95% pass rate on the National Examination for Registered Dietitians.
  - First time pass rate on the NCLEX-RN is between 94% and 98%.
- Barrett, the Honors College, was named one of the top three honors colleges in the nation in the most recent thorough assessment and ranking of all 64 honors colleges in the United States, done in 2005 by researchers at *Readers Digest*. *Readers Digest* called the three "America's Best Honors Colleges". The magazine said the Honors College at Arizona State University continues to set the standard for the country’s top honors experience. In 2010, *USA Today* cited Barrett, The Honors College as a factor in naming Arizona State University one of the 100 Best Value Colleges and called the honors college “outstanding.
- The School of Criminology and Social Justice was ranked third in the nation for scholarly research in a study published in 2012.
- The anthropology program in the School of Human Evolution and Social Change was ranked in the top 5 in the *Chronicle of Higher Education’s* last Faculty Scholarly Productivity Index in 2007. The program was fourth in the Center for a Public Anthropology’s 2006 national ranking of public outreach in anthropology departments.

**World-class faculty:** ASU increased its number of faculty who have received the highest awards in their fields by adding the following new award recipients, fellows or academy members since the end of FY2002:

- 2 Nobel laureates, all since FY2002. ASU faculty and researchers also contributed to the Intergovernmental Panel on Climate Change (IPCC), which shared the 2007 Nobel Peace Prize.
- 10 members of the American Academy of Arts and Sciences, 9 since FY2002 (900 percent growth)
- 8 members of the National Academy of Engineering, 6 since FY2002 (300 percent growth)
- 11 members of the National Academy of Sciences, 10 since FY2002 (1,000 percent growth)
- 2 members of the Institute of Medicine, both hired since FY2002
- 4 members of the National Academy of Education, 2 since FY2002 (100 percent growth)
- 5 members of the National Academy of Public Administration, 4 since FY2002 (400 percent growth)

- 3 members of the Royal Society, one hired since FY2002 (50 percent growth)
- 65 American Association for the Advancement of Science Fellows, 45 since FY2002 (225 percent growth)
- 5 Sloan Research Fellows, 1 since FY2002 (25 percent growth)
- 5 Pulitzer Prize winners; 3 since FY2002 (150 percent growth)
- 99 Fulbright American Scholars with 127 awards, 57 Fulbright Scholars with 74 awards since FY2002
- 25 Guggenheim Fellows, 18 since FY2002 (257 percent growth)
- 24 IEEE Fellows, 13 since FY2002 (118 percent growth)
- 8 American Council of Learned Societies Fellows, 3 since FY2002 (60 percent growth)
- 19 recipients of Ford Foundation Fellowships, 13 since FY2002 (216 percent growth)

In addition, since FY2002 ASU's young faculty have been recognized as those who will lead the advancement of scholarship in their fields for the future with the following awards:

- 61 recipients of the National Science Foundation Early Career Development Award
- 1 recipient of the Department of Energy Early Career Principal Investigator Program Award
- 1 recipient of the Department of the Army Young Investigator Program
- 7 recipients of Presidential Early Career Awards for Scientists and Engineers, 6 since FY2002 (600 percent growth)

**World-class students:** ASU students also excelled in record numbers.

- The fall 2012 freshman class numbered 9,265. Median SAT score for the entering class was a record 1110, and 30.2% graduated in the top 10 percent of their high school class. Students from diverse ethnic backgrounds made up 38.6 percent of the class, up 134.8 percent from 22.3 percent in fall 2002.
- *U.S. News & World Report* named ASU the country's top destination for transfer students. A record 7,228 new students transferred to ASU from a community college or other university in fall 2012.
- ASU was the top-ranked public university for students being named to *USA Today's* All-USA Academic First Team.
- ASU is in the top 10 producers of Fulbright Scholars in the nation, with 181 since FY2002. In 2012, according to *The Chronicle of Higher Education*, ASU tied for fifth place with Yale University and the University of California at Berkeley.
- ASU has produced 6 Truman Scholars since FY2002.
- ASU has produced 6 Marshall Scholars since FY2002.
- 440 National Merit Scholars were enrolled at ASU in fall 2012, a 28 percent increase over the enrollment of 345 in fall 2001.
- 256 National Hispanic Scholars were enrolled at ASU in fall 2012, up 556 percent over the 39 students enrolled in fall 2001.
- ASU is one of the top schools in the nation in winning National Security Education Program (NSEP/Boren) grants to study abroad in countries of critical interest to U.S. security with 88 recipients since FY2002.
- The majority of eligible Flinn Scholars chose ASU, with 16 of 22 attending in FY2012 and 11 of 20 attending in FY2011. FY2013 added an additional 10 Flinn Scholars.
- 56 Bill and Melinda Gates Millennium Scholars were enrolled in FY2013; a total of 218 have attended ASU since the program's inception.

**Degree production and persistence:** ASU awarded 18,045 degrees in FY12, up 60 percent from FY2002. The six-year graduation rate for the freshman cohort entering 2006 was 56.8 percent, up

9.7 percent from the 51.8 percent rate for the cohort that entered in fall 1996. Freshman persistence in fall 2012 was 80.0 percent, 4.4 percent higher than in fall 2002.

**ASU ranked as top school for diversity:** From fall 2002 to fall 2012, we greatly increased access to the university, at the same time more closely reflecting the demographics of Arizona in our faculty, staff and student populations. ASU was ranked as one of the top institutions for ethnic minorities by top publications focused on diversity:

- In 2012, according to *Diverse Issues in Higher Education*, ASU ranked 6th in the nation for production of both American Indian and Hispanic graduates in all disciplines; in the top 5 for Hispanic undergraduate degrees in legal professions and studies, education, family and consumer sciences/human sciences; and number 5 for all minorities in education.
- ASU ranks first in the nation in 2013 for doctoral degrees awarded to Native Americans in all disciplines.

Overall, 27 of ASU’s program rankings appeared in the top 10 graduate and professional degree producers, and more than 90 programs were in the top 100.

The top diversity graduate rankings for ASU in 2013 are:

<b>Native American Doctorate (All Disciplines)</b>	1
<b>Native American Doctorate (Education)</b>	1
<b>Native American Master's (Public Administration/Social Service)</b>	1
<b>Native American Professional Doctorate (Law)</b>	1
<b>Hispanic Doctorate (Foreign Languages, Literatures, and Linguistics)</b>	2
<b>Native American Master's (Engineering)</b>	2
<b>Hispanic Doctorate (Mathematics and Statistics)</b>	3
<b>Hispanic Master’s (Architecture &amp; related)</b>	3
<b>Native American Master's (All Disciplines Combined)</b>	3
<b>Asian American Doctorate (Education)</b>	5

- In their April 1, 2013 issue, *Hispanic Outlook in Higher Education* magazine published rankings for the number of graduate degrees awarded to Hispanics in several key areas.

<b>Category</b>	<b>Out of all U.S. schools, ASU ranks</b>
<b>Graduate schools enrolling Hispanics</b>	11
<b>All Master’s and PhDs in Teacher Education</b>	14
<b>All Master’s degrees in Business Mgmt/Marketing</b>	13
<b>All Master’s and PhD STEM degrees (science, technology, engineering and math)</b>	15

- ASU was cited several times among the top 25 institutions in the United States in *The Condition of Latinos in Education: Fact Book 2008* by Excelencia in Education. ASU was ranked 24 among the top 25 colleges and universities enrolling Latinos during the 2006-

2007 academic year. The university also was ranked 24th for awarding bachelor's degrees to Latinos and 17th for awarding engineering bachelor's degrees to Latinos.

**Growth in student ethnic diversity:** While enrollment increased 32.2 percent (from 55,491 in fall 2002 to 73,378 in fall 2012), minority enrollment as percentage of total student population increased 107.9 percent (from 20.7 percent to 32.5 percent of the total student body).

- The number of African-American students grew 97.5 percent, from 1,768 to 3,491.
- The number of American Indian students grew from 1,166 to 1,184, a 1.5 percent increase.
- The number of Asian students grew from 2,535 to 4,108, a 62.1 percent increase.
- The number of Hispanic students grew from 6,018 to 12,880, a 97.5 percent increase.

**Growth in student economic diversity:** From FY2003 through FY2013, ASU made major progress in delivering on its promise that no qualified Arizona student be denied access to a college education based on ability to pay:

- Total financial aid for undergraduate students grew from \$195 million in FY2002 to \$773 million in FY2013, an increase of 296 percent. The number of undergraduate students receiving financial aid grew from 25,594 in FY2002 to 54,608 in FY2012, a 113 percent increase.
- Pell grant recipients (first-time freshmen) increased 156 percent from FY2003 to FY2013, from 1,209 to 3,098 students.
- In May 2009, the university announced the President Barack Obama Scholars program, which more than tripled the number of students from families with the greatest financial need who are eligible for financial aid that helps cover the direct cost of college attendance.
- In FY2013, ASU awarded a record \$1 billion in all forms of financial aid to 66,551 students. \$414 million of that total was awarded in the form of scholarships and grants to 51,920 students.
- Average indebtedness of ASU undergraduates continues to be below the national average for public universities of \$25,000 (per College Board for 11-12 grads). 2011-2012 bachelor degree recipients who were Arizona residents had an average loan debt of \$20,827.
- In FY2013, 78 percent of ASU undergraduate students received financial aid. The average student financial aid package for full-time Arizona resident undergraduate students with need was \$11,849.

**Growth in faculty/staff ethnic diversity:** Minority employees as a percentage of total employees (excluding graduate assistants) increased by 26.4 percent to 29.1 percent of the total from FY2003 to FY2013.

- The number of Black/African-Americans grew from 344 to 364, a 5.8 percent increase.
- The number of American Indians declined from 193 to 149.
- The number of Asian/Americans grew from 1,122 to 1,559, a 38.9 percent increase.
- The number of Hispanics/Latinos grew from 1,122 to 1,299, a 15.8 percent increase.

From FY2003 to FY2013, total tenure/tenure-track faculty grew from 1,671 to 1,778 a 4.8 percent increase, while minority tenured/tenure-track faculty increased 44.7 percent, from 18.5 percent.

- The number of African-Americans declined from 45 to 41.
- The number of American Indians grew from 16 to 18, a 12.5 percent increase.
- The number of Asians grew from 132 to 224, a 69.7 percent increase.
- The number of Hispanics/Latinos grew from 116 to 155, a 33.6 percent increase.

## Research and Innovation

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At Arizona State University, research matters. It matters for attracting the best faculty and students. It matters for making learning experiential. It matters for training 21st-century minds. And it matters for advancing our communities, the nation and the world.

### Research Growth

- ASU's research enterprise has more than tripled over the past decade. Research expenditures have grown from \$123 million in 2002 to \$405 million in FY2013.
- Among U.S. universities with research portfolios exceeding \$100M in research expenditures, ASU has been one of the fastest growing research enterprises over the last five years (2006-2011 NSF Surveys).
- ASU ranks 17th out of 768 U.S. universities without a medical school for research expenditures (NSF 2011 Survey).
- ASU ranks 19th out of 912 U.S. universities for research expenditures in the non-science and engineering disciplines (NSF 2011 Survey).
- ASU ranks 8th out of 912 U.S. universities for research expenditures in the humanities (NSF 2011 Survey).
- ASU ranks 14th out of 912 U.S. universities for research expenditures in the social sciences (NSF 2011 Survey).
- Research space has grown along with research funding. Since 2002, we have added more than 1.5 million square feet of space in new research buildings.

Arizona State University continues to have one of the most productive technology transfer operations compared with large U.S. research institutions on certain performance metrics per \$10 million in research expenditures:

- In FY13, ASU faculty submitted a record number of invention disclosures (250), were issued a record number of U.S. patents (48) and spun out a record number of new start-up companies (11).
- Arizona Technology Enterprises, the technology transfer arm of ASU, also facilitated and brokered a record number of major agreements licensing ASU technologies for commercial use (88).
- Fluidic Energy, HealthTell and Heliae -- three ASU spinouts based in Arizona -- now employ more than 370 people worldwide, with 215 of those jobs currently in Arizona.
- In FY13, start-up companies that have licensed ASU IP closed on more than \$68 million in venture capital and other financing.

### Research Highlights

FY2013

- Researchers at the Flexible Electronics and Display Center, working with Army Research Lab scientists, broke their own previous world record and manufactured the world's new largest flexible color organic light emitting display (OLED) prototype, using advanced mixed oxide thin film transistors. At 14.7 diagonal inches, the new display nearly doubles the length of the earlier prototype. The technology offers high performance at a low cost with low power. FEDC researchers have also produced the world's largest flexible X-ray detector prototype using advanced thin film transistors
- Bill and Melinda Gates Foundation awarded \$5.8 million to Professor Kurt VanLehn from the School of Computing, Informatics, and Decision Systems Engineering (CIDSE) to develop technologies for enhancing mathematics education. The Office of Naval

Research awarded \$1.5 million to VanLehn to develop an intelligent tutoring system for science education.

- Higher Education for Development, a USAID funding agency for institutions of higher learning awarded \$1.3 million to Professor Victor Agadjanian from the Melikian Center to conduct a Women's Leadership Project in Armenia, entitled "Advancing Gender Equality and Women's Empowerment in Armenia."
- Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E) awarded funding to Professor Dan Buttry from the Department of Chemistry and Biochemistry for a project to develop technologies to capture carbon emissions from power plants. This is the third ARPA-E award ASU has received, which is a testament to our innovative approaches and successes in high-risk, high-reward projects.
- Department of Energy awarded \$15M for an ASU-led national Algae Testbed Public-Private Partnership (ATP3) that will position the Arizona Center for Algae Technology and Innovation (AzCATI) as the leading algae testbed facility within the country.
- ASU opened one of the university's largest research buildings to date, the Interdisciplinary Science and Technology Building IV (ISTB 4). The building is designed to advance research and discovery, and to encourage children to explore their futures as scientists and engineers. ISTB 4 does this through a mixture of high-tech labs, interactive environments and open spaces that allows the public to witness research and technology development as it happens.
- The NIH has awarded over \$8 million for three grants to the College of Nursing and Health Innovation to study significant health issues in minority populations through community-based and community-focused interventions. The studies will examine ways to promote colorectal cancer screening among underserved populations, obesity prevention among low-income Mexican American women and children, and increase insulin sensitivity and weight specific quality of life in obese Latino adolescents
- Dr. Randy Nelson, director of the Molecular Biosignature Analysis Unit at the Biodesign Institute, was awarded a four-year, \$5 million investment from NIH aimed at discovering biomarkers that help predict cardiovascular disease and to assess potential new treatments in people with Type 2 diabetes.
- The National Institutes of health has awarded a \$3.3 million grant to Dr. Emily Beth Winslow in the Department of Psychology to study the effectiveness of a parenting skills intervention program that could help prevent substance abuse and mental health disorders in children. The study will examine the influence of sociocultural variables and baseline child behavioral problems on participation.
- ASU researchers are taking part in three new solar energy projects funded by the Australian and U.S. governments. The funding includes \$68 million for two eight-year research programs and \$15.5 million for 11 collaborative projects. ASU is involved in both of the eight-year programs and one of the research collaborations. ASU professors Christiana Honsberg and Liping Wang, and Dr. Ellen Stechel, deputy director of ASU LightWorks, lead the three ASU projects.
- The Mellon Foundation has awarded \$600,000 to an international team of researchers to study humanities and sustainability. ASU's Institute for Humanities Research is the lead U.S. institution on the project, with institute director Dr. Sally Kitch as co-PI. Other lead institutions include the University of Sydney and Trinity University. The project will examine the social and cultural changes that are necessary to address sustainability problems and to implement technological solutions.
- Researchers in the Biodesign Institute were awarded \$3.3 million from the National Institute on Drug Abuse of the National Institutes of Health to use DNA nanoscaffolds as a platform for developing a vaccine to reduce nicotine dependence. Co-PIs include Drs.

