



A Framework for Federal Scientific Integrity Policy and Practice

Guidance by the

SCIENTIFIC INTEGRITY FRAMEWORK INTERAGENCY WORKING GROUP

of the

NATIONAL SCIENCE AND TECHNOLOGY COUNCIL

January 2023

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About the NSTC Scientific Integrity Framework Interagency Working Group

The Scientific Integrity Framework Interagency Working Group (SIF-IWG) was created in response to the charge of the January 27, 2021 Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking to create a Scientific Integrity Task Force. Carrying the duties of 2022 Task Force, SIF-IWG developed a framework for regular assessment and iterative improvement of agency scientific integrity policies, following publication of the January 11, 2022 Scientific Integrity Fast-Track Action Committee's (SI-FTAC) report entitled *Protecting the Integrity of Government Science*. The SIF-IWG provided executive departments and agencies a forum for discussing scientific integrity and the improvement of scientific integrity policies to promote Federal scientifically informed and evidence-based decision making. More information on the work of the SIF-IWG and the SI-FTAC is available at <https://www.whitehouse.gov/ostp/nstc/scientific-integrity-task-force/>.

About this Document

This document delivers *A Framework for Scientific Integrity Policy and Practice* (the Framework). This is the culmination of the work conducted by the SI-FTAC (2021 Task Force) and the SIF-IWG (2022 Task Force) and builds on the January 2022 SI-FTAC report, *Protecting the Integrity of Government Science*. Both that report and the Framework are in response to the 2021 Presidential Memorandum on *Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking*, which directed OSTP to review scientific integrity policies and practices and to establish a framework for regular assessment and iterative improvement of scientific integrity in U.S. Federal agencies. To develop the Framework, the SIF-IWG relied upon evidence gathered from engagement with multiple Federal scientific integrity officials and other relevant agency staff, and through engagement with the public. This guidance document includes the Federal definition of scientific integrity, a model scientific integrity policy for Federal agencies, and a roadmap for assessment and iterative improvement of agency scientific integrity policies and practices.

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Abbreviations and Acronyms

CFR	Code of Federal Regulations
EOP	Executive Office of the President
FAC	Federal Advisory Committee
FTE	Full Time Equivalent
NSTC	National Science and Technology Council
OGC	Office of the General Counsel
OIG	Office of the Inspector General
OMB	Office of Management and Budget
OSTP	Office of Science and Technology Policy
PM	Presidential Memorandum
SI	Scientific Integrity
SIF-IWG	Scientific Integrity Framework Interagency Working Group (Task Force, Jan 2022 – Jul 2022)
SI-FTAC	Scientific Integrity Fast-Track Action Committee (Task Force, May 2021 – Dec 2021)
SIO	Scientific Integrity Official
SIP	Scientific Integrity Policy
SOSI	Subcommittee on Scientific Integrity
USC	United States Code

