

# Governing the Governance of Emerging Technologies



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Governance of Emerging Technologies: Law, Policy, and  
Ethics

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# Introduction



# Governance

- Multi-party/multilevel responsibility and decisions
- Mixture of tools
- Participatory
- Reflexive
- Adaptive

# Many Emerging Technologies ...

- Biotechnology
- Nanotechnology
- Personalized Medicine
- Neuroscience
- Synthetic Biology
- Artificial Intelligence
- Surveillance Technologies
- Social Media
- Robotics

## ...Each Raising Similar Complex Sets of Issues

- R&D Funding
- Commercialization
- International Competitiveness/Harmonization
- Intellectual Property
- Health/Safety/Environmental Risks
- Social and Ethical Concerns
- Public Perceptions
- Government Oversight
- Multiple “Soft Law” Initiatives
- Rapidly changing technology

# Need for Institutional Issue Manager?

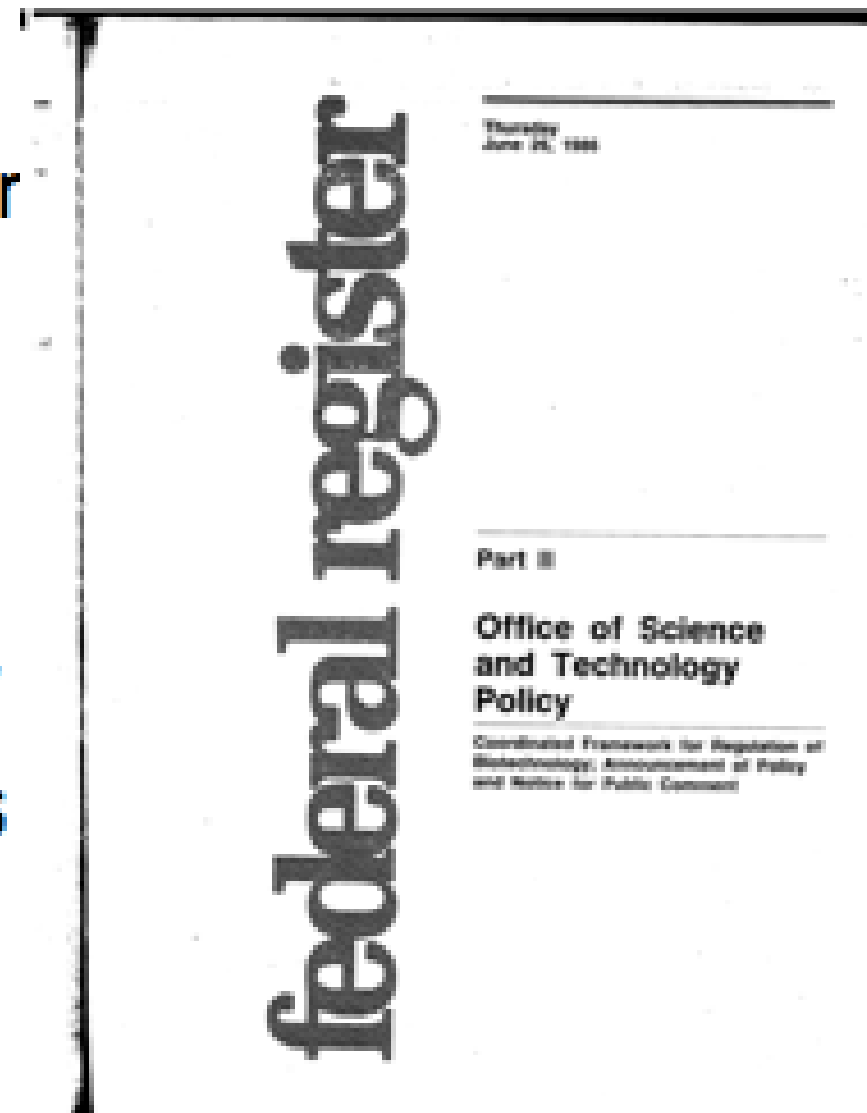
- Possible Functions:
  - Information Collection
  - Coordination of Actors
  - Forum for Stakeholders
  - Recommendations/reports
  - Oversight Guidance
  - “Orchestra Conductor?”