Yung Chang, Hao Yan, Sidney Hecht, Li Liu and Sudhir Kumar from ASU and Dr. Paul Pentel from Minnesota Medical Research Foundation.

- ASU's Mary Lou Fulton Teachers College was awarded \$950,000 from the U.S. Department of Education to raise mathematics achievement among K-8 students. The project, led by Dr. Elizabeth Hinde, joins ASU with Northern Arizona University and the University of Arizona to provide teacher training and resources aimed at boosting student achievement to meet new state-mandated Common Core State Standards in Mathematics.
- A research team in the Biodesign Institute has created a variety of two- and three-dimensional DNA nanostructures that push the boundaries of the burgeoning field of DNA nanotechnology. The work, led by Dr. Hao Yan, was published in the March 22, 2013 issue of *Science*.
- Researchers in the Ira A. Fulton Schools of Engineering, led by Dr. Kaushal Rege, developed a safer alternative to stitches and staples for bowel surgery, using nanocomposite materials that act like a surgical solder. Their work appeared in the March 29, 2013 issue of *ACS Nano*.
- Scientists in the School of Life Sciences led by Dr. Ferran Garcia-Pichel discovered that temperature determines where key soil microbes can thrive—microbes that are critical to forming topsoil crusts in arid lands. In as little as 50 years, global warming may push some of these microbes out of their present stronghold in colder U.S. deserts, with unknown consequences to soil fertility and erosion. This work appeared as the cover story in the June 28, 2013 issue of *Science*.
- The journal *Science*, lauded ASU research on protein structures as one of the top 10 breakthroughs of 2012. For the first time, scientists determined the three-dimensional structure of a protein by the innovative new method of femtosecond nanocrystallography. The technique, developed by the ASU team and their collaborators at the LCLS free-electron laser, allows scientists to study reaction chemistry involving proteins in real-time.

#### FY2012

- Researchers at the Flexible Display Center, working with Army Research Lab scientists, successfully manufactured the world's largest flexible color organic light emitting display (OLED) prototype using advanced mixed oxide thin film transistors. The technology offers high performance at a low cost with low power.
- The Global Institute of Sustainability received a \$27.5 million investment from the Walton Family Foundation to develop and deploy promising solutions to sustainability challenges and to educate future leaders in sustainability.
- ASU was awarded a four-year contract from the Defense Threat Reduction Agency of the U.S. Department of Defense to develop a novel diagnostic technology called immunosignaturing for rapid detection of exposure to infectious disease agents before symptoms occur. The four-year contract is valued over \$30.7 million and will be led by researchers in the Biodesign Institute's Center for Innovations in Medicine.
- G3Box, a startup company created by a team of ASU undergraduate and graduate students, was named College Entrepreneur of the Year for 2011 by *Entrepreneur* magazine. Three of the five finalists in the competition (including the winners) were ASU teams in the Edson Student Entrepreneurship Initiative.
- ASU established the McCain Institute for International Leadership, named for John McCain, the U.S. senator from Arizona. The institute will focus on promoting character-driven leadership as well as research and decision-making in the areas of humanitarian work, human rights and national security.



- The National Science Foundation selected ASU as the new host university for the EarthScope National Office. The program explores the 4-D structure and evolution of the North American continent and studies Earth structure and dynamics across the planet. It is the largest science project on the planet, recording data over 3.8 million square miles. *Popular Science* has called the program one of the universe's ten most epic projects.
- The Virginia G. Piper Charitable Trust established a \$10 million strategic investment at ASU to enable the university to improve all aspects of health care delivery. The initiative will include biomedical informatics, clinical data and public health surveys to assess health care outcomes and determine the best prevention and treatment practices.

## FY2011

- The Mary Lou Fulton Teachers College was awarded a \$43.4 million Teacher Incentive Fund grant from the U.S. Department of Education that will provide funding for comprehensive school reform in Arizona.
- ASU was awarded \$18 million to establish the national NSF-DOE Engineering Research Center for Quantum Energy and Sustainable Solar Technologies (QESST). QESST uses quantum mechanics to solve challenges to harnessing solar power in economically viable and sustainable ways. The center has attracted more than 40 industry partners since inception.
- Faculty in the School of Earth and Space Exploration are leading a team to build an instrument for NASA's OSIRIS-REx mission, which will travel to an asteroid to collect samples and measurements. It is the first piece of complicated space hardware to be constructed on the ASU campus.
- The April 2011 cover of *Science* featured 3-D DNA nanoforms created by ASU Biodesign researchers. The forms were constructed through a revolutionary technique known as "DNA origami" and offer potential applications ranging from computing to health care.
- Biodesign Institute researcher Cheryl Nickerson received NASA's most prestigious commendation for outstanding contributions to science, the Exceptional Scientific Achievement Medal. NASA has designated Biodesign as its number-one university customer, putting the institute first in line for zero-gravity experiments on the International Space Station.
- An ASU student team created Note-Taker, a special camera that helps visually impaired students in the classroom. The device won first place for software design in the Microsoft Imagine Cup U.S. finals and second place in the same category in the Imagine Cup World Finals.

## FY2010

- ASU's Mary Lou Fulton Teachers College received \$19 million from Denny Sanford to launch a new initiative called the Sanford Education Project, which allows ASU to adapt Teach for America's most successful tools to attract, prepare, support and retain more highly effective teachers.
- ASU developed the Center for Convergence of Physical Science and Cancer ZBiology, funded by the National Institutes of Health's National Cancer Institute. The center, one of 12 across the U.S., seeks to provide unique insights into cancer by pulling together physical scientists, mathematicians and engineers to study cancer cells as physical objects.
- Elinor Ostrom, founding director of ASU's Center for the Study of Institutional Diversity, won the 2009 Nobel Prize in Economic Sciences. Ostrom is the first woman to win the Nobel in Economic Sciences and is considered one of the leading scholars in the study of

common pool resources. Other ASU Nobel laureates include Edward C. Prescott, winner of the 2004 Nobel Prize in Economic Sciences; and Leland “Lee” Hartwell, winner of the 2001 Nobel Prize for Physiology or Medicine.

- ASU launched LightWorks, an initiative designed to position ASU as a leader in solar-based energy and other light-inspired research. LightWorks capitalizes on ASU’s unique strengths in renewable energy fields including artificial photosynthesis, biofuels and next-generation photovoltaics.

#### FY2009

- The White House announced that ASU would become home to the Energy Frontier Research Center for Bio-inspired Solar Fuel Production. The Department of Energy-funded project provided \$14 million over a five-year period.
- ASU’s Flexible Display Center was named one of the “Top 10 Technologies of 2008” by Wired magazine.
- ASU kicked off its new Origins Initiative with the Origins Symposium, which brought together 70 of the world’s leading scientists and scholars, including Steven Pinker, Richard Dawkins, Donald Johanson, Brian Greene, Craig Venter and Lawrence Krauss. Stephen Hawking participated via video.

#### FY 2008

- ASU became the only university to receive two grants from the Department of Energy’s Advanced Research Projects Agency-Energy (ARPA-E) program. ASU’s grants support work on a new class of high-performance metal-air batteries and the use of photosynthetic bacteria to produce automotive fuel from a combination of sunlight, water and carbon dioxide.
- NASA launched the Lunar Reconnaissance Orbiter (LRO) with the Lunar Reconnaissance Orbiter Camera (LROC) on June 18, 2009. ASU professor Mark Robinson is the principal investigator of the LROC imaging system.
- Research into using algae as a biofuel, led by researchers in ASU’s Laboratory for Algae Research and Biotechnology, was listed on TIME magazine’s “Top 50 Inventions of 2008.”
- Phil Christensen, Joshua Bandfield and Alice Baldridge used the Mars-orbiting-camera with JMARS software, designed and operated at ASU’s Mars Space Flight Facility, to find the first evidence for salt deposits in numerous places on Mars. These deposits, say the scientists, show where water once existed. Their report was published in the March 31, 2008 issue of the journal *Science*.

#### FY2003-2007

- The International Institute for Sustainability was established in November 2004 with a \$15 million gift from Julie A. Wrigley. It is renamed the Global Institute of Sustainability a year later.
- In 2005, ASU created a new type of visualization center—one focused on connecting the science and expertise of ASU with the needs of the community. Decision Theater assists policy makers and others in making decisions about complex issues ranging from urban growth and public health to education and the environment.
- The Flexible Display Center was created to develop a new generation of electronics that are flexible, rugged, lightweight and low power. The FDC was created as a five-year cooperative agreement between ASU and the Army Research Laboratory through a \$43.7 million grant from the U.S. Army. The contract was renewed for an additional five years and \$50 million in 2009.

## **Entrepreneurship and Economic Development**

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In the last 11 years, ASU has taken entrepreneurship out of a single college or program (traditionally housed within a university's business or engineering school) and made it available to all students within all programs of study. The goal was to move from the traditional thinking of university entrepreneurship as a business plan competition and to embrace the thinking that entrepreneurship is a mindset, a new way of approaching not just venture creation but also learning, education and faculty-student-staff interactions. ASU's efforts in entrepreneurship have spanned all aspects of the university's programs and operations.

Formed in 2003, Arizona Technology Enterprises (AzTE) is the exclusive intellectual property management and technology transfer organization for Arizona State University. AzTE works with faculty, investors and industry partners to speed the flow of innovation from research laboratories to the marketplaces. Since 2003, 67 companies have been formed based on ASU research discoveries. Start-up companies that have licensed ASU IP have attracted nearly \$400 million in funding from venture capital firms and other investors. AzTE projects that its FY13 results will again be in the top ten for 1) licenses and options, 2) startups, and 3) invention disclosures per \$10M in research expenditures, according to statistics collected by the Association of University Technology Managers (AUTM).

In 2008, ASU opened SkySong, an innovation and entrepreneurship hub created in partnership with the City of Scottsdale. A 2012 study by the Greater Phoenix Economic Council found that SkySong and its tenants generate \$113.6 million annually in regional economic output. SkySong houses more than 800 employees, in more than 314,000 square feet of space. SkySong has a combined occupancy of 98 percent, including 44 companies representing six foreign countries. In addition, four virtual companies, representing an additional two foreign countries, utilize the services and support of ASU SkySong without a physical presence at the project. These buildings were constructed through a public/private university partnership. Buildings 3 and 4 are in the planning stages, and a \$44 million, 325-unit apartment complex is under construction on the SkySong campus as well.

Not only is SkySong a thriving business center that supports innovative and startup companies, it is a premier event facility in the Metro Area. In fiscal year 2012-2013, ASU SkySong hosted more than 5,500 events with 75,312 people attending and being exposed to the positive initiatives and activities occurring at SkySong.

While ASU has made a large and lasting impact on the entrepreneurial community of the Phoenix area, perhaps the greatest achievements for entrepreneurship are the advances that the Entrepreneurship and Innovation Group (E&I Group) at ASU has made in driving student, faculty and community entrepreneurship. The E&I Group launched in 2010 as ASU Venture Catalyst and was renamed in 2013 to more accurately reflect the growth and expansion of ASU's entrepreneurial efforts. It will serve as the focal entry point for students, faculty, staff, and alumni of ASU, as well as community members and ecosystem stakeholders, to gain a comprehensive understanding of all of the ways in which ASU is involved in and supportive of entrepreneurial aims.

Over the past three years, the Entrepreneurship and Innovation Group has created and implemented numerous programs designed to expand entrepreneurial support structures within ASU and to build the entrepreneurship ecosystem in the state of Arizona. In addition to the Edson Student Entrepreneur Initiative, the E&I Group has launched several new programs

within the last fiscal year including the Furnace Technology Transfer Accelerator, the Arizona Startup Accelerator, the Alexandria Co-Working Network and the Great Little Companies (GLC) Network. These programs have all launched to widespread public support and have been incredibly successful in their first year.

- ***Edson Student Entrepreneur Initiative***
  - The Edson Student Entrepreneur Initiative gives ASU's student entrepreneurs the opportunity to develop their innovative ideas and launch viable startup companies. The initiative provides funding, office space, training and mentorship over a 10-month period to help students launch and grow their for-profit, more-than-profit or nonprofit ventures.
- ***Furnace Technology Transfer Accelerator***
  - The Arizona Furnace Technology Transfer Accelerator is a startup accelerator designed to form, incubate and launch new companies created from technologies and intellectual property licensed from premier research institutions. It provides seed funding, office space and access to top industry mentors in order to commercialize discoveries made in university research labs. Arizona Furnace is recommended for graduate and postdoctoral students and junior researchers.
- ***Arizona Startup Accelerator***
  - ASU offers services for Arizona-based companies, including faculty spinouts, alumni ventures and non-ASU startups, through the ASU Startup Accelerator, a joint venture between ASU's Office of Knowledge Enterprise Development and Arizona Technology Enterprises.
- ***Alexandria Co-Working Network***
  - The Alexandria Co-working Network brings people together in collaboration spaces in public libraries across Arizona, creating a statewide network of places for people to connect, collaborate and find valuable resources. The collaboration spaces, which are free and open to the public during normal library hours, provide access to co-working space as well as resources that people can use to move their ideas forward, including:
    - Experienced mentors from ASU's mentor network
    - "Pracademic" (taught by practitioners) classes from ASU's Rapid Startup School
    - Physical and digital assets from the libraries
- ***Great Little Companies Network***
  - The GLC (Great Little Companies) Network supports up to 30 student startups each year that apply for but are not accepted into the Edson Student Entrepreneur Initiative, ASU's student startup accelerator. Each startup invited to participate in the GLC Network receives \$3,000 in grant funding as well as direct mentoring through the Changemaker Central locations on each of ASU's four campuses.

