A New American University

at work in the world
“Universities must become effective partners for global development.

Our communities must transform their thinking to see universities, not as self-indulgent ‘people factories,’ but as valuable idea generators with vast influence and the potential to change lives the world over.”

– Michael M. Crow, ASU president
For more than a decade, Arizona State University has been establishing itself as the foundational model of a New American University. We measure ourselves not by the students we exclude, but by those we include, and how they succeed. When Michael M. Crow became president of ASU in 2002, the university launched an initiative in higher education design to prove that a public research university can simultaneously be large and inclusive; achieve the highest academic excellence; and conduct research that offers solutions to the toughest challenges facing our state, the nation and the world.

We are succeeding.

The New American University model offers ideas uniquely suited to the developing world – countries seeking to educate huge numbers of students to world-class standards while producing research to confront epochal challenges in climate, sustainability, health and economic growth.

ASU offers uncommon resources and agility to those seeking a university partner in international development.

ASU is a top-tier Research I institution. Research expenditures have nearly tripled over the past 10 years, making ASU one of the fastest growing research institutions in the country.

83,000 students enrolled in ASU in 2014 – the largest U.S. enrollment under one administration. 42% are from the lowest economic quintile.

“One of the most radical redesigns in higher learning.”

– Newsweek
Focusing Disciplines and Data on Global Solutions

The greatest challenges facing the world today—such as climate change or border-crossing epidemics—are complex in nature, requiring expertise from the sciences, engineering, policy, law, social sciences and humanities. In the past decade, ASU has reorganized academic departments around challenges rather than traditional disciplines and established more than 30 cross-disciplinary research units. This enables the university to rapidly deploy solutions-focused teams for projects in developing countries.

“I am very proud to announce our partnership with ASU, a world-class research university. Our partnership is a prime example of the intelligence community working smartly with academia to address strategic global issues and to create capabilities that benefit everyone.”

— Letitia Long, National Geospatial-Intelligence Agency director

How might the effects of climate change on resources such as water, food and energy contribute to political unrest and instability? The National Geospatial-Intelligence Agency awarded ASU $20 million in 2014 to launch the Foresight Initiative, a five-year partnership designed to anticipate and mitigate the national security risks associated with climate change. The initiative examines how climate change affects resources and contributes to political unrest, and will articulate sustainability and resilience strategies.

The initiative leverages ASU’s Decision Theater Network, cloud technologies, advances in natural user interfaces and machine learning in order to address challenges driven by the volume and character of future persistent data flows. The resulting capabilities will not only allow analysts and decision-makers to interact with diverse data sets in a simulation environment, but also help them assess the effectiveness of plans, policies and decisions.

ASU College of Public Programs professors Kevin Desouza and David Swindell participated in USAID’s U.S. Global Development Lab’s Innovation Marketplace in fall 2014, sharing insights on new data models to improve development and innovative financing tools to support growth.

Open data movements, greater government transparency and advances in data analytics are creating new opportunities to “create data-driven development labs to tackle some of our most vexing global challenges, such as the eradication of extreme poverty,” said Desouza.

Swindell, who leads the Center for Urban Innovation at ASU, shared 28 tools for innovative approaches to municipal financing. In rapidly growing cities in developing countries, “a key challenge to meeting the strains of growth is infrastructure, but that will not materialize without financing,” he said.

Featured Capabilities

The Decision Theater Network allows researchers and leaders to visualize solutions to complex problems through advanced technologies that include immersive visualization environments, high-performance computation for analysis and simulation, large-capacity data storage, remote sharing and collaborative software.

ASU’s Security & Defense Systems Initiative addresses national and global security and defense challenges through an integrative, trans-disciplinary, “whole system” approach encompassing technology solutions, law and policy issues, and root social causes.

Researchers in the Biodesign Institute develop solutions inspired by natural systems to address critical global challenges in healthcare, sustainability and security, and translate those solutions into commercially viable products and clinical practices. Since its inception in 2003, ASU’s Biodesign Institute has attracted more than $400 million in extramural funding and generated 36 patents.

The Center for Science and the Imagination brings writers, artists and other creative thinkers into collaboration with scientists, engineers and technologists to reignite humanity’s grand ambitions for innovation and discovery.

