



# **NSF SUPPORT OF THE SOCIAL, BEHAVIORAL, AND ECONOMIC SCIENCES**

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**Directorate for Social, Behavioral, and  
Economic Sciences**



**Office of the Director**

**Directorate for Social,  
Behavioral & Economic  
Sciences**

**Social and Economic  
Sciences**

**Behavioral and Cognitive  
Sciences**

**Science Resources Statistics**

# FY 2009 Budget Request by Appropriations Account (millions)

Appropriations Account	FY 2009 Request	Change from FY 2008 Est.	
<b>Research &amp; Related Activities</b>	<b>\$5,593.99</b>	<b>\$772.52</b>	<b>(16.0%)</b>
Education & Human Resources <sup>1</sup>	\$790.41	\$64.81	(8.9%)
Major Research Equipment & Facilities Construction	\$147.51	-\$73.23	(-33.2%)
Agency Operations & Award Management	\$305.06	\$23.27	(8.3%)
National Science Board	\$4.03	\$0.06	(1.5%)
Inspector General	\$13.10	\$1.67	(14.6%)
<b>TOTAL, NSF</b>	<b>\$6,854.10</b>	<b>\$789.10</b>	<b>(13.0%)</b>

Totals may not add due to rounding.

<sup>1</sup> Funding for EPSCoR (\$113.50 million) moved from EHR to R&RA's IA Account.

# FY 2009 Budget Request: SBE (millions)

	FY 2009 Request	Change from FY 2008 Est.	
<i>Research &amp; Related Activities</i>	<i>\$5,593.99</i>	<i>\$772.52</i>	<i>(16.0%)</i>
<b>Social &amp; Economic Sciences</b>	<b>\$102.49</b>	<b>\$7.07</b>	<b>(7.0%)</b>
<b>Behavioral &amp; Cognitive Sciences</b>	<b>\$92.78</b>	<b>\$8.15</b>	<b>(9.6%)</b>
<b>Science Resources Statistics</b>	<b>\$33.21</b>	<b>\$3.13</b>	<b>(10.4%)</b>
<b>TOTAL, SBE</b>	<b>\$233.35</b>	<b>\$18.35</b>	<b>(8.5%)</b>

Totals may not add due to rounding.

<sup>1</sup> Funding for EPSCoR (\$113.50 million) moved from EHR to R&RA's IA Account.

# FY 2009 Budget Emphases

## **Discovery Research (\$14.12 million increment):**

- ***Strengthening the Core*** (\$6.96 million)
- ***Science of Science and Innovation Policy*** (\$3.12 million)
- ***Complexity and Systems Thinking*** (\$3.0 million):
  - \$1.42 million, research on complexity and interacting systems; & environmental research
  - \$1.58 million, Cyber-enabled Discovery and Innovation
- ***Adaptive Systems Technology*** (\$1.04 million)

**Research Infrastructure (\$3.02 million) SRS: SciSIP activities**

**Learning (\$160,000) REU Sites**

**Stewardship (\$1.05 million)**

# Strengthening the Core

- Budget Increment
  - 6.96 Million
- Human and Social Dynamics
  - FY 2008 is the last year
  - Funds embedded in the Divisions (~\$30M)
  - Objective is to infuse the funds in the core while maintaining the elements of *dynamics and interaction with other disciplines*
  - Expected emphases: *complex systems; environment; infrastructure*

# Science of Science & Innovation Policy

- First solicitation in FY 2007
- Current FY 2008 solicitation has March 18 deadline
  - Analytical Tools
  - Model Building
  - Data Development and Augmentation
- Increased funding in FY 2009 of \$3.12M
- Related infrastructure activities

**Program Officer: Julia Lane**

aci activities address administration agencies basic believe bills

**budget** capacity change competitiveness

concern congress consensus continuing doubling

economic **federal** funded fact

impact im **marburger** fy generation

private product **science** ent issues

resources **science** s policy

share sustained term **university year** search



Graphic Source: 2005 Presentation by Neal Lane on the Future of U.S. Science and Technology

Tag Cloud Source: Generated from 2007 Presentation by John Marburger on Science Policy and Budget Issues

# Scientists Can Provide a 'Black Box' Answer



ROMAN AUGURS: Roman augurs foretell the future by observing the behavior of hens © Copyright (c) Mary Evans Picture Library 2007

Or...