One of the most successful programs within the E&I Group is the Edson Initiative. Since its inception in 2005, the Edson Initiative has provided 163 unique student ventures with nearly \$1.4 million in seed funding grants. In the first five years of the program, these student ventures created more than 70 full and part time jobs, 40 percent were acquired, sold or are still operational, and more than 44 different majors and programs of study were represented by applicants. The 60 startups invited into the Edson Accelerator in the past 3 years have seen

tremendous success including: 4 of them have received external venture capital funding; 11 of them are currently in revenue, 10 have won first place in external entrepreneurship competitions, and collectively they have raised more than \$1million in external grants and venture funding.

Accolades for these 3 cohorts include:

- 1<sup>st</sup> Place winners of the Microsoft Imagine Cup competition were ASU teams in 2011 and 2012
- *Entrepreneur* magazine 'College Entrepreneur of the Year' in the USA – finalists in the top 5 for three years running
- *Entrepreneur* Magazine "College Entrepreneur of the Year" winner in 2012
- AppSumo Lean Startup competition – winner (1st time)
- Winner of the Ford College Community Challenge in 2013
- Winner of the Arizona Commerce Authority's "Innovation Challenge" in 2013 (1<sup>st</sup> time)
- Cleantech Open – One winner of the Rocky Mountain Regional final (1st time)
- 'Idea to Product' Global competition (final in Sweden) – two finalists, placed second (1st time in 2012 and 2<sup>nd</sup> time in 2013)
- Entrepreneurs Organization (EO) Accelerator – One accepted (1st time)
- Global Student Entrepreneur Award Global Finals (graduate level) – One accepted (1st time)
- Startup Open global competition – Two in top fifty finalists (1st time)
- *Inc* magazine's 'Coolest College Startup in America' – 2 finalists – first and second place overall (1st time)
- 2 winners of Arizona Commerce Authority's Fast Grants in 2013, (1<sup>st</sup> time)

Additionally, the Furnace Technology Transfer Accelerator launched its pilot program successfully with more than 50 applicants and 10 new companies formed from unique technologies discovered in Arizona being invited into the accelerator. This inaugural cohort ended with a Demo Day where the 10 companies pitched their businesses to a room full of all levels of investor and strategic business community members. These 10 companies have raised an additional \$300,000 in grants and external venture funding.

The ASU Startup Accelerator has incubated 20 startups over the past 3 years, providing support services to accelerate growing companies that are external to the university. These startups have raised more than \$1.7 million in grants and external venture funding.

The successful results of the programs that have been created by the E&I Group have led ASU to be ranked by the University Business Incubator Index as 18th in the list of the Top 20 University Business Incubators in the World, and 10<sup>th</sup> on the list of the top 10 University Business Incubators in the United States. The UBI Index reviewed 550 university incubators around the world and performed a study of 150 university business incubators in 22 countries. Incubators were measured on a unique assessment framework with more than 50 performance indicators.

ASU's programs and initiatives to support student entrepreneurship have transformed the university into a leading school for entrepreneurship. Since January 2007, more than 2,000 applications were received for ASU's various student entrepreneurship competitions, more than 48,000 students have enrolled in an entrepreneurship course within their program of study, and more than 900 entrepreneurs have been trained in programs at ASU SkySong. All of these

initiatives and entrepreneurial successes were recognized on a national level when ASU was one of 22 campuses worldwide invited to join the Changemaker Campus Consortium by Ashoka, a global network of more than 2,500 social entrepreneurs.

ASU was selected as a Changemaker Campus in the fall of 2010 by Ashoka U. Ashoka U works to strengthen entrepreneurship in higher education by disseminating key knowledge and resources, recognizing innovation, and facilitating collaboration between institutions of higher education and social entrepreneur practitioners.

In 2012, the E&I Group, then ASU Venture Catalyst, began a program that would bridge the gap between student and university startups and external high potential startups. Rapid Startup School was designed to be a practical academic approach to teaching entrepreneurship, focused not on the theory behind entrepreneurship but the practicality of actually getting a startup business developed and funded. The objective is to allow graduate students, doctoral students, and postdoctoral researchers an understanding of commercialization and to stimulate startup activity. The initial 12 module program was very successful. It included 70 participants that included post doc and research staff, ASU Alumni, serial entrepreneurs and community members.

Since then, the Rapid Startup School program has grown to become the single educational platform through which all startup training and education is offered through the E&I Group. Since 2012, RSUS has provided 25 programs with more than 67 modules to more than 690 individuals interested in furthering their entrepreneurial education, outside of an academic classroom.

In FY13, proposals for industry sponsored projects increased from \$14.6M to \$16.3M and reported expenditures for industry sponsored projects increased from \$9.9M to \$12.1M. To support further growth in corporate engagement, EDCE helped established platforms for new comprehensive relationships with corporate partners, including Aerojet Rocketdyne, Go Daddy and PayPal while broadening engagements with current partners, including Intel, Boeing, and General Dynamics. To foster more internal collaboration with the entire university, EDCE created and manages the Corporate Engagement Council (CEC). Through quarterly meetings, The CEC facilitated an atmosphere of collaboration across units and increased communication and opportunities with partners in need of a single point of contact for ASU. To better serve the corporate engagement needs of the University, EDCE also implemented a shared employee program to help coordinate corporate outreach with CTI and FSE.

Last fiscal year, the economic development activities of EDCE resulted in strengthened relationships with local organizations to support business attraction efforts and foster job creation and a number of successful outcomes. For example, EDCE worked with both the Arizona Commerce Authority (ACA) and the Greater Phoenix Economic Council (GPEC) to attract a number of new entrants to the market, including General Motors, Bridgestone, and State Farm, in the last fiscal year.

In addition, EDCE was active in creating and managing the GPEC Innovation Council and supporting the GPEC/MAG/Brookings Metropolitan Business Plan. EDCE also collaborated with GPEC in securing a \$250,000 grant from the EDA to create an advanced manufacturing strategy for the region and partnered with GPEC in its "Z-Strategy" in China.

After actively participating in the creation and launch of the ACA, EDCE helped secure the new statewide Manufacturing Extension Project (MEP) and the \$1.8 million EDA Advanced Manufacturing Jobs and Innovation Award, both to be led by ACA. Significant support was

also given to the ACA led attempts to secure FAA authorization of UAS Test Site status for Arizona.

This past year, EDCE also helped Greater Phoenix Leadership (GPL) create a strategic plan to increase its impact on the community and actively engaged with Tucson Regional Economic Opportunities (TREO) to advance economic development in the Sun Corridor.

In FY13, EDCE also continued the development of several summit platforms designed to increase ASU visibility in key industries and with government leaders. Building on the success of its original CEO Forum series, EDCE held its second and third Arizona Solar Summits with statewide focus on industry and policy challenges facing the market. EDCE also continued to play a prominent role in the Education Innovation Summit series. Having grown to 1400 participants, EDCE was instrumental in deepening relationships with sponsors and securing presentation slots for five ASU related companies, including two faculty spinouts and one Edson company. The success of the EIN summit has reenergized the local education technology cluster which is being co-led between EDCE, GPEC and Matt Pittinsky, CEO Parchment, former ASU professor and co-founder of Blackboard. This rejuvenation of the cluster concept has led EDCE to take a leadership role in the U.S. Department of Education's cluster strategy discussions.

Additionally, the EDCE work with supporting and building industry consortia continued. Specifically, work with the QESST consortia excelled in 2013. Soitec, a QESST Industry Member, set the world record for solar cell efficiency, attaining 44.7%. EDCE was able to work with 10 additional industrial partners this year, and partnered with several of those companies on SBIR and Sunshot Incubator proposals. The QESST consortia created 4 spinouts and 3 patent disclosures in the last fiscal year as well.

## **Investment**

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In FY2002, ASU relied primarily on state funding. The low-tuition model in effect at the time provided few resources for financial aid, which meant that help was unavailable to those who needed it most. Private investors were relatively few.

Since then, we have worked to demonstrate the value of investing in ASU to local and state governments, students and their families, and private investors. We have earned their confidence as demonstrated by the following:

- ASU's endowment has grown from \$206 million at the end of June, 2002, to \$553 million at the end of June, 2013, a growth of approximately 169 percent. For the same period, the total assets of the ASU Foundation have grown from \$228 million to \$862 million – a 279 percent increase – and the number of individual donors per year has grown by 14 percent.<sup>i</sup>
- The ASU Foundation has raised \$143 million for ASU scholarships from July 1, 2002 through June 30, 2013.<sup>i</sup>
- Since July 1, 2002, the ASU Foundation has raised \$65 million in support of endowed faculty positions.<sup>i</sup>
- Dollars raised for capital projects by the ASU Foundation between July 1, 2002 and June 30, 2013 total \$119 million.<sup>i</sup>
- Investment in ASU by the State of Arizona through state appropriations grew from \$311.8 million in FY2003 to \$482.9 million in FY2008, a 50 percent increase. However, as a result of severe economic stresses in Arizona, state investment declined to \$301.7 million in FY2012, a reduction of 38 percent since the FY2008 peak. State investment grew moderately to \$311.9 million in FY2013, about the same level as FY2003.

- ASU's total assets in FY2003 were \$1.40 billion and have increased over 102 percent to reach \$2.83 billion at the end of FY2013. ASU's total net assets have increased by 53 percent, from \$876 million in FY2003 to \$1.34 billion in FY2013. ASU's total revenue over the same time has grown from \$846 million to \$1.80 billion, a 112% increase. (Note: FY2013 information is based on preliminary unaudited financial statements.)
- Local governments made unprecedented investments in a state university, with the City of Phoenix allocating more than \$220 million in voter-approved bond money to build the Downtown Phoenix campus, and the City of Scottsdale donating a \$41.5 million parcel of land with \$45 million in infrastructure improvements to build SkySong. In 2011, the City of Mesa invested \$15 million for additional road and utility infrastructure for the Polytechnic campus.

### **Organizational Transformation**

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Traditional academic departments have advanced understanding in defined areas of intellectual endeavor. Over time, however, they have developed into silos, reinforcing their own existence and isolating faculty members from routine intellectual interaction with those in other departments. Traditional university organizations also are slow to react and respond, operating at a pace that is out of touch with the rate of change in the rest of the world. Addressing the problems of the 21st century requires a more fluid, responsive organizational structure, where faculty with radically different skills and experiences can work together to advance understanding and solve problems in ways that have not been possible before.

Since FY2002, ASU has made remarkable progress in transforming itself from an organization based strictly on traditional academic departments into a truly interdisciplinary institution. Since FY2002, the following new colleges and schools have been formed:

- School of Sustainability (a university college-level enterprise engaging many units throughout the university)
- New school in the W.P. Carey School of Business:
  - School of Accountancy
  - School of Health Management & Policy
- New schools in the Herberger Institute for Design and The Arts include:
  - The Design School
  - School of Arts, Media and Engineering
  - School of Film, Dance and Theatre
- New schools in the Ira A. Fulton Schools of Engineering include:
  - School of Biological and Health Systems Engineering
  - School of Computing, Informatics, and Decision Systems Engineering
  - School of Electrical, Computer and Energy Engineering
  - School for Engineering of Matter, Transport and Energy
  - School of Sustainable Engineering and the Built Environment
- Walter Cronkite School of Journalism and Mass Communication
- The School of Letters and Sciences



- The Mary Lou Fulton Teachers College was created through merging the Mary Lou Fulton Institute and Graduate School of Education with the College of Teacher Education and Leadership.
- College of Technology and Innovation
- College of Health Solutions, including:
  - School for the Science of Healthcare Delivery
  - School of Nutrition and Health Promotion
- New College of Interdisciplinary Arts and Sciences, including:
  - School of Humanities, Arts and Cultural Studies
  - School of Mathematical and Natural Sciences
  - School of Social and Behavioral Sciences
- New schools in the College of Liberal Arts and Sciences include:
  - Hugh Downs School of Human Communications
  - School of Aging and Lifespan Development
  - School of Earth and Space Exploration
  - School of Geographical Sciences and Urban Planning
  - School of Politics and Global Studies
  - School of Historical, Philosophical and Religious Studies
  - School of Human Evolution and Social Change
  - School of International Letters and Cultures
  - School of Life Sciences
  - School of Materials
  - School of Mathematical and Statistical Sciences
  - School of Social and Family Dynamics
  - School of Social Transformation
  - School of Transborder Studies
- New schools in the College of Public Programs include:
  - School of Community Resources and Development
  - School of Criminology and Criminal Justice

ASU's research enterprise has been redefined and expanded with the following new centers, institutes and initiatives since FY2002:

- Adaptive Intelligent Materials and Systems Center
- Advanced Technology Innovation Center
- American Indian Policy Institute
- Arizona Center for Algae Technology and Innovation
- Arizona Center for Medieval and Renaissance Studies
- Arizona Initiative for Renewable Energy
- ASU Advanced Photovoltaics Center
- ASU Advanced Computing Center
- ASU-Sichuan University Joint Confucius Institute
- Beyond: Center for Fundamental Concepts in Science
- Biodesign Institute
- Center for Adaptive Neural Systems

