Environmental assessment tools for research

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Session Objectives

• Provide overview of elements to include in an assessment of the research mission
• Understand the necessary components to successfully complete an internal and external assessment of the research environment
• Identify publicly available data and its use in your comparative assessments
• Understand how the data can provide insight into future performance and ongoing measurement
• Highlight options to assess future trends
Four Simple Questions

Where is the Organization Today?

Where Should the Organization Be in the Future?

How Should the Organization Get There?

Is the Organization Getting There?
Elements of a Strategic Plan

- Mission & Values
- Environment
- Vision & Goals
- Strategic Initiatives
- Operating Plans

Strategic Plan

- Internal assessment
- External assessment
Environmental Assessment Components

**INTERNAL ASSESSMENT**

- Trends in research and funding (by department)
- Technology Transfer
- Facilities and technology (including IT)
- Infrastructure – supporting units
- Strengths and weakness of key departments/units and the organization
- Quality indicators
  - Employee satisfaction
  - Prestigious positions/awards
  - Leadership in external organizations

**EXTERNAL ASSESSMENT**

- Research funding trends
- Pharmaceutical / technological trends
- Economic development (new partnerships, spin-outs, etc.)
- Demographic trends
- Key competitors
- Financial trends and portfolio diversity
- Opportunities/threats to programs
Critical Components of an Environmental Assessment

Data
- **examined** at a detailed level, but
- **presented** in summary fashion
- with minimal impact on strategic situation of the organization should be **excluded**

Assessment that tells a story
- does not just present a series of factoids
- does not just show how much analysis has been conducted

Conclusion that narrows various strategic options
## Strengths, Weaknesses, Opportunities, Threats (SWOT)

<table>
<thead>
<tr>
<th><strong>STRENGTHS</strong></th>
<th><strong>WEAKNESSES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Current advantages</td>
<td>Current deficiencies</td>
</tr>
<tr>
<td>Build</td>
<td>Remedy</td>
</tr>
<tr>
<td>Leverage</td>
<td>Eliminate</td>
</tr>
<tr>
<td>Maintain</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>OPPORTUNITIES</strong></th>
<th><strong>THREATS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Known possibilities to strengthen and/or improve your program</td>
<td>Possible external events that could harm your program</td>
</tr>
<tr>
<td>Prioritize</td>
<td>Counter</td>
</tr>
<tr>
<td>Maximize</td>
<td>Reduce</td>
</tr>
</tbody>
</table>

**Resource:** Templates on AAMC GIP website
**Examples of Conclusions and Implications**

**Key Conclusions**

1. Strong “market” position in all missions:
   - NIH funding
   - US News school rankings
   - Clinical areas of excellence rankings

2. Flat research funding from traditional sources:
   - NIH budget is anticipated to remain flat and the focus on translational/multidisciplinary research will continue
   - Clinical research is an opportunity for growth, but not a traditional focus

**Implications**

- Less strategic advantage to be gained by increasing rankings (except in some key clinical areas and Departments)
- Risks of a perceived “declining position” are a greater threat

- Need to be prepared to compete for multidisciplinary projects
  - consider new funding sources (such as development of intellectual property)
  - maximize research efficiency
- Competition for strong faculty may increase
Word of Caution

“Perfect is the Enemy of Good!”

There is no such thing as perfect data. Data is useful to provide us with a direction for change.
Creating and Implementing Strategic Plans Workshop

Macro Trends

Sources of Information
University R&D Funding by Source

Sources: AAAS Budget & Policy Program and National Science Foundation’s National Center for Science and Engineering Statistics

Creating and Implementing Strategic Plans Workshop
University R&D Funding by Federal Agency

Sources: AAAS Budget & Policy Program and National Science Foundation's National Center for Science and Engineering Statistic
NIH Appropriation in Current and Constant $ with Sequestration and FY14 House & Senate Budgets*

*Based on the FY 2014 302(b) allocations approved by the House Appropriations Committee and the Senate FY 2014 LHHS appropriations bill

Resource: Sequestration Fact Sheet 09/11/13
Source: Federation of American Societies for Experimental Biology
### Estimated Distribution of US R&D Funds in 2013