Precedents/Models?

# Biotechnology: Coordinated Framework

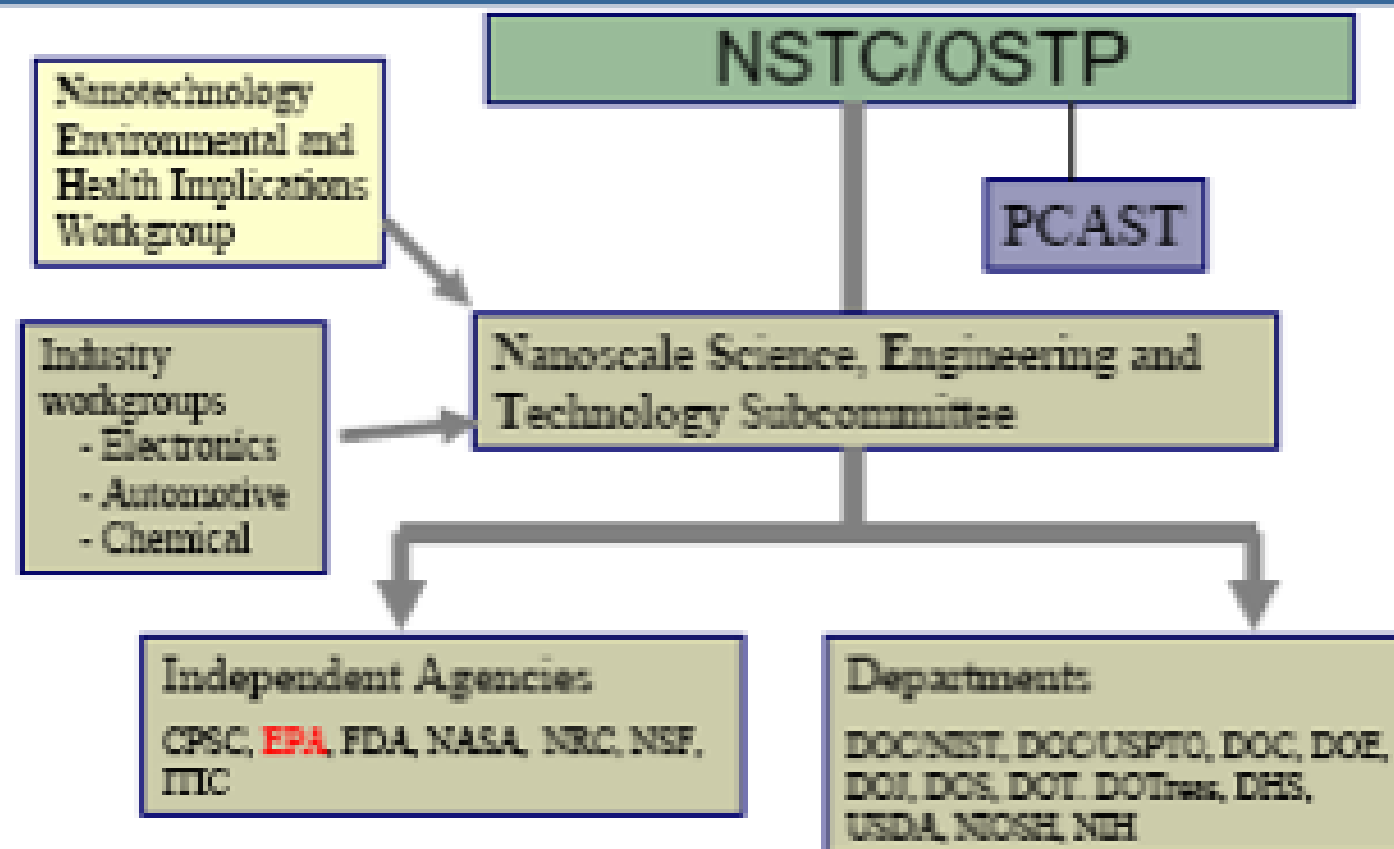
- OSTP published Coordinated Framework for Regulation of Biotechnology Products in 1986
- Assigned responsibility for different biotech products/risks to 6 different agencies under matrix of existing statutes





