Arizona State University

Strategic Enterprise Plan
2017 Update & Operational and Financial Review

Michael M. Crow
State of Rhode Island, Office of the Governor
August 3, 2017
ASU Charter

ASU is a comprehensive public research university, measured not by whom it excludes, but by whom it includes and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural, and overall health of the communities it serves.
The charter is a promise to the citizens of Arizona.

ASU has a responsibility to fulfill the requirements of the Arizona Constitution to provide public education.

The responsibility is not one that is conditional upon the actions of the legislature; it is ASU’s responsibility to find the means to fulfill its charter while seeking appropriate and fair public investment in the costs of education for Arizona resident students.
University Design Aspirations

Leverage Our Place
ASU embraces its cultural, socioeconomic and physical setting.

Enable Student Success
ASU is committed to the success of each unique student.

Transform Society
ASU catalyzes social change by being connected to social needs.

Fuse Intellectual Disciplines
ASU creates knowledge by transcending academic disciplines.

Value Entrepreneurship
ASU uses its knowledge and encourages innovation.

Be Socially Embedded
ASU connects with communities through mutually beneficial partnerships.

Conduct Use-Inspired Research
ASU research has purpose and impact.

Engage Globally
ASU engages with people and issues locally, nationally and internationally
Scale of ASU’s Assignment and Ambition
Six Forces are Reshaping Higher Education

1. Economic and social disruption is continuing to accelerate, which is placing many institutions at risk.

2. Rate and impact of technological change.

3. New business and delivery models are gaining traction.

4. Greater transparency about student outcomes is becoming the norm.

5. Student and family demands are rising for a greater return on investment in higher education.

6. The globalization of education is accelerating.
The Imperative of Innovation

2030 Production Needed to Achieve 45% BA Attainment

2030 Production Needed to Achieve 40% BA Attainment

National Degree Production Needed to Accommodate Population Growth

Current National Degree Production

Six Year Graduation Rate
Performance to Date
Enhance Research Competitiveness

Research Expenditures Have Doubled Every Six to Eight Years

- FY25 Metric = $815M
  (similar to MIT’s research activity)
- FY16 = $545M
- FY16 = $518.2M
- FY13 = $405.2M
- FY06 = $202.0M
- FY98 = $92.0M

<table>
<thead>
<tr>
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<th>Actual</th>
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Arizona Resident Graduation Rates

X = 4-year grad

4 Year ASU Graduation Rate
5 Year ASU Graduation Rate
Forecast 5 Year Rate
6 Year ASU Graduation Rate

Ohio State X 58.5%
Ut Austin X 57.8%
Michigan State 51.8% X
Purdue X 51.5%
UC Riverside X 53.1%
X Iowa State 45.3%
X Kansas 42%
Oregon State 33.2% X
Georgia State 23.4% X
Arizona Resident Graduation Rates at ASU and Four Year Graduation Rates at University of Massachusetts Campuses

X = 4-year grad

4 Year ASU Graduation Rate
5 Year ASU Graduation Rate
Forecast 5 Year Rate
6 Year ASU Graduation Rate
Arizona Resident Graduation Rates at ASU and Six Year Graduation Rates at University of Massachusetts Campuses

X = 6-year grad

- Freshman Cohort Graduation Rate
- 4 Year ASU Graduation Rate
- 5 Year ASU Graduation Rate
- Forecast 5 Year Rate
- 6 Year ASU Graduation Rate

Arizona Resident Graduation Rates at ASU:
- Freshman Year Graduation Rate: 28.4%
- 4 Year ASU Graduation Rate: 60.8%
- 5 Year ASU Graduation Rate: 62.5%
- 6 Year ASU Graduation Rate: 66.3%
- Forecast 5 Year Rate: 69.3%
- 6 Year ASU Graduation Rate: 70.1%

University of Massachusetts Campuses:
- UMass Amherst: 78%
- UMass Lowell: 56%
- UMass Dartmouth: 46%
- UMass Boston: 42%

X = 6-year grad
Four Year Graduation Rates at UIA Campuses, 2015

- 3.75+ HS GPA
- 3.5-3.74 HS GPA

- UC Average: 62
- Cal State Average: 19.1

Arizona State University
Other UIA Campuses
ASU Undergraduate Enrollment by Race/Ethnicity, Fall 2003-16

Data: University Office of Institutional Analysis, ASU
2015 National Science Foundation (NSF) Higher Education Research and Development (HERD) Rankings

Total Research Expenditures: 48 of 876 ahead of
- The University of Chicago
- Brown University
- Princeton University