- Center for Advancement of Evidence-Based Practice
- Center for Advancing Business through Information Technology
- Center for Aging and Life Course Biology
- Center for Applied Behavioral Health Policy
- Center for Applied Nanoionics
- Center for Asian Research
- Center for Bio-Inspired Solar Fuel Production
- Center for Bioarchaeological Research
- Center for Bioenergy and Photosynthesis
- Center for Biological Physics
- Center for Biology and Society
- Center for Biomolecular Integrated Circuits
- Center for Civic Education and Leadership
- Center for Cognitive Ubiquitous Computing
- Center for Community Development and Civil Rights
- Center for Competitiveness and Prosperity Research
- Center for Computational Nanoscience
- Center for Critical Inquiry and Cultural Studies
- Center for Digital Antiquity
- Center for Earth Systems Engineering and Management
- Center for Educational Research for Global Sustainability
- Center for Embedded Systems
- Center for Environmental Economics and Sustainability Policy
- Center for Environmental Fluid Dynamics
- Center for Environmental Security
- Center for Executive and Professional Development
- Center for Film, Media and Popular Culture
- Center for Games and Impact
- Center for Global Health
- Center for Health Information and Research
- Center for Healthcare Innovation and Clinical Trials
- Center for Healthy Outcomes in Aging
- Center for Improving Health Outcomes in Children, Teens and Families
- Center for Indian Education
- Center for Jewish Studies
- Center for Law & Global Affairs
- Center for Law, Science and Innovation
- Center for Metabolic Biology
- Center for Meteorite Studies
- Center for Nanotechnology in Society
- Center for Photonics Innovation
- Center for Policy Informatics
- Center for Population Dynamics
- Center for Real Estate Theory and Practice
- Center for Renewable Energy Electrochemistry
- Center for Research on Education in Science, Mathematics, Engineering and Technology
- Center for Science and the Imagination
- Center for Services Leadership
- Center for Social Cohesion
- Center for Social Dynamics and Complexity

- Center for Solid State Electronics Research
- Center for Strategic Communication
- Center for Strategic Supply Research
- Center for Supply Networks
- Center for Sustainable Tourism (name change from Megapolitan Tourism Research Center)
- Center for the Study of Institutional Diversity
- Center for the Study of Race and Democracy
- Center for the Study of Religion and Conflict
- Center for Urban Innovation
- Center for Urbanism
- Center for Violence Prevention and Community Safety
- Center for World Health Promotion and Disease Prevention
- Ceramics Research Center
- Complex Adaptive Systems Initiative
- Consortium for Health Promotion and Behavioral Change
- Consortium for Science, Policy and Outcomes
- Decision Center for a Desert City
- Decision Theater
- Diane Halle Center for Family Justice
- Edson Student Entrepreneur Initiative
- Edward C. Prescott Center for the Advanced Study in Economic Efficiency
- Family and Human Dynamics Research Institute
- Flexible Display Center
- Future Arts Research
- GeoDa Center for Geospatial Analysis and Computation
- Global Institute of Sustainability
- Hartford Center of Geriatric Nursing Excellence
- Healthy Lifestyles Research Center
- Herberger Institute Research Center
- Hispanic Research Center
- Information Assurance Center
- Institute of Human Origins
- Institute for Humanities Research
- Institute for Social Science Research
- International Institute for Species Exploration
- JP Morgan Economic Outlook Center
- Knight Center for Digital Media Entrepreneurship
- L. William Seidman Research Institute
- Laboratory for Algae Research and Biotechnology (LARB)
- Learning Sciences Institute
- LeRoy Eyring Center for Solid-State Science
- Lincoln Center for Applied Ethics
- LightWorks Initiative
- Lodestar Center for Philanthropy & Nonprofit Innovation
- Mathematical, Computational and Modeling Sciences Center (MCMSC)
- McCain Institute for International Leadership
- Melikian Center: Russian, Eurasian and East European Studies
- Morrison Institute for Public Policy
- National Center for Excellence on SMART Innovations

- North American Center for Transborder Studies
- Partnership for Research in Spatial Modeling
- Power Systems Engineering Research Center
- Practice, Research and Innovation in Mathematics Education Center
- Prevention Research Center
- Quantum Energy and Sustainability Solar Technologies
- Security and Defense Systems Initiative
- Sensor Signal and Information Processing Center
- Solar Power Laboratory
- Southwest Interdisciplinary Research Center
- Southwest Ct. for the Study of Human Rights
- Stardust Center for Affordable Homes and the Family
- Sustainable Algal Biofuels Consortium
- Swette Center for Environmental Biotechnology, Biodesign Institute
- The Spirit of Enterprise Center
- TUV Rheinland Photovoltaics Test Lab
- Virginia G. Piper Center for Creative Writing
- Wireless Integrated Nano Technology Center

### **Major Partnerships and Collaborations**

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As a New American University, ASU has become a force, not only a place; and is globally engaged, in service to the state, the nation and the world. Partnerships and collaboration with other groups and institutions are central to achieving our mission. Since FY2002, we have developed the following domestic partnerships:

- ASU-Mayo Clinic partnership: In 2005, ASU and Mayo Clinic formed several collaborations, including joint educational and research programs. In 2011, this partnership was elevated to greater heights as a joint presence on the web was launched, additional research and educational programs were initiated, seed grant funding continued, and the commitment to work together on plans for an Arizona campus of the Mayo Medical School. Students attending the Mayo Medical School when it opens in Scottsdale, Ariz., will get both a medical degree from Mayo and a Master of Science in the Science of Health Care Delivery from ASU as the program will be embedded in the medical degree curriculum.

Joint degree programs exist in medicine/law, medicine/business, medicine/communications, medicine/biomedical informatics, and medicine/biologic and health systems engineering. ASU nursing students can receive clinical training at the Mayo Hospital and are often extended job offers from Mayo upon degree completion. Mayo Clinic participates in an innovative undergraduate capstone program centered on the design of medical devices for real life problems.

Collaborative research areas include biomedical informatics, metabolic and vascular biology, and cancer, with shared lab and office space on both ASU and Mayo Clinic Arizona campuses. Joint seed funding is \$1.3 million to date for research projects in cancer, Alzheimer's disease, cellular and molecular biomedicine, genetics, dual energy CT applications and sensory motor coordination. We have begun to make strategic joint faculty hires key to shared translational research missions. The first hire is in the area

of cancer research. Mayo Clinic faculty have also been given appointments in many ASU departments.

- ASU-Barrow Neurological Institute partnership: The ASU-Barrow Neurological Institute partnership includes research collaborations in magnetic resonance imaging (MRI); neuroscience; cardiovascular disease; biomedical informatics; infectious diseases; immunology; cancer and tissue bank collaboration. A joint interdisciplinary neuroscience graduate program, ABOR approved, has been created to utilize the strengths of both institutions, with joint appointments for ASU faculty members and BNI clinicians. A joint small animal 7T imaging center, housed at BNI, was created in connection with the Keller Imaging Lab at BNI. The imaging center, which opened in spring 2009, is funded in part by an NIH grant as well as funds from Barrow Neurological Institute.
- ASU-Banner Health partnership: Banner Health and ASU collaborate on cancer, diabetes, spinal cord injury and rehabilitation, Alzheimer's disease, Parkinson's disease, interventional biomaterials and haptics research. With a grant from the Dept of Health and Human Services, ASU faculty have worked with Banner Health administrators to develop innovative changes in the patient process flow to reduce walkout rates in their emergency rooms.

Banner and ASU's College of Nursing & Health Innovation are collaborating to provide a career path for nurses and nurse assistants in Arizona with funding from a Department of Labor grant. They are also collaborating in educational efforts for evidence-based practice and the treatment of childhood obesity.

Banner Health and ASU's College of Nursing & Health Innovation are sub recipients of a \$4.96 million Department of Labor grant in collaboration with Arizona Diversity Business Development Center. This grant will provide a career path for nurses and nurse assistants in Arizona. Other partners include Chicanos Por la Causa, Inc., and Maricopa Workforce Connections.

- ASU-Carl T. Hayden VA Medical Center partnership: ASU and Veterans' Affairs are working together to develop research projects in diabetes and mental health studies in post-traumatic stress disorder. This involves joint research projects and joint faculty appointments. Other key areas of collaborative research include: cardiovascular disease, metabolic disorders, mental health/sleep disorders, and musculo-skeletal disorders. ASU's College of Nursing & Health Innovation is also working with the medical center on a dedicated educational unit project.
- ASU-Phoenix Children's Hospital: Phoenix Children's is in the midst of a major expansion to meet the needs of the Southwest's rapid population growth. ASU has established research collaborations with Phoenix Children's hospital and the Children's Neuroscience Institute in the area of brain-computer interfaces, bioinformatics, cancer research and biomarkers. ASU's College of Nursing and Health Innovation is partnering with the hospital on the Latino Childhood Asthma Project and childhood obesity.
- ASU-Maricopa Integrated Health System partnership: ASU researchers and MIHS clinicians work together in the fields of orthopedics, burns, depression, trauma, obstetrics and gynecology, coronary artery disease and diabetes. Partnerships between MIHS and ASU's Southwest Interdisciplinary Research Center have led to the Familias Sanas (Healthy Families) project to assist special populations. Partnerships between

MIHS and ASU's College of Nursing and Health Innovations have led to studies unique to the challenges of special populations for healthy outcomes in aging.

- ASU-TGEN partnership: The ASU-TGEN partnership in genetic and molecular research has resulted in more than two-thirds of TGEN's faculty members submitting joint extramural grant proposals with ASU faculty and staff in areas of research that include neurogenomics, cancer and diagnostics, regenerative medicine, and biological database integration and modeling. Other partnering initiatives include the maintenance of a joint cluster supercomputer facility, shared educational programs, TGEN's assistance in recruiting ASU senior faculty hires and internships for ASU students.
- Center for Health Information and Research has established a network of hospital partners in the Phoenix area for the development of the Arizona HealthQuery. This is a model of a community health data system, which could act as a centralized repository of health information. By combining the administrative data from a variety of health organizations into one data system, the health care of individuals and populations could be tracked over time and across providers.
- ABC News on Campus: ABC News chose the Walter Cronkite School of Journalism and Mass Communication to be one of its partners in ABC News on Campus, an initiative that provides an opportunity for students to report on stories in their region and produce a wide array of content for ABC News' broadcast platforms.
- Renewable biofuels partnership: With support from federal, state and industry funding, ASU has spearheaded a project that utilizes photosynthetic microbes, called cyanobacteria, as a major source for the renewable production of carbon-neutral fuels for the United States. With Arizona's year-round sunshine, this project has the potential to be a catalyst for new industrial development that will contribute to high-quality employment and overall economic growth for the region. The project has developed cyanobacteria as a feedstock for biodiesel production, as well as benchtop and large scale photobioreactors to optimize growth and production. The initial two-year, \$4.7 million project began in 2007, made possible by funding from Science Foundation Arizona, British Petroleum and ASU. Since 2009, a \$5.2 million continuation of this project, led by ASU School of Life Sciences professor Wim Vermaas and Biodesign Institute researchers, has been funded by a branch of the US Department of Energy, the Advanced Research Projects Agency-Energy (ARPA-E), and achieved several critical research milestones.
- TUV Rheinland PTL: As a partnership between the Photovoltaic Testing Laboratory at ASU, TUV Rheinland and Arizona Public Service, TUV Rheinland PTL is the most comprehensive, sophisticated, state-of-the-art facility for testing and certification of solar energy equipment in the world.
- Arizona Indicators Project: ASU partnered with the Arizona Community Foundation, Valley of the Sun United Way, Arizona Republic and Arizona Department of Commerce to create a Web tool that popularizes data describing Arizona's development. The easy-to-understand visuals contained on the Web site include data on economics, education, innovation, sustainability, quality of life, health, human services, criminal justice and children and families.
- Ashoka: Innovators for the Public: As part of Ashoka's Changemaker Campus initiative, in 2010 ASU joined a consortium of nine other colleges and universities to set a new standard of excellence for social entrepreneurship education. Since its founding in 1980,

Ashoka has provided long-term support to more than 2,500 social entrepreneurs in more than 70 countries. ASU is working in partnership with Ashoka and its network of Ashoka Fellows to foster and accelerate teaching, research and action in social entrepreneurship.

- **Teacher Preparation and Evaluation Project:** The mission of T-PREP is to ensure that every student in the state of Arizona is taught by a highly-effective teacher. Data is gathered from multiple triangulated sources, including K-12 student achievement scores; teacher candidate passing rates on the educator proficiency standards; teacher performance observations; and the attitudes of students, teachers, and administration to examine the impact of the Mary Lou Fulton Teachers College teacher preparation program. Data from recent graduates indicates that they exit our teacher preparation program “workforce ready,” as indicated by their mastery of practices that are typically seen in experienced teachers, and importantly, are associated with positive student growth.
- **ASU-Teach for America partnership:** ASU partners with Teach For America university-wide on TFA recruitment, alumni leadership and the Phoenix Institute. Within the Mary Lou Fulton Teachers College, the partnership focuses on teacher support and development through a tailored master’s program for TFA corps members and the Sanford Inspire Program, which aims to redefine undergraduate teacher preparation. ASU was named one of the top fifteen universities for its size in 2013 graduating TFA corps members. Since 2007, more than 640 corps members have graduated from ASU with master’s degrees in education. In fall 2013, about 275 corps members in the Phoenix metro were teaching approximately 15,125 students. During 2013, about 660 corps members impacted roughly 3,500 students during the Phoenix Summer Institute.
- **iTeachAZ program:** Since 1998, ASU’s Mary Lou Fulton Teachers College has partnered with school districts statewide to prepare teachers in the districts using on-site faculty, satellite video conferencing, mentoring, internships, and the signature full year student teaching model which was recognized as “exemplary” in 2013 by the National Council on Teacher Quality. In fall of 2011, 436 student teachers began the iTeachAZ Senior Year Residency. Of those students, 91 percent were awarded an Institutional Recommendation for certification in Arizona’s public schools, the majority of whom went on to teach in Arizona, predominantly in iTeachAZ partner school districts.

Since Teachers College pledged three years ago to infuse state school districts with more teachers better prepared to enter a classroom, it has scaled up by 400 percent the number of iTeachAZ student teachers it places in Arizona’s pre-K through 8th grade classrooms—from only 200 in fall 2010 to 1,000 aspiring teachers completing the 2012-13 academic year. At the same time, the college expanded its number of partner school districts statewide from seven to 35. In January 2013, 100 percent of surveyed principals from school districts partnering with iTeachAZ indicated they would hire Teachers College graduates. In the last year, 12 universities from around the country visited ASU to learn about iTeachAZ, highlighting the impactful and innovative nature of the program. In April 2013, iTeachAZ won the President’s Award for Innovation for its significant contributions to ASU and higher education.

- **The International Leaders in Education Project (ILEP)** funded by the U.S. Department of State Bureau for Educational and Cultural Affairs (implemented by IREX—international research and exchange board) brings outstanding secondary school teachers from around the globe to the United States to further develop expertise in their subject areas,

enhance their teaching skills, and increase their knowledge about the United States. Participating secondary teachers come from the following countries: Bangladesh, Brazil, Egypt, Ghana, India, Indonesia, Kenya, Lebanon, Malaysia, Morocco, Philippines, Senegal, and Uganda.

