

# CBA in the Governance of Synthetic Biology



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# Transdisciplinaryitis



# Three Projects

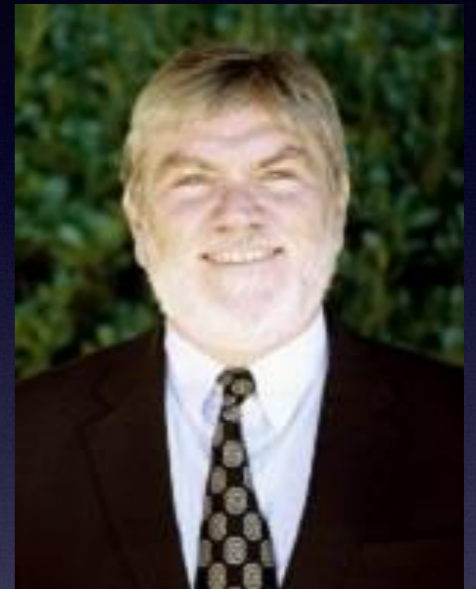
- Implicit and Explicit Values in CBA & RA
- Science-Policy Interfaces
  - Marc Saner
- Governance Coordinating Committee
  - Marchant & Wallach



## 3 Synthetic Biology

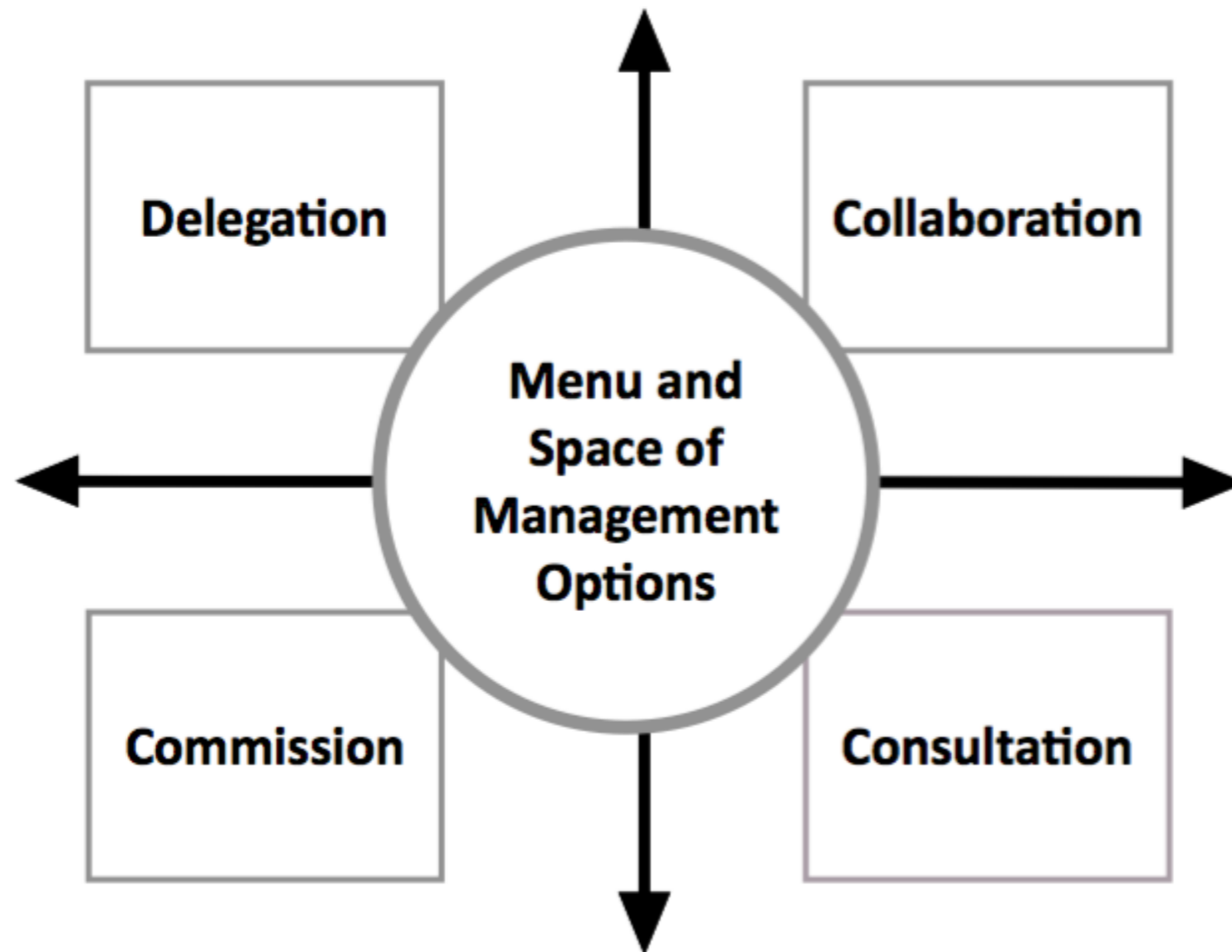
### Cases

- Ignorant/suspicious
- Uncertainties
- Defense of the disciplines
- Focus upon gene drives
  - malaria, locust swarming
  - Zika
- Necessary but not sufficient for public policy formulation.



# Science Policy Interfaces

**Experts are Embedded**  
(Requesters and Providers of Evidence are  
**Located Together**)



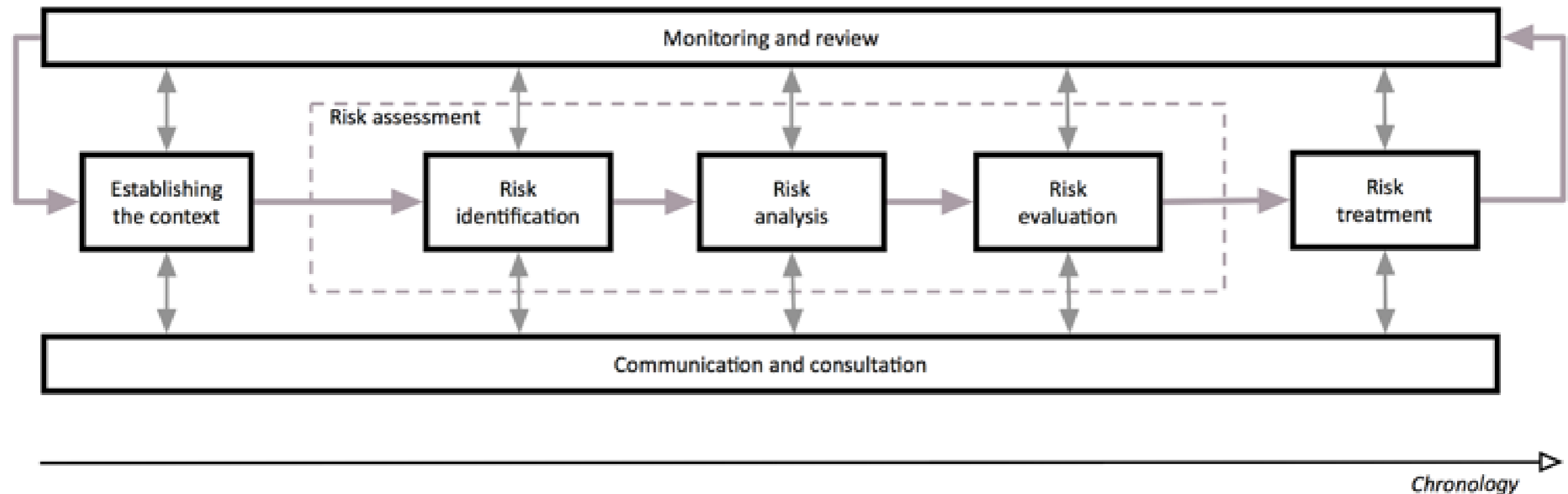
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# CBA /Commission

- Values: legitimacy and voice, perception of impartiality, transparency, accountability, fairness, performance, and perception of relevance.
- Strength: credibility/impartiality, clear division of labor, isolation from influence
- Weakness: lack of transparency within the evidence box, sweeping power for experts, secrecy vs. public ethics, lack of trust.

# RA

## Collaboration or Consultation



Main benefit: Potential for greater efficiencies, trust in relevance, and impact. Greater chance to include all knowledge and relevant values. Greater flexibility during times of urgency.

Main cost: Hard to convey impartiality; urgency may be misused as an ideological tool because economic urgencies often seem more imminent and policy-relevant than future or speculative risks.

# Proposal

## Governance Coordinating Committees



Gary Marchant

# Emerging Technologies

- Pacing Problem.
- Raise a similar complex set of issues and governance challenges.
- Existing oversight mechanism are maladapted to address these challenges.

