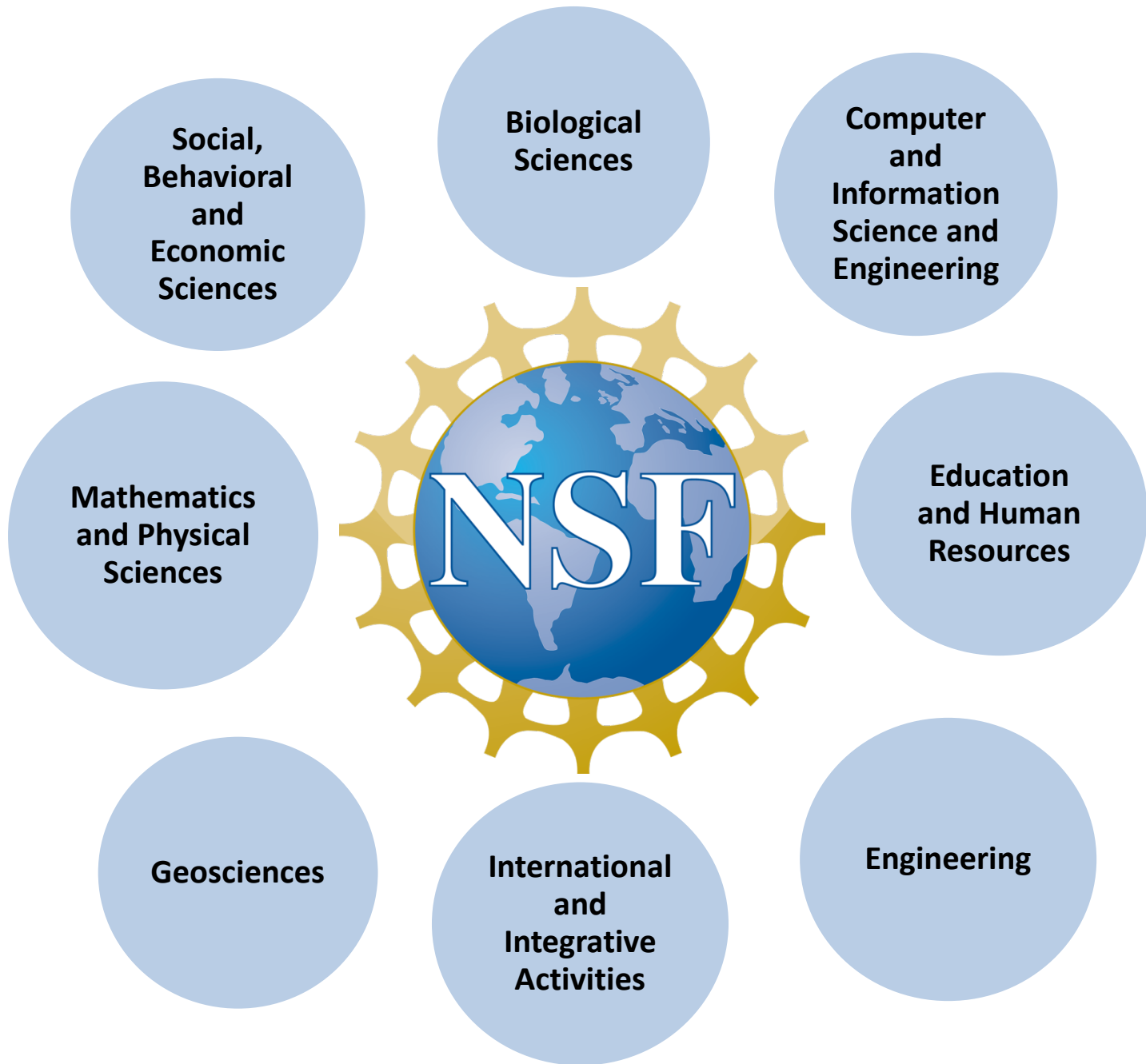




# Understanding the Brain: NSF Activities

Dr. Amber Story  
Deputy Division Director  
Behavioral and Cognitive Sciences Division