# We Can Use Science

Innovation and Policy are  
Fundamentally  
Human and Social Activities

# An Ecosystem of Innovation

**Firms**



**Individuals**



**Institutions**



# So What Does the Science Involve?

- **Understanding:**

develop usable *knowledge* and *theories*

- **Measurement:**

improve and expand science *metrics, datasets*  
and *analytical models and tools* that are  
replicable and generalizable

- **Community development:**

cultivate a *community of practice* focusing on  
SciSIP across the academy, the public sector  
and industry both nationally and internationally

# Complexity & Systems Thinking

- **Research on complexity and interacting systems (including environmental research) in the core (+\$1.42M)**
- **Cyber-enabled Discovery & Innovation (+\$1.58M)**
  - **First NSF-wide solicitation in FY 2008**
  - **Three themes (complexity, data extraction, & virtual organizations)**
  - **Mix of core activities and NSF-wide solicitation**

# Adaptive Systems Technologies

- *Multi-directorate initiative*
  - *Seeks to develop new technologies based on a better understanding of biological and particularly neurological systems.*
- *In the SBE context*
  - *Applying and expanding what we know from cognitive and learning sciences*
  - *Strongly related to programs in Developmental & Learning Science; Perception, Action & Cognition; Cognitive Neuroscience; and Linguistics.*

# Science of Learning Centers

- Managed by SBE with NSF-wide funding
  - Multidisciplinary
  - Large scale
  - 10 years of funding, if progress warrants
- 6 Centers currently funded
  - Cohort 1: Boston U., Carnegie-Mellon, U. of Washington
  - Cohort 2: Gallaudet, Temple, UCSD
- Developing a network of centers
  - Workshops
  - Student activities
  - International linkages
  - Opportunities for supplements, SGERs

# Themes

- New Technologies
- Intertwinements with Natural and Life Sciences
- Centrality of Mind/Brain
  - Adaptive Systems Technology
- Complexity
  - Cyber-Enabled Discovery & Innovation
  - Emergent phenomena
  - Tipping points
  - Links to policy

# Social, Behavioral & Economic Sciences Programs

## Disciplinary

- Cultural Anthropology
- Physical Anthropology
- Archaeology
- Linguistics
- Social Psychology
- Economics
- Sociology
- Political Science