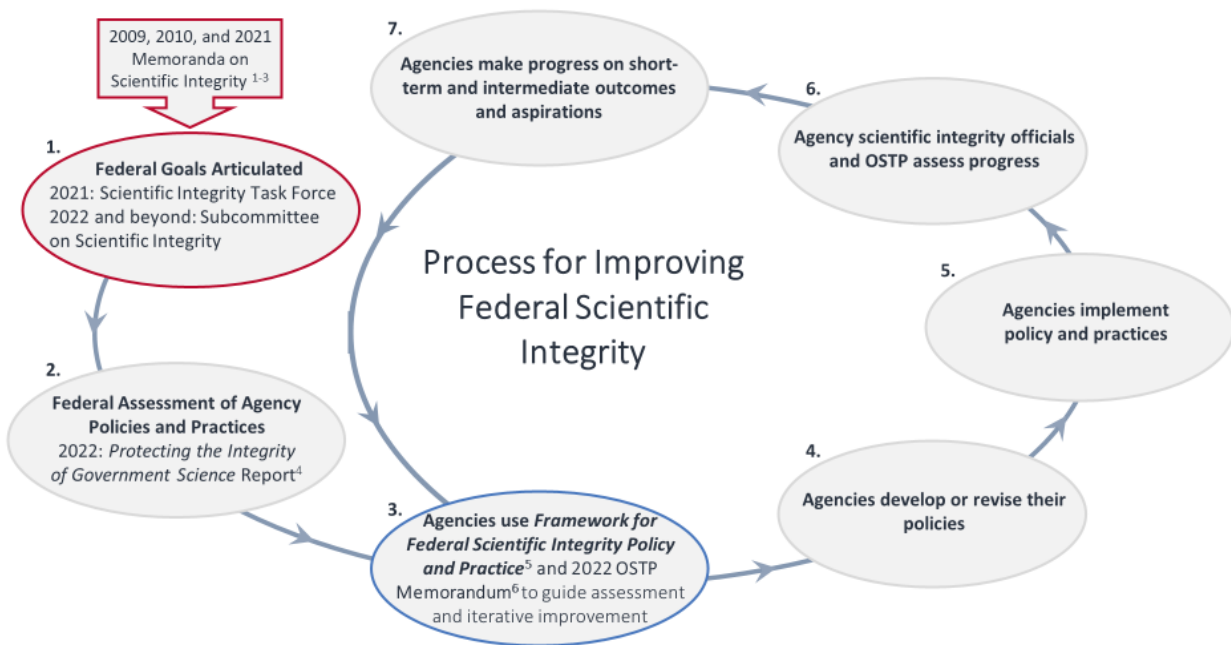
Executive Summary

The 2021 Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking charges OSTP to (1) review agency scientific integrity policy effectiveness and (2) to develop a framework for regular assessment and iterative improvement of agency scientific integrity policies and practices (Framework). This document builds on the review published in January 2022 by the National Science and Technology Council (NSTC) entitled *Protecting the Integrity of Government Science*, which identified good agency practices on scientific integrity and areas in need of consistency across agencies. This Framework includes key resources for agencies as they work to develop and improve scientific integrity policies, practices, and culture. The Framework reflects input from the interagency Scientific Integrity Task Force and other key Federal officials, and includes considerations from public input.

To foster regular assessment and iterative improvement at Federal agencies, the Framework includes several components, including a first-ever Government-wide definition of scientific integrity, a roadmap of activities and outcomes to achieve an ideal state of scientific integrity, a Model Scientific Integrity Policy, as well as critical policy features and metrics that OSTP will use to iteratively assess agency progress. The Framework also includes a charter for the newly established NSTC Subcommittee on Scientific Integrity. This subcommittee has been chartered by the NSTC Committee on Science to assist OSTP in assessment and iterative improvement of agency and EOP component scientific integrity policies, practices, and culture; provide advisory responses to agency requests for another agency to review their internal scientific integrity policies and processes, such as inquiries related to senior-level officials, political appointees, or scientific integrity officials; and serve as a community of practice for Federal agency scientific integrity officials and staff.

The goal of this Framework is to assist agencies across the Federal Government as they take next steps together to strengthen, implement, and institutionalize scientific integrity policy, practice, and culture. Figure 1 illustrates the process by which agencies can take to use the components of this Framework with the goal of making iterative improvements over time.

Figure 1. Process for Improving Federal Scientific Integrity Policy and Practice



¹ [Presidential Memorandum for the Heads of Executive Departments and Agencies on Scientific Integrity](#), March 9, 2009. The White House.

² [Memorandum for the Heads of Executive Departments and Agencies on Scientific Integrity, December 17, 2010](#). Office of Science and Technology Policy

³ [Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policy Making](#), January 27, 2021. The White House

⁴ [Protecting the Integrity of Government Science](#), A report by the Scientific Integrity Fast-Track Action Committee of the National Science and Technology Council, January 2022

⁵ [A Framework for Federal Scientific Integrity Policy and Practice](#), Guidance by the Scientific Integrity Framework Interagency Working Group of the National Science and Technology Council, August 2022