- The India Support for Teacher Education Project (In-STEP), funded by the U.S. Agency for International Development (USAID) and in partnership with the Government of India. 110 educators from teacher training institutes in India to ASU's Mary Lou Fulton Teachers College will participate in a three-month program of professional development. The training programs will cover a range of topics including teaching methods, in-service and pre-service teacher education, and assessment techniques. As part of this customized program, Indian educators will observe American schools and educational best practices. In addition, the Indian participants will work closely with ASU faculty to prepare proposals for reform in specific areas of education, which they would then be able to implement in their respective states. The ultimate goal is better-trained teachers and improved educational outcomes for Indian students.
- The Arizona Ready-for-Rigor Project is a five-year, \$43.8-million Teacher Incentive Fund grant from the U.S. Department of Education, working with underperforming schools to increase their student achievement. By utilizing the TAP System for Teacher and Student Advancement, the project provides teachers and educators with mentors and support groups, professional development, and a performance-based compensation system based on student growth and teacher evaluation. During the 2012-13 academic year, 60 schools from 12 Arizona school districts participated, with 58 percent of the schools improving their A-F School Label scores from 2011-12. During the first two years of the program, more than \$5 million was awarded to 2,200 educators involved in the program, including \$4 million to 1,700 teachers, assistant principals and principals in November 2012.
- Teachers College was awarded nearly \$1 million in funding for the project, "Common Core Collaborative: A Collaboration of the State Universities and Education Stakeholders in Implementing the Math Common Core in Schools Across Arizona." The project joins ASU's Teachers College with colleges of education at Northern Arizona University and the University of Arizona to provide teacher training and resources aimed at raising mathematics achievement among Arizona's K-8 students to meet new state-mandated Common Core State Standards in Mathematics (CCSSM). Funding for this project comes from the U.S. Department of Education's annual Improving Teacher Quality state grants program.
- Under the guidance and direction of an advisory board, Project RISE (Re-entry Intervention and Support for Engagement) is a \$1.5 million grant from the U.S. Department of Education's Office of Special Education Programs using evidence-based reentry practices, project leaders and team members work to seamlessly transition participants from the Arizona Department of Juvenile Corrections back into their schools and communities. The transition program is open to youths in secure care and may continue throughout the parole process.

ASU has signed partnership agreements with every public community college in the State of Arizona to "create a culture of transfer." We have jointly built curricular pathways that are web-accessible and understandable to students and parents. We are reducing student time to graduation and reducing the costs associated with higher education, while partnering to help more students achieve associate's and bachelor's degrees.



- The Maricopa to ASU Pathways Program (MAPP) launched in October of 2009 with 32 majors available. Today, there are more than 160 majors available and thousands of students from the Maricopa Community Colleges sign up for the program each year. MAPP creates a win-win-win scenario for the community college, the university, and the student: the program helps community colleges increase their number of associate degree completers; the students on a MAPP are taking the right courses to be well-prepared for success at ASU; and most importantly, the program works in the best interests of students, incenting them to complete the steps along the path that leads to success.
- Transfer Admission Guarantee (TAG) programs have been developed with Arizona Western College, Central Arizona College, Cochise College, Coconino Community College, Eastern Arizona College, Mohave Community College, Northland Pioneer College, Pima Community College, and Yavapai College. With dozens of majors available, hundreds of community college students are now participating in these seamless pathway programs every year.
- In addition to MAPP and TAG programs, ASU has worked with the state's community colleges to develop pathways for students who study in career and technical education areas through the Associate of Applied Science to Bachelor of Applied Science (AAS to BAS) pathways program. This allows a student who has studied in an area such as aviation maintenance or respiratory therapy to apply those credits towards specified Bachelor of Applied Science degrees.
- There is also a specialized partnership program for community college nursing students called the RN to BSN (Registered Nurse to Bachelor of Science in Nursing) pathway. This allows students throughout the state to proceed from their Associate of Applied Science in Nursing into a bachelor's degree program, and all of the remaining ASU coursework is available online. This partnership program is in place with all public community colleges throughout Arizona.
- Beginning in fall 2012, in partnership with Eastern Arizona College, ASU began offering on-site bachelor's degrees in Thatcher. Students can now pursue four different bachelor's degrees at a reduced level of tuition. Thus, the partnership helps students obtain an affordable, accessible higher education, while addressing community needs for qualified employees in key areas.
- ASU has worked closely with tribal colleges in Arizona to provide direct student support and engage faculty and staff in joint activities.
- The Guaranteed Program for Admission (GPA) is now available at more than 40 California community colleges, attracting well-prepared transfer students to study in Arizona.
- MAG/Brookings Institute: ASU is partnering with the Maricopa Association of Governments, Thunderbird, and GPEC on a pilot program supported by the Brookings Institute to help regions develop economic development strategies. This initiative seeks to develop new levels of coordination, and bring business expertise to regional economic development.  
Alion: Along with the City of Mesa, ASU is partnering with Alion Science and Technology Corp to reconfigure the Air Force Research Laboratory into a public-private, classified research facility that will augment the Valley's aerospace and defense industry.

- GSV Asset Management: GSV and ASU partner to host the ASU SkySong Education Innovation Summit, an annual education conference that brings together innovative small business in the education sector, capital investors, and policymakers to bring about change in education. GSV principals have a long history in educational technology investment and business development.
- Global business development partner and ASU SkySong provides soft landing services to client companies seeking to start operations in the US, including SPRING Singapore, Iaxil, Multimedia Development Corporation (Malaysia), Pontificia Universidade do Rio Grande do Sul (PUCRS, Brazil), Kotra the Korea Trade-Investment Promotion Agency in Los Angeles, the Israeli General Counsel, the Selangor State Accelerator in Malaysia, the Malaysian Industrial Development Corporation, and the National University of Singapore.
- Industrial Technology Research Institute (ITRI): ASU signed a collaboration agreement with ITRI Taiwan to investigate research partnerships and potential entrepreneurship training and soft landing services.
- QESST (Quantum Energy and Sustainable Solar Technologies), an Engineering Research Center funded by both the National Science Foundation and the Department of Energy, is the leading U.S. university center focused on photovoltaic technology. The QESST ERC works solely to advance photovoltaic science, technology, and education in order to address one of society's greatest challenges: sustainably transforming electricity generation to meet the growing demand for energy.
- The Ira A. Fulton Schools of Engineering Career Center is collaborating on an ongoing basis with the Greater Phoenix Economic Council, the Arizona Commerce Authority and the City of Phoenix Community and Economic Development Department to provide workforce solutions for high-tech industries in the region – including companies whose operations are already located in Arizona and other companies the state seeks to bring to the Arizona.
- A partnership of the Gore company (formerly W.L. Gore) and ASU's Ira A. Fulton Schools of Engineering Career Center focuses on a strategic plan for the university and the company to develop a "talent pipeline" that would provide skilled employees and student interns for Gore's Phoenix and Flagstaff operations. In return, Gore will support the university mentoring programs, entrepreneurship, student research projects, and job and internship events to provide students a path into the workforce.
- Healthcare Transformation Institute: Directed by ASU faculty members, Drs. Denis Cortese and Robert Smoldt, this nonprofit joint venture between ASU, the Chan Soon-Shiong Family Foundation and the University of Arizona seeks to assist hospital teams across a broad range of topics, including governance, leadership, clinical model and outcomes development, data analysis, business case development, and financial management. They have worked with Banner Health and Sun Health on their Care Transitions Program, a partnership with Banner hospitals, community physicians and other health providers that will assist residents living with chronic health issues in effectively self-managing their conditions and reducing hospitalizations. They are also working with Banner Health and the University of Arizona College of Medicine to develop innovative approaches for providing the full spectrum of care from disease prevention/wellness promotion, using new models of primary care, to quaternary care.

- ASU - the Smithsonian Tropical Research Institute (STRI) in Panama: Preparing Preservice Teachers for Science Success (PPSS) is a collaboration between ASU and the Smithsonian Tropical Research Institute in Panama focused on helping teachers overcome their anxiety about science and preparing them to teach science effectively. In June 2013, seven aspiring teachers from ASU's Teachers College traveled to Panama for the 10-day PPSS field experience, engaging in hands-on science and learning how to design effective science lessons once they graduate.
- ASU-University of Arizona partnership:
  - ASU partnered with the University of Arizona to establish the first allopathic medical school in Maricopa County. This included cross appointments of scores of faculty from departments across ASU and the newly formed department of Biomedical Informatics, who developed and delivered the curriculum.
  - Research in Diabetes, Cancer, Regenerative Medicine, Neuroscience, Alzheimer's: ASU's Southwest Interdisciplinary Research Institute partnered with 35 Phoenix middle schools to develop, test and evaluate keepin' it Real, a culturally grounded substance abuse prevention program. An adapted and enhanced version of keepin' it Real is being tested in a randomized trial with seven Phoenix School Districts, 32 schools, 96 teachers and over 2000 students.
- Under the Graduate Nurse Education Demonstration project (GNE), the Center for Medicare and Medicaid Services (CMS) is providing funding to five sites to increase the number of advanced practice nursing student graduates. Scottsdale Healthcare Medical Center was selected as one of the sites in collaboration with ASU College of Nursing & Health Innovation, Grand Canyon University, Northern Arizona University, and the University of Arizona. Funding will be used to increase the number of advanced practice nursing student graduates in the state and to support clinical training of more than 400 nurse practitioners and clinical nurse specialists.

ASU has developed global partnerships with the following institutions since FY2002:

- Instituto Tecnológico De Monterrey (Mexico): including an on-campus network, online network, Binational Lab and Entrepreneurial Network. ASU and Tecnológico de Monterrey jointly launched the Latin America Office of the Global Institute of Sustainability. This extension of ASU's Global Institute at Tecnológico de Monterrey will conduct applied transdisciplinary research, offer an innovative curriculum, and develop business solutions that accelerate the adoption of a sustainable culture. The Latin America Office of ASU's Global Institute of Sustainability will offer academic programs to educate future leaders in the transition to a green economy. It will conduct applied research to address Latin American issues, particularly the adoption of sustainable development. It will also leverage linkages with the Technology Park at Tecnológico de Monterrey, Mexico City Campus, to promote clean technologies and entrepreneurial projects that will create green jobs and businesses, and promote public policies that preserve natural capital through active participation of all sectors of society.
- Sichuan University (PRC): includes the Confucius Institute, creative writing/English and University Design Consortium. ASU and SCU recently launched the Center for American Culture, a new model for public diplomacy funded by the US Embassy and the US Department of State.
- Arizona State University and Sichuan University (China) are addressing the challenge of improving cross-cultural understanding through the creation of the SCU-ASU Center for American Culture. By drawing upon the intellectual expertise of faculty at both

universities, the center is designed to reach Chinese students—the next generation of leaders—at one of the largest universities in the PRC. This is a new model for American outreach to the broad public in China. Rather than official pronouncements by U.S. government officials, the Center relies on literature, media, arts, history, philosophy, religion, ethnography and other academic disciplines to tell the American story. Speakers have included Arizona State University faculty and administrators and will engage U.S. business executives, musicians, Peace Corps volunteers, and ordinary citizens to explore with Chinese students, professors and the public the challenging question: What is America? The SCU-ASU Center for American Culture is viewed by the U.S. Embassy in Beijing as a model for engagement that goes beyond movies, television, music, and more superficial American cultural products. The goal is a series of university-to-university partnerships throughout China devoted to serious study of American topics. Specific outcomes include a large cohort of educated young Chinese who will move into positions of responsibility in business, government, education, and other key fields with a deep understanding of American values and culture. As a result, they will understand why the United States does what it does, why Americans behave as they do, what the future brings for the Sino-American relationship. The success of the world economy, even world peace, will be determined in part by the extent to which China and the United States have a positive and sophisticated relationship with one another.

- Dublin City University (Ireland): includes technology transfer, a binational lab (biosensors) and conflict management and innovation.
- The Vocational and University Leadership and Innovation Institute (VULII) is designed to contribute directly to the national goal of increasing the quality of higher education while strengthening the human and institutional capacity to contribute to Vietnam's economic growth. VULII focuses on engineering and technical education at the tertiary level, but its outcomes will touch universities and colleges nationwide. VULII will provide capacity-building and training programs at multiple levels, ranging from government officials and university rectors to mid-level administrators and engineering professors who are preparing the next generation of the technical workforce. Strategic planning at the policy level requires significant change at all relevant parts of the whole, so VULII will focus on five different levels of the institution. This integrated approach, involving leadership at the highest levels in conjunction with quality assurance at the delivery level, is the best way to influence systemic change across institutions and across the tertiary education sector in Vietnam. VULII builds upon the experience of the Higher Engineering Education Alliance Program (HEEAP), funded through a partnership of USAID, Intel Corporation, and a growing list of industry partners, directed by ASU. The main thrust of HEEAP is strengthening core faculty and curriculum efforts, and will contribute this expertise to VULII. The participating institutions in both VULII and HEEAP are Ho Chi Minh City University of Technology, Hanoi University of Science and Technology, Ho Chi Minh City University of Technical Education, Cantho University, Danang University of Technology, Cao Thang Technical College, Industrial University of Ho Chi Minh City and Ho Chi Minh Vocational College of Technology.
- The Ira A. Fulton Schools of Engineering has launched a long-term collaborative endeavor with Aerojet Rocketdyne, an aerospace industry leader in technologies to support strategic missile and armament defense systems and space exploration. The focus spans a range of research and education efforts, engineering projects, workforce development and philanthropic activities. The Fulton Engineering Schools will provide

continuing education and professional development opportunities for Aerojet Rocketdyne employees, while ASU serves as a source for new employees and student interns for the company, and provides access to research by faculty and graduate students in Aerojet Rocketdyne's areas of interest. The company and the Fulton Engineering Schools plan to develop proposals for research funding. Aerojet Rocketdyne will also collaborate with the Fulton Engineering Schools' Engineering Career Center to support students. The company will participate in the center's career fairs, and develop and implement an Aerojet Rocketdyne Student Co-op Program. It will also sponsor student scholarships and fellowships

- The Vocational Training & Education for Clean Energy (VOCTEC) is a multi-institutional, global public/private partnership between higher education institutions and service providers to offer clean energy training and education to develop and implement programs worldwide. VOCTEC has assembled a dynamic management and faculty team from Arizona State University, Appalachian State University and Green Empowerment. The team members are internationally recognized experts in the fields of clean energy technology, operational and policy implementation, educational assessment and design, and gender-conscious programming. VOCTEC is funded through a cooperative agreement with USAID.
- The Decision Theater and the School of Earth and Space Exploration at ASU are partnering with Tec De Monterrey (ITESM), FEMSA and the Inter-American Bank (IDB) to study, develop and deploy a sustainable water planning model in Nuevo Leon, Mexico. This international collaboration will address the prevention of future flooding and optimal water sustainability and planning in the wake of Hurricane Alex and the severe flood which damaged the center of Monterrey, Mexico in the summer of 2010. Sustainable water planning continues to be a critical component of scalable and sustainable energy progress.
- The Decision Theater at ASU has co-founded the Global Decision Theater Alliance (GDTA) with Huazhong University of Science and Technology and Harbin Institute of Technology in China. The Alliance builds on the experience and expertise of members to increase resource efficiency and sustainability through the integration of the best science, research and decision systems. With Decision Theaters in China, ASU can partner to create powerful immersive decision making environments for China's leaders and stakeholders.
- ASU's Center for Sustainable Health launched the Global Biosignatures Network to harness scientific, academic, industry, and healthcare system resources to make a major impact on 21st century healthcare practice. A global network of Biosignatures Centers is also needed to properly scale the effort, provide rigorous standards of practice needed to overcome barriers, and supply a global platform to share methods, results and experiences. In keeping with CSH's mission to sustain human health, the GBN will work with forward-thinking partners to establish additional Biosignatures Centers within member systems. Each Biosignatures Center will serve as a virtual coordinating center to discover, develop, validate, and implement diagnostic tests based on new enabling molecular and digital technologies for managing disease with an emphasis on prevention, early detection and effective therapeutic interventions.
- TechBA Arizona: A business accelerator that is the result of a partnership between the State of Arizona, the United States-Mexico Foundation, the Ministry of the Economy of Mexico and ASU's SkySong brought representatives of knowledge-based Mexican

businesses to Arizona. With the assistance of ASU SkySong, TechBA's success caused them to outgrow their accelerator space in the project, and they have moved into larger space in Phoenix while maintaining a collaborative relationship with SkySong.