<table>
<thead>
<tr>
<th>Source of R&amp;D Funds to Academia</th>
<th>Billions of Current US Dollars</th>
<th>Estimated % Change from FY12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Government</td>
<td>$41.3</td>
<td>-0.8%</td>
</tr>
<tr>
<td>Industry</td>
<td>$3.3</td>
<td>1.6%</td>
</tr>
<tr>
<td>Academia</td>
<td>$12.6</td>
<td>2.1%</td>
</tr>
<tr>
<td>Other Government</td>
<td>$4.4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Non-Profit</td>
<td>$5.1</td>
<td>4.2%</td>
</tr>
<tr>
<td>Total</td>
<td>$66.6</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

Source: Batelle R&D Magazine
## NIH RPG Success Rates Are Available by SOM Department

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Medical School Department Name</th>
<th>Number of Applications Reviewed</th>
<th>Number of Applications Awarded</th>
<th>Success Rate³</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>ANATOMY/CELL BIOLOGY</td>
<td>866</td>
<td>214</td>
<td>24.7%</td>
</tr>
<tr>
<td>2012</td>
<td>ANESTHESIOLOGY</td>
<td>324</td>
<td>68</td>
<td>21.0%</td>
</tr>
<tr>
<td>2012</td>
<td>BIOCHEMISTRY</td>
<td>1,340</td>
<td>279</td>
<td>20.8%</td>
</tr>
<tr>
<td>2012</td>
<td>DERMATOLOGY</td>
<td>185</td>
<td>35</td>
<td>18.9%</td>
</tr>
<tr>
<td>2012</td>
<td>EMERGENCY MEDICINE</td>
<td>77</td>
<td>9</td>
<td>11.7%</td>
</tr>
<tr>
<td>2012</td>
<td>FAMILY MEDICINE</td>
<td>161</td>
<td>19</td>
<td>11.8%</td>
</tr>
<tr>
<td>2012</td>
<td>GENETICS</td>
<td>777</td>
<td>169</td>
<td>21.8%</td>
</tr>
</tbody>
</table>

Excludes awards made with American Recovery and Reinvestment Act (ARRA) funds.

New Federal Opportunities: Health Services Research

Centers for Medicaid and Medicare Services
development and testing of innovative health care payment and service delivery models

The CMS Innovation Center

The Center for Medicare & Medicaid Innovation (the Innovation Center) with CMS supports the development and testing of innovative health care payment and service delivery models.
### Figure 2: Framework for the Translation of PCORI National Priorities into the Research Agenda

<table>
<thead>
<tr>
<th>Priorities</th>
<th>PCORI Criteria</th>
</tr>
</thead>
</table>
| **40%** Assessment of Options for Prevention, Diagnosis, and Treatment | • Impact on Health of Individuals and Populations  
• Improvability via Research  
• Inclusiveness of Different Populations |
| **20%** Improving Healthcare Systems            | • Addresses Current Gaps in Knowledge/Variation in Care  
• Impact on Health Care System Performance  
• Potential to Influence Decision Making |
| **10%** Communication and Dissemination Research| • Patient-Centeredness  
• Rigorous Research Methods  
• Efficient Use of Research Resources |
| **20%** Addressing Disparities                  |                                                                 |
| **20%** Accelerating PCOR and Methodological Research |                                                           |
New Federal Opportunities: Health Services Research

Agency for Healthcare Research and Quality
comparative effectiveness, prevention & care management, value, patient safety, health information technology, emerging issues

Department of Veterans Affairs
organization, delivery, and financing of health care to improve the quality and economy of care
Assessing the Internal Environment

Considerations and Data Sources
Internal Assessment Categories

• Trends in research and funding (by department)
• Technology Transfer
• Facilities and technology (including IT)
• Infrastructure – supporting units
• Strengths and weakness of key departments/units and the organization
• Quality indicators
  o Employee satisfaction
  o Prestigious positions/awards
  o Leadership in external organizations
# The Faculty

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Dept A</th>
<th>Dept B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Faculty Number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mix of PhDs / MDs / MD-PhD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funded Research Faculty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PIs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average funding per research faculty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average # of proposals per research faculty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average age of funded faculty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty funded over X $ amount (heavy hitters)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average age of heavy hitters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender mix</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity mix</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Create a profile of faculty by department to begin to develop trends and assessment of potential risk points.
The Faculty

The development of tools to assess sustainability of faculty funding is more important as funding pressures increase.