SBE Advisory Committee  
October 31, 2014



# **Investments in Cognitive Science and Neuroscience at NSF**

## **Focused Programs**

- Neural Systems and Behavioral Systems Clusters (BIO)
- Cognitive Neuroscience and Perception, Action and Cognition Programs (SBE)
- Robust Intelligence Program (CISE)

## **Interdisciplinary Programs**

- Science of Learning Centers (NSF)
- Science and Technology Center for Brains, Minds and Machines
- Collaborative Research in Computational Neuroscience involving NSF, NIH, Germany, France, Israel

## **Other Significant Investments**

- Research at the Interface of Biological, Mathematical and Physical Sciences, and Engineering

## Understanding the Brain

NSF's goal is to **enable scientific understanding of the full complexity of the brain, in action and in context**, through targeted, cross-disciplinary investments in research, technology, and workforce development.

*Understanding the Brain* comprises two NSF-wide activities:

- ❖ *Cognitive Science and Neuroscience*, initiated in FY 2012
- ❖ *BRAIN Initiative*, initiated in FY 2013

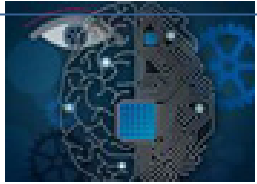
# NSF Strategies



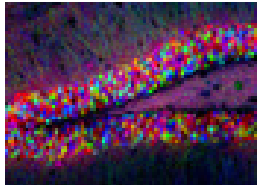
- Fostering integrative research that crosses scale, levels of analysis, and disciplines
- Expanding investments in innovative technologies, experimental and analytical methods, and data and cyber-infrastructure that will enable integrative research.
- Supporting growth of a globally competitive scientific workforce

# NSF BRAIN Initiative - Thematic Areas

Goal: **Generate an array of physical and conceptual tools** to determine how healthy brains of humans and other organisms function over the lifespan.



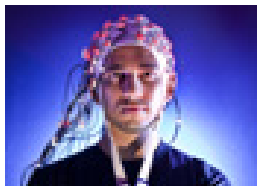
Multi-scale Integration of Brain Dynamic Activity and Structure



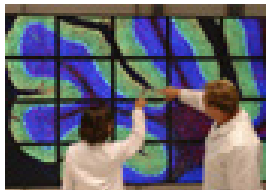
Neurotechnology and Research Infrastructure



