Arizona State University

Strategic Enterprise Plan

2017 Update & Operational and Financial Review

Michael M. Crow
University of Massachusetts Board of Trustees
August 4, 2017
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.
Responsibility and the Public Trust

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.

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

Value Entrepreneurship
ASU uses its knowledge and encourages innovation.

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

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

Fuse Intellectual Disciplines
ASU creates knowledge by transcending academic disciplines.

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

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.
Performance to Date
Total Undergraduate and Graduate Degrees
Actual and Metric Goals
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
FY98 = $92.0M
FY06 = $202.0M

$ Million

FY21
FY25

Actual
Goal
Arizona Resident Graduation Rates

X = 4-year grad

- Ohio State X 58.5%
- UT Austin X 57.8%
- UC Riverside X 53.1%
- Purdue X 51.5%
- Iowa State 45.3%
- Kansas 42%
- Michigan State 51.8%
- Oregon State 33.2%
- Georgia State 23.4%

Atlanta State Graduation Rates

X = 5-year grad

- Georgia State 23.4%
- Purdue X 51.5%
- UC Riverside X 53.1%
- Iowa State 45.3%
- Kansas 42%
- Michigan State 51.8%
- Oregon State 33.2%

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 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
Four Year Graduation Rates at UIA Campuses, 2015

- Arizona State University: 3.75+ HS GPA
- Other UIA Campuses: 3.5-3.74 HS GPA

UC Average: 62
Cal State Average: 19.1
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, University of North Carolina at Chapel Hill, Columbia University

Social Sciences: 5 of 486 ahead of

Berkeley, Cornell University, UCLA, Penn

Political Science: 5 of 332 ahead of

Yale, Columbia University, Duke
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
U.S. Air Force
USNA
West Point

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Transform Regional Economic Competitiveness

Top 25 in the U.S. for Technology Transfer and Commercialization

[Map showing universities and locations related to technology transfer and commercialization]
In FY14, ASU used 20% fewer resources per degree awarded than the national median. If spending were at the median, costs would have been $300 million greater.
Where Will the Resources Come From?
ASU University Gross Revenue Sources: All Funds ($ millions)

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<th>Year</th>
<th>Gross Revenue as of 7/1/02</th>
<th>$0</th>
<th>$500</th>
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<td>$365</td>
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<tr>
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</table>

- **Research including F&A (external only)**
- **TRIF**
- **Auxiliary**
- **Gifts**
- **Other E&G sources**
- **Scholarship allowance**
- **New revenue sources**
- **ASU Online tuition (gross)**
- **Fees and summer session**
- **Thunderbird**
- **Graduate tuition**
- **International UG tuition**
- **Non-Resident UG tuition**
- **Resident UG tuition**
- **State appropriations**

FY08: $1.5B, FY12: $1.9B, FY16: $2.6B, FY18: $2.9B, FY20: $3.5B, F25: $4.4B
ASU Full-Time Resident Undergraduate Students
2016 Net Tuition Paid (after gift aid and tuition benefits)

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.
ASU First-Time Full-Time Freshmen Enrollment by Adjusted Family Income

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
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
Evolutionary History of American Higher Education

**Greek Academies**
- Scale: Small
  - Harvard
  - Princeton
  - Bowdoin

**Public Colleges**
- Scale: Medium
  - University of Georgia
  - University of Michigan
  - University of Virginia

**Land Grants**
- Scale: State
  - University of Wisconsin
  - Penn State
  - University of Illinois
  - University of California

**American Research University**
- Scale: Institutional
  - Johns Hopkins
  - Stanford
  - University of Chicago
  - Harvard*
  - University of Michigan*
  - University of Illinois*

**National Service University**
- Scale: Societal
  - New American University (ASU)
  - Purdue University

Timeline:
- 1636 - 1785 - 1862 - 1876 - 2016
The College(s)
- Classic Structure
- Internal Control

Characteristics
- Small, elite, classical
- Separate
- Not scalable

Type A
Private, Historical
- Bowdoin College
- Williams College
- Oberlin College

Type B
Private, Modern
- Bennington College
- College of the Atlantic

Evolutionary Form
- Olin College
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 -
Wave 3

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 -**

<table>
<thead>
<tr>
<th>Scale: Institutional</th>
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<tbody>
<tr>
<td>Johns Hopkins</td>
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<tr>
<td>Stanford</td>
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<tr>
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<tr>
<td>Harvard*</td>
</tr>
<tr>
<td>University of Michigan*</td>
</tr>
<tr>
<td>University of Illinois*</td>
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</tbody>
</table>

### 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
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 -

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
Advancing the pursuit, understanding and sanctity of knowledge, as well as the storage, synthesis, analysis, creation and transfer of knowledge.
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
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
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
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
- “Integrated” human-tutor interface
- Real time assessment
- Development-based assessment
- Technologies that derive value from scale
- Content and delivery for any life stage
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- Group learning tools
- Infinitely scalable teaching
- Seamless integration of individualized learning across life stages
- Lifelong intelligent tutoring

Math and science mastery for all
https://president.asu.edu/SEP_OFR_MA