Other Indicators of Impact Include Trends in:

- Publications
- Philanthropy
- Leadership
- Collaborations: Numbers of relationships with other departments / centers via publications or awards
- Citations
- Tech Transfer
- Impact of research (H Index)
Individual Faculty Recognition

Leadership
- Journal editors
- Symposium organizers
- Society or external organization officers

Prestigious Groups/Awards
- Faculty of 1000
- Institute of Medicine
- National Academy of Sciences
- Nobel Laureates
- Howard Hughes Investigators
- McArthur Awardees
- Lasker Foundation

MacArthur Foundation
Emory’s Millipub Club: Authors of Papers with >1000 citations

<table>
<thead>
<tr>
<th>Scientist</th>
<th># cites</th>
<th>Paper</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kathy Griendling</td>
<td>1409</td>
<td>1994 Circ Res</td>
<td>Angiotensin II NADPH oxidase</td>
</tr>
<tr>
<td></td>
<td>1351</td>
<td>2000 Circ Res</td>
<td>NADPH oxidase</td>
</tr>
<tr>
<td></td>
<td>1284</td>
<td>1996 J Clin Inves</td>
<td>Angiotensin II NADPH oxidase</td>
</tr>
<tr>
<td></td>
<td>1101</td>
<td>1991 Nature</td>
<td>Identification of angiotensin II receptor</td>
</tr>
<tr>
<td>David Harrison</td>
<td>1284</td>
<td>1996 J Clin Inves</td>
<td>Angiotensin II NADPH oxidase</td>
</tr>
<tr>
<td></td>
<td>1167</td>
<td>1993 J Clin Inves</td>
<td>Hypercholesterolemia &amp; superoxides</td>
</tr>
<tr>
<td>Steve Warren</td>
<td>1536</td>
<td>1991 Cell</td>
<td>Identification of Fragile X gene</td>
</tr>
<tr>
<td></td>
<td>1123</td>
<td>1991 Cell</td>
<td>Triplet repeat of FMR1 causes disease</td>
</tr>
<tr>
<td>Wayne Alexander</td>
<td>1410</td>
<td>1994 Circ Res</td>
<td>Angiotensin II NADPH oxidase</td>
</tr>
<tr>
<td></td>
<td>1101</td>
<td>1991 Nature</td>
<td>Identification of angiotensin II receptor</td>
</tr>
<tr>
<td>Mike Frankel</td>
<td>3182</td>
<td>1995 NE J Med</td>
<td>TPA for acute ischemic stroke</td>
</tr>
<tr>
<td>Haian Fu</td>
<td>2926</td>
<td>1997 Cell</td>
<td>Role of Akt and BAD in apoptosis</td>
</tr>
<tr>
<td>Dean Jones</td>
<td>2714</td>
<td>1997 Science</td>
<td>Role of Bcl2 and cytochr C in apoptosis</td>
</tr>
<tr>
<td>Ray Dingledine</td>
<td>1755</td>
<td>1999 Pharmac Rev</td>
<td>Glutamate receptor ion channels</td>
</tr>
<tr>
<td>Steve Traynelis</td>
<td>1755</td>
<td>1999 Pharmac Rev</td>
<td>Glutamate receptor ion channels</td>
</tr>
<tr>
<td>Larry Phillips</td>
<td>1355</td>
<td>2004 JAMA</td>
<td>Estrogen trial in postmenopausal women</td>
</tr>
<tr>
<td>Andrew L Smith</td>
<td>1352</td>
<td>2002 New Engl J Med</td>
<td>Resynchronization in heart failure</td>
</tr>
<tr>
<td>Angel R Leon</td>
<td>1352</td>
<td>2002 New Engl J Med</td>
<td>Resynchronization in heart failure</td>
</tr>
<tr>
<td>Dan Sorescu</td>
<td>1351</td>
<td>2000 Circ Res</td>
<td>NADPH Oxidase</td>
</tr>
<tr>
<td>John Altman</td>
<td>1239</td>
<td>1998 Immunity</td>
<td>CD8 T-cell activation in viral infection</td>
</tr>
<tr>
<td>Rafi Ahmed</td>
<td>1239</td>
<td>1998 Immunity</td>
<td>CD8 T-cell activation in viral infection</td>
</tr>
<tr>
<td>TJ Murphy</td>
<td>1101</td>
<td>1991 Nature</td>
<td>Identification of angiotensin II receptor</td>
</tr>
<tr>
<td>Paul Fernhoff</td>
<td>1058</td>
<td>1985 New Engl J Med</td>
<td>Retinoic acid embryopathy</td>
</tr>
<tr>
<td>Marla Luskin</td>
<td>1014</td>
<td>1993 Neuron</td>
<td>Postnatally generated neurons</td>
</tr>
</tbody>
</table>
### UAB SOM’s “NIH Heavy Hitters”