Total Research Expenditures among Institutions without a Medical School:
10 of 724 ahead of
- Caltech
- Princeton University
- Carnegie Mellon University

Non-Medical School Expenditures: 27 of 876 ahead of
- Stanford University
- The University of North Carolina at Chapel Hill
- Columbia University

Social Sciences: 5 of 486 ahead of
- Berkeley University of California
- Cornell University
- UCLA
- Penn University

Political Science: 5 of 332 ahead of
- Yale University
- Columbia University in the City of New York
- Duke University
Bioengineering: 13 of 185 ahead of

Engineering Expenditures: 20 of 388 ahead of

HHS (including NIH) Funded Expenditures among Institutions without a Medical School: 10 of 409 ahead of

NASA Funded Expenditures: 11 of 433 ahead of

NSF Funded Expenditures: 25 of 586 ahead of
DOE Funded Expenditures: 24 of 366 ahead of

Yale  Columbia University  Penn  Carnegie Mellon University

DOD Funded Expenditures: 32 of 454 ahead of

Cornell University  Purdue University  US Air Force  USNA  West Point

Produced by ASU Office of Knowledge Enterprise Development. Feb 2017
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Transform Regional Economic Competitiveness
In FY14, ASU used 20% fewer resources per degree awarded than the national median. If spending were at the median, costs would have been $300 million greater.
Where Will the Resources Come From?
ASU’s commitment to financial aid continues to be crucial to affordability.

Slow shifts to further emphasize need in resident aid policies can support growth in access as K-12 and community college pipelines improve.
Source: Analysis of FAFSA data. All data adjusted to 2016 dollars using CPI.
Fall 2016 data preliminary as of 1/20/17. Analysis limited to dependent students.
Enterprise and Innovation
Mayo Clinic and ASU Alliance for Health Care

Enterprise-wide alliance transforming medical education, accelerating cutting-edge research & improving patient care through innovations
Arizona State University
Georgia State University
Iowa State University
Michigan State University
The Ohio State University
Oregon State University
Purdue University
University of California at Riverside
University of Central Florida
University of Kansas
University of Texas at Austin
ASU Downtown Phoenix Campus
The Future of Higher Education

The Real Innovations We Need
“A nation’s present well-being and future destiny are no longer constrained only by its “givens” (its geography, its population, its natural resources). Knowledge has become the prime mover…. Unlike other assets, whose utilization and investment are constrained by the law of diminishing returns, knowledge is autocatalytic, enlarging in the hands of its users; expanding in the range of its usefulness, even as it is applied; growing in scope, even as it is shared, increasing in refinement, even as it is questioned, challenged, and contested.”

— Frank Rhodes, *Creation of the Future: The Role of the American University* (2001)
“We live at the center of a knowledge explosion…. Knowledge is now the key capital resource…. Knowledge is now also the key social resource: it empowers people in a knowledge-based economy; it is what underpins any kind of critical thinking. It is civilizing. In a phrase, what counts is knowledge power.”

— Alan Wilson, Knowledge Power: Interdisciplinary Education for a Complex World (2010)
Knowledge is Not Static

Until 1900, human knowledge doubled every **100 years**

By 1945, it doubled every **25 years**

Nanotechnology: Every **2 years**

Clinical Knowledge: Every **18 months**

Basic Human Knowledge: Every **13 months**

The Internet of Things: Every **12 hours**

Knowledge is Not Static
<table>
<thead>
<tr>
<th>Wave 1</th>
<th>Greek Academies</th>
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<tbody>
<tr>
<td></td>
<td><strong>1636 -</strong></td>
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<td><strong>Scale:</strong> Small</td>
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<td>Harvard</td>
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<td>Bowdoin</td>
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<td><strong>The College(s)</strong></td>
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<td>• Classic Structure</td>
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<td>• Internal Control</td>
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<td><strong>Characteristics</strong></td>
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<td>• Small, elite, classical</td>
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<td>• Separate</td>
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<td>• Not scalable</td>
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<td><strong>Type A</strong></td>
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<td>Private, Historical</td>
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<td>• Bowdoin College</td>
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<td>• Williams College</td>
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<td>• Oberlin College</td>
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<td><strong>Type B</strong></td>
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<tr>
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<td>Private, Modern</td>
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<tr>
<td></td>
<td>• Bennington College</td>
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<td>• College of the Atlantic</td>
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<tr>
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<td><strong>Evolutionary Form</strong></td>
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<td>• Olin College</td>
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Wave 2

