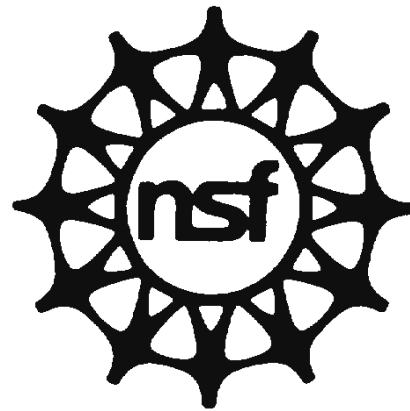


Partnerships for Innovation Planning Workshop



March 10, 2000

Joseph Bordogna
National Science Foundation
[http:// www.nsf.gov/bordogna](http://www.nsf.gov/bordogna)

The NSF Vision

*Enabling the Nation's future
through discovery, learning, and
innovation...*

NSF's Strategic Goals

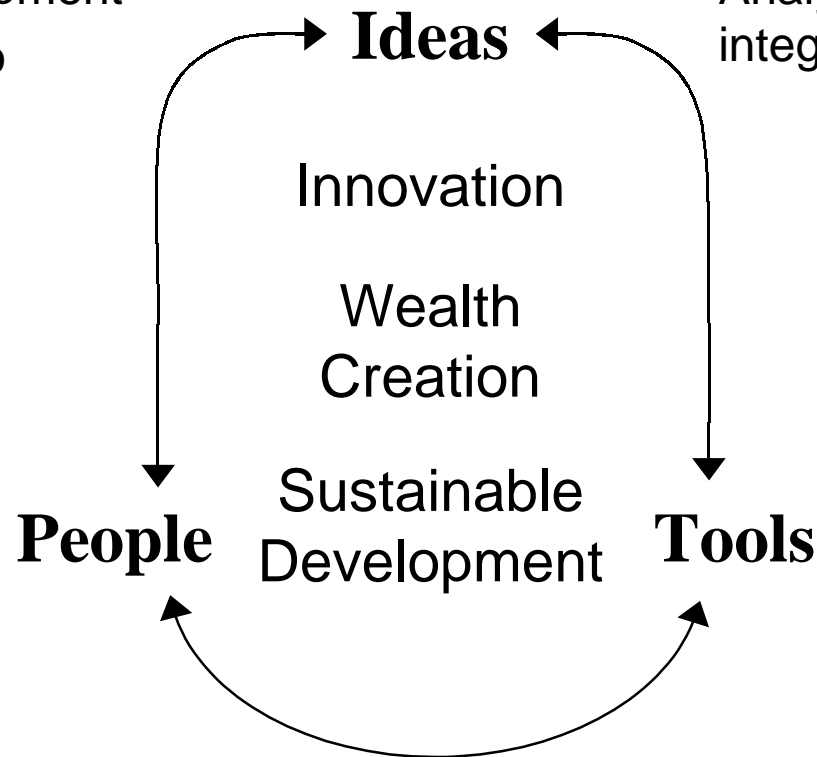
- Ideas - *Discovery across frontiers, connected to learning, innovation and service to society*
- People - *A diverse, internationally competitive and globally-engaged workforce*
- Tools - *Accessible, state-of-the-art information bases and shared tools*

Innovation System

Concurrent Integration

- Invention
- Design/development
- Connections to needs/markets

- Discovery/new knowledge
- Analysis/synthesis/integration



- Markets
- Workforce
- Scientists and engineers
- Entrepreneurs

- Information
- Capital investment
- Infrastructure
- Technologies
- Manufacturing