<2% PIs Bring in >20% of NIH Award 

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Total Awards</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bob Kimberly</td>
<td>CTSA Director</td>
<td>$7,730,696</td>
<td>5.2%</td>
</tr>
<tr>
<td>Ed Partridge</td>
<td>CCC Director</td>
<td>$7,361,871</td>
<td>5.0%</td>
</tr>
<tr>
<td>Mona Fouad</td>
<td>Minority Health</td>
<td>$2,740,829</td>
<td>1.8%</td>
</tr>
<tr>
<td>Michael Saag</td>
<td>CFAR Director</td>
<td>$11,587,443</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

Data analyzed from: NIH ExPORTER

Creating and Implementing Strategic Plans Workshop
Financial Data

Extramural Support Trends
- External sponsor types and Awards Types
- Mix of awards and impact on IDCR (foundations, federal)
- Average award sizes and durations

Identification of Financial Sources and their Risks
- Extramural support
- Philanthropic support
- Industry
- Government support (state, federal)
- Institutional partners (healthcare delivery system, university)
### Example of Research Score Card

- Track trends month to month, quarter to quarter
- Compare to prior years worth of data to normalize for timing issues (expenditures, types of awards, indirects, directs)

<table>
<thead>
<tr>
<th>Department</th>
<th>FY 13</th>
<th>FY 12</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department 1</td>
<td>$5,079,000</td>
<td>$1,819,000</td>
<td>179%</td>
</tr>
<tr>
<td>Department 2</td>
<td>$28,728,000</td>
<td>$24,476,000</td>
<td>17%</td>
</tr>
<tr>
<td>Department 3</td>
<td>$7,381,000</td>
<td>$6,533,000</td>
<td>13%</td>
</tr>
<tr>
<td>Department 4</td>
<td>$14,565,000</td>
<td>$15,055,000</td>
<td>-3%</td>
</tr>
<tr>
<td>Department 5</td>
<td>$50,309,000</td>
<td>$53,756,000</td>
<td>-6%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$106,062,000</strong></td>
<td><strong>$101,639,000</strong></td>
<td><strong>4%</strong></td>
</tr>
</tbody>
</table>
Assessing Research Infrastructure

Grant Submissions
- What are your success rates?
- Is mentoring available for new investigators?
- Is there financial support for pilot data collection?

Robustness/Nimbleness of Research Administration
- How fast are your application/award turnaround times?
- Is there institutional support for large programs or centers that is meaningful?
- How service-oriented are your regulatory review offices?
Assessing Research Infrastructure

Space
• Is there enough? Is it the right type?
• What is the average age of plant? Is it good space?
• Is it well-utilized?

Specialized equipment/facilities
• Do you have what it is needed?
• What is the utilization?
• Is there appropriate scientific expertise?
• Is there adequate institutional support and financial management?
• Is there long-term planning – replacement, sundowning, expansion?
Space Comparisons & Benchmarks
Alignment of $ and Square Feet

Potential areas of mismatch when comparing internal data sources or peers
- Core facilities
- Server farms
- Animal housing & procedure areas
- Clinical research vs bench research

Consider:
- MTDC expenditures/net square feet – excludes equipment, alterations, clinical care, etc.
- Different benchmark for wet vs dry research
Surveys and Interviews

Use Survey tools such as Survey Monkey to gather broad input on current needs and priorities.

Stakeholder interviews – leaders, investigators, new investigators, new recruits.

Goal is to gather input and understand where we are and what is needed to move the organization forward.
Interviews or Survey Questions
Research Priorities

Signature Programs
What 4 major research initiatives could differentiate us on the national or world stage?

Research Strengths
What 4 areas represent your research strengths? Consider critical mass, greatest activity, leading individuals.

Overlap with Peers
Which strengths are in the top 3 research priorities of our peers or the top institutions in the nation?

Strategic Partnerships
Are there collaborations or partnerships on, or off, campus that could promote or reinforce the research strengths or signature programs?

