Recommendations from the NIH Council of Councils Working Group on Science of Science

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Council of Councils Meeting

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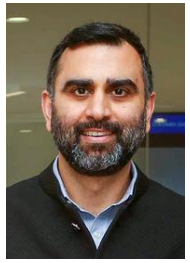
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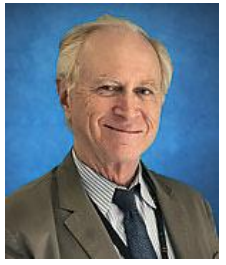
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Charge

1. Reviewing the efforts that NIH has undertaken to generate evidence about its programs, policies, and processes.
2. Identifying significant gaps in knowledge where leveraging science of science and related research may better influence NIH decision-making.
3. Providing recommendations on potential approaches that NIH could consider to enhance its use of the science of science and ensuing results.
4. Providing recommendations for how NIH can engage the science of science research community and communicate results of science of science research.

A Call for Continuous, Evidence-Driven Improvement



The Goal: Move from relying on experience and periodic feedback to a continuous learning model based on testable, evidence-based interventions



Overarching Recommendation: NIH should increase the use of rigorous empirical methods to study, evaluate, and improve its policies, processes, and outcomes.



Guiding Principles: Apply "Science of Science" principles—the empirical study of how research is funded, conducted, and evaluated—to strengthen NIH's impact.