- Japan Technology Group: Arizona Technology Enterprises established a formal partnership in 2010 with eight top Japanese research universities represented by JTG to cross-market technologies.

## **Infrastructure Investment**

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In FY2002, ASU's infrastructure was inadequate for the university's existing student population, let alone able to serve the growing numbers of qualified high school graduates who would need near-term access to higher education. Classrooms, research laboratories and offices were cramped and poorly equipped. Major institutional software systems were in need of replacement. There were few residence halls available, so the vast majority of students lived off campus even as freshmen, exacerbating problems with retention and graduation.

The university had one main campus in Tempe with two satellite campuses that were viewed as providing duplicate, but lesser quality, programs than those offered on the Tempe campus. Relations with the City of Tempe were strained by concerns over traffic congestion and the negative impact on property values of large numbers of students living in off-campus rental housing.

The buildings on the West campus were relatively new and in good condition, but many buildings in Tempe were in a significant state of disrepair. The Polytechnic campus was composed of World-War-II-era Air Force base buildings that had been retrofitted for use as classrooms, offices, research labs and residences. None of the buildings on any ASU campus had been designed and built with consideration for minimizing utility costs and impact on the environment.

In the 10 years since, during one of the nation's worst economic recessions, ASU has managed to complete an unprecedented amount of new construction, as well as upgrades and renovations to existing facilities. It has increased available space by 178 percent and has even opened a new campus. The university has done this by becoming an entrepreneurial entity, seeking investment and partnerships to make it happen.

In an innovative partnership, the university entered into an agreement with the City of Phoenix in 2005 to develop the Downtown Phoenix campus, with the city providing land and buildings and ASU the academic programs, student housing and parking. The plan received approval from the citizens of Phoenix in a March 2006 bond election, and classes began for students that fall. The endeavor has brought more than 18,000 students and 1,000 employees to a sluggish urban core.

ASU has partnered with American Campus Communities to provide more than 2 million square feet of new student housing on the Tempe campus on long-term leases, including a state-of-the-art campus for Barrett, the Honors College. It also has partnered with Inland American Communities for housing and a new dining facility at Polytechnic. ASU now provides on-campus living for 13,532 students, with more student housing coming online in fall 2013.

The Scottsdale City Council voted to approve a 198-year lease to the ASU Foundation for a \$41.5-million, 42-acre parcel of land in Scottsdale they purchased for the university to build a research/innovation park. SkySong opened in 2008 with 20 global start-up and midsized

companies from eight foreign countries. At build-out, SkySong will consist of 900,000 square feet of office, research and retail space, along with a hotel/conference center.

ASU also has formed a community partnership to bring programs to western Arizona, partnering with Lake Havasu City, the Lake Havasu United School District and the Lake Havasu Foundation for Higher Education. Phase 1 of the campus, including the renovation of a middle school, opened in Fall 2012.

ASU began working with all of the university's stakeholders, including local governments, utilities and other suppliers in 2003 to establish a long-term build-out plan that would meet the needs of all. The resulting Comprehensive Development Plan was published in 2005 and updated in 2012, and serves as the framework for new construction and renovation of existing facilities.

We established that it would be necessary for ASU to grow to accommodate 100,000 students by 2020 in order to meet our commitment to the citizens of Arizona that no qualified Arizona student would be denied access to a college education. We further instituted a strategic redesign called One University in Many Places that established distinct but equal missions for all ASU campuses and set the expectation that academic quality would be equally rigorous for all programs.

We overhauled the university's information technology organization and infrastructure, replacing high-cost internally developed applications such as e-mail with free, state-of-the-art programs provided by Google and other companies. We deployed wireless network service on all campuses, greatly expanding network and computing capacity. We replaced fragile legacy software with new platforms that greatly enhanced the student experience and set the stage for a significant expansion of online course delivery.

As a result of these and other actions, we increased classroom, classroom laboratory, library, office, residence hall and other space by 190 percent, adding a new campus, a global innovation park and expanding capacity in existing locations. We increased research laboratory space by 55 percent, investing almost \$600 million in renovations and new facilities. The details by location are:

### **Tempe campus**

- ASU currently is ahead of schedule on its Campus Solarization Project which, at build out, will enable the university to generate 20 percent of its own power. ASU has a university-wide, 25-megawatt capacity goal by 2014. By November 2013, all four ASU campuses and the ASU Research Park are projected to have solar power generating systems totaling 24.8 megawatts DC, producing nearly 41 million kWh of electricity a year. ASU's Tempe campus already holds the distinction of hosting the largest solar energy capacity on a single U.S. university campus. It is funded entirely through a public/private university partnership.
- The ASU Foundation acquired an office-retail complex called the Brickyard at the main intersection in Tempe, which contains more than 204,000 square feet of mixed-use space. The complex now houses the Decision Theater, the dean's office of the Ira A. Fulton Schools of Engineering and the School of Computing, Informatics, and Decision Systems Engineering.
- Completed in January 2004, Lattie F. Coor Hall houses classrooms and offices for the School of Politics and Global Studies; School of Historical, Philosophical and Religious Studies; and School of Geographical Sciences and Urban Planning. It is also home to the Institute for Social Science Research; the Department of Speech and Hearing Science; and the Centers for

Russian and East European Studies, Medieval and Renaissance Studies, Jewish Studies and Geospatial Analysis and Computation.

- The Fulton Center was completed in 2005 and houses the College of Liberal Arts and Sciences, the ASU administration and the ASU Foundation for a New American University.
- Hassayampa Academic Village is a living-learning facility focused on the goal of creating an integrated, self-contained academic and residential community with classrooms, computer labs, tutorial spaces, residential dining, and retail venues. The complex, opened in two phases in 2006 and 2007 through a public-private partnership, provides a residential and academic village for up to 2,000 freshmen. It earned a silver rating from the U.S. Green Building Council's LEED system.
- Vista del Sol, completed in fall 2008, provides 1,850 beds of housing for upperclassmen and graduate students, located on the southernmost boundary of the Tempe campus. The units are apartment-style, and the student programming is directed to a more mature, independent, residential population. The Villas at Vista del Sol, opening in fall 2012, will include three- and four-bedroom living units as well as 16 townhouse units. Both are third-party projects with American Campus Communities.
- ASU renovated the former nursing building, which was renamed Wrigley Hall, to house the Global Institute of Sustainability. It is one of the most eco-friendly buildings on campus.
- The Biodesign Institute Building A, at 188,149 square feet, was completed in August 2004. With the Biodesign Institute Building B, and Interdisciplinary Science and Technology Buildings I and II and IV, the latter having just opened in June 2012, ASU added more than 700,000 square feet of research space.
- A new facility was constructed to house the ASU Police Department, doubling the size of the previous building and significantly improving access for faculty, staff and students.
- The Weatherup Indoor Basketball Facility, which provides 51,290 sq. ft. of needed practice space, was completed in May 2009. The Verde Dickey dome, completed in August 2008, provides 105,505 square feet of indoor practice space for the Sun Devil football team and is also used by the marching band, summer football camps, ASU intramurals and other athletic department events.
- Barrett Honors College is the nation's first complete honors college campus, with 510,000 square feet of space for ASU's honors students. It was completed in August 2009 in a public/private university partnership.
- In July 2010, ASU purchased Centerpoint Building A, a four-story office building built in 1985 at the northwest corner of Mill Avenue and University Drive, adjacent to the Tempe Campus. ASU purchased the building to consolidate leased office space for University uses that are currently geographically dispersed. The building is 79,288 square feet and has 320 structured parking spaces. Prior to the purchase, the university had leased more than 40,000 square feet of space in the building.
- The university renovated nearly 87,000 square feet in Psychology North, Coor Hall, Schwada, and Wilson Hall to accommodate the expansion of Psychology programs. The renovation, completed in fall 2010, provides improved and additional research space for the Psychology Department.
- Building on its institutional commitment to sustainability, ASU re-purposes existing facilities whenever possible. ASU at the Tempe campus has recently added and expanded



programs into renovated space, including the Learning Sciences Institute, a program that promotes interdisciplinary research in the learning sciences; the Herberger Digital Studio; and the new School of Transborder Studies, all completed in spring 2011.

- The highly-ranked W.P. Carey School of Management required a 22,000-square-foot expansion to the Computing Commons building to alleviate space shortages. Included in the project was the creation of over 40 faculty and staff offices, student collaboration space, and university classrooms. The project was completed January 2011.
- The Aberration Corrected Electron Microscopy Center (ACEM) is a 5,200 square foot building addition completed in January 2011 at the Tempe campus. This new facility provides space for four aberration-corrected electron microscopes which are capable of unprecedented resolution, and the facility was designed to provide an environment that will maximize the microscopes' performance by mitigation of electromagnetic fields, mechanical vibrations, noise, room temperature and barometric pressure fluctuations. The facility will allow researchers from across the Southwest to perform cutting edge research in materials and biological sciences.
- A major renovation and expansion of the Health Services building, completed in March 2012, added around 20,000 square feet, creating space for acute care services. It will allow more patients to be seen per day and decrease their wait times.
- The Interdisciplinary Science and Technology Building 4, completed in May 2012, provides flexible laboratories with adjoining workspace for the School of Earth and Space Exploration, the College of Liberal Arts and Sciences, and Fulton School of Engineering research programs including Environmental Engineering and Energy Research Initiatives. On the ground floor, a 250-seat auditorium and gallery area serves as university classrooms as well as an outreach function for both K-12 educational programs and public events. The building added 327,256 gross square feet of space.
- McCord Hall, a 129,000 square-foot addition to the W.P. Carey School of Business, is under construction, with completion scheduled for fall 2013. The \$57 million building will provide technologically advanced classrooms, lecture halls and team-study rooms suited for 21st century business education, as well as world-class conference rooms for public conferences and executive education.
- Also under construction are an 84,500 square-foot addition to the Sun Devil Fitness Complex, with the \$32 million financed by student fees, and an extensive \$50 million renovation to Manzanita residence hall being completed by American Campus Communities. Both are slated for completion in 2013.

### **Downtown Phoenix campus**

- ASU opened an entirely new campus in Downtown Phoenix in fall 2006, as a result of an unprecedented public referendum.
- On Aug. 15, 2006, ASU opened its doors to the Downtown Phoenix campus. By fall 2012, enrollment reached 18,488 students. The first phase of the campus included the colleges of Nursing and Health Innovation, Public Programs, and University College.
- The University Center building boasts 296,212 square feet of modern classrooms, offices, labs, seminar rooms and study areas. It houses student services, Information Commons (student computing/ASU Library), the ASU Bookstore and a small café/coffee house. The

College of Public Programs, School of Letters and Sciences, University College administration offices and student services also operate within this building.

- ASU completed a major renovation to the 101,154 square-foot historic Post Office building on January 4, 2013, kicking off the New Year with enhanced engagement space for downtown students. The renovations provide additional student services space for student advocacy, rights and responsibilities, career services, campus services hotline, conference rooms, recreation space, lounges, and more.
- The Walter Cronkite School of Journalism and Mass Communication/KAET 8 building, with 244,964 square feet of space, opened in the summer of 2008, bringing the school closer to more major metropolitan news operations than any journalism school in the country. In fall 2009 Arizona PBS affiliate Eight/KAET-TV moved into a new, state-of-the-art studio in the shared facility.
- Taylor Place is Arizona State University's premier Downtown Phoenix residential community. The two towers, each 12 stories above a shared first floor, were completed in 2008 and 2009 to house 1,250 students as well as a dining facility and retail store. The facility is financed by a public/private university partnership.
- The Nursing and Health Innovation Building, Phase 2, brought 83,641 additional square feet. It was completed in July, 2009, with third party financing. In fall 2010, the Department of Nutrition, Exercise and Wellness was consolidated within the College of Nursing and moved from the Polytechnic campus to the Downtown Phoenix Campus. In spring 2011, the university renovated the first floor of the College of Nursing and Health Innovation Phase I building to accommodate a new commercial-grade instructional kitchen facility for nutrition students. Completed summer 2011, instructional exercise and wellness rooms as well as faculty offices were built on the fourth floor of Nursing and Health Innovation Phase 2 and additional instruction space was renovated through a partnership with the local YMCA to accommodate the instructional needs of the school on the downtown campus. Research functions were added in fall 2012.
- Adjacent to the YMCA and connected at ground level, the Downtown Sun Devil Fitness Center will open in fall 2013. The five-story, 73,800-square-foot building gives students, faculty and staff access to gymnasiums, a weight room, an indoor track, group activity gyms, multipurpose areas, and a rooftop leisure pool. The \$25 million fitness center houses classrooms and exercise labs for the ASU Kinesiology program and was financed through student fees.