Quantitative Theory and Modeling of Brain Function



Brain-Inspired Concepts and Designs

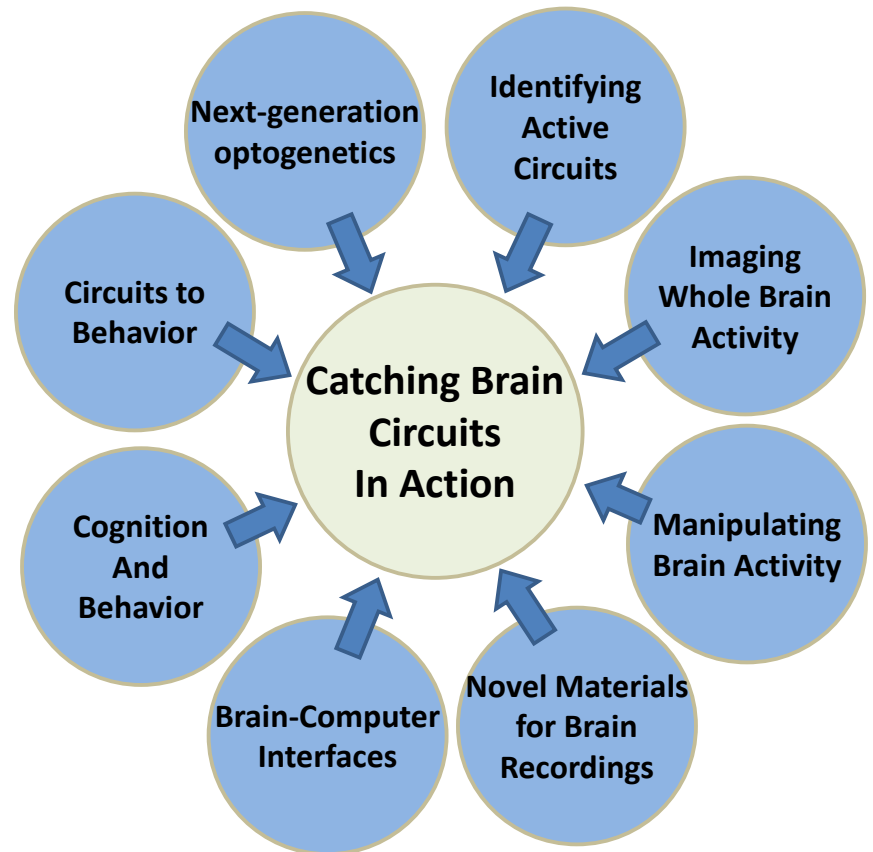


BRAIN Workforce Development

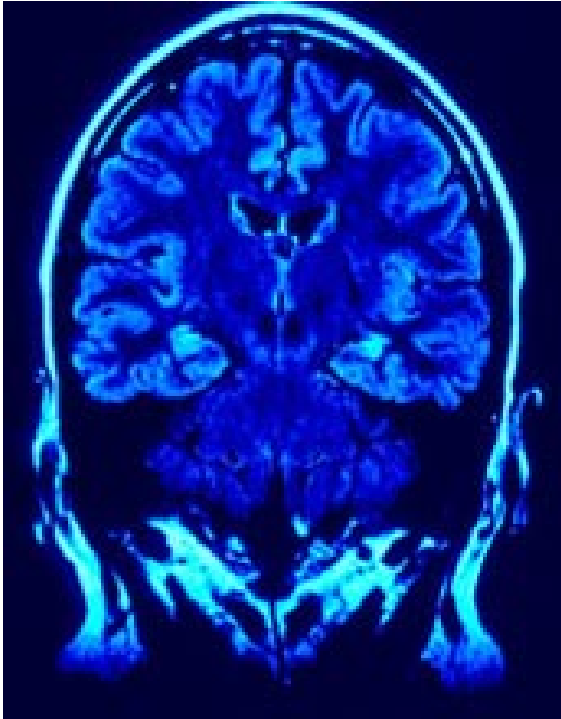


# FY14 NSF BRAIN Activities

- Ongoing core investments augmented by new funding for Understanding the Brain
- Funded 36 EAGER awards responding to call for “Catching Circuits in Action”
- Dear Colleague Letter to encourage international collaboration and exchange in neuroscience
- Launched [nsf.gov/brain](http://nsf.gov/brain)



# Future Plans and Opportunities



- Integrative Strategies for Understanding Neural and Cognitive Systems Solicitation
- Industry/University Cooperative Research Centers Dear Colleague Letter
- Ideas Lab Dear Colleague Letter
- International and interagency opportunities





Committee on Science

# Interagency Working Group in Neuroscience Report (released 02/2014)

- Understanding and Treating Brain Diseases, Disorders and Trauma
- Understanding and Optimizing Interactions between the Environment and the Brain across the Lifespan
- Understanding and Applying the Brain's Information Processing Capabilities
- Enhancing Communication Across Federal Agencies and with the Public



Committee on Science

# Interagency Working Group in Neuroscience – Current Activities

- Continue as forum for exchange of information, including updates on the BRAIN initiative
- Organizing around next concrete steps
  - Enhancing communication
  - Biomarkers and emerging technology
  - Neuroscience and education
  - Issues in neuroscience data



National Science Foundation  
**WHERE DISCOVERIES BEGIN**