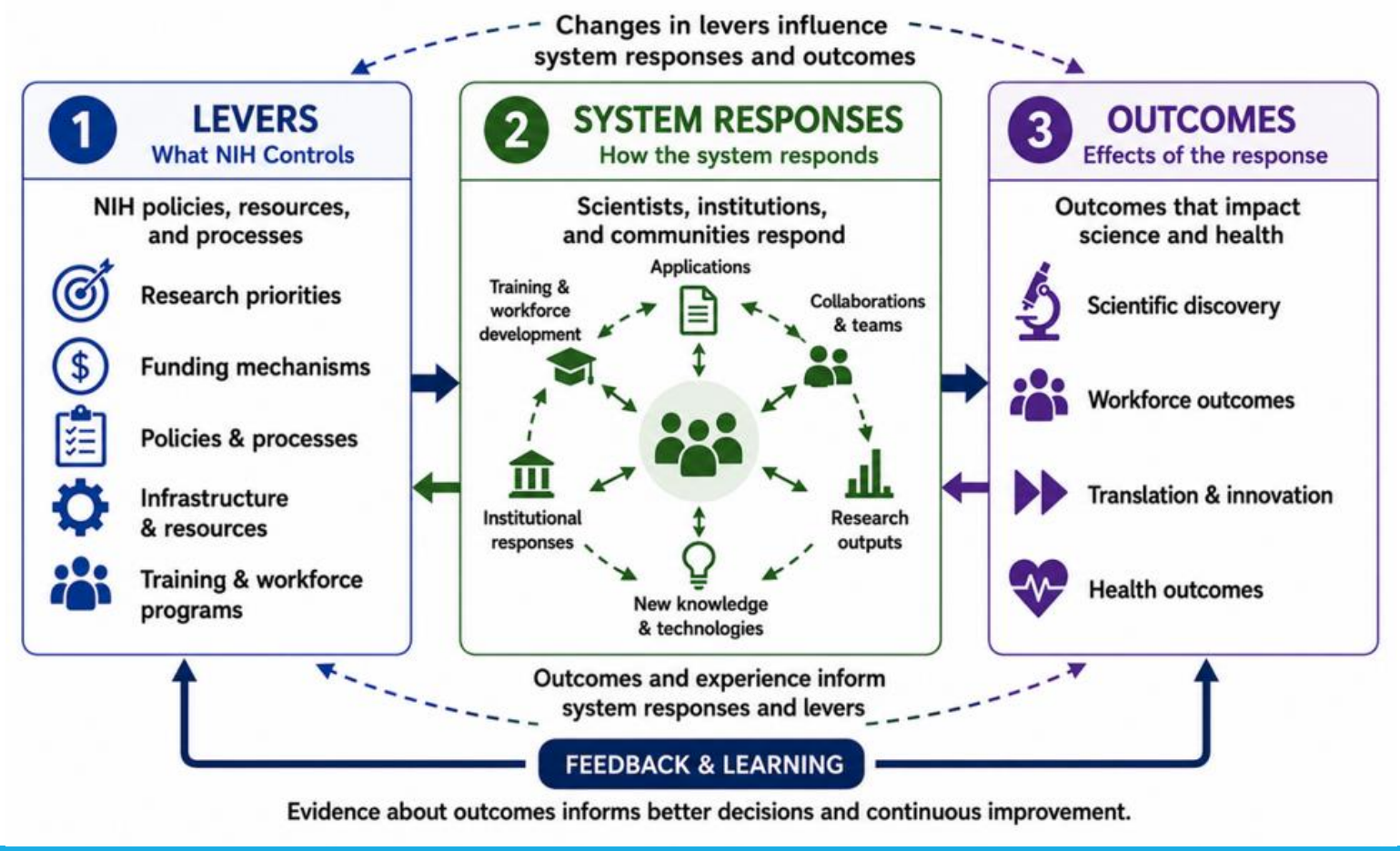
WG Process

Logic Model Component	Definition & Examples	WG Actions
Inputs	Resources & Investments	Subgroup 1: Optimizing the deployment of NIH inputs.
Activities	Actions & Processes	Subgroup 2: Accelerating science through activities resulting in primary and secondary outputs.
Outputs	Products Generated	
Outcomes	Tangible Results	Subgroup 3: Capturing outcomes and impacts to measure overall value.
Impacts	Societal Change	

Many subgroup meetings, multiple speakers
10 full WG meetings 9/4/25 – 8/6/26

12 report iterations

The Causal-Chain Framework





Overarching general recommendation

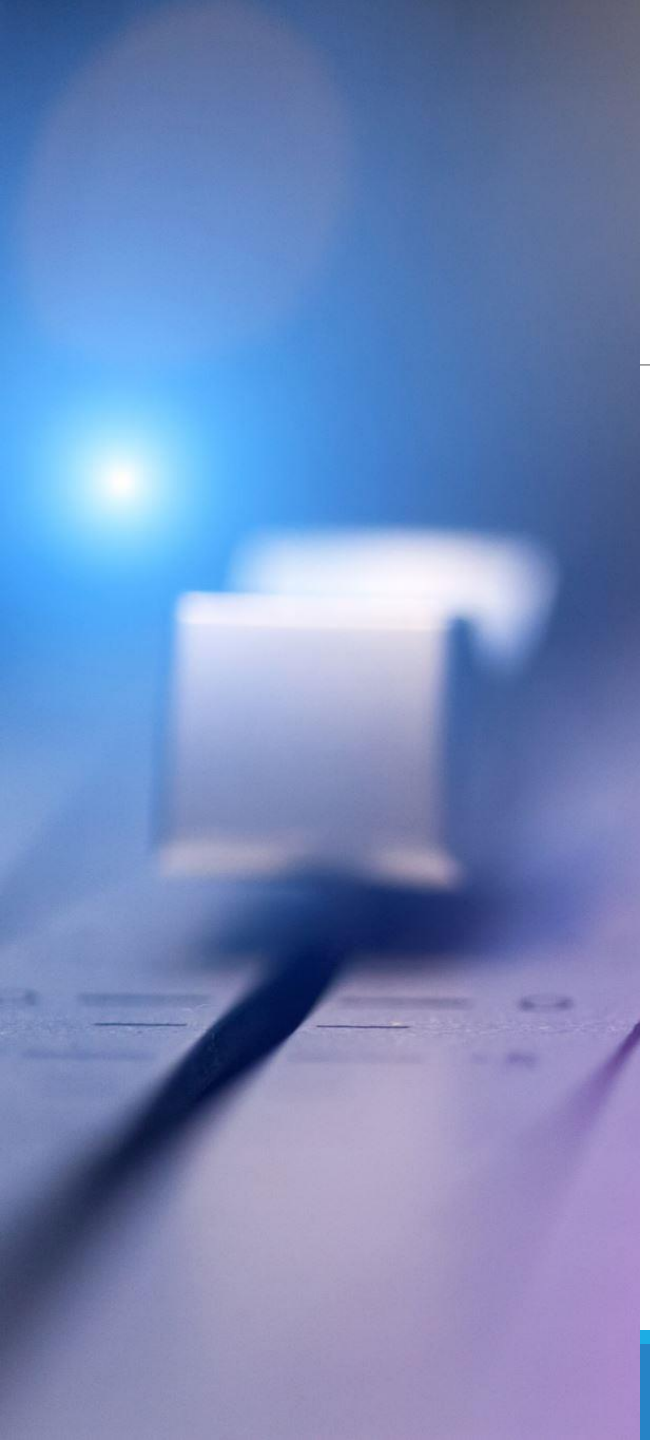
A. Develop evaluation-ready policies and programs by clearly articulating objectives and framing them to the extent possible as testable interventions.