### **Polytechnic campus**

- Completed in summer 2008, the Polytechnic Academic Complex provides general university classrooms, classroom laboratories and other specialized instructional spaces, as well as faculty and departmental offices to serve a campus enrollment of 12,029 students in spring 2013. The complex, which consists of Santan Hall, Picacho Hall, Peralta Hall, Santa Catalina Hall and the Applied Arts Pavilion, added 286,686 square feet of space to the campus.
- Interdisciplinary Science and Technology Building III is a 50,385-square-foot facility, opened in 2006, devoted to laboratories that support applied research in biological sciences, psychology, healthy lifestyles and plant-made pharmaceuticals.
- Space was re-purposed in the Exercise and Wellness building for the ASU Preparatory Academy, a tuition-free 9-12 grade public school. The 16,770 gross square foot facility accommodates classrooms, multi-purpose space, a learning lab, and administrative space.

The project was completed July 2010. In fall 2013, ASU converted a 28,000 square-foot portion of Creativity Hall into innovative educational space for elementary school students, allowing the school to accommodate both traditional instruction and smaller, focused breakout areas.

- In fall 2012, students welcomed the completion of Century Hall, a 318-bed freshman residence hall and dining facility. The complex includes access to academic resources and student services, along with a 20,000 square-foot dining facility and a recreation/fitness center. It is part of a public-private partnership between ASU and Inland American Communities.

### **West campus**

- On-campus student housing was introduced at West campus in 2004 with the opening of Las Casas apartments, a three-story, \$11.5 million project. Opening in fall 2012 will be Casa de Oro, a 365-bed freshman residence hall that is part of a new academic village. The three-story hall, built by American Campus Communities at a cost of \$7.2 million, includes a social lounge, gaming lounge, study rooms, a community kitchen, laundry facilities, a business center and an interior landscaped courtyard. Also under construction for fall 2012 is a new 20,000 square-foot dining facility.
- The Devils Den, a major remodeling project, opened in fall 2009 to provide more space for students in the University Service Building. The area includes food service, a student lounge and patio, student meeting rooms, student offices and an office of the State Press (the university's student newspaper). In addition the ASU Bookstore and cafeteria were expanded and enhanced. The ASU Student Health Services clinic was expanded and relocated.
- ASU renovated 6,200 square feet at the Fab Annex for an outreach program for middle school students. Designed for gifted youth who thrive in a highly engaging learning environment, the Herberger Young Scholars Academy personalizes students' education by merging individual's academic talents and interests with advanced college preparatory coursework and mentorship opportunities. The project was completed March 2011.
- A new Sun Devil Fitness Complex opened in January 2013. The \$25 million, 63,800 square-foot complex, funded by student fees, offers fitness equipment, an outdoor pool and fields, gym, racquetball courts and wellness service space as well as a demonstration kitchen.

### **ASU Research Park**

- ASU acquired a unique \$100-million flat panel display building that Motorola was closing for \$29 million and acquired a Motorola research group that was being disbanded. Both were instrumental in ASU's winning an Army research award for flexible display computers. The Flexible Display Center at ASU is a government-industry-academia partnership that is advancing full-color flexible display technology and fostering development of a manufacturing ecosystem to support the rapidly growing market for flexible electronic displays. Within its 250,000 square-foot capacity, the Center includes 43,500 square feet of advanced clean-room space, 22,000 square feet of wet/dry laboratories and extensive office and meeting areas.

### **Skysong, the ASU Scottsdale innovation Center**

- The Scottsdale City Council voted to lease to the ASU Foundation for 198 years a \$41.5-million, 42-acre parcel of land in Scottsdale they purchased for the university to build a research/innovation park. SkySong opened in 2008 with 20 global start-up and midsized companies from eight foreign countries. At build-out, SkySong will consist of 900,000 square feet of office, research and retail space, along with a hotel/conference center.
- In FY 2012, ASU SkySong's two existing buildings, which contain 314,000 square feet of space, reached a combined occupancy of 98 percent, including 44 companies representing six foreign countries. In addition, four virtual companies, representing an additional two foreign countries, utilize the services and support of ASU SkySong without a physical presence at the project. These buildings were constructed through a public/private university partnership. Construction on Building 3 began August 2013, Building 4 is in the planning stages, and a \$44 million, 325-unit apartment complex is under construction, with the first phase opening in late fall 2013.

### **Community Engagement**

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Our New American University design aspirations also include connecting with our communities and serving their needs through mutually beneficial partnerships. Our accomplishments in this area since the end of FY2002 include:

- Every year since 2008, ASU has been named to the President's Higher Education Community Service Honor Roll—the highest federal recognition a university can receive for its commitment to volunteering, service learning and civic engagement. In academic year 2011-2012 more than 12,000 students engaged in 757,000 hours of community service.
- ASU's commitment to higher education as an agent for positive social transformation earned the university a coveted place in the Changemaker Campus Consortium, announced in Sept. 2010 by Ashoka, a global non-profit network of more than 2,500 social entrepreneurs. Today, ASU is one of an elite group of 23 colleges and universities, including Johns Hopkins University, Cornell University, Tulane University and Duke University.
- In fall 2011, Changemaker Central opened on all four of ASU's campuses. Changemaker Central develops and nurtures students by providing the opportunities and resources to inspire, catalyze and sustain student-driven social change. This student-run effort works to cultivate a culture that tackles local and global challenges through its signature programs: 10,000 Solutions, the Innovation Challenge and Ignite @ ASU.
- Every year since 2010, Arizona State University has earned a spot on the annual list of Peace Corps Top Colleges and Universities. In 2013, ASU ranked 14th among all large universities, up from 19th last year and 20th the year before. Currently, 62 ASU alumni are participating, adding to the 944 ASU total alumni who have served overseas with the Corps since its inception in 1961. We were awarded the Carnegie Foundation for the Advancement of Teaching's two social engagement classifications: curricular engagement, and outreach and partnerships.
- The Lodestar Foundation donated \$5 million, the largest gift in its history, to the ASU Center for Nonprofit Leadership and Management, which was renamed the Lodestar Center for Philanthropy and Nonprofit Innovation.
- ASU at present has 499 community outreach programs in 178 locations, offered by 123 units, totaling 782 outreach opportunities.

- ASU Preparatory Academy, an affiliate of ASU, opened its first school, the ASU Preparatory Academy Polytechnic, in August 2008, and opened its Phoenix location in August 2009. In 2011, the academy opened the first year of high school, ninth grade, at both locations and will expand to 12th grade by 2014.
- American Dream Academy, a program helping parents in low-income, disadvantaged areas learn how to transform their children's educational experience, won the regional and national 2009 C. Peter Magrath University Community Engagement Award. More than 25,000 parents have graduated from the American Dream Academy. Since 2006, the program has served over 400 schools and organizations, and indirectly impacted more than 60,000 low-income, minority youth throughout the greater Phoenix region.
- In 2004, we launched the President's Medal for Social Embeddedness. The award recognizes ASU teams that demonstrate excellence in both identifying a community need and cultivating mutually-supportive partnerships with Arizona communities to address that need.
- We established the Stardust Center for Affordable Homes and the Family in 2003 to engage in design/build efforts to create models of affordable, sustainable housing that are also designed to be culturally specific.
- Since 2010, we have hosted Ignite @ ASU giving over 70 speakers the opportunity to share their ideas for change with over 700 students, staff and community members across all four campuses. Attendees learned about collaborative efforts to make an impact in our local and global communities and ways to get involved. Community partners included the Arizona State Credit Union and Ignite Phoenix.
- Since 2008, ASU has placed in the top 20 large universities for Teach for America Corps Member Placement. In 2013, ASU ranked 14<sup>th</sup> for overall Corps Member placement with a total of 42 placed Corps Members, up three spots from 2012, which included 41 Corps Members. Moreover, ASU ranked 3<sup>rd</sup> for total applications produced, and 1<sup>st</sup> for total Latino applicants.
- In 2010, ASU launched the Sanford Inspire Program as part of a five-year, \$18.85-million investment from entrepreneur and philanthropist T. Denny Sanford. ASU, in partnership with Teach For America, will bring major substantive changes to the way ASU recruits, selects, and prepares future K-12 teachers.
- For the second year in a row, ASU has placed in the top 50 for the public good. The 2013 Washington Monthly rankings, which measure a school's social mobility, research, and service, listed ASU 49<sup>th</sup> overall and 7<sup>th</sup> for social mobility, which measures the recruitment and graduation of low-income students.
- ASU has strengthened its partnership with the Valley of the Sun United Way by forming a Student United Way group. This group is only one of six student United Way groups in the Western region. The ASU Student United Way received the 2012 Signature Program Award from the United Way Worldwide for its commitment to the Alternative Spring Break Program.
- ASU is one of 33 universities in the Clinton Global Initiative University Network, which signifies its dedication to the development of student-led social innovation. As a member of this consortium, ASU supports, mentors, and provides seed funding to leading Sun Devil student innovators and entrepreneurs.
- The College of Nursing & Health Innovation has two nurse-managed health clinics. The NP Health Care Clinics offer Nursing Practitioner students and international cohorts clinical hours and experience while serving the local community. One clinic is located inside the Nursing & Health Innovation building and serves the downtown Phoenix community, including ASU students and employees. The NP Health Care Clinic–Grace,

located at Grace Lutheran Church, provides free or low-cost reproductive health services for adolescents and adults who do not have health insurance.

- The Department of Speech and Hearing Science operate clinics that provide high quality professional services to individuals of all ages with needs in communication and hearing improvement. In addition to serving the community, these clinics serve as training and research facilities for students studying audiology and speech-language pathology.
- In 2013, students from ASU, Northern Arizona University and the University of Arizona began collaborating on implementing a student-run health care clinic. Student Health Outreach for Wellness: A Free Clinic (S.H.O.W) and will utilize the Health Care for the Homeless clinic already located on the Human Services Campus. Guided by faculty, student volunteers will provide holistic, client-centered health services to the homeless after-hours. Clinic volunteers will be immersed in inter-professional collaboration through team-based training and hands-on experience.

ASU has also strengthened its relationship with communities and municipalities, creating opportunities for learning. The Community and Municipal Relations team has embedded ASU in the community through faculty, student, staff, community and municipal relationships, partnerships, collaborations, events and other community engagement activities. The team collectively participate on more than 50 boards of directors, chambers of commerce, committees and community groups at any given time.

Since 2002, ASU has held hundreds of forums, community relations programs and cultural programs in Arizona; Washington, D.C.; and other locations around the U.S. In FY2013, for example, Community and municipal Relations held Challenges Forums for African-American and Asian-American outreach, Arizona forums on immigration reform, a Tribal Government Leadership forum and two national-level forums at the National Press Club in Washington, D.C.

Initiated in 2006, the State of Arizona Reports have highlighted issues facing Arizona's diverse populations with ideas for solving these concerns. The reports are designed to inform policy makers and community members alike, while promoting growth throughout Arizona. Each report is the result of community-driven efforts led by independent groups working in partnership with ASU. There are seven reports reflecting on the challenges and contributions of Latinos, African Americans, American Indians, Asian Americans and Pacific Islanders who call Arizona home.

## **Athletics**

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A member of the academically and athletically gifted Pacific-12 Conference, Arizona State has nine intercollegiate sports for men and 12 for women at the Division I level. The university has produced excellence in both team and individual sports (seven NCAA team titles and 37 national collegiate individual titles) while producing some of the nation's best and well-known athletes (Anthony Robles, James Harden, Phil Mickelson, Jacquelyn Johnson, Amy Lepeilbet, Dustin Pedroia and Terrell Suggs). A perennial contender for Pac-12 Conference championships and the Top-10 of the NACDA Directors' Cup, Sun Devil Athletics also excels academically, with the second-most Academic All-Americans in the Pac-12 over the last 10 years.

### **Sun Devils Win**

Both student-athletes and coaches not only upheld the long-standing winning tradition of Sun Devil Athletics, but enhanced it over the past 10 years. From the gridiron to the diamond to the

hardwood, SDA experienced an unprecedented growth in all varsity sports, highlighted by a school-best fourth-place finish in the Directors' Cup in 2007-08.

- 276 All-American Student-Athletes
- 71 Olympic Appearances
- 40 Individual National Championships
- 29 Pac-10/Pac-12 Coach of the Year Awards
- 16 Pac-10/Pac-12 Championship Teams
- 8 National Coach of the Year Awards
- 7 National Championship Teams
- 12 teams have posted top-10 finishes in the past three years
- In 2013, Baseball secured their 51st consecutive season with more than 30 wins, Women's Golf was selected to participate in its 22nd consecutive NCAA Championships and Women's Tennis made its 26th consecutive NCAA Tournament appearance
- In 2011, Softball won their second national championship in four years under Coach Clint Myers

### **Sun Devils Graduate**

With the seventh-most Academic All Americans in the nation since 2000, SDA has successfully integrated the New American University model into its varsity sports programs. ASU created and implemented the "Scholar Baller" program becoming the first institution to acknowledge academic success on the game jersey. Sun Devil Athletics also developed cohort programming for each class, resulting in marked improvement in all areas of the student-athlete experience. This evolution is exemplified by the women's tennis team, which has earned a perfect APR score every year the measurement has been in existence while advancing to the NCAA tournament for 25 consecutive years.

- 64 Academic All-Americans
- ASU is 21st All-Time in Division I for Academic All-Americans, and 13th since 2000
- Baseball was recognized for being among the Top 10% in the nation while tennis was praised for being in the Top 10% for the 8th consecutive year with its 1000 average since 2003-04
- In 2012-13, Sun Devil student-athletes achieved an all-time high GSR of 80%, tied 5th in the Pac-12 Conference, although we were just 1% away from a tie for 3rd
- Sun Devil student-athletes have garnered 16 NCAA Post-Graduate scholarships in the past five years and 18 since 2000

### **Sun Devils Serve**

Whether it is visiting local elementary schools and children's hospitals, teaming up with non-profit organizations in the community or volunteering at events across the valley, SDA has been at the forefront in increasing ASU's prominence and influence in not only the Phoenix area, but also the state as a whole.

