



Innovation in the New Era of
Global Science & Engineering

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Director
National Science Foundation

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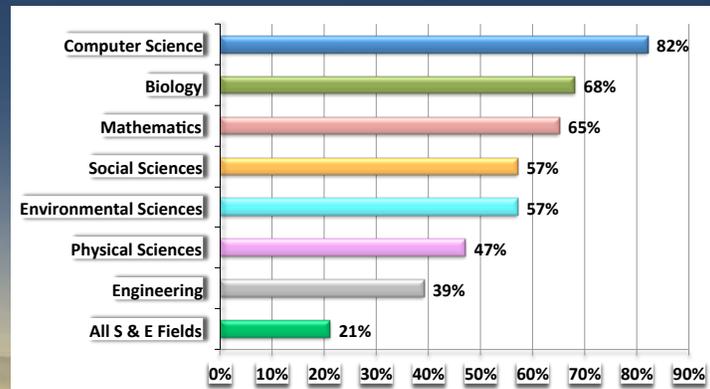
NSF's Role in U.S. & Global S&E Research Enterprise

- **Annual budget about \$7 billion, \approx 94% to funding programs**
- Funds basic research across all S&E fields & STEM education research
- In 2011, provided support for about 300,000 researchers
 - Balance between individual scholarship and “big facilities”
 - Fund the best people and the best ideas
- **201 Nobel laureates received NSF funding since 1951**
 - 70% of all U.S. Nobel laureates since 1951
 - 47 Nobel laureates in economics
 - 40 NSF Graduate Research Fellowship winners are Nobel laureates
- **Industrial, economic, and societal impact**



NSF by the Numbers

NSF Support of Academic Basic Research
In Selected Fields
(as a percentage of total federal support in 2009)



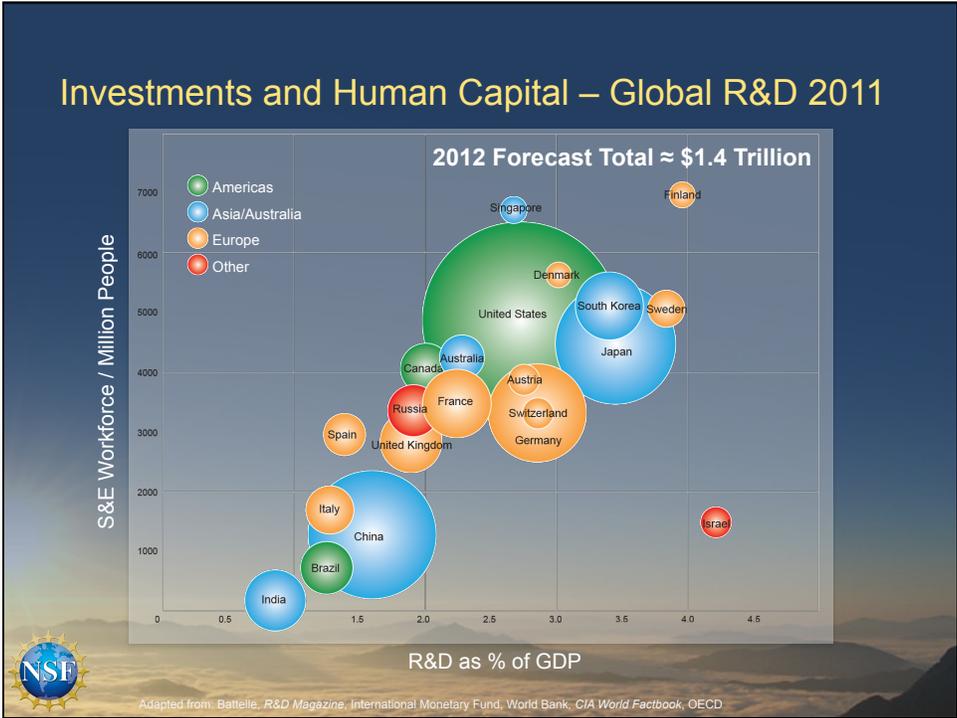
Source: NSF Survey of Federal Funds for Research and Development

Key Trends of the New Era

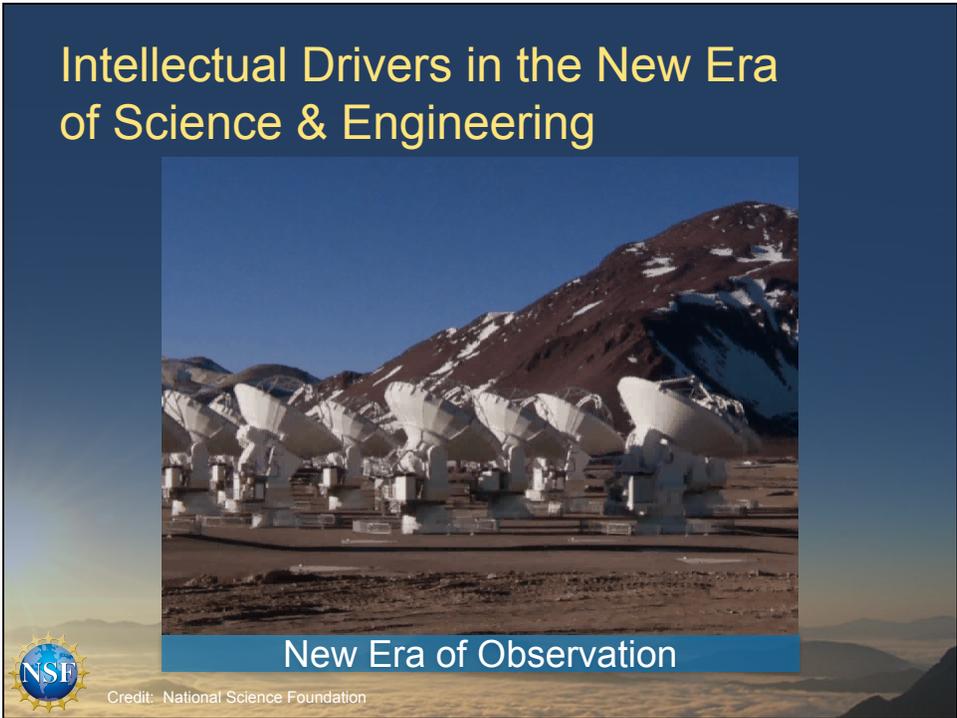
- Global Challenges Need Global Solutions
- Borderless Knowledge Enterprise
- Shifting Demographics
- Shifting Economics