Innovation vis-à-vis Productivity

**The source of wealth is something
specifically human: *KNOWLEDGE***

**Knowledge applied to tasks we already
know how to do is *PRODUCTIVITY***

**Knowledge applied to tasks that are new
and different is *INNOVATION***

*Managing for the Future:
The 1990s and Beyond*
Peter F. Drucker, 1992

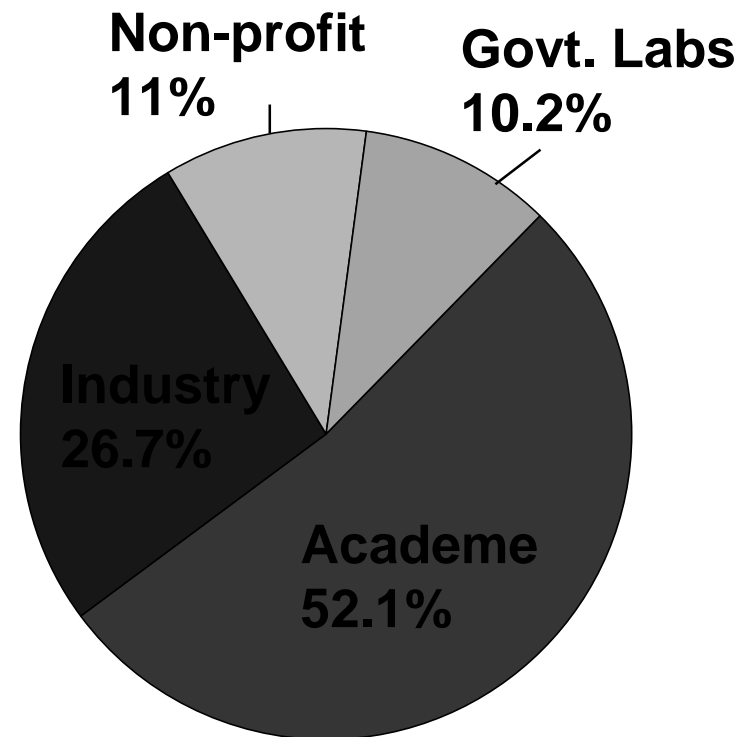
Creative Transformations

The Schumpeterian Factor

- “The interaction of technological innovation with the competitive marketplace is the fundamental driving force in capitalist industrial progress.” (Schumpeter, 1942)
- “...a normally healthy economy was not one in equilibrium, but one that was constantly being disrupted by technological innovation.” (The Economist (on Schumpeter), 1999)

Science/Technology Linkage

- Patents granted in the US patent system are increasingly linked to public research.
- Two-thirds of the cited papers were published by organizations primarily supported by public funding.



**Sources of papers cited
on U.S. Patents**

Source: National Science Board,
Industry Trends in Research Support and Links to Public Research.

Innovation Partnerships

Strategic Intent

NSF will more effectively realize connections between Discovery (new knowledge) and Innovation, Learning and Service to Society.

Innovation Partnerships

Program Goal

To create a new and effective mechanism that enables innovation; that transforms knowledge created by the national research and education enterprise into innovations that create new wealth, build strong local and regional economies, and improve the national well-being.

Innovation Partnerships

Key Underlying Tenets

- ① *Innovation happens locally* - partnerships with state, regional and local governments and industry are key to success; and
- ② *Innovation is critically dependent upon new knowledge and the availability of a “knowledge workforce”* - therefore partnerships with academic institutions of all types are key to success.

Innovation Partnerships: The Building Blocks

Activity

Program

State Research
and Education
Development

Experimental Program to Stimulate Competitive Research (EPSCoR)
Rural Systemic Initiatives (RSI)
State Systemic Initiatives (SSI)

Industry R&D

Grant Opportunities for Academic Liaison with Industry (GOALI)
Industry/University Cooperative Research Centers (IUCRC)
Small Business Innovation Research (SBIR)
Small Business Technology Transfer (STTR)
Innovation and Organizational Change (IOC)

University
Partnerships

Advanced Networking Infrastructure (ANI)
Centers for Research Excellence in Science and Technology (CREST)
Partnerships for Advanced Scientific Computing (PACI)

National R&D
Centers

Engineering Research Centers (ERC)
Long-Term Ecological Research Sites (LTER)
Material Research Science and Engineering Centers (MRSEC)
Science and Technology Centers (STC)

Partnerships for Innovation Planning Workshop

Purpose and Outcomes

- Develop a shared understanding of the concepts of “innovation” and “partnerships for innovation” including specific examples
- Provide guidance for the development of the Partnerships for Innovation solicitation
- Identify future actions, including the planned November workshop, that will advance the Partnerships for Innovation initiative