Climate change and national security

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Redesigning Higher Education for World Learners

From developing groundbreaking public-private partnerships such as the Starbucks College Achievement Program, to redesigning engineering education in partnership with Vietnam and teacher education in partnership with India, to partnering with China’s Sichuan University to build cross-cultural understanding, ASU is helping universities worldwide to rethink how higher education functions to educate the greatest number of students to the highest global standards at sustainable cost.

Featured Capabilities

ASU is partnering with Starbucks on the Starbucks College Achievement Plan, a first-of-its-kind collaboration through which Starbucks will reimburse tuition for eligible employees who complete a bachelor’s degree through ASU Online.

ASU is a founding member of the recently launched University Innovation Alliance, an unprecedented coalition of 11 public research universities collaborating to boost the number of students from all economic backgrounds who earn a college degree. The alliance offers tremendous potential for pooling the capacities of leading U.S. universities to support the development of higher education in the developing world.

The Mary Lou Fulton Teachers College Center for Advanced Studies in Global Education works with educational institutions in countries worldwide. Backed by the resources of the largest U.S. teachers college, the center provides research and institutional and curricular reform, preparation programs for teachers and school leaders, and large-scale programmatic consulting to ministries of education. The Teachers College is one of only a few U.S. institutions with the capacity to accommodate large cohorts for extended programs of teacher and school leader preparation.

The Ira A. Fulton Schools of Engineering Office of Global Outreach and Extended Education develops partnerships with international academic institutions, governments and corporations to provide professional development programs for global professionals—including graduate degrees, certificate programs, non-credit short courses and custom programs delivered using innovative distance-learning formats.

The Center for American Culture, part of the College of Public Programs, is a joint initiative between ASU and China’s Sichuan University that builds greater cross-cultural understanding between the U.S. and China.

The College of Public Programs’ China Collaborative is one of seven social work programs selected nationally to participate in large-scale development of social work education in China, organized by the Council of Social Work Education and the China Association of Social Work Education. Program graduates are developing a vanguard of Chinese and U.S. social workers trained to engage in development initiatives.

Established in 2010 with funding from USAID and Intel, the Higher Engineering Education Alliance Program (HEEAP) is cooperating with Vietnam to modernize engineering education at the country’s leading technical universities and vocational schools. The program helps accelerate economic development by preparing a highly trained workforce in Vietnam to boost the growth of high-tech industries throughout Southeast Asia.

Hundreds of faculty members at Vietnam’s universities and vocational schools have received training through HEEAP, and a distance-education network allows students on multiple campuses in Vietnam to take courses simultaneously. HEEAP also provides training to Vietnamese education leaders on the administration of technical education institutions.

In 2012, Intel received the U.S. Secretary of State’s Award for Corporate Excellence for its efforts with HEEAP.

“This collaboration has been instrumental in advancing our goals.”
— Nguyen Vinh Hien, vice minister of Vietnam’s Ministry of Education and Training

Preparation India’s Teachers

With funding from USAID, the India Support for Teacher Education Program (In-STEP) brings teacher educators from India to ASU to participate in a three-month teacher education program at the Mary Lou Fulton Teachers College.

The Indian teacher educators complete a customized core course in the learning sciences, plus four required and three elective courses. They also participate in Teachers College’s nationally recognized TeachAZ student teaching residency by spending up to 70 hours in local K-12 classrooms.

Teachers College is implementing In-STEP in partnership with India’s Ministry of Human Resource Development. The ministry is documenting the program in order to create a template the country can adopt to build capacity for its colleges of teacher education.
Empowering Students and Young Leaders

Through programs that take ASU students around the world, and initiatives that bring international students to ASU, we are preparing a cadre of young leaders empowered to participate fully in the civic, economic and cultural life of their communities in the United States and the developing world. Only two universities – ASU and Berkeley – were chosen to host both the MasterCard Foundation Scholars Program and the State Department’s Mandela Washington Fellowship, the flagship program of President Obama’s Young African Leaders Initiative.