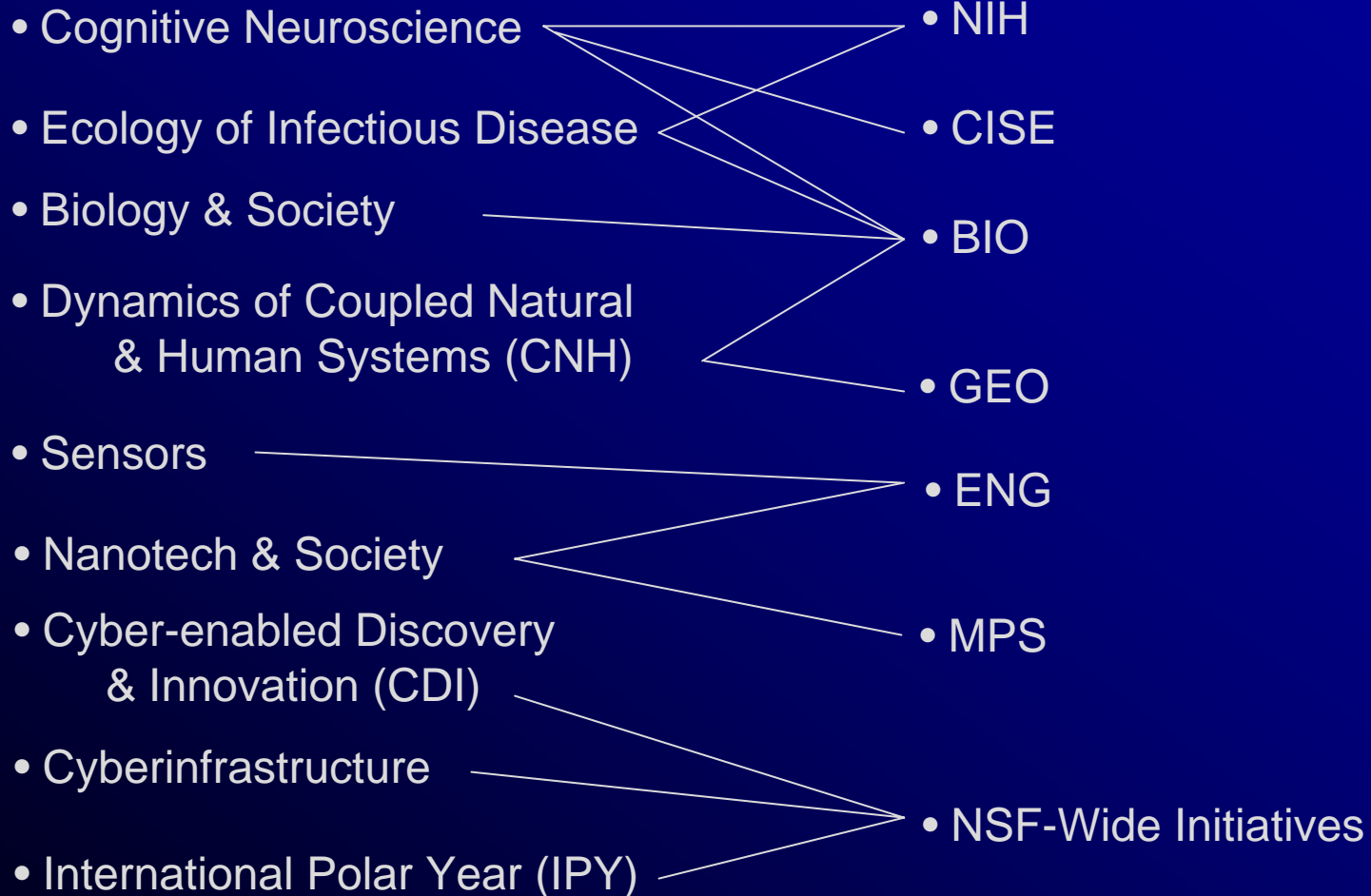
## Inter-Disciplinary

- Cognitive Neuroscience
- Developmental & Learning Sciences
- Documenting Endangered Languages
- Perception, Action & Cognition
- HOMINID
- Geography & Regional Science
- Environmental, Social & Behavioral Science
- Decision, Risk & Management Sciences
- Science of Science & Innovation Policy
- Innovation & Organizational Sciences
- Methodology, Measurement & Statistics
- Science & Society
- Law & Social Sciences

# Social, Behavioral & Economic Sciences Joint Funding

## Joint-Funded Programs

## Funding Partners





# Cross-Directorate Activities

- Serves both divisions – SES and BCS
- Administers and coordinates programs to increase underrepresented groups in science and engineering
  - Research Experiences for Undergraduates
  - Minority Postdoctoral Fellowships
- Provides information on cross-Foundation/cross-cutting programs

**Program Officer: Fahmida Chowdhury**

# Division of Social and Economic Sciences (SES)

- Supports research to develop and advance scientific knowledge focusing on economic, legal, political and social systems, organizations, and institutions
- Supports research on the intellectual and social contexts that govern the development and use of science and technology



# Social and Economic Sciences

## FY07 Program Allocations

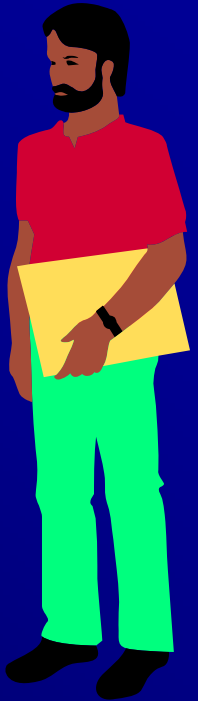
- Cross-Directorate Activities \$3.8M
- Decision, Risk, & Management Sciences \$6.55M
- Economics \$23.8M
- Innovation and Organizational Change \$2.5M
- Law and Social Science \$4.5M
- Methodology, Measurement & Statistics \$3.6M
- Political Science \$8.2M
- Science and Society \$7.6M
- Sociology \$8.1M





# Decision, Risk, and Management Sciences

- Supports research that explores fundamental issues in judgment and decision making, risk analysis, management science, and organizational behavior
- Research must be relevant to an operational or applied context, grounded in theory, and based on empirical observation or subject to empirical validation