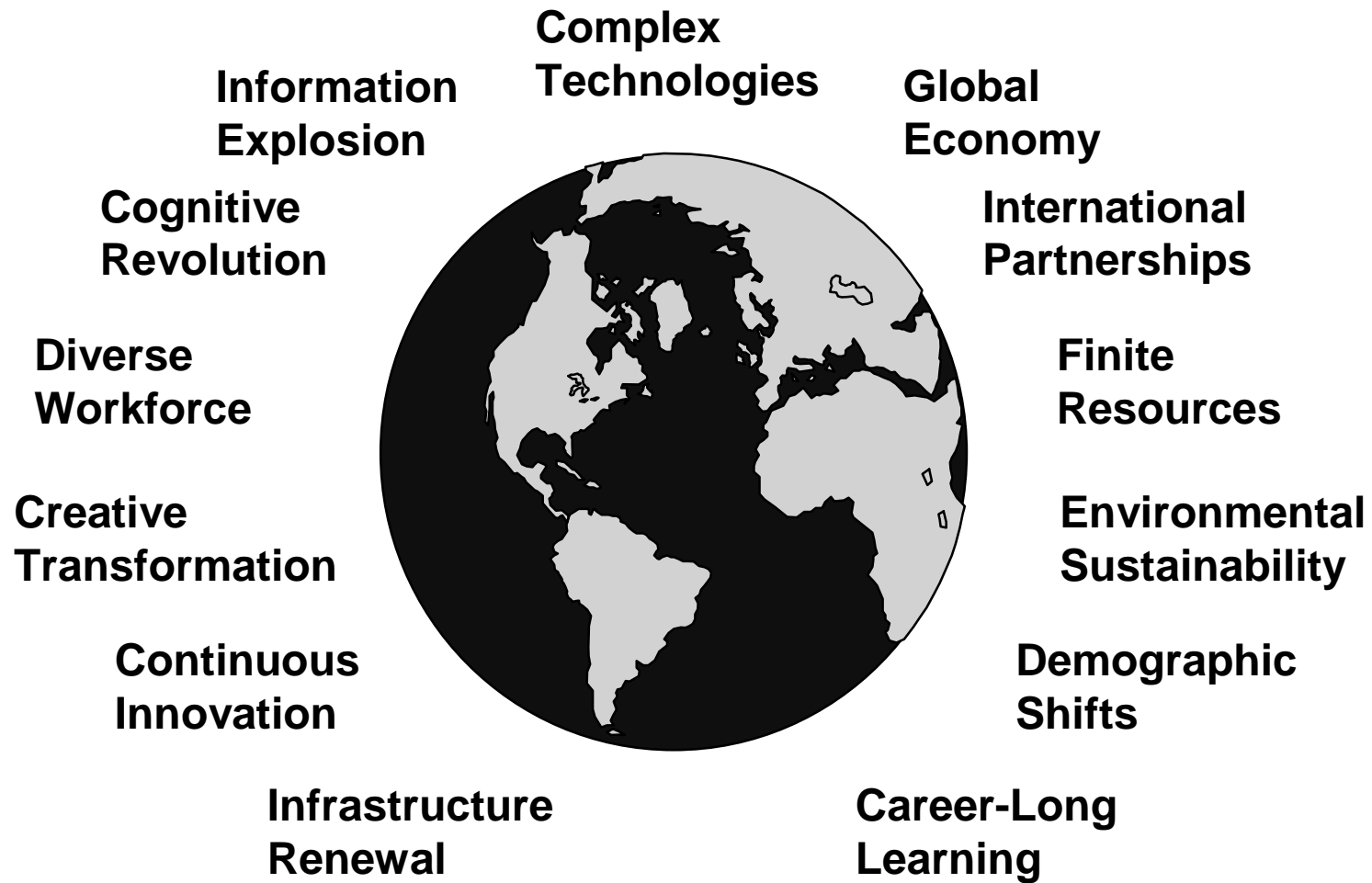
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Something special has happened to the American economy in recent years.

