“Federal funding sources: where the money really is…”

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Simon Rhodes, IUPUI
Cathleen Webb, Western Kentucky University
If you want the slides...

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Abstract. Many federal agencies support the arts, humanities, and sciences, but many faculty are only aware of the grant programs offered by a subset of the total. Further, some of the agencies commonly targeted by faculty for funding do not have the largest budgets for research grants. This session will describe the full array of federal funding agencies, their interests and goals, what funds they have to disperse for research, and their review methodologies and applicant success rates.
Science (and Engineering)

Simon Rhodes
Dean of Science, IUPUI
Who Pays for Science Research and Development in the US?

[Graph showing the trend of who pays for science research and development over the years, with categories for Industry, Federal Government, Universities & Colleges, Other Nonprofit, and State and Local Government.]

[Link: www.nsf.gov/statistics/indicators/]
Total R&D by Agency, FY 2016

budget authority in billions of dollars

DOD, $72.2
HHS (NIH), $31.9
DOE, $12.5
NASA, $12.3
NSF, $6.3
USDA, $2.9
Commerce, $2.1
All Other, $6.2

Total R&D = $146.4 billion

DOD > HHS > DOE > NASA > NSF > USDA...

Source: OMB R&D data, agency budget justifications, and other agency documents and data. R&D includes conduct of R&D and R&D facilities. © 2015 AAAS

Matt Hourihan
AAAS R&D Budget and Policy Program
http://www.aaas.org/program/rd-budget-and-policy-program

Federal Research and Development Funding Comparison (2013)

Total Federal Obligations for R&D (~$125b 2013) (~$131b 2015)

- DOD: 51%
- HHS (NIH): 23%
- NASA: 8%
- DOE: 8%
- NSF: 4%
- Others (including USDA, etc.): 6%


## Federal Obligations for R&D

### TABLE 2. Total federal obligations for research and development, by performer and percentage distribution: FYs 2011–15

(Current dollars in millions)

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</thead>
<tbody>
<tr>
<td>All agencies, all performers</td>
<td>135,491</td>
<td>138,485</td>
<td>125,388</td>
<td>128,588</td>
<td>130,637</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
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<tr>
<td>Intramural</td>
<td>35,145</td>
<td>34,368</td>
<td>32,965</td>
<td>33,211</td>
<td>32,386</td>
<td>25.9</td>
<td>24.8</td>
<td>26.3</td>
<td>25.8</td>
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<tr>
<td>Industry</td>
<td>53,550</td>
<td>58,910</td>
<td>49,538</td>
<td>50,963</td>
<td>62,945</td>
<td>39.5</td>
<td>42.5</td>
<td>39.5</td>
<td>39.6</td>
<td>40.5</td>
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<tr>
<td>FFRDCs</td>
<td>10,786</td>
<td>10,058</td>
<td>10,080</td>
<td>10,277</td>
<td>11,092</td>
<td>8.0</td>
<td>7.3</td>
<td>8.0</td>
<td>8.0</td>
<td>8.5</td>
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<tr>
<td>Universities and colleges</td>
<td>27,680</td>
<td>27,510</td>
<td>25,772</td>
<td>26,960</td>
<td>26,978</td>
<td>20.4</td>
<td>19.9</td>
<td>20.6</td>
<td>21.0</td>
<td>20.7</td>
<td>20.7</td>
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<tr>
<td>Other nonprofit institutions</td>
<td>6,637</td>
<td>6,347</td>
<td>5,915</td>
<td>6,010</td>
<td>6,021</td>
<td>4.9</td>
<td>4.6</td>
<td>4.7</td>
<td>4.7</td>
<td>4.6</td>
<td>4.6</td>
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<tr>
<td>State and local governments</td>
<td>716</td>
<td>453</td>
<td>386</td>
<td>381</td>
<td>412</td>
<td>0.5</td>
<td>0.3</td>
<td>0.3</td>
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<tr>
<td>Foreign</td>
<td>977</td>
<td>840</td>
<td>732</td>
<td>787</td>
<td>804</td>
<td>0.7</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
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FFRDC = federally funded research and development center.

NOTE: Detail may not sum to total due to rounding.

Federal Funding to Universities and Colleges (2015)

~82% of the NSF budget

HHS > Oth > NSF > DOD > DOE > NASA…

But… DOD+NASA+DOE+Oth >> NSF

DOD+NASA+DOE ≈ NSF


Major Funding Priorities for FY16

- Advanced Manufacturing
- Low-carbon energy
- Climate research and earth observation
- Agricultural R&D
- Infrastructure R&D
- Antibiotic Resistance*
- Precision Medicine*
- Discovery Science:
  - Neuroscience; Advanced computing

*New for FY16

Matt Hourihan
AAAS R&D Budget and Policy Program
http://www.aaas.org/program/rd-budget-and-policy-program
National Science Foundation

- Total Budget: +5.2%
- Highest relative changes:
  - SBE: +7.1%
  - Engineering: +6.4%
- New priority areas: Food-water-energy; climate resilience
- STEM Education
- Other activities: polar research; international collaboration; facilities construction (NEON; DKIST; LSST); multiple cross-cutting initiatives
- Approps:
  - Senate flat
  - major cuts to GEO and SBE in House