**Program Officers: Robert O'Connor, Jacqueline Meszaros and Jon Leland**



# Economics



- **Supports:**

- Both empirical and theoretical economic analysis as well as work on methods for rigorous research on economic behavior
- Research designed to improve the understanding of the processes and institutions of the U.S. economy and of the world system of which it is a part
- Almost all subfields of economics including: econometrics, economic history, finance, industrial organization, international economics, labor economics, public finance, macroeconomics, and mathematical economics

**Program Officers: Dan Newlon, Nancy Lutz, George Von Furstenberg**



# Innovation and Organizational Change

- Supports research which uses theory combined with empirical validation
- Looks to expand the concepts, models and methodologies of change in organizations and institutions
- In FY06, IOC is particularly interested in studies that shed light on how best to organize for scientific knowledge creation when researchers must share critical resources, such as major instruments or IT infrastructure.



**Program Officer: Jacqueline Meszaros**



# Law and Social Science

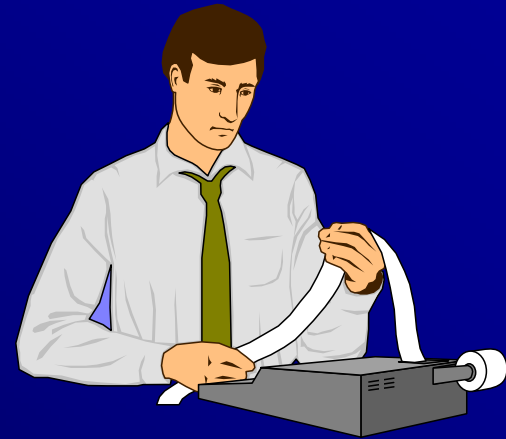
- Supports social scientific studies of law and law-like systems of rules, institutions, processes, and behaviors
- Topics can include, but are not limited to
  - research designed to enhance the scientific understanding of the impact of law
  - human behavior and interactions as these relate to law
  - the dynamics of legal decision making
  - the nature, sources, and consequences of variations and changes in legal institutions

**Program Officer: Susan Haire**



# Methodology, Measurement, and Statistics

- Seeks proposals that are interdisciplinary in nature, methodologically innovative, and grounded in theory, such as:
  - Models and methodology for social and behavioral research
  - Statistical methodology/modeling directed towards the social and behavioral sciences
  - Methodological aspects of procedures for data collection



Program Officer: Cheryl Eavey



# Political Science

- Supports scientific research that advances knowledge and understanding of citizenship, government, and politics
- Substantive areas include, but are not limited to:
  - American government and politics
  - comparative government and politics
  - international relations
  - political behavior
  - political economy
  - political institutions
- Supports Doctoral Dissertation Research Improvement Grants



**Program Officers: Brian Humes and Phil Paolino**



# Science and Society

**S&S considers proposals that examine questions that arise in the interactions of engineering, science, technology, and society.**

**There are four components:**

- Ethics and Values in Science, Engineering and Technology (EVS)**
- History and Philosophy of Science, Engineering and Technology (HPS)**
- Social Studies of Science, Engineering and Technology (SSS)**
- Studies of Policy, Science, Engineering and Technology (SPS)**

**The components overlap, but are distinguished by the different scientific and scholarly orientations they take to the subject matter, as well as by different focuses within the subject area.**

**Program Officers: Fred Kronz, Laurel Smith Doerr, Steve Zehr**



# Sociology

- **The Sociology program supports theoretically-grounded research on systematic patterns of social relationships that examine the causes and consequences of human behavior, social structure and social change. Studies range from micro to macro levels of interaction.**
- **Topics include, but are not limited to:**
  - ✓ Stratification, labor markets, mobility, social change
  - ✓ Organizations, networks, economic and workplace change
  - ✓ Crime, delinquency, social organization and social control
  - ✓ Race, ethnicity, social identity/interactions, culture, education
  - ✓ Family, gender, population, migration, immigration
  - ✓ Social movements, political processes, globalization and more
- **The Program supports research that uses the range of social science methodologies — experimental, quantitative, qualitative and the combinations of multiple methods—for original data collection and secondary data analysis.**

**Program Officers: Pat White and Kevin Gotham**



# SES Target Dates

## **January 15 & August 15**

Economics

Law and Social Science

Methodology, Measurement & Statistics

Political Science

Sociology

## **January 18 & August 18**

Decision, Risk, & Management Sciences

## **February 1 & August 1**

Science and Society

## **February 2**

Innovation and Organizational Change

# Division of Behavioral and Cognitive Sciences

- Supports research to develop and advance scientific knowledge focusing on human cognition, language, social behavior, and culture
- Supports research on the interactions between human societies and the physical environment