⁶ [Memorandum for the Heads of Executive Departments and Agencies on Scientific Integrity](#), August, 2022. Office of Science and Technology Policy

Introduction

Scientific and technological information is essential for the development of evidence-based policies and the equitable delivery of government programs intended to improve the environment and the health, security, safety, and well-being of all people. In turn, government science and scientific activities must be held to the highest standards of scientific integrity, free from inappropriate influence at all stages from development to dissemination. A strong culture of scientific integrity allows science and scientists at Federal agencies to thrive and supports agencies’ abilities to meet their missions. Most pressing, measures to prevent and address political interference in the conduct, management, communication, or use of science should be at the forefront of agency practices to bolster high standards of scientific integrity. Indeed, over the last decade and a half, Federal departments, agencies, administrations, and commissions (referred to collectively as “agencies”) have taken steps to strengthen scientific integrity with good practices. These good practices were outlined in the 2022 National Science and Technology Council (NSTC) Report titled: *Protecting the Integrity of Government Science* (Report).¹ The Report identified considerable variability

¹ A report by the Scientific Integrity Fast-Track Action Committee of the National Science and Technology Council. [“Protecting the Integrity of Government Science.”](#) January 11, 2022.

across agencies in policies and practices around scientific integrity. While agency scientific integrity policies and practices may vary with agency-specific missions, statutes, and regulations, the Report noted several areas where consistency across the Federal government would further strengthen scientific integrity and protect government science. Specifically, the Report identifies approaches to bolster the ability of Federal agencies to protect government science focusing on the following categories: strengthening scientific integrity policies, making scientific integrity everyone's responsibility, implementing good practices, addressing emerging themes, institutionalizing scientific integrity, and identifying next steps for enhancing scientific integrity. The NSTC presents this agency guidance, translating these good practices and areas in need of improvement identified by the report into a framework. This framework will support the continuation of the improvement of scientific integrity policies and practices across the Federal government.

The 2021 Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking² (PM 2021) charges OSTP and NSTC to (1) review agency scientific integrity policies and consider whether they prevent political interference in the conduct, management, communication, and use of science, and identify effective practices for improving their implementation (resulting in the Report) and (2) to develop a framework for regular assessment and iterative improvement of agency scientific integrity policies and practices. This Framework includes key resources for agencies to use as they develop or update their scientific integrity policies, monitor and measure agency implementation, and work to improve their policies, practices, and culture. The Framework reflects input from the Scientific Integrity Task Force (presently per the publication of this document, the NSTC Scientific Integrity Framework Interagency Working Group, or SIF-IWG; and formerly the NSTC Scientific Integrity Fast-Track Action Committee, or SI-FTAC), other key Federal officials, and the public.

To facilitate regular assessment, iterative improvement, and a scientific integrity community of practice for Federal agencies, the NSTC has established the Subcommittee on Scientific Integrity (the Subcommittee). The Subcommittee is comprised of Federal agency Scientific Integrity Officers (SIOs) and is charged with carrying out interagency functions related to scientific integrity, including recognition of agency progress on fostering a vibrant culture of scientific integrity; assessment of agency scientific integrity policies and practices; coordination and shared learning across SIOs; coordination with other relevant Councils such as the Evaluation Officer Council, Chief Data Officer Council, and Interagency Council on Statistical Policy; and, when appropriate, sharing of analysis or commentary on public allegations of scientific integrity violations that cannot be suitably handled at an individual agency-, department-, or Executive Office of the President component-level, such as allegations involving senior-level officials, political appointees, or SIOs or allegations involving multiple agencies. The text of the Subcommittee Charter is provided in Appendix E.