Modified from: University of Calgary Research Strategic Plan
Creating and Implementing Strategic Plans Workshop
Other Questions for Your Stakeholders

1. What **will you do** to differentiate research activity at the SOM, local, & national levels?

2. What **barriers or limitations** exist for success and how do we overcome these?

3. What **assets** (talent, infrastructure, or core facilities) will be required to vault your SOM to the top 5 in 10 years?

4. What are some distinct mechanisms to encourage **cross-cutting faculty collaboration** on priorities?

5. How can we more fully **engage our community** in our research and enhance our ‘return to the community’?

*Modified from: University of Calgary Research Strategic Plan*
Assessing the External Environment

What can you benchmark against and what comparative data are available?
# External Data Types and Sources

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Awards/Expenditures/Rankings</th>
<th>Space</th>
<th>Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>• AAMC Famous</td>
<td>• AAMC Medical School Profile System</td>
<td>• AAMC GBA Metrics Survey (contact your GBA rep)</td>
<td>• Google Scholar</td>
</tr>
<tr>
<td>• AAMC Organizational</td>
<td>• NIH ExPORTER</td>
<td></td>
<td>• National Library of Medicine</td>
</tr>
<tr>
<td>Characteristics Database</td>
<td>• NIH RePORT</td>
<td></td>
<td>• Web of Science, including the</td>
</tr>
<tr>
<td></td>
<td>• Blue Ridge Institute for</td>
<td></td>
<td>Science Citation Index and Social</td>
</tr>
<tr>
<td></td>
<td>Medical Research</td>
<td></td>
<td>Science Citation Index</td>
</tr>
<tr>
<td></td>
<td>• US News</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tech Transfer**

• AUTM Annual Licensing Survey

• US Patent and Trademark Office
Who Should You Compare?

Manageable comparisons (~10 schools)

Familiarity – recent recruitments, networking

Similarity

• Faculty size
• Research intensity
• Organizational structure
• Geography - useful to study for collaborative opportunities
# Peers for this Exercise

**GIP Steering Committee SOMs**

<table>
<thead>
<tr>
<th>School</th>
<th>Ownership/Control</th>
<th>Research Intensity*</th>
<th>Practice Plan Legal Structure</th>
<th>Hospital Relationship</th>
<th>Ownership of Integrated AMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>Public</td>
<td>26</td>
<td>Separate Not-For-Profit Corp</td>
<td>Common</td>
<td>State</td>
</tr>
<tr>
<td>Arizona</td>
<td>Public</td>
<td>68</td>
<td>Separate Not-For-Profit Corp</td>
<td>Separate</td>
<td>Other Non-Profit</td>
</tr>
<tr>
<td>Chicago</td>
<td>Private</td>
<td>29</td>
<td>Owned by University or SOM</td>
<td>Separate</td>
<td>Other Non-Profit</td>
</tr>
<tr>
<td>Emory</td>
<td>Private</td>
<td>17</td>
<td>Owned by University or SOM</td>
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<td>Mt. Sinai</td>
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<td>Rochester</td>
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<td>33</td>
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<td>Common</td>
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<tr>
<td>UTMB (freestanding)</td>
<td>Public</td>
<td>50</td>
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<td>Common</td>
<td>State</td>
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<td>Wash U</td>
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<td>9</td>
<td>Owned by University or SOM</td>
<td>Separate</td>
<td>Other Non-Profit</td>
</tr>
</tbody>
</table>

*Based on federal expenditures

**Data Source:**  
AAMC Organizational Characteristics database
Extramural Support for Research

Show me the money
Comparison of 2012 Revenue Sources

Data Source: AAMC Medical School Profile System

Creating and Implementing Strategic Plans Workshop
Grants & Contracts Expenditure Trends

Assessment Questions

How reliant are you on federal support?

What has changed in the last 5 years or last year?

What non-federal grants or contracts sources are driving this?

Data Source: AAMC MSPS

Creating and Implementing Strategic Plans Workshop
Identifying Strength: NIH Institutes Signature (Institutes that comprise ≥50% of 2012 grant $)

Assessment Questions

- Are we reliant on one or more NIH institutes for more than 50% of our support?
- What unique strengths or programs do we have?

Data Source: NIH ExPORTER

Creating and Implementing Strategic Plans Workshop
What About Rankings?