# Behavioral and Cognitive Sciences

## FY07 Program Allocations

- Archaeology & Archaeometry \$6.5M
- Cultural Anthropology \$3.4M
- Cognitive Neuroscience \$6.3M
- Developmental & Learning Sciences \$7.0M
- Geography & Regional Science \$6.2M
- Linguistics \$7.41M
- Perception, Action, & Cognition \$6.3M
- Physical Anthropology \$3.8M
- Social Psychology \$5.7M





# Archaeology

## Funds:

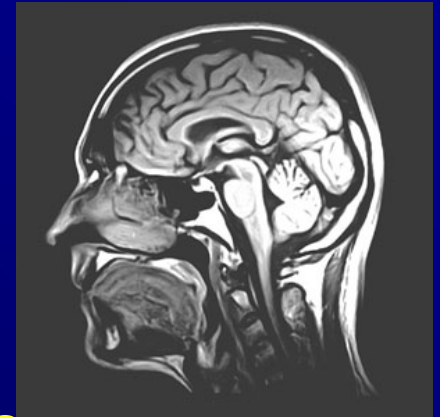
1. Archaeological research that contributes to an anthropological understanding of the past
2. Anthropologically significant archaeometric research

**Program Officer: John Yellen**



# Cognitive Neuroscience

- Program supports highly innovative and interdisciplinary proposals
- Proposals should aim to advance a rigorous understanding of how the human brain supports:
  - thought
  - perception
  - affect
  - action
  - social processes
  - and other aspects of cognition and behavior, including how such processes develop and change in the brain and through evolutionary time.



**Program Officer: Stacia Friedman-Hill and Douglas Whalen**



# Cultural Anthropology

- Promotes basic scientific research on the causes and consequences of human social and cultural variation
- Supports social scientific research of theoretical importance in all theoretical and empirical subfields

**Program Officer: Deborah Winslow**



# Developmental and Learning Sciences



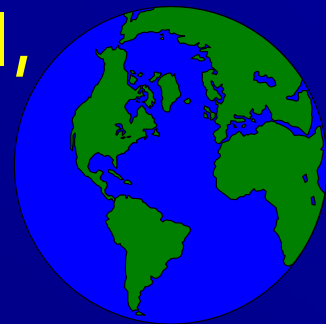
- Supports studies that increase our understanding of cognitive, social, and biological processes related to children and adolescents' learning in formal and informal settings
- Supports research on learning and development that:
  - incorporates multidisciplinary, multi-method, microgenetic, and longitudinal approaches
  - develops new methods and theories
  - examines transfer of knowledge from one domain to another
  - assesses peer relations, family interactions, social identities, and motivation
  - examines the impact of family, school, and community resources
  - assesses adolescents' preparation for entry into the workforce
  - investigates the role of demographic and cultural characteristics in children's learning and development

**Program Officer: Amy Sussman**



# Geography and Regional Science

- Supports research on human, physical, and biotic systems on the Earth's surface, as well as their related subfields
- Investigations into the nature, causes, and consequences of human activity within particular "places and spaces" are encouraged
- Both international & domestic projects which may contribute to related fields are also funded



**Program Officers: Dan Hammel & Kenneth Young**



# Linguistics

- Supports scientific research of all types that focus on human language as an object of investigation
  - the syntactic, semantic, phonetic, and phonological properties of individual languages and of language in general
  - the psychological processes involved in the use of language
  - the development of linguistic capacities in children
  - social and cultural factors in language use, variation, and change
  - the acoustics of speech and the physiological and psychological processes involved in the production and perception of speech
  - the biological bases of language in the brain