# Nanotechnology: National Nanotechnology Initiative

## Federal Coordinating Structure for National Nanotechnology Initiative



Federal Nanotechnology R&D in the U.S. is coordinated by the NNI

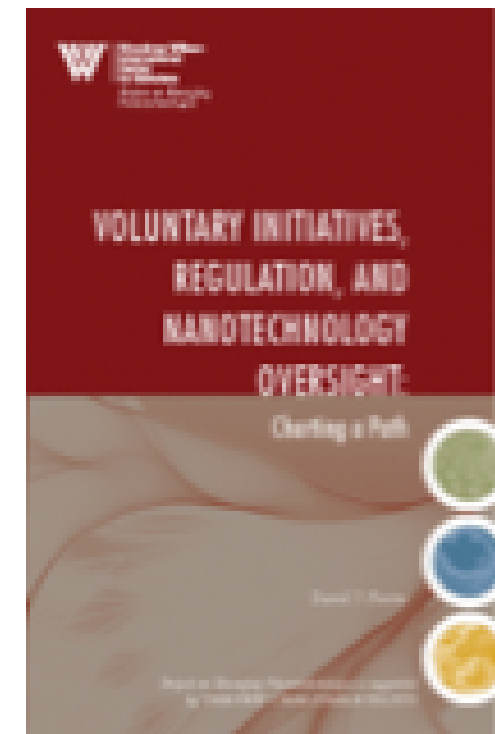
# Pew Centers

- Biotechnology
- Climate Change
- Project on Emerging Nanotechnologies
- Neuroscience and the Law



# Nanotechnology: “Nano Stewardship Council”

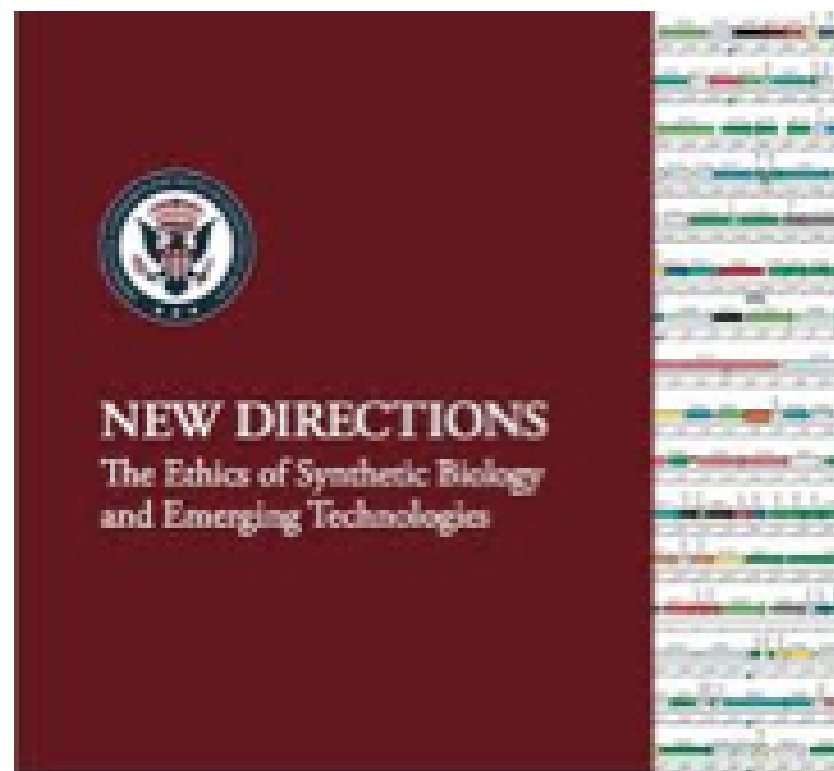
- “NGOs, business, government and others should establish a Nano Policy Forum for discussing nano oversight issues and developing needed tools. This body should be tasked with considering the longterm value and development of a multi-stakeholder Nano Stewardship Council modeled generally on other collaborative mechanisms. The forum could be funded in equal amounts by government, foundation and business resources or be the subject of a specific congressional appropriation. It would provide an ongoing, neutral forum for discussions on nanotechnology policy issues and options and a clearinghouse for information.”