B. Strengthen NIH data infrastructure and increase access to NIH administrative data.

C. Expand NIH analytical and methodological assessment capacity.

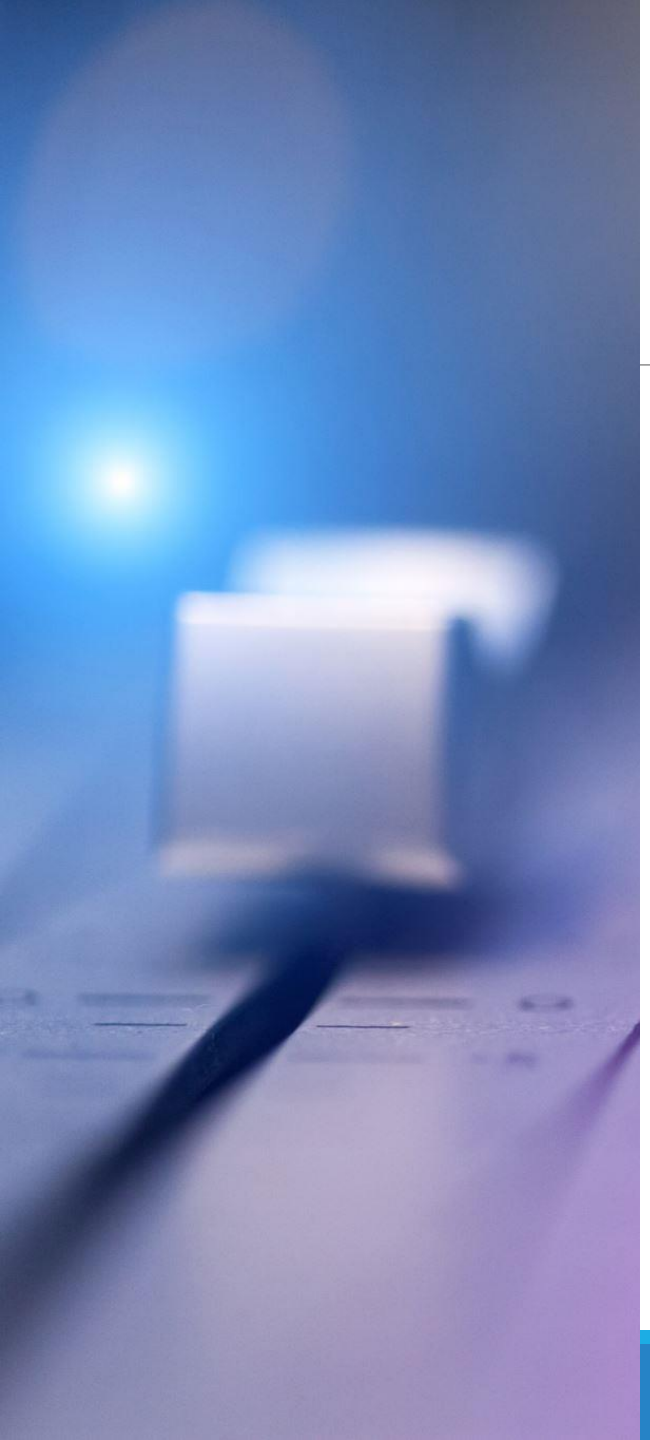
D. Coordinate leadership and governance for science of science research.

E. Further invest in science of science research.



Optimizing the Levers that NIH Controls

1. Systematically study NIH grant mechanisms to inform adjustments that optimize project management and success.
2. Evaluate changes intended to strengthen NIH peer review.
3. Optimize NIH funding processes through experimentation, agent-based simulation, and data infrastructure.
4. Conduct science of science research to understand how review and funding processes influence the diversity of the scientific portfolio and transformative innovation.
5. Implement a core reproducibility and generalizability metadata framework.



Optimizing the Levers that NIH Controls, continued

6. Identify promising technologies and research methodologies to accelerate translation from research to commercialization.
7. Use science of science methods to measure, communicate, and maximize the societal impact of NIH-supported research.
8. Develop data, methods, and the evidence base to improve portfolio diversity and support paradigm-challenging science.
9. Build global science indices to guide strategic NIH investment and benchmark U.S. competitiveness.