**Program Officer: Joan Maling and Terry Langendoen**



# Perception Action and Cognition

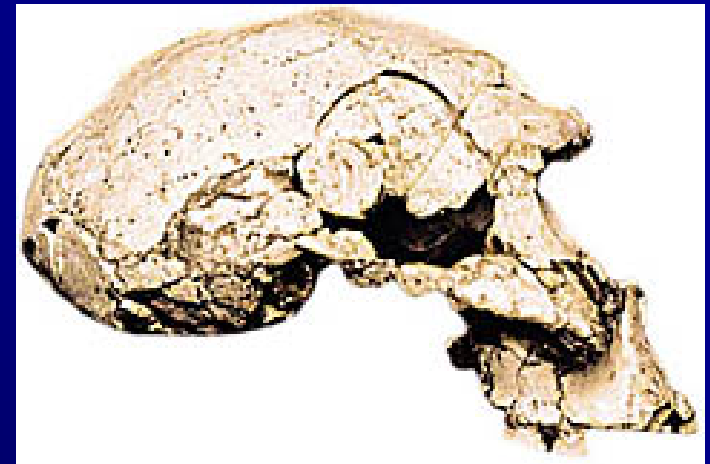
- Supports basic research on human cognitive and perceptual functions
- Topics include, but are not limited to:
  - Attention
  - Memory
  - Spatial Cognition
  - Language Processing
  - Perceptual and Conceptual Development
  - Visual, Auditory, and Tactile Perception
  - Reasoning
- Research supported by the program encompasses a broad range of theoretical perspectives such as Symbolic Computation, Connectionism, and Dynamical Systems

**Program Officer: Ping Li**



# Physical Anthropology

- Supports basic research in areas related to:
  - Human Evolution
  - Anthropological Genetics
  - Human Adaptation
  - Skeletal Biology
  - Primate Biology
  - Ecology and Behavior
- Grants are often characterized by:
  - An underlying evolutionary framework
  - A consideration of adaptation as a central theoretical theme
  - Generalizable Results
- Serves as a bridge between the social and behavioral sciences and the natural and physical sciences



**Program Officer: Joanna Lambert**



# Social Psychology

- Supports research on human social behavior, including cultural differences and development over the life span
- Among the many research topics supported are:
  - attitude formation and change
  - social cognition
  - personality processes
  - interpersonal relations and group processes
  - the self, emotion, social comparison and social influence
  - the psychophysiological correlates of social behavior

**Program Officers: Amber Story and Kellina Craig - Henderson**



# BCS Target Dates

## **December 1 & July 1**

Archaeology & Archaeometry

Physical Anthropology

## **January 1 & August 1**

Cultural Anthropology

## **January 15 & July 15**

Cognitive Neuroscience

Developmental & Learning Sciences

Human Cognition & Perception

Linguistics

Social Psychology

## **January 15 & August 15**

Geography & Regional Science

# Doctoral Dissertation Improvement Awards

Small grants to provide funds for items not normally provided through the student's institution

- Archaeology
- Cultural Anthropology
- Decision, Risk, & Management Science
- Economics
- Geography & Regional Science
- Law and Social Science
- Linguistics
- Physical Anthropology
- Political Science
- Science and Society
- Sociology





# Human Subjects

- No award for a project involving human subjects can be made without prior Institutional Review Board (IRB) approval of the research activity.
- The PI may request Human Subjects evaluation from the IRB of a nearby institution.



# Human Subjects

- A tribal community may establish its own Institutional Review Board (IRB) following Federal Policy for the Protection of Human Subjects, Subpart A: The Common Rule for the Protection of Human Subjects (45 CFR 690)  
<http://www.nsf.gov/bfa/dias/policy/docs/45cfr690.pdf>



# How to Develop a Proposal

- **Determine your long-term research and education goals**
- **Develop your bright idea**
  - Survey the literature
  - Contact Investigators working on topic
  - Prepare a brief concept paper
  - Discuss with colleagues/mentors
- **Prepare to do the project**
  - Determine available resources
  - Realistically assess needs
  - Develop preliminary data
  - Present to colleagues/mentors/students



# How to Develop a Proposal

- **Determine possible funding sources**
- **Understand the ground rules**
  - Read carefully announcements and instructions
  - Determine whether your project fits program scope
  - Look over prior award abstracts
  - Ascertain evaluation procedures and criteria
  - **Talk with NSF Program Officer**
- **Coordinate with your institution and sponsored research office**
- **Ask PIs for copies of proposals**

*"Few things are harder to put up with than the annoyance of a good example." Mark Twain*



# Budget Tips

- **Amounts**
  - Reasonable for work -- Realistic
  - Well Justified -- Need established
  - In-line with program guidelines
- **Eligible costs**
  - Personnel
  - Equipment
  - Travel
  - Other Direct Costs, Subawards
  - Facilities & Administrative Costs