Public Colleges

1785 -

Scale: Medium

University of Georgia
University of Michigan
University of Virginia

The College(s)
- Classic and Post-classic Structure
- Public Control

Characteristics
- 19th century elites
- 19th century teachers colleges and non-selective
- 20th century non-selective
- Specialized public and a few privates

Type A
Public Historical
- College of William and Mary

Type B
Public Modern
- Evergreen State College

Type C
Community Colleges

Evolutionary Form
- Cal Poly San Luis Obispo

1636 -
1785 -
1862 -
1876 -
2016 -
### Land Grants

**1862 -**

**Scale:** State

- University of Wisconsin
- Penn State
- University of Illinois
- University of California

**Characteristics**

- de Tocqueville (practical)
- Local, regional focus
- Focus on the working class/masses
- Focus on science practice

**Type A**

Classic, Agriculture/Engineering
- South Dakota State University
- Montana State University
- Mississippi State University

**Evolutionary Form**

- UC Santa Cruz
- UC Merced
Wave 4

American Research University

1876 -

**Scale:** Institutional

- Johns Hopkins
- Stanford
- University of Chicago
- Harvard*
- University of Michigan*
- University of Illinois*

**Characteristics**
- Transformative American innovation
- Inherent tension between missions
- Large scale, but limited

**Type A**
Prototype
- Johns Hopkins
- Stanford
- University of Chicago

**Type B**
Classic
- Columbia University
- Harvard University

**Type C**
Land Grant
- University of Wisconsin
- Penn State
- University of Illinois

**Evolutionary Form**
- Boston University

1636 -
1785 -
1862 -
1876 -
2016 -
Wave5

**National Service University**

2016-

**Scale:** Societal

New American University (ASU)
--Purdue University

**Characteristics**

Adaptive knowledge creation is at the core of the university and is essential.

Complex adaptive scalable university

**New Evolutionary Form**

**Type A**
New American University
- Arizona State University

**Type B**
National Service Land Grant
- Purdue University
Wave 6

Global Research University

TBD -

**Scale:** Globally Interactive

**Characteristics**
- Organizational culture independent of geography
- Polycultural knowledge production methods
- Diversify financial base with funding from for-profit business spin-offs, competitive grants for technology innovation, corporate partnerships, and private donors
- Cultivation of post-national student and faculty talent base

**Rapidly Emerging Prototypes**
- MIT
- Carnegie Mellon
- Duke
Knowledge is the Driver

Advancing the pursuit, understanding and sanctity of knowledge, as well as the storage, synthesis, analysis, creation and transfer of knowledge.
Knowledge Core

Realm 1
Full Immersion
On-campus
Technology Enhanced

The ideas and means of the university
Needed Innovations:

21st century digital learning spaces
Artificial intelligence-based advising
Ubiquitous content delivery mechanisms
Intelligent tutoring platform
Personalized learning at scale
Math and science mastery for all
Realm 2

Knowledge Core

Realm 2
Digital Immersion
Online
Technology Enhanced
Realm 2

Needed Innovations:

- Technology to support human relationships and build organizational affinity
- “Integrated” human-tutor interface
- Real time assessment
- Development-based assessment
- Math and science mastery for all
Realm 3

Knowledge Core

Realm 3
Digital Immersion
Massively Open
Technology Enhanced
Needed Innovations:

- Technologies that derive value from scale
- Content and delivery for any life stage
- Multi-organizational pathway mapping
- Math and science mastery for all
Realm 4

Knowledge Core

Realm 4
Education through Exploration Technology Enhanced
Needed Innovations:

- Virtual augmented reality for learning
- Direct human cognition linkages
- Intelligent tutoring through verbal query
- Group learning tools
- Math and science mastery for all
Needed Innovations:

- Infinitely scalable teaching
- Seamless integration of individualized learning across life stages
- Lifelong intelligent tutoring
- Math and science mastery for all
Innovations needed

**Realm 1**
- Full Immersion
- On-campus
- Technology Enhanced

**Realm 2**
- Digital Immersion
- Online
- Technology Enhanced

**Realm 3**
- Digital Immersion
- Massively Open
- Technology Enhanced

**Realm 4**
- Education through Exploration
- Technology Enhanced

**Realm 5**
- Infinitely Scalable Learning

- 21st century digital learning spaces
- Artificial intelligence-based advising
- Ubiquitous content delivery mechanisms
- Intelligent tutoring platform
- Personalized learning at scale
- Technology to support human relationships and build organizational affinity
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- Seamless integration of individualized learning across life stages
- Lifelong intelligent tutoring

**Math and science mastery for all**
http://president.asu.edu/SEP_OFR_RI