Funding Context and Opportunities for the Texas Water Research Network

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Federal Funding for Higher Education R&D is Declining

Thirty Institutions Reporting the Largest FY 2014 R&D Expenditures in All Fields

1 Johns Hopkins U.
2 U. Michigan, Ann Arbor
3 U. Washington, Seattle
4 U. Wisconsin, Madison
5 U. California, San Francisco
6 U. California, San Diego
7 Duke U.
8 U. North Carolina, Chapel Hill
9 Stanford U.
10 U. California, Los Angeles
11 Harvard U.
12 Massachusetts Institute of Technology
13 Columbia U. in the City of New York
15 U. Minnesota, Twin Cities
16 U. Pittsburgh, Pittsburgh
17 Texas A&M U., College Station and Health Science Center
18 U. Pennsylvania
19 Ohio State U.
20 Pennsylvania State U., University Park and Hershey Medical Center
21 U. Texas M. D. Anderson Cancer Center
22 Yale U.
23 U. California, Berkeley
24 Georgia Institute of Technology
25 U. California, Davis
26 U. Florida
27 U. Southern California
28 Vanderbilt U.
29 Washington U., Saint Louis
30 Northwestern U.

Total giving, 1975–2015
(in billions of dollars)

- Inflation-adjusted dollars
- Current dollars
- Inflation-adjusted dollars in recession

SOURCE: Giving USA Foundation | GIVING USA 2016
Total 2015 contributions: $373.25 billion

Contributions by source
(by percentage of the total)

- Individuals: 71%
- Corporations: 5%
- Foundations: 16%
- Bequests: 9%

The single largest contributor to the increase in total charitable giving in 2015 was an increase of $9.77 billion in giving by individuals—67 percent of the total change between 2014 and 2015.

SOURCE: Giving USA 2016
# ‘Pasteur’s Quadrant’

## Model of Scientific Research

### Research inspired by...
- **Quest for fundamental understanding?**
- **Considerations of use?**

<table>
<thead>
<tr>
<th>Pure basic research (Bohr)</th>
<th>Use-inspired basic research (Pasteur)</th>
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<tr>
<td>Pure applied research (Edison)</td>
<td>Corporations, VC, Breakthrough Energy Coalition</td>
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- **Kavli, Sloan, Simons, Moore Foundations**
- **Mitchell, Packard, Arnold, Gates, Rockefeller Foundations**

Reject the “Pipeline” Model of Knowledge Transfer

Design research program and systems to:

• Conduct *intentional research* to solve defined problems
• Promote *collaborative production* of trusted knowledge
• Engage *stakeholders and end-users* in its creation
• Attract funding sources by:
  ➢ Identifying individual philanthropists
  ➢ Solving problems in Pasteur’s Quadrant that improve human and environmental well-being
  ➢ Defining a mission-driven research agenda

Pipeline metaphor from Matson, 2016