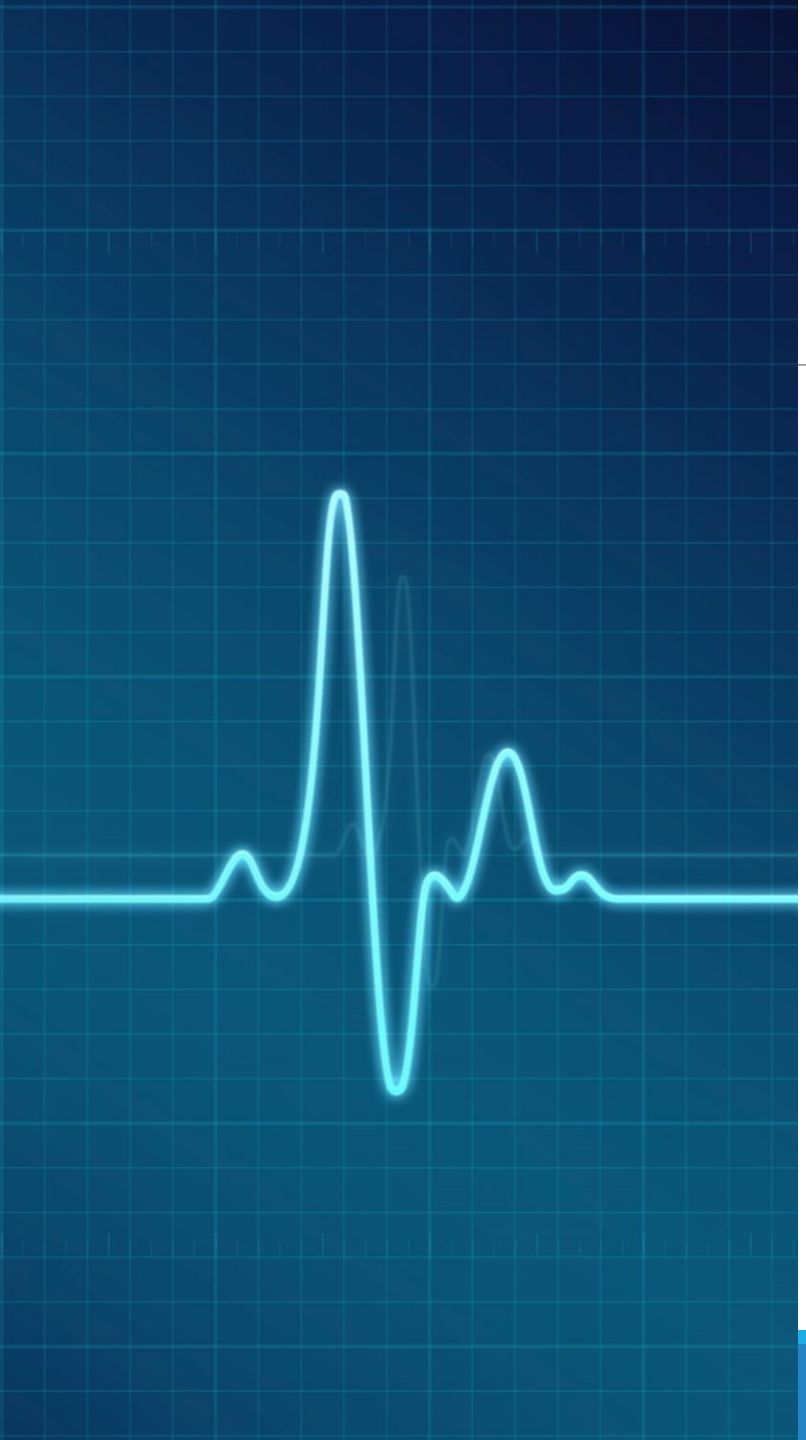
Understanding How the Scientific Community Responds