AAAS R&D Budget and Policy Program
National Institutes of Health

- $1 billion increase (+3.3%)
- Largest relative increases: Alzheimer’s research, translational science
- New initiatives:
  - Antibiotic Resistance: $100 million for NIAID
  - $200 million for Precision Medicine
- Large increase for Big Data
- BRAIN Initiative contribution increases to $135 million
- Success rate: 19.3%
- Aprops: Surprising increases
Energy Request

- Technology offices: renewed focus on efficiency, renewables, ARPA-E, smart grid, CCS
  - Manufacturing office to double

- DOE Science: +5.4%
  - Advanced Computing: +14.8%
  - Domestic fusion research cut 15%
    - ITER flat
  - Small boost for EFRCS; Hubs funding continues
NASA

- Total budget: +2.9%
- Familiar contours:
  - Earth Science, Space Technology, Commercial Crew program boosted
  - Cuts to Planetary Science, Astrophysics
  - Aeronautics funding reduced

- Since FY10:
  - Earth Sci +22.6%
  - Planetary -9.6%
  - Astrophys -0.7%
  - Webb +28.1%
  - Heliophys -2.9%
Other Agencies

- USDA: ‘no’ to increases for extramural research, facilities, innovation institutes
- EPA and U.S. Geological Survey: flat or declining
- Dept. of Commerce
  - NIST: ‘no’ to manufacturing investments
  - NOAA: ‘no’ to climate investments; weather satellites OK
- DOT: Surface transportation R&D awaits reauthorization
Useful resources

• AAAS R&D Budget and Policy Program
  • http://www.aaas.org/program/rd-budget-and-policy-program
  • Matt Hourihan

Funding sources for the arts and humanities

Julie Candler Hayes
Dean, College of Humanities and Fine Arts
University of Massachusetts Amherst
The federal funding picture, 2005-2012

[Bar chart showing trends in federal funding by field from 2005 to 2012]
NEH program funds, FY14

- Federal/State Partnership: 37.1%
- Preservation & Access: 14.5%
- Research: 13.0%
- Public Programs: 11.6%
- Education: 11.3%
- Challenge Grants: 7.7%
- Digital Humanities: 4.0%
- Miscellaneous Humanities Projects: 0.7%
The significance of institutional support
Helpful resources

- [http://college.lclark.edu/offices/sponsored_research/funding/arts/](http://college.lclark.edu/offices/sponsored_research/funding/arts/) (Lewis & Clark College)

- [http://hallcenter.ku.edu/funding-resources](http://hallcenter.ku.edu/funding-resources) (University of Kansas, Hall Center for the Humanities)
Moving Towards Federal Funding

Cathleen Webb
Associate Dean for Research
Western Kentucky University
Trajectory

Internal + Start Up → State, local, regional → Federal

Resources and Support
(Department, College, OSP)

Development of Grantsmanship skills leads to Sustainability
Internal = Training Wheels

Internal grant program reflects external process

Preparation → Submission → Review → Research Project → Dissemination → Follow Through

Budget Preparation, Timeline, Proposal Guidelines
Professional Development Mechanisms

Research Initiatives and Scholarly Endeavors

Meeting with OSP
Seminars and Workshops
Funding List Serves
Mentoring for Research Development
Internal Funding → External Funding
Research Program Strategic Planning
State Funding

Identify State (local and regional) Agencies
State Funding Programs
  Environment    Agriculture
  Education      Transportation
  EPSCoR         INBRE
Identify Links with State Missions
  Visit by Researchers
  Campus Visits by Agency
  State Conferences
Average number of submissions to NSF prior to first funding
NSF Success Rates

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2013</th>
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<tbody>
<tr>
<td>Early</td>
<td>20%</td>
<td>17.5%</td>
</tr>
<tr>
<td>Established</td>
<td>25%</td>
<td>20.5%</td>
</tr>
</tbody>
</table>
Federal Funding

STEM
NSF, NIH, DoD, DoE, USDA, EPA, Education, NASA, Industry

Health
NIH, NSF, Education,

Arts/Letters
NEH, NEA, Education, DoJ

Education
Education, NSF

Private, Local, Regional
Creating a culture of funding and an expectation for it...

• **Expect.** Make clear strategic plan goals for proposal submission, grant funding, etc.

• **Create.** Partner with university office of research administration to jointly employ some grant specialists so that there is a smooth submission process – especially in the budgets, etc.

• **Create.** Celebrate increases in proposal submission rates as well as in grant successes.
Creating a culture of funding and an expectation for it...

- **Expect.** Separate out the components of the annual faculty review so that faculty can be listed as satisfactory or unsatisfactory in each area of work (research, teaching, service). Include questions about the submission of proposals, etc.
- **Create.** Establish mentoring for all ranks of faculty.
- **Create.** Publically ‘celebrate’ those that have got good grants (such as NSF CAREER awards) by having them lead panel discussions on what they did to get the grant at in-house workshops.
If you want the slides...

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