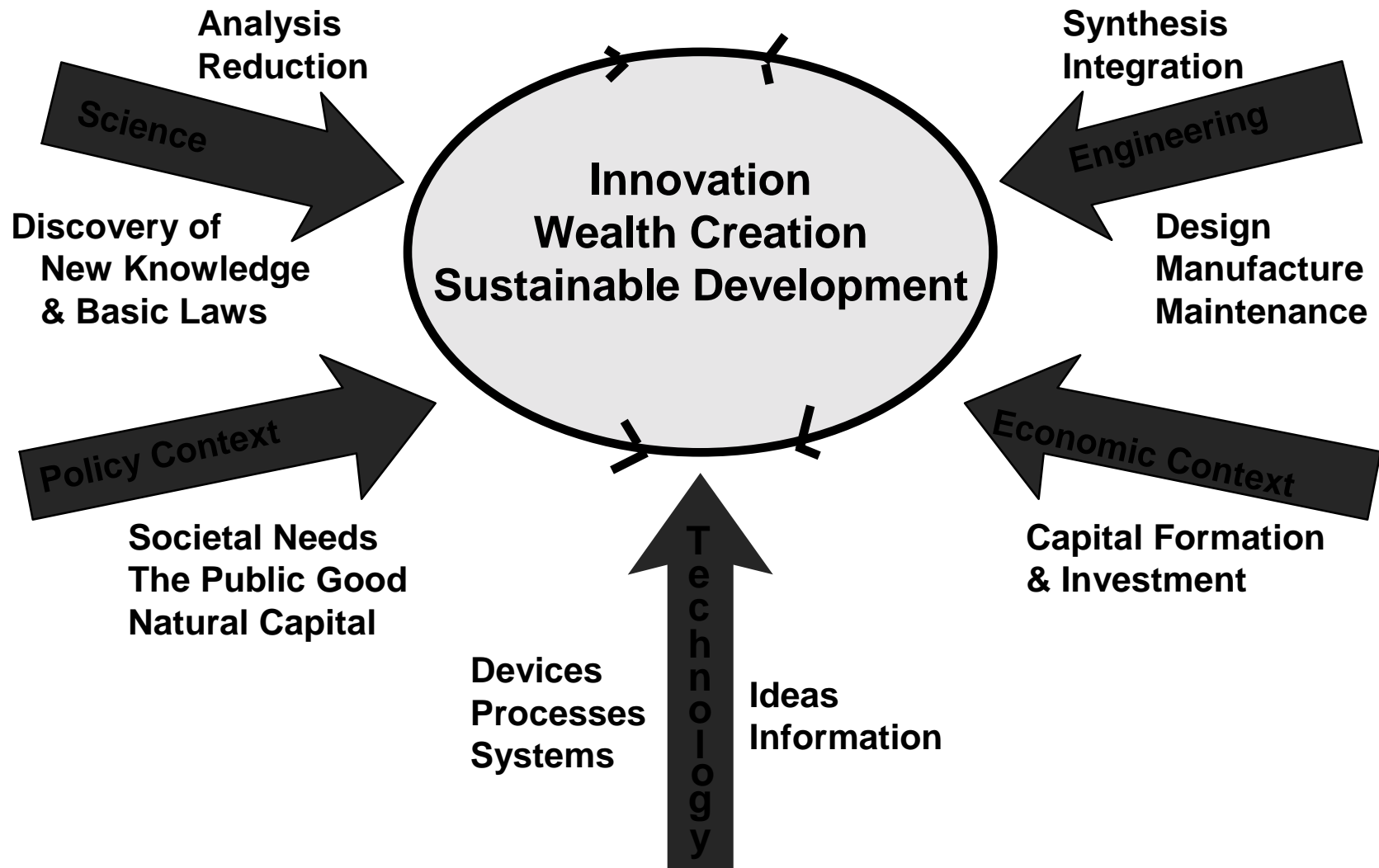
. . . a remarkable run of economic growth that appears to have its roots in ongoing advances in technology.