- The Sun Devil Club has had 78,715 donations over the last 10 years and gained 750 new members in the past year
- The Sun Devil Club has tripled the athletic departments Endowments to just under \$14 million
- Sun Devil Wrestler Anthony Robles won the 2011 NCAA National Title and was honored at the 2011 ESPY's with the Jimmy V Award for Perseverance and named the Best Male Athlete with a Disability

- A good example of Sun Devil Athletics helping the community during a tragedy is during Hurricane Katrina, when ASU hosted LSU's football game with only a five-day notice and donated \$1,000,000 for relief efforts
- Pat's Run, an annual 4.2-mile run/walk fundraising event run by the Pat Tillman Foundation and hosted by ASU, has grown to a 35,000-plus person event in just eight years
- More than 1,200 student-athletes have participated in Sun Devils Serve Projects since 2010, totaling 10,251 hours

### **Sun Devil Athletics Attendance**

Nearly seven million fans have attended an ASU sporting event in the past 10 years, helping to create a unique and inclusive atmosphere around ASU's Tempe campus. SDA has also hosted a litany of ancillary events, including President Barack Obama's ASU commencement speech in May 2009 before a crowd of more than 70,000, which is the largest U.S. audience for Obama since his inauguration.

- 10,858,700 people have attended events in Sun Devil Athletics' facilities since 2002
- Sun Devil Athletics hosted events, along with ASU sporting events, such as NCAA events, ancillary and community events, Arizona Cardinal games, Bowl games, and many others over the past 10 years
- Sun Devil Athletics has had 7,434,887 fans attend ASU sporting events since 2002
- Sun Devil Athletics has hosted 59 NCAA Events in the past 10 years drawing 846,522 spectators
- Sun Devil Athletics has hosted 682 ancillary and community events in Sun Devil Athletics' facilities with 919,104 people attending those events
- The Arizona Cardinals played its home games in Sun Devil Stadium until 2006, drawing 1,532,642 fans from 2002-06

### **Sun Devil Facility Improvements**

SDA has invested more than \$100 million into its facilities over the past 10 years to ensure its varsity sports remain in the upper echelon of athletic programs. State-of-the-art indoor practice facilities for both football and basketball, among others, have made Arizona State a destination for student-athletes all over the country and across the globe.

- Capital Projects
  - Sun Devil Athletics has built over \$45,000,000 in capital projects over the last 10 years
  - The projects include the following new facilities: wrestling facility, women's gymnastics training facility, the Weatherup Center basketball facility, Verde Dickey Dome (indoor football practice facility), and the Sun Devils Sports Performance
  - The projects also include improvements to the existing facilities: Sun Angel Stadium, Mona Plummer Aquatic Complex, Wells Fargo Arena, Sun Devil Stadium, Carson Student-Athlete Center, Farrington Stadium, Kajikawa Football Practice Field, Whiteman Tennis Center, Hobbs Practice Facility
- Deferred Projects
  - Sun Devil Athletics has spent over \$100,000,000 the last 10 years to upkeep the current facilities



- Some of the major projects include: Sun Devil Stadium structural improvements, baseball's eventual transition to the Phoenix Municipal Stadium, and improvements to Camp Tontozona, among others
- Future
  - The past year has seen exciting announcements about the future of Sun Devil Stadium, the announcement of a new baseball stadium and plans for renovations for many of the sporting venues

### **Sun Devil Athletics Achievements**

A regular fixture in the NACDA Directors' Cup, SDA has achieved success in all varsity sports while enabling its student-athletes to excel during both their time at ASU and after graduation. Evidenced by its representation at the Women's World Cup, NBA Finals, Super Bowl and The Master's, among others, SDA has proven to be a training ground for those looking to shine on the world's brightest athletic stages.

- Arizona State has seven top 10 finishes in the NACDA Directors' Cup and finished in the top 20 for the 15th time in the 19-year history of the award. Sun Devil Athletics posted a school-best fourth-place finish in 2008 and was named the nation's top college athletics program by Sports Illustrated. ASU has placed in the top 15 11 times.
- In May 2011, Sun Devil Athletics unveiled a massive rebranding campaign of the athletic department, including a new primary logo, to massive media coverage. The event, new logo, and new uniforms were acclaimed across the nation.

### **Alumni Engagement**

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The rate of alumni engagement is a broad and significant indicator of institutional quality. Alumni who have a positive experience while in college through their student engagement, a strong belief in the value of their degrees, and sustained positive feelings about their alma mater, are more likely to want to be involved with the institution over the course of a lifetime. In FY2005, the Alumni Association undertook a major assessment of alumni demographics and interests. The staff learned that ASU alumni, like the rest of the university, are unique in their profile. We have continued our monitoring of demographic trends, and today's (FY2013) statistics indicate that ASU alums are much younger than expected, with 55 percent younger than 45 and 33 percent younger than 35. The majority of alums live in Arizona (213,835) and in particular Maricopa County (176,311); the 10 highest states where alums reside outside of Arizona are California, Texas, Colorado, Illinois, Washington, New York, Florida, Oregon, Virginia, and Nevada.

In response to the assessment, the association launched a major rebuilding of the alumni volunteer chapter network and a broad series of new programs, events, benefits and services. The following highlights these new efforts and their results.

- The Alumni Association developed Arizona State Young Alumni (ASYA), a program aimed at engaging alumni under age 35 with social, career and community service programming and events. ASYA was launched in FY2010 in Maricopa County.
- In order to reach alumni living outside Arizona, the Alumni Association has put increased emphasis and staff resources into strengthening its chapter and club network.
- We have grown the number of chapters and clubs to 106, which includes 73 chapters and clubs in targeted geographic locations throughout the United States, as well as 33 international connection groups.

- In FY2009, we took ownership of the ASU Cares day of service project and transformed it from a primarily local Valley of the Sun event into a national day of service. Since the transformation, Alumni Association chapters and clubs have participated in 76 service projects in four years through ASU Cares Across the Nation.
- In FY2009, we inaugurated the tradition of participation by our geographic chapters in “shadow runs” held across the nation in conjunction with the 4.2 mile Pat’s Run held in Tempe each April. The number of chapters hosting shadow runs has increased: in FY2009, 2; in FY2010, 14; in FY2011, 21; in FY2012, 25; and in FY2013, 28.
- During FY2011 and FY2012, the association developed a chapter specifically for ASU alumni who are military veterans. The chapter reaches more than 3,500 graduates who have served their country; the group has participated in ASU events such as the annual Salute to Service and has held networking events for its members. The chapter has started a new tradition and now hosts receptions two times per year for the ASU students who are veterans and presents them with special military chords to be worn at commencement ceremonies.
- The chapters also have increased their fundraising efforts for student scholarships in their geographic area or affiliated with their special interest area.
- We have increased the number of ASU collegiate license plates (also known as Sparky plates) on the road in Arizona to more than 15,000. The plates’ support for the Medallion Scholarship Program has increased from \$89,107 in FY2003 to \$300,000 in FY2013, an increase of 236 percent. In FY2011, the ASU Alumni Association rolled out a new design featuring an all-gold background and Sparky.
- ASU Magazine
  - The ASU Alumni Association increased circulation of the magazine by 67 percent from FY2005-FY2012. It is delivered to 348,984 households including alumni, dues-paying Alumni Association members, faculty/staff, and select donors.
  - Since FY2007, the magazine has been printed on paper that is FSC and SFI Chain of Custody certified and printed with vegetable-based soy ink.
  - Since FY2007, the magazine has received 50 writing, design and overall excellence awards.
  - During FY2012, Alumni Association staff created an enhanced website for ASU Magazine. The site at <http://magazine.asu.edu/> will provide content from the print edition, as well as online-only features, additional photos, videos and audio segments, and a blog. The organization also developed an iPad application, available at no charge in Apple’s iTunes store, that allows users to view the latest edition of ASU Magazine and review university developments by reading past issues of the publication.

### Digital Assets

- ASUAA continues to enhance its website for simplified navigation and more robust content to create an interactive and engaging experience for the Sun Devil community. Since FY 2005 nearly 1.5 million visits to the ASUAA website have occurred.
- The ASU Alumni Association engages with alumni on Facebook and Twitter sharing university, alumni and athletics-related news as well sharing photos and updates from alumni around the world. The Facebook account was launched in November 2008, and has more than 22,064 fans while the Twitter account has more than 8,917 followers. Additionally, the association hosts the largest group of ASU graduates on its LinkedIn account, where relevant discussions and professional development opportunities occur with Sun Devils around the world. More than 30,687 alumni are a part of this account.

### **Constituent Relations and Programs**

- The Alumni Association instituted the Sun Devil Advocates Network, which enlists supporters to advocate on behalf of the university and higher education, and now has more than 2,150 participating in the effort.
- The association revitalized its Homecoming Week activities to include an annual pre-game luncheon known as the Legends Luncheon in FY2008. Since its inception, the event has become a fall signature event for the university. During FY2013, the event honored the more than 200+ Sun Devils who have played in the NFL with nearly 700 guests.
- The Alumni Association's spring signature event, Founders' Day, has grown significantly since FY2003, moving from a budgeted expense to a revenue producer. In FY2009, the association partnered with the ASU Foundation to unveil the Challenges Before Us Initiative at ASU and honor faculty and alumni exemplars of the work that the university is doing to solve the most pressing issues of our time. Attendance at that event was 620. In FY2010, the first Founders' Day Award to go to an international recipient was presented to His Excellency Sultan Saeed Nasser Al Mansoori '88 B.S.E., and Gregory and Emma Melikian received the inaugural Philanthropist of the Year Award. Attendance at the event was 600. In FY2011, event attendance reached 680, and in FY2012, and paid attendance exceeded 775. In FY2013, honored all Sun Devils who served or are currently serving in the military by recognizing the highest ranking officer in each brank. The attendance reached 780 for this event.
- We partnered with Educational Outreach and Student Services to recruit 925 volunteer Alumni Admissions Ambassadors nationally, and currently is in partnership with Undergraduate Admissions to continue recruiting and training international ambassadors.
- In FY2011, in response to economic conditions and response from alumni, we launched Alumni Career Resources in partnership with ASU Career Services. In the inaugural year, the program consisted of 3 programs and a webinar on professional development topics, one-on-one career coaching both in person and online, a career newsletter distributed quarterly, a blog focused on career issues and a series of networking events.
- During FY2013, 172 alums attended Alumni Career Resource development events, which included a two breakfast events, The Executive Athlete: Developing Mental Toughness featuring Chris Dorris, and Painless Performance Management featuring Marnie Green. The Spring evening reception featured John Hill of LinkedIn who presented how to maximize linkedin benefits for you and your organization. 540 alums participated in Maroon & Gold Mixers and 156 in Women in Business Mixers hosted throughout the year; and 320 combined, attended a Women in Business Fall event Title IX: inspiring Opportunity, celebrated 40 years of advancing Women's opportunities in education and sports and Spring event Life Stories of Courage featuring Marie Tillman and Anthony Robles.
- To meet the lifelong educational needs of alumni, the Alumni Association re-launched its travel program during FY08. At the end of FY2012, the name of this program changed from Sun Devil Destinations to ASU Travel & Tours. The association also supported alumni returning to the Valley of the Sun for ASU-themed events by creating a travel portal, where local hotels offer Sun Devils discounted rates and other special deals. Launched in FY2011, the program currently has 10 hotels offering discounts to alumni through the portal.
- To establish a connection with ASU families with young children, Sun Devil Generations, launched in FY2008, provides children from birth through eighth grade the foundation for a lifelong relationship with ASU and the values and culture of a major public

- research university. The program has grown from 78 enrolled members in its inaugural year to a total membership of 118 children during FY2013.
- The Alumni Association has developed service/volunteer opportunities as part of its mission to connect and unite alumni, as well as advance the university and enhance the alumni experience. In FY2013, more than 700 volunteers of all ages provided more than 10,000 hours of service to the association.
  - Through its programs, events and services ranging from board-level leadership to event and chapter participation, an additional 10,000 Sun Devils engage with the ASU Alumni Association and the university. Whether it's being a part of the Washington, D.C., Capital Alumni Network flag football team or serving as a reader of Medallion Scholarship applications, Sun Devils across the globe actively serve as volunteers and engage with us.

### **Membership**

- Membership has increased since FY 2003 with a current total of 32,913 dues-paying members.
- Since the launch of a strategic partnership with the ASU Bookstore, we have increased membership among new graduates by 260 percent since FY 2008.
- Three New Membership Categories
  - In FY 2006, we revitalized the Student Alumni Association into a dues-paying membership organization to support the program more fully. SAA experienced a 300 percent growth in membership in FY2011, after forming a partnership with the Student Sun Devil Club. At the end of FY2013, membership in SAA stood at 4,153.
  - In FY 2006, the Alumni Association established the U Devils group for faculty and staff. This membership program has grown to represent 750 ASU employees by the end of FY2013.
  - In FY 2008, we established Gold Life Membership and have grown this category to 1,257 members.

### **Student Engagement**

- With the revitalization of the Student Alumni Association, the group actively supported the Game Day initiatives and played an integral part in the Pep Rallies, and continued to uphold vital Sun Devil traditions, including whitewashing the A and protecting the A.
- We implemented a Senior Year Experience program in FY 2008 that included the development of a council and resulted in seniors attending programs and events on all four campuses to assist with their transition to graduate studies or their first professional position.
- We reconstructed the Medallion Scholarship during FY2005 with Undergraduate Admissions from a one-year stipend to a four-year scholarship program, which now selects 27 recipients each year from throughout Arizona. During the same time period, the scholarship amount was increased from \$2,000 to \$3,000. The program is supported by the ASU license plate program and donors, and provided the more than 100 students in the program \$300,000 in direct support in FY2012.
- Since FY2006, we have hosted 203 Sun Devil Send-Offs nationally with our geographic chapters. The Send-Offs are receptions for freshman and incoming new students in geographic areas across the country.
- In FY2010, we launched the Legacy Scholarship program, which offers \$1,200 scholarships (\$600 per semester) to relatives of ASU Alumni Association members. Three inaugural scholarship recipients were selected for the 2010-11 school year, and

10 recipients for the 2011-2012 school year, 10 for the 2012-2013 school year, and 11 for the 2013-2014 school year.

From FY2003-FY2013, the Alumni Association presented 756 Moeur Awards to honor undergraduates with the highest academic standing, who complete course work while attending ASU in eight consecutive fall and spring semesters.

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<sup>i</sup> Figures include all outright gifts, new pledges and face value of planned gifts, but exclude contributed services and payments on pledges.