Featured Capabilities

The Next Generation Leaders program of the McCain Institute brings competitively selected individuals from around the world to the U.S. to expand their leadership capacity through a year-long experience of professional development, exposure to top level policy makers, formal training in leadership and communications, and networking. Each year, a diverse and globally representative cohort of young journalists participate in the Hubert H. Humphrey Fellowship program at the Walter Cronkite School of Journalism and Mass Communication. Fellows participate in 10 months of academic study, leadership development, professional enrichment and American cultural immersion. Students can combine graduate studies with international development field experience in the unique Master’s International Peace Corps Program offered through the School of Sustainability in partnership with Peace Corps. Students complete master’s coursework before receiving a Peace Corps placement and can continue to earn credit while completing their commitment.

U.S. State Department International Leaders in Education Program brings competitively selected secondary teachers from countries around the world to the Mary Lou Fulton Teachers College for a semester. The fellows observe classes at ASU, complete 90 hours of teaching at a local high school alongside an American partner teacher, and take specialized classes designed specifically for them.

ASU serves as one of 20 leading U.S. universities to serve as an academic institute for the Mandela Washington Fellowship for Young African Leaders. ASU hosted 25 young African leaders for a six-week professional civic leadership training institute, led by the College of Public Programs at the Downtown Phoenix Campus.

The USAID Research and Innovation Fellowships program is pairing competitively selected ASU graduate students with key leaders in seven countries to collaboratively apply science technology and innovation to complex development challenges.

The MasterCard Foundation Scholars program is a $500 million, 10-year initiative to educate and prepare young people – particularly from sub-Saharan Africa – to lead change and make a positive social impact in their communities. ASU is among a select global network of participating institutions and will host 120 scholars during the partnership. The program provides young people from economically disadvantaged communities who have demonstrated academic talent and leadership potential with access to quality and relevant education.

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Creating Sustainability

ASU offers exceptional expertise and international country knowledge to support innovative solutions in every arena of sustainability. More than 300 sustainability scientists and scholars affiliated with the Julie Ann Wrigley Global Institute of Sustainability study and share information on topics ranging from water, energy and climate change to the challenges facing the world’s mega-cities and the social implications of a future of constrained resources and growing demand.

Featured Capabilities

The Julie Ann Wrigley Global Institute of Sustainability is the hub of ASU’s sustainability initiatives. The institute advances research, education, and business practices for an urbanizing world.

The School of Sustainability, the first of its kind in the United States, offers transdisciplinary degree programs focused on finding practical solutions to environmental, economic and social challenges.

The Rob and Melani Walton Sustainability Solutions Initiatives (WSSI) are the result of a $27.5 million investment by the Rob and Melani Walton Fund of the Walton Family Foundation. Through its Global Sustainability Solutions Services, WSSI develops and delivers applied, tailor-made solutions to ecological, sociological and economic challenges and opportunities in diverse geographical, political and cultural settings.

The Sustainable Cities Network is a vehicle for communities to share knowledge and coordinate efforts to understand and solve sustainability problems. The network builds a bridge between ASU’s research and front-line challenges facing communities locally and abroad.

The Sustainability Consortium is a global organization of more than 90 companies, universities and NGOs. Together they are building a science-based drive to improve the sustainability of consumer products in every market sector. The consortium is jointly administered by ASU and University of Arkansas with additional operations at Wageningen University in The Netherlands and Nanjing University in China.

LightWorks pulls light-inspired research at ASU under one strategic framework. Led by the former CEO of BP Asia-Pacific and BP China, it is a multidisciplinary vehicle that leverages ASU’s unique strengths, particularly in renewable energy fields including artificial photosynthesis, biofuels, and next-generation photovoltaics. Such projects include:

- **Quantum Energy and Sustainable Solar Technologies (QESST)**, a national Engineering Research Center that capitalizes on quantum mechanics to harness solar power economically and sustainably.
- **Arizona Center for Algae Technology and Commercialization (AzCATI)**, a hub for research, testing and commercialization of algae-based products such as biofuels.

“We had technicians who undertook the (VOCTEC) training and learned technical skills in repairing systems, installing systems, doing troubleshooting or reviving systems if they break down. Those types of skills have never been acquired by locals before.”

— Gabriel Aimaea, deputy director, Solomon Islands Ministry of Energy and Rural Electrification

Energy program trains to sustain

The USAID Vocational Training and Education for Clean Energy (VOCTEC) program, a partnership among ASU, USAID and the International Renewable Energy Agency, improves the sustainability of renewable energy infrastructure and investments in developing countries. VOCTEC provides local technicians with the knowledge, training and capacity to install, operate and maintain these systems and the ability to transfer those skills to future generations. To date, VOCTEC has trained more than 380 professionals in 14 countries, including Guyana, Liberia and Pacific Island nations.