Daniel Fiorio



# Synthetic Biology: Bioethics Commission



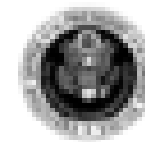
- Government should create “an iterative, deliberative process” for oversight of synthetic biology that “allows for the careful consideration of moral objections to synthetic biology”
- But did not endorse NNI type coordinating structure

# White House Emerging Technologies Interagency Policy Coordination Committee (ETIPC)

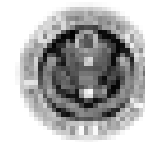
- Created jointly by OSTP, OIRA, and USTR in 2010
- Consists of assistant secretary-level representatives from about 20 Federal agencies
- Goal: “open consideration of policy questions” raised by emerging technologies “with the full range of stakeholders, including governments, industry, non-governmental organizations, academia, and the public”



Office of Science and  
Technology Policy



United States  
Trade Representative



Administrator  
Office of Information and  
Regulatory Affairs

March 11, 2011

## MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

### FROM:

John P. Holdren   
Assistant to the President for Science and Technology  
Director, Office of Science and Technology Policy

Case H. Norton   
Administrator, Office of Information and Regulatory Affairs  
Office of Management and Budget

Ilham A. Siddiqui   
Chief Agricultural Negotiator  
United States Trade Representative

### SUBJECT:

Principles for Regulation and Oversight of Emerging  
Technologies

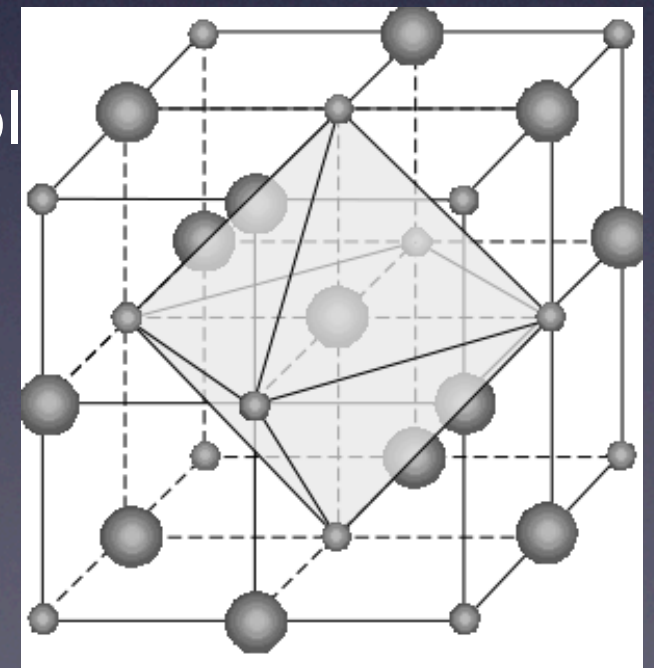
Innovation with respect to emerging technologies — such as nanotechnology, synthetic biology, and genetic engineering, among others — requires not only coordinated research and development but also appropriate and balanced oversight. The White House Emerging Technologies Interagency Policy Coordination Committee (ETIPC) has developed the following broad principles, consistent with Executive Order 13526, to guide the development and implementation of policies for oversight of emerging technologies at the agency level.

