Federal Research Funding: A Perpetual Imbalance?

Stephen A. Merrill, Executive Director
Center For Innovation Policy at Duke Law

JUNE 6, 2017
Ratio of Federally Funded R&D to U.S. GDP

Source: NSF, Science and Engineering Indicators, 2016

Source: NSF Federal Funds Survey
Federal Research Obligations by Selected Subfields, FY 1980 - FY 2014

- Bio: +3X
- Med Sci: +3X
- Comp Sci: +8X
- Materials: +3X
- Elec Eng: -4%
- Chem: -11%

Source: NSF Federal Funds Survey
Non-federal Funders of University R&D, FY 2015
(90% is basic + applied research)

- **Own Institution**
  - ($16.75 billion/24.3% of total)
  - Life sciences: $4.01 billion
  - Physical sciences: $2.29 billion
  - Engineering: $1.07 billion
  - Computer science/math: $0.33 billion
  - Other: $0.33 billion

- **Non-profit Institutions**
  - ($4.2 billion/6.2% of total)
  - Life sciences: $2.79 billion
  - Physical sciences: $0.87 billion
  - Engineering: $0.17 billion
  - Computer science/math: $0.33 billion
  - Other: $0.33 billion

- **Business**
  - ($4.0 billion/5.8% of total)
  - Life sciences: $2.30 billion
  - Physical sciences: $1.09 billion
  - Engineering: $0.14 billion
  - Computer science/math: $0.38 billion
  - Other: $0.09 billion

Source: NSF Higher Education R&D Survey
Doubling of Research Funding for Targeted PS&E Accounts: Authorizations, Requests, and Appropriations

Source: CRS, Library of Congress
Federal S&T Initiatives (PS&E, LS)

2000  National Nanotechnology Initiative: Advance S&E at the nanoscale [DOD, DOE, NSF, NASA, NIH, EPA, DOT, USDA, etc.]

2011  Materials Genome: Discover, produce, deploy cheaper materials faster [NSF, NASA, DOD, DOE, HHS/NIH/FDA, NIST]

2011  National Robotics Initiative: Accelerate development and use [NSF, NASA, NIH, USDA, DOD, DOE]

2012  Advanced Manufacturing: Move early stage research into proven capabilities [NIST, DOD, DOE, NASA, NSF, USDA]

2013  Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative: Determine how cells and neural circuits interact [NIH, DARPA, NSF]

2015  National Strategic Computing: Develop exascale supercomputers and post-semiconductor computers [DOE, DOD, NSF, NIST, DARPA]

2016  Cancer Moonshot: Make cancer prevention, detection, and therapies available to more patients [NCI (NIH), DOD]