ASU’s sustainable campus

- **24.1 MW** energy generation from more than **80,000** solar panels
- **Panels provide shade for 5,952 parking spaces and 828 stadium seats**
- **Leadership in Energy and Environmental Design (LEED) Silver certification or better required for all new university buildings**
- **12 tons of landscaping trimmings composted monthly**
- **Committed to zero waste by 2015**
Advancing Global Health

There is a growing recognition that the solution to any global health problem – whether environmental pollutants, HIV, reproductive cancers, childhood diarrhoea, malaria, depression, substance abuse, domestic violence, malnutrition, obesity or diabetes – requires a sophisticated understanding of the social, economic, environmental, behavioral and cultural roots of disease. For agencies seeking new perspectives on persistent health concerns in developing countries, ASU is at the frontiers of research and education in getting at the root causes of disease to create a healthier future.

Featured Capabilities

The College of Health Solutions aims to increase the university’s impact and contributions to quality health outcomes for our communities. The multidisciplinary college is a key component in ASU’s strategy to build a new model for health education that crosses traditional disciplinary and organizational boundaries.

ASU and Mayo Clinic partner in joint research projects, faculty appointments and educational programs in nursing, law, biomedical informatics, biomedical engineering, mass communication and business administration. The ASU-Mayo team provides unique academic-clinical approaches for health challenges in the developing world.

The International School of Biomedical Diagnostics brings together the expertise of ASU and Dublin City University (DCU) to offer a Master of Science in Biomedical Diagnostics. ASU, the largest public research university in the U.S., together with DCU, a world-class leader in biomedicine and diagnostics, are creating a key incubator and producer of biomedical knowledge and innovation.

The School of Human Evolution and Social Change offers an interdisciplinary Ph.D. program in global health, with at least 75 nationally recognized participating faculty from health, social, life and applied sciences. These faculty offer deep bench strength for projects looking to the behavioral and social contexts of health challenges in developing countries.

School of Biological and Health Systems Engineering faculty and students work with hospitals, research institutions and industry partners worldwide to develop new healthcare technologies in areas like robotics, synthetic biology, engineered gene networks, neuroimaging, and biosensors. Teams of faculty and students can flexibly and rapidly deploy to design low-cost solutions for medical challenges anywhere in the world.

The Department of Biomedical Informatics, College of Health Solutions, provides project capacity in bioinformatics, clinical information, predictive modeling for population health, big data management and data mining, natural language processing, and auto-sensing devices that integrate with mobile applications.

The Center for Sustainable Health is shifting health systems from their current focus on expensive and ineffective late-stage disease response toward more outcome-based and cost-effective prevention and early intervention strategies. In addition to exploring molecular diagnostics for early detection through Project HoneyBee, the center leverages recent advances in information technology and sophisticated but inexpensive data capture devices, such as biosensors, to dramatically improve the detection, diagnosis and prevention of disease.

Obesity Solutions is a global effort to build, test and share ideas that work for real people in the real world. The initiative leverages the health and knowledge of the world-renowned doctors of the Mayo Clinic; the research capacity of the distinguished faculty at ASU; and partnerships with other universities, communities, businesses and government sites.

Current projects include using libraries in underserved communities as active health learning sites for children; developing interventions to support the needs of homeless youths; working to understand obesity as it emerges and shapes health using big data and complex systems analysis; and supporting entrepreneurs who develop products and services that have a real, positive impact on obesity.
Understanding Rule of Law

ASU engages in research, outreach and education that advances our understanding of the rule of law in our rapidly changing world. Democracy, human rights, conflict resolution, crisis and governance are key areas of expertise.

Featured Capabilities

The Sandra Day O’Connor College of Law is pioneering a new model of legal education, one that reimagines the modern law school as not just an institution that trains lawyers, but as a multicultural legal studies center that engages in developing solutions to the world’s global challenges and seeks to educate a broad cross-section of contemporary society.

The College of Public Programs prepares the next generation of public service leaders and advances teaching, research and creative problem-solving in complex urban environments — locally and globally. The college offers innovative approaches to public management, nonprofit leadership and organizational effectiveness and violence prevention.