# Standard Review Criteria

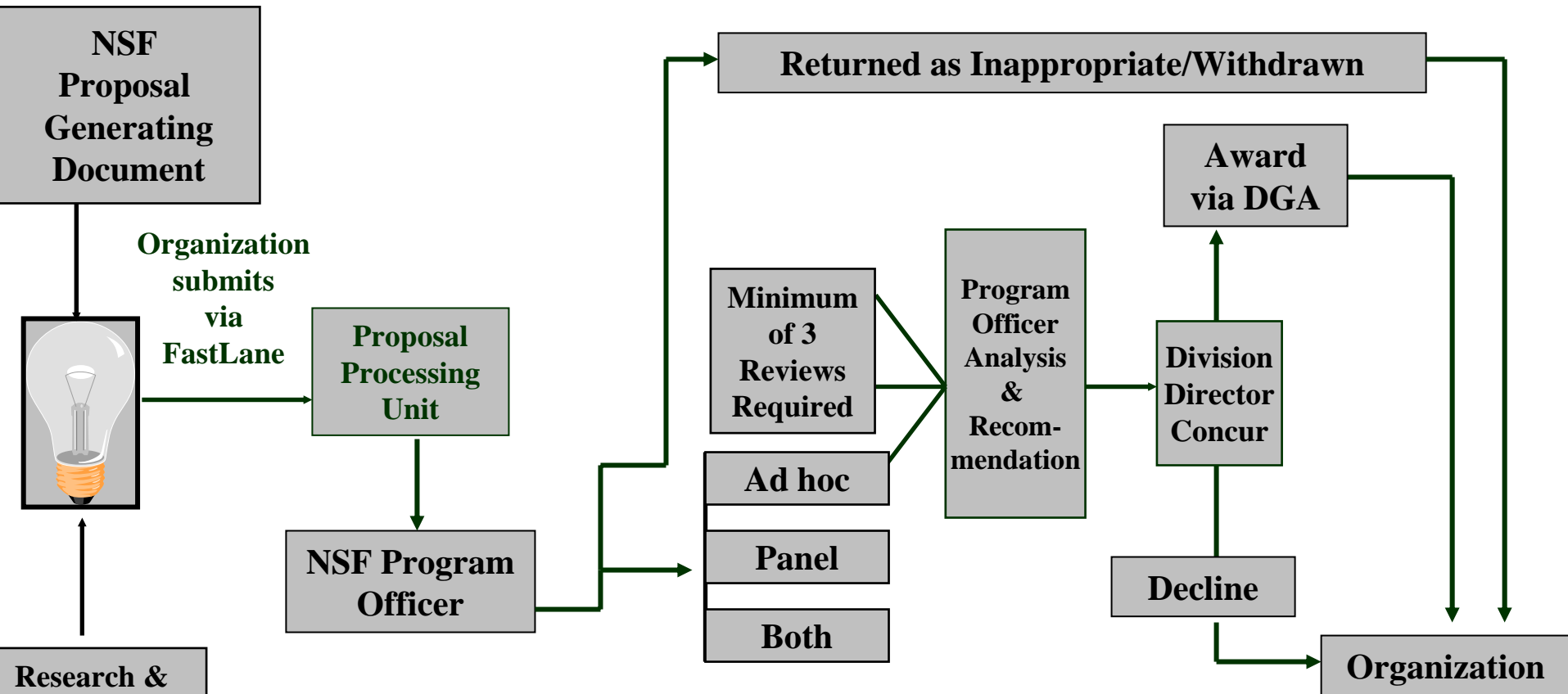
- 1. What is the intellectual merit and quality of the proposed activity?**
  - Importance
  - Qualifications
  - Creativity and originality
  - Conception and organization
  - Access to resources
- 2. What are the broader impacts of the proposed activity?**
  - Training
  - Diversity
  - Infrastructure
  - Dissemination/Public Awareness
  - Societal Benefits

# Types of Support

- Standard Research Grants  
(Collaborative)
- Scholar's Awards
- Postdoctoral Fellowships
- Small Grants for Training and Research
- Conference and Workshop Awards
- CAREER Grants



# Proposal Process & Timeline



Proposal received by NSF

Div. Dir. Concur

Award

90 Days

6 months

30 days

DGA Review & Processing of Award

Proposal Preparation Time

Review of Proposal

P.O. Recommend

DGA Review & Processing of Award

# National Science Foundation

Where  
**Discoveries**  
Begin