*Alan Greenspan
June 14, 1999
Joint Economic Committee*

A 21st Century World



Innovation System Concurrent Integration



**“I never predict. I just look out
the window and see what’s
visible -- but not yet seen.”**

Peter Drucker

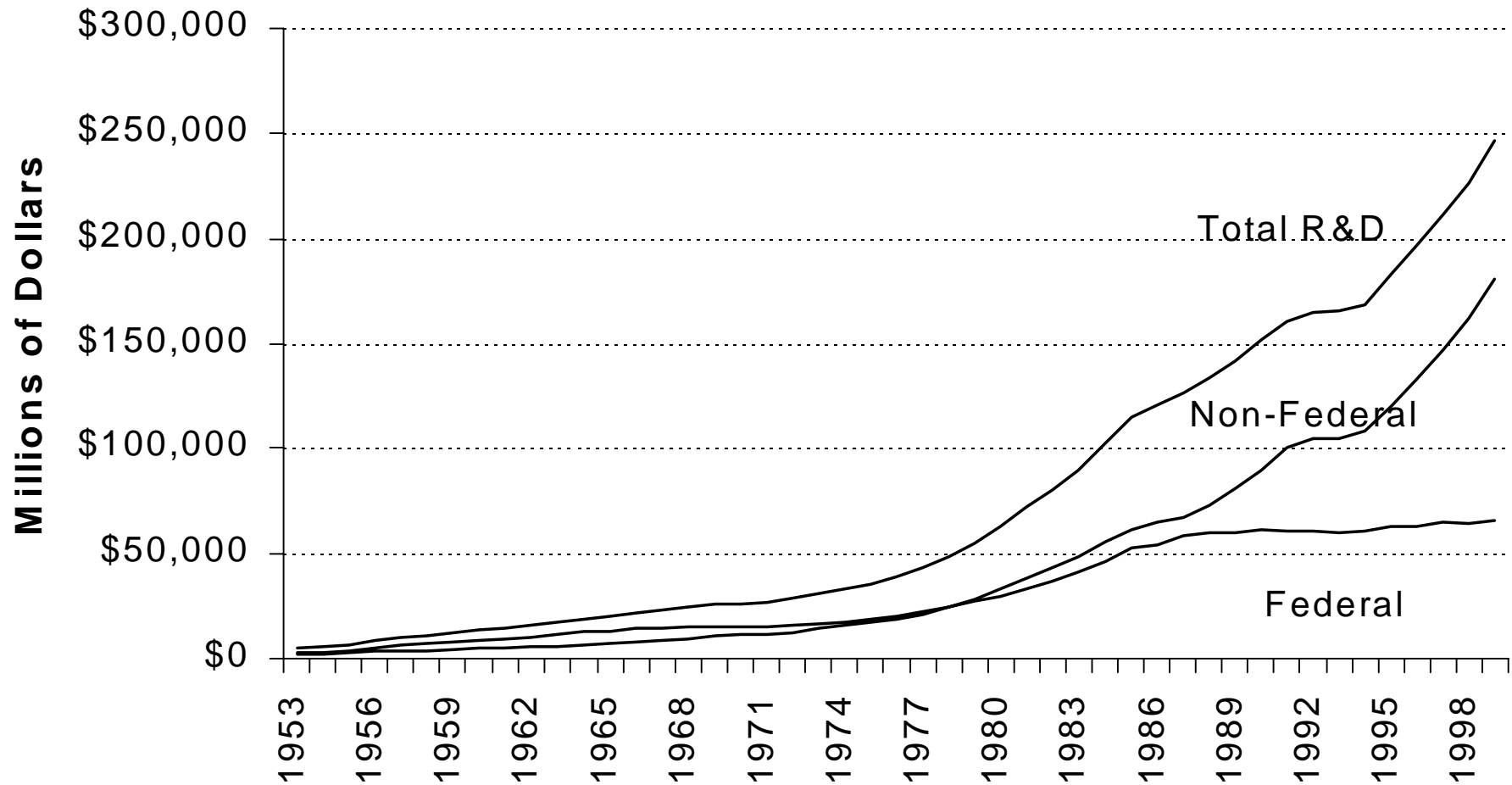
Forbes Magazine

March 10, 1997

New Capabilities

- Terascale
- Nanoscale
- Complexity

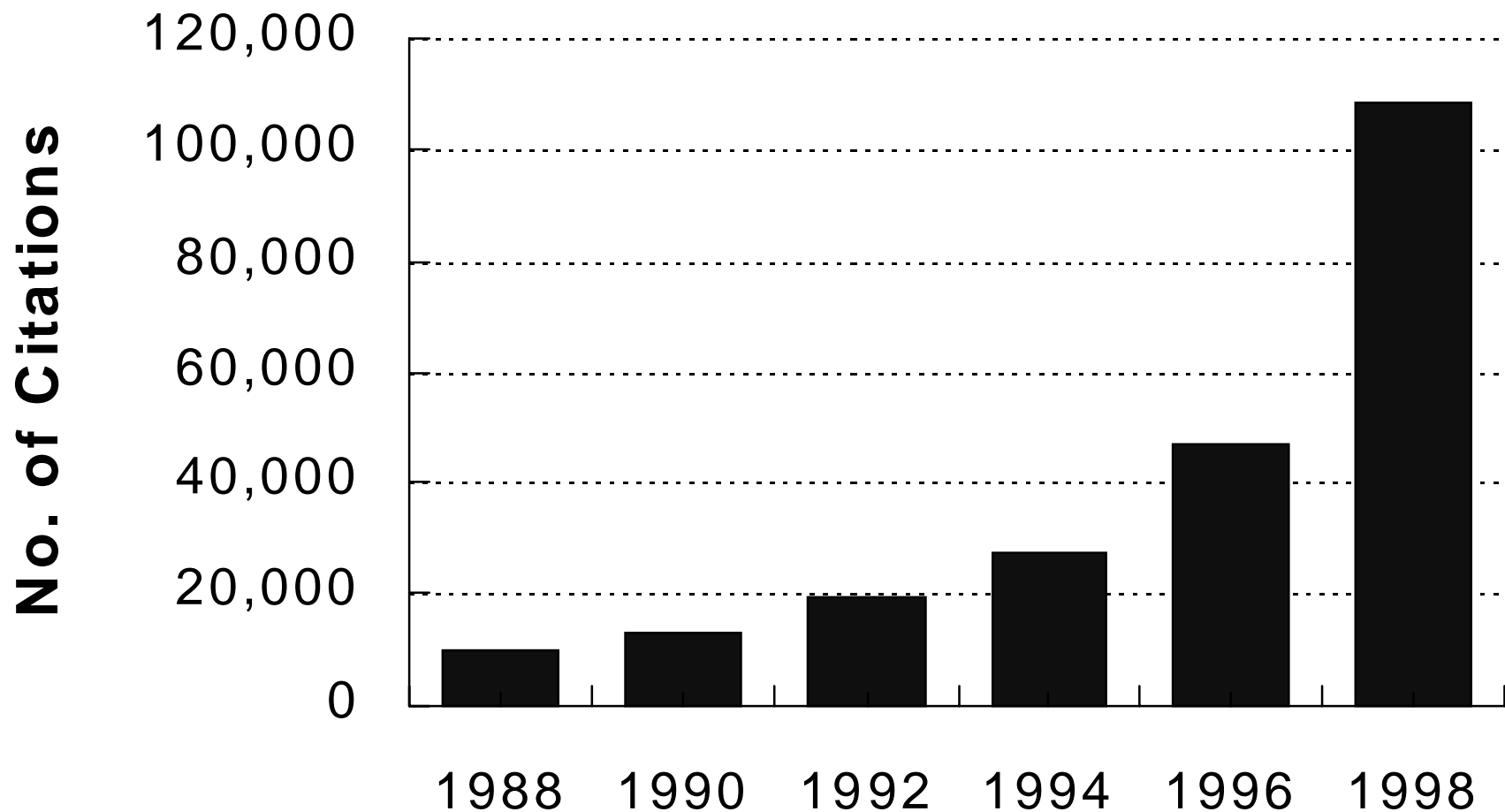
National R&D Funding by Source: 1953 - 1999



Source: NSF/SRS

Patent Citations to S&T Literature

Up 10-fold since '88, doubled since '96



Source: NSF/SRS

Innovation Partnerships

“...promote and support increased collaborations among universities and between universities and federal, state and regional organizations and the private sector.”

NSF Budget Request By Initiative

Millions of Dollars

	FY 2000 Plan	FY 2001 Request	Percent Change
Info. Technology	\$126	\$327	159%
Nanoscale S&E	\$97	\$217	123%
Biocomp. in the Env.	\$50	\$136	172%
21 st Cent. Workforce	\$74	\$157	112%

NSF Core Strategies

- Develop Intellectual Capital
- Strengthen the Physical Infrastructure
- Integrate Research and Education
- Promote Partnerships

Key Investment Factors

- ⇒ Leveraging - Intellectual capital;
financial capital
- ⇒ Inclusivity - Connections and
integration