# A Proposal



# GOVERNANCE COORDINATION COMMITTEE (GCC)

- Coordinate activities of the various stakeholders
- Modular
- Comprehensive monitoring
  - Flag issues/gaps
  - Find solutions within the robust set of available mechanisms
- Mandated to avoid regulation where possible
  - Soft Governance
- Nimble/Flexible/Adaptive/Lean
- Credible vehicle





# Stakeholders in Scientific Development

- Public
  - Technology engine of innovation and productivity
  - Minimize harms
- Legislators
  - Tension between stimulating economic growth and minimizing harms
    - New regulations postponed until action is forced (disasters?)
      - Response to yesterday's challenge (disaster can't be repeated)
    - Source of Funds (R&D and Government Purchasing)
- Regulatory Authorities
  - Concerned they will be held responsible for new harms.
  - Limited resources



# Stakeholders (2)

- Industry
  - Self-regulation v. Govt. regs.
    - Cartel
  - Stimulated self-interest
- Scholarly Community and NGO's
  - Source of innovative ideas and research
  - Critical of unsubstantiated claims
    - Watchdog
  - Concerned ignored or unnoticed
- Media
  - Disseminator of information and education
  - Exacerbate bias, rumors, misinformation, and unwarranted fears



# Monitoring–Managing– Modulating

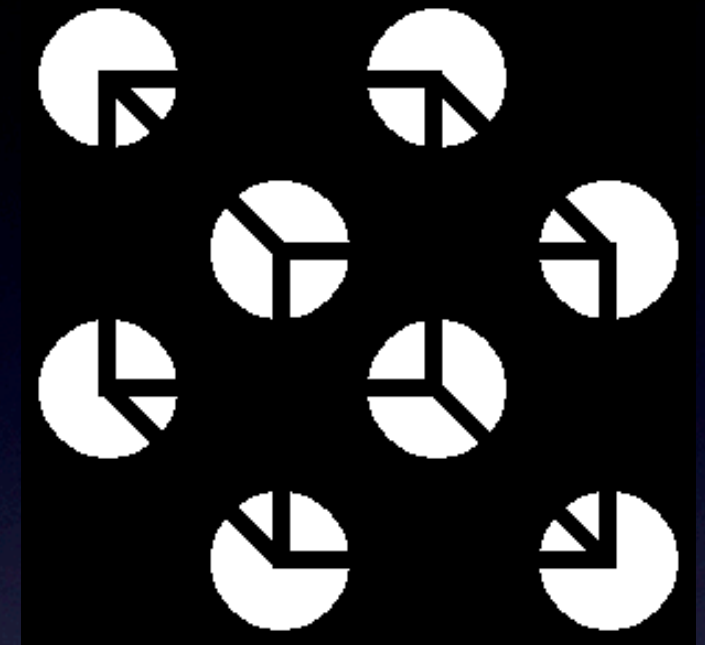
- Monitor
- Manage
  - Help the various stakeholders appreciate why cooperation in the building of a robust set of policy mechanisms lies in their interest.
- Modulate





# Influence

- Good Faith Broker
- Industry – Carrot and stick
- Report to the legislature and executive
  - Potential harms in the system of existing mechanisms
    - Isolate from tangential concerns
  - Funding
  - Lowering liability
- Do not usurp authority of regulating agencies
- Listen to scientific and academic communities and NGO's
- Reports to funding sources and for the public
  - State of a technology's development
    - Speculation v. real harms – cross technological thresholds
- Source of credible information for the media





# Issues

- Authority/Legitimacy
- Adequate influence
- Members/Administrators
- Establish credibility
- Government v. private
  - Funding GCC
- Accountability
- Too complicated? Hopelessly naive?





# Thank You!

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