10. Invest in datasets from university administrative systems to study scientists' behavior and career progression.

11. Use a human-centered approach to study the evolution of scientific fields.

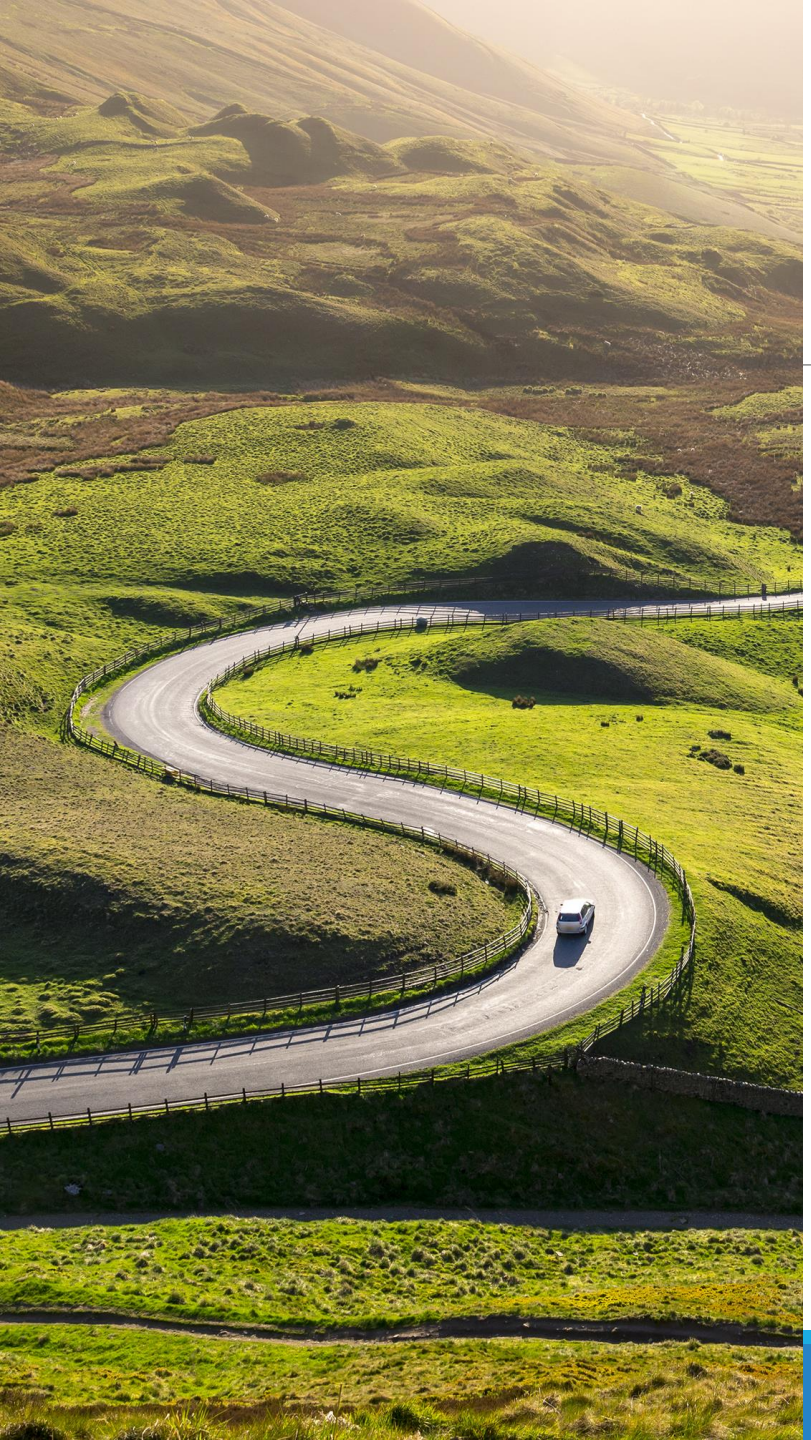
12. Promote standards for data usage descriptors to support responsible data reuse and reproducibility.

13. Design data trust measures that can be used to support credible and replicable research.



Measuring What Matters: From Research to Health

14. Launch targeted living systematic reviews.
15. Develop a range of performance measures to capture outcomes of research.
16. Develop a range of performance measures to capture outcomes of training programs.
17. Improve and validate grant–patent linkages to better enable assessment of NIH's impact on health products.
18. Validate output measures against outcomes.
19. Support the development of measures for scientific openness, self-correction, and public trust.
20. Study K–12 levers that produce future scientists.
21. Study the effects of major policy changes in NIH funding priorities and procedures.



From Recommendations to Implementation

- **Coordination:** Establish a central coordinating office (proposed as OREPA) within the Office of the Director to lead science of science activities.
- **Funding:** Use dedicated, NIH-wide mechanisms to support this work.
- **Evaluation**: Implement a formal, recurring evaluation framework with independent external reviews to ensure accountability.
- **Core Principle**: Ensure all future policy changes are "evaluation-ready," with clear objectives and a plan to measure their effects.

Council Action

Vote to accept the Working Group Report on Science of Science