# Need for an Issues Manager

## Precedents

- Biotechnology: Coordinated Framework
- Federal Coordinating Structure for the NNI
- PEW Centers
- “Nano Stewardship Council”
- Bioethics Commissions
- White House Emerging Technologies Interagency Policy Coordinating Committee (ETIPC)

# GOVERNANCE COORDINATION

- Institutional Issues Manager (GCC)

- Coordinate activities of the various stakeholder

- Comprehensive monitoring

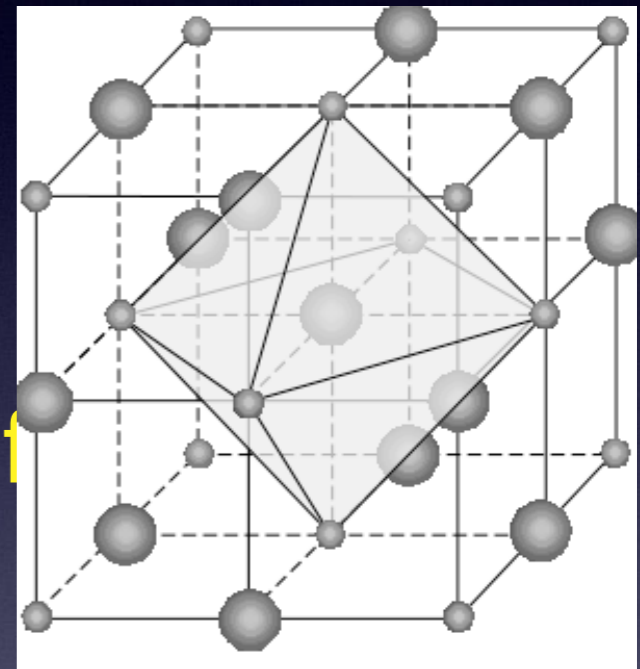
- Flag issues/gaps

- Find solutions within the robust set of available mechanisms

- Mandated to avoid regulation where possible

- Soft Governance

- Nimble/Flexible/Adaptive/Lean —  
CREDIBLE



# Stakeholders in Scientific Development

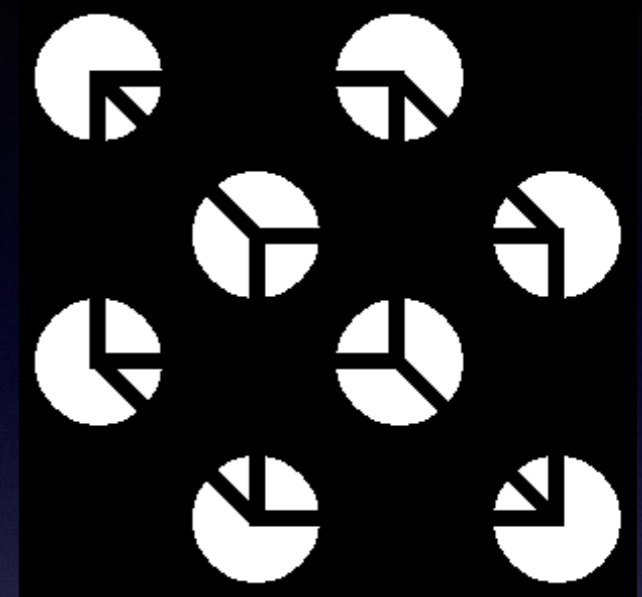
- Public
  - Technology engine of innovation and productivity
  - Minimize harms
- Legislators
  - Tension between stimulating economic growth and minimizing harms
    - New regulations postponed until action is forced (disasters?)
      - Response to yesterday's challenge (disaster can't be repeated)
    - 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

# GCC 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



# Implementation Challenges

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



# International Coordination

- Harmonization
- Differing Values
- CRISPR/Cas9
- Precautionary Principle
- Shared Concerns
- Geoengineering



# Pilot Projects



- AI/Robotics
- Synthetic Biology

# Synthetic Biology

## Gene Drives

# Role for Experts??

- Start with CBA? Case specific.
- RA dialogue?
- Role for the public. Danish model?
- Other inputs from experts.
- Output: Trust or some methodology for the GCC reports?

# Gene Drives

- Task specific CBA or RA. Helpful?
- Broader Impact!
  - Do scientific expertise give us any handle?
- Resign ourselves to upsetting natural systems and inheriting the management of nature.

# Thank You!



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