The School of Politics and Global Studies contributes to society’s understanding of politics and governance at local, national and global levels. The school’s newly launched Future of War project, in partnership with the New America Foundation, is an interdisciplinary project examining the social, cultural, political and economic implications of war and conflict on national and international levels.

The Center for Sustainable Tourism offers agencies and practitioners applied research and training capabilities on the tourism experience from the perspective of both visitors and residents to understand sustainable tourism as it relates to community development and natural resource management.

Projects at the Center for Violence Prevention and Community Safety include ongoing research focused on criminal gangs and violence in Central America. The center is currently advancing research that serves to anticipate methods and approaches that could be used by third-country nationals to commit politically-motivated crimes. ASU is also contributing to USAID SolucionES, a project to combat citizen insecurity and strengthen municipal responses to crime and violence in 50 dangerous communities in El Salvador.
Fostering Entrepreneurship

ASU offers exceptional support to developing countries seeking to encourage people to think and act as entrepreneurs and build the skills necessary to launch and sustain a business. Unlike universities that confine entrepreneurship to a business school, entrepreneurship is infused throughout all academic disciplines at ASU. Students from every major are empowered to drive economic and social change in communities throughout the world.

Featured Capabilities

ASU was one of only 18 institutions selected as a Kauffman Campus, part of an initiative by the Ewing Marion Kauffman Foundation to encourage new, interdisciplinary entrepreneurship education programs throughout American colleges and universities.

As one of the first campuses in the U.S. to be named an Ashoka U Changemaker Campus, ASU is part of a global network of 150 colleges and universities that are breaking down barriers to institutional change and fostering a campus-wide culture of social innovation.

Through the Edson Student Entrepreneur Initiative, ASU invests in up to 50 student startups each year. Selected startups receive up to $20,000 in seed funding as well as office space, mentorship and exclusive training opportunities. The program attracts close to $1 million in external funding and investment each year.

ASU has a wide range of facilities where students, faculty, staff and trainees from other countries can ideate, collaborate, create and build. Aspiring entrepreneurs can build a prototype at TechShop, collaborate with other innovators in co-working space at ASU SkySong, share their ideas with the community in the mobile Idea Box and more.

With access to a pool of more than 300 volunteer mentors, ASU can help aspiring entrepreneurs in the developing world find experienced business professionals who will share their expertise and help move ideas forward.

ASU has supported more than 300 student, faculty, alumni and external startups over the past 10 years with its startup accelerator programs.

ASU’s Innovation Challenge is a university-wide competition that encourages entrepreneurs across all academic units to solve global challenges with big ideas. ASU anticipates that 10% of the ASU student body (over 8,000 students) will participate in 2014.

The U.S. Small Business Administration (SBA) is funding the ASU Women’s Entrepreneurship Initiative, a model that the university can adapt to other cultures and geographical locations around the world. ASU is one of 50 grant recipients — and one of only three universities — selected from more than 800 applicants in the SBA’s Growth Accelerator Fund competition.

Students creating solutions

Students in ASU’s Engineering Projects in Community Service program founded programs such as SafeSIPP, a rolling barrel containing a purification unit that cleans water as it is transported; Fiji Lights, which designs and builds a sustainable lighting system for schools in Fiji that do not have access to fuels and electricity after the sun sets; and 33 Buckets, which developed a low-cost, efficient and easily maintained filtration system that will remove contaminants — most importantly arsenic — from tainted wells in Bangladesh.

Inspired by a student’s research trip to Guatemala, HydroGene Biotechnologies is developing a quick, inexpensive way to detect contaminants in drinking water.

GlobalResolve is a social entrepreneurship program that involves students in semester-long projects that directly improve the lives of people in developing countries. Students and faculty work with residents, universities, local governments, nongovernmental organizations and financial institutions to develop solutions that address pressing public health or environmental needs in the developing world.

Some of GlobalResolve’s efforts include projects in Ghana to help create a biodiesel business; develop a low-cost water purification system; and produce and sell ethanol gel fuel, which emits less pollution than wood, charcoal or dung.

“Through research-driven innovation and a vibrant entrepreneurial spirit, ASU is driving economic development in Arizona, across the U.S. and around the world.”

— Sethuraman “Panch” Panchanathan, ASU senior vice president for Knowledge Enterprise Development