Blue Ridge Institute for Medical Research

- Unofficial NIH rankings for medical schools and medical school departments
- Spans 2006 to 2012
- Inconsistently includes (or excludes) R&D contracts
- May help (or hurt) with public reputation
- Surrogate measure of number of research faculty

US News Best Medical Schools: Research

- Considers NIH total dollar grants awarded and of grants per faculty member (0.15 each of the overall score)
- Controversial reputational ranking – is it the right focus for medical students?
## Applied Research: Intellectual Property

<table>
<thead>
<tr>
<th>Institution</th>
<th>Invention Disclosures</th>
<th>Licenses</th>
<th>Options</th>
<th>Patents Filed</th>
<th>U.S. Patents Issued</th>
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<tr>
<td>Alabama</td>
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<tr>
<td>Emory</td>
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</table>

Data Source: Fiscal Year 2012 AUTM Licensing Survey

Creating and Implementing Strategic Plans Workshop
“Bang for the Buck” Comparative Analyses

- Invention Disclosures / R&D Expenditures
- Institutional H-Index / R&D Expenditures
- Emory’s “Bang for Buck” (H-Index / NIH $)
- Emory’s “Impact Efficiency” (NIH PI / H-Index)

<table>
<thead>
<tr>
<th>Institution</th>
<th>(A) H-Index</th>
<th>(B) NIH Funding ($ millions)</th>
<th>(C) Unique PIs</th>
<th>(D) Bang for Buck = A/B</th>
<th>(D) Impact Efficiency = C/A</th>
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<tbody>
<tr>
<td>Stanford</td>
<td>194</td>
<td>$1,789</td>
<td>619</td>
<td>0.108</td>
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<td>554</td>
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</tr>
</tbody>
</table>
Faculty Demographics

The Most Important Resource
Assessment Questions

Has the faculty size changed?

What diversity subsets are we striving to attract and retain?

Data Source: AAMC MSPS
Creating and Implementing Strategic Plans Workshop
Full-Time Faculty by Dept or Degree Type

ARIZONA

- Basic Science
- Clinical Science

UTMB

- MD
- PhD + MD/PhD

Data Sources: AAMC MSPS and AAMC FAMOUS

Creating and Implementing Strategic Plans Workshop
2012 Faculty Diversity
(size of sphere correlates with 2012 total faculty, value = % unknown race)

Data Source: AAMC FAMOUS
Creating and Implementing Strategic Plans Workshop
Resources to Help Identify Opportunities and Future Trends

Opportunities & Threats
Prepared for the Future
Identifying Federal Research Opportunities

- AAAS R&D Budget & Policy Program
- NIH strategic plans
- NIH Common Fund
- National Science Foundation strategic plan
- Patient-Centered Outcomes Research Institute
- HHS Strategic Plan
Example of a 2014 NIH Common Fund Emerging Program

**Goal**: Increase understanding of poorly understood proteins within four of the most commonly drug-targeted protein families
- G-protein coupled receptors
- nuclear receptors
- ion channels
- protein kinases

**3-year pilot phase:**

Establish an integrated Knowledge Management Center and web portal for facile query and browsing tools for multiple data-sources

**Technology development**: adaptation of scalable assays and technologies to enable deep annotation of the Druggable Genome.

**Source**: NIH Common Fund initiatives
Future Opportunities: Federal Priorities for FY2015 R&D

"Grand Challenges" – high-risk, high-return research.

- Advanced manufacturing
- Clean energy technology and efficiency
- Climate change
- Information technology dealing with Big Data and cybersecurity
- National security
- Biological innovation and neuroscience
- STEM education

Sources: OMB FY2015 R&D Priorities Memo and AAAS R&D Budget and Policy Program
Forecasting Resources

Batelle Global R&D Funding Forecast
- The Uncertain State of U.S. R&D
- 2012 Global R & D Funding Forecast: Stable Growth of U.S. R & D

PharmaDeals Reviews
- Annual review of deal making – comes out in Jan or Feb

Tufts Center for Drug Development
- Outlook report – released in January

NIH Office of Budget
- Current Budget Year
- Budget Request
Summary

• The assessment is not limited by available data resources

• Engage diverse faculty in the conversation—people with different training, perspectives, careers will improve strategic thinking

• Being prepared for the future requires regular and frequent reassessment of internal and external information

Learn ● Serve ● Lead

Plan ● Listen ● Read