NSF, CISE, CNS and CSR

Working with these acronyms

Keith Marzullo
Dean, College of Information Studies
University of Maryland

How to think like an NSF person
- Why does NSF exist?
- Who runs NSF?
- What does NSF respond to?
- How does NSF come up with new programs?
- What are some of the tensions?
- How can you be involved with NSF?

… contextualized from the CNS/CSR point of view.

May 10, 1950: NSF Organic Act (https://www.nsf.gov/about/history/legislation.pdf)

[PUBLIC LAW 507-81ST CONGRESS]
[CHAPTER 171-2D SESSION]

[S. 247]

AN ACT

To promote the progress of science; to advance the national health, prosperity,
and welfare; to secure the national defense; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United
States of America in Congress assembled, That this Act may be cited as the
"National Science Foundation Act of 1950".

ESTABLISHMENT OF NATIONAL SCIENCE FOUNDATION

SEC. 2. There is hereby established in the executive branch of the Government an
independent agency to be known as the National Science Foundation (hereinafter
referred to as the "Foundation"). The Foundation shall consist of a National
Science Board (hereinafter referred to as the "Board") and a Director.

- To **develop and encourage the pursuit of a national policy** for the promotion of **basic research and education in the sciences**

- To **initiate and support basic scientific research** in the mathematical, physical, medical, biological, engineering, and other sciences, by making contracts or other arrangements (including grants, loans, and other forms of assistance) for the conduct of such basic scientific research and to appraise the impact of research upon industrial development and upon the general welfare

- To award … **scholarships and graduate fellowships** in the mathematical, physical, medical, biological, engineering, and other sciences

see *The Role of Federal Research in the Nation's Prosperity and Security*, NSB Keynote May 21, 2001, by Newt Gingrich

- To foster the interchange of scientific information among scientists in the United States and foreign countries
- In exercising the authority and discharging the functions referred to in subsection (a) of this section, it shall be one of the objectives of the Foundation to strengthen basic research and education in the sciences, including independent research by individuals, throughout the United States, including its Territories and possessions, and to avoid undue concentration of such research and education.

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October 2017

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Computer Networks and Systems

Ken Calvert

Some tensions

- flat budgets in the face of growing departments
- core programs versus crosscutting programs
- small, medium, large
- international

New program discussions happen at all levels in NSF
- Assistant Directors
- Division Directors
- Program Officers

Ideas come from the community:
- Workshops and community generated reports
- National Academy of Sciences
- FACAs
  - PCAST
  - COV
  - Advisory boards
- Evaluation of existing portfolios
  - Where was the proposal pressure?
  - What is already happening by industry?
  - Where did we not get the proposals we expected to get?
  - Formal program reviews. eg, by the Science and Technology Policy Institute (STPI)

Computer and Network Systems

- A large division at NSF and in CISE
- Two core programs
  - NeTS
  - CSR
- Leads several crosscutting programs, including education, cybersecurity, cyber-physical systems
- Involved in several other crosscutting programs, including NRI, Big Data, Smart and Connected Health

Computer Systems Research

Computer Systems Research

Computer Systems Research

- Co-Design of Network, Storage and Computation Fabrics for Disaggregated Datacenters
- CommonSense: A Distributed Mobile System for Socially-Collaborative Environmental Monitoring
- Computational Jewelry for Mobile Health
- Enabling Privacy-Utility Trade-Offs in Pervasive Computing Systems
- Integrating Circuits, Sensing, and Software to Realize the Cubic-mm Computing Class
- Kali: A System for Sequential Programming of Multicore Processors
- Large-scale Systems Software Atop Scale-out In-memory Storage
- Multi-core Applications Modeling Infrastructure (MAMI)
- Reclaiming Moore's Law through Ultra Energy Efficient Computing
- SemGrep: a System for Improving Software Reliability Through Semantic Similarity Bug Search
- Smart earpiece for supporting healthy eating behaviors
- Storage Class Memory Architecture for Energy Efficient Data Centers
- VarSys: Managing Variability in High-Performance Computing Systems

How to get engaged

Paying attention
- NSF's proposed budget
- NSF Award database
- NSF updates
- National Academy of Science reports
- CCC reports

Giving of your time
- visit NSF
- serve on panels
- attend CCC, NSF workshops
- serve at NSF

Thank you!

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