To assess agency scientific integrity policies and practices, as directed in the Presidential Memorandum, OSTP will be guided by the roadmap of activities and outcomes to achieve an ideal state of scientific integrity (Chapter 2) and the Model Scientific Integrity Policy (Chapter 4). Specifically, OSTP, working through the Subcommittee, will use the following to assess agency scientific integrity policies and practices, while allowing appropriate agency flexibility in policy provisions, metrics, and activities:

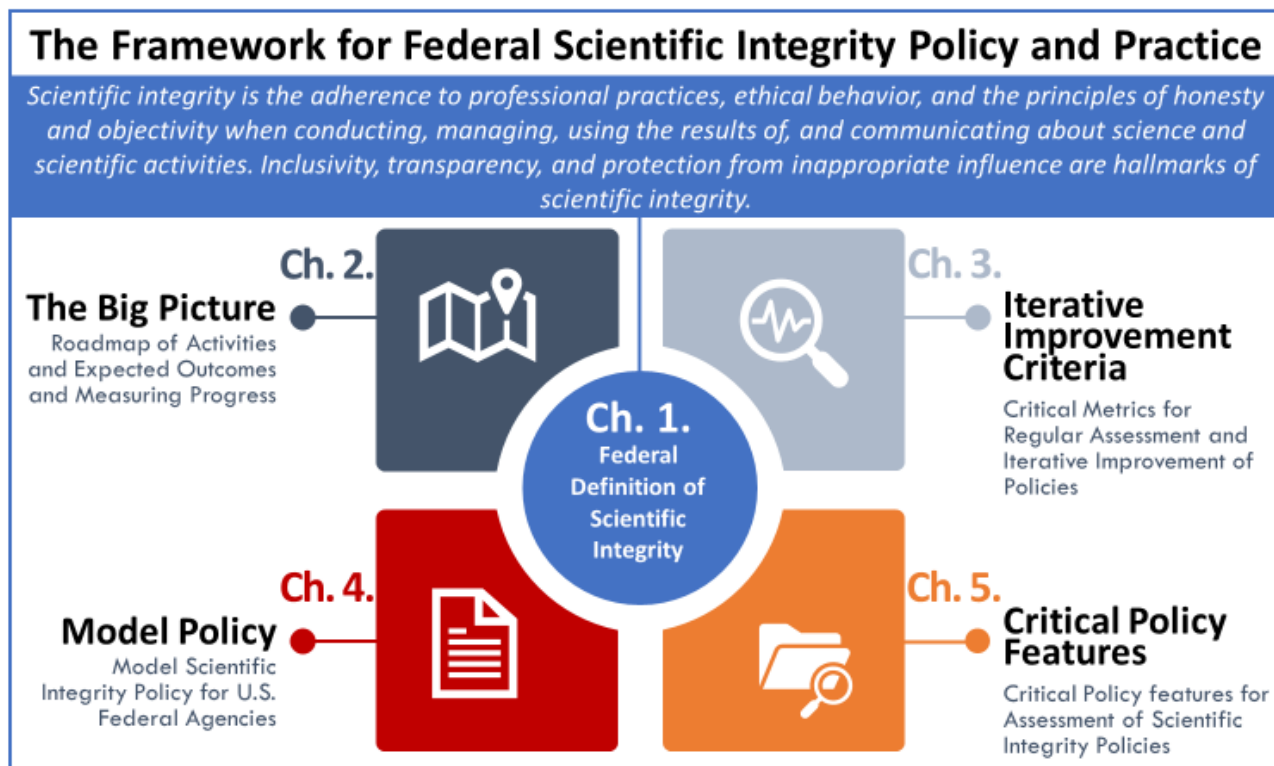
1. Critical Metrics for Assessment of:
 - a. Agency Activities (Chapter 3, Table 5) and
 - b. Short-Term and Intermediate Outcomes (Chapter 3, Table 6)
2. Critical Scientific Integrity Policy Features (Chapter 5, Table 7)

The goal of this Framework is to assist agencies across the entire Federal government as they take next steps together to strengthen and institutionalize scientific integrity policy, practice, and culture and to fill gaps in consistency across government as identified in the Report. The balance of this section describes the

² [Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policy Making](#), January 27, 2021.

organization of the Framework, which provides agencies with the tools necessary to strengthen scientific integrity policies and practices. Figure 2 provides a schematic summary of the chapters of the Framework.