Investments and Human Capital – Global R&D 2011



Intellectual Drivers in the New Era of Science & Engineering

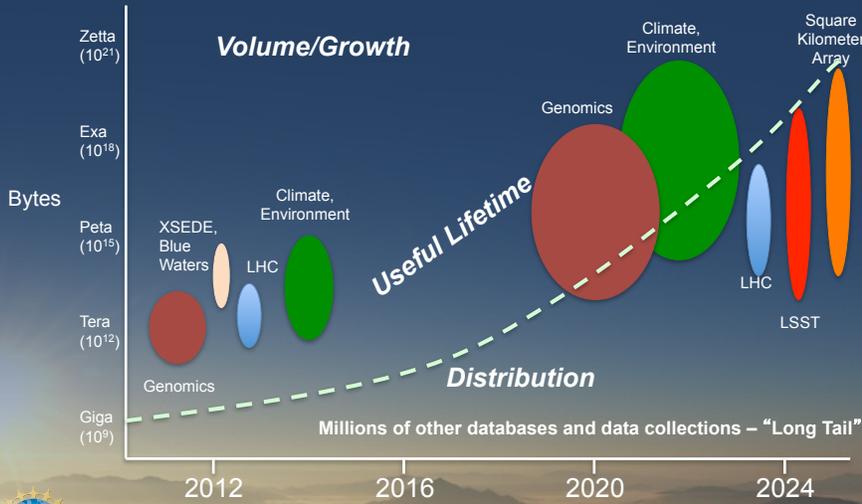


Intellectual Drivers in the New Era of Science & Engineering



Credit: US Ignite

“Big Data” Challenges Today’s Infrastructure



INSPIRE - Integrated NSF Support Promoting Interdisciplinary Research and Education

40 new awards amounting to \$30 Million
Launched July 2012



Creating a culture of collaboration, innovation,
risk-taking, and experimentation

NSF Career-Life Balance Initiative

Launched September 26, 2011



NSF Investments in Graduate Students:

- In 2013, NSF will support about 42,000 graduate students for ~ \$1 billion.
- In 2013, ~ 6,000 NSF GRFs
- Principled commitment to support future workforce
- New global opportunities: **NSF GROW**



Graduate Research Fellowship Program



Launched December 5, 2012



SAVI: Science Across Virtual Institutes

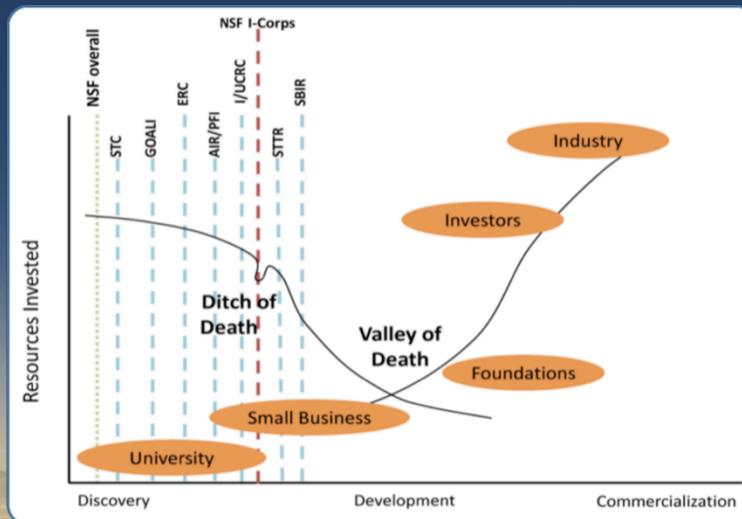
Launched October 5, 2011



- About 20 new programs
- Early Career SAVI with European Commission



Nurturing the Innovation Ecosystem



Innovation Corps (I-Corps)

Launched July 2011



- 100 projects supported in FY 2012
- 200 new projects in FY 2013
- 5 National Hubs
- Educational Opportunities for Grad Students



Credit: Thinkstock

PEER: Partnerships for Enhanced Engagement in Research

Launched July 7, 2011



42 projects supported in 2012



A Step Toward Harmonizing Global Science & Engineering



Launched at NSF in May 2012

“Good science anywhere is good for science everywhere”
Science, May 25, 2012



Next GRC Summit in Berlin*

(May 2013)

* Co-organized by Brazil and Germany



Topics for collective action:
Research Integrity
Open access to publications and data



Credit: Thinkstock

New Initiatives at NSF Impacting Graduate Education

- Interdisciplinarity
 - **INSPIRE, SEES**
- Innovation and Entrepreneurship
 - **I-Corps**
- Inclusiveness and Broadening Participation
 - **32 programs (eg, GRFP, Bridge to the Doctorate, STCs, ERCs, IGERT, AGEP 2.0)**
- International Engagement and Collaboration
 - **SAVI, USAID-PEER, GROW**
- Information Technology Infrastructure
 - **CIF-21**
- Intellectual Capital and Workforce Development
 - **GRFP, IGERT (CIF-21 Pilot), I-Corps**