Figure 2. Schematic of the Framework for Regular Assessment and Iterative Improvement of Federal Scientific Integrity



Chapter 1 presents a *government-wide definition* of scientific integrity. With a common understanding of the values that scientific integrity upholds, agencies can move forward together, united and dedicated to protect them. Given the extensive interagency deliberation and broad support of this definition all agencies should adopt it; however, it is intentionally broad to accommodate agency mission diversity.

Chapter 2 provides a *roadmap* to achieve a culture of scientific integrity that is institutionalized in agencies, in which the accuracy and objectivity of science is preserved, and public trust in agency science is improved. The roadmap depicts the relationship between key agency scientific integrity activities and the desired short- and intermediate-term desired outcomes, that then lead to the ideal or aspirational state. Measuring implementation progress toward achieving outcomes are critical for understanding how agencies are progressing and how they can improve scientific integrity policies and practices. This chapter also provides *metrics* and *measurement* methods that agencies can use to evaluate their scientific integrity activities and short- and intermediate-term outcomes. A subset of these metrics is considered critical metrics for assessment by OSTP and are denoted with italicization in Table 2 (Chapter 2) and compiled in Chapter 3, Tables 5-6.

Chapter 3 highlights the *critical metrics* that will be used by OSTP and the Subcommittee in their biennial assessment of agency implementation and improvement of scientific integrity policies and practices, drawing directly from the roadmap presented in Chapter 2. Agencies should regularly collect and provide these critical metrics to OSTP. Though only the listed metrics in this chapter will be used for OSTP's agency assessment, it is strongly encouraged that agencies collect additional metrics listed in Chapter 2.

Chapter 4 presents a *model scientific integrity policy* to assist agencies as they develop and update their policies. The model policy contains suggested sections and text for agency use. Agencies may adopt or adapt the model scientific integrity policy language and organization to fit their needs.

Chapter 5 lists *critical scientific integrity policy features* that will be assessed by OSTP. These critical policy features are demonstrated in the model scientific integrity policy in Chapter 4. Agencies should ensure their policies encompass the intent of the critical policy features, which may or may not include verbatim Model Policy language. By referring to the Model Scientific Integrity Policy, the critical policy features presented in this chapter provide contextual examples that agencies can use to ensure their policies meet the expectations in the 2021 Presidential Memorandum.

Collectively, these five chapters provide resources to strengthen scientific integrity across the Federal government by laying out expectations for improving agency policies and practices. Agencies can continue to refer to this Framework to adapt, refine, and implement scientific integrity policies toward restoring trust in Federal science and ensuring unencumbered science informs decision-making across the Federal Government.

1. The Federal Definition of Scientific Integrity

A substantial gap identified in the Report was that the US Federal Government lacked a consistent definition of scientific integrity. A definition was developed and agreed upon by the National Science and Technology Council 2022 Scientific Integrity Framework Interagency Working Group and the 2021 Scientific Integrity Fast Track Action Committee. Federal agencies should adopt this definition, incorporate it into their scientific integrity policy, and communicate it to their workforce.

Scientific integrity is the adherence to professional practices, ethical behavior, and the principles of honesty and objectivity when conducting, managing, using the results of, and communicating about science and scientific activities. Inclusivity, transparency, and protection from inappropriate influence are hallmarks of scientific integrity.

2. A Roadmap of Activities and Expected Outcomes and Measuring Progress Toward a Culture of Scientific Integrity at Federal Agencies

Monitoring and evaluating the implementation and outcomes of scientific integrity policies and practices is critical for understanding agency progress and for continuously improving scientific integrity activities. Ongoing performance measurement and monitoring are used to understand program accomplishments and progress, particularly progress towards achieving desired outcomes. Program evaluation is a critical agency function that uses systematic data collection and analysis to assess the effectiveness and efficiency of programs and practices (consistent with the [Foundations for Evidence-Based Policymaking Act of 2018](#) [Evidence Act]). Evaluation can help us understand what we are doing well or poorly and determine what can be changed to improve programs, practices, and processes. In the context of scientific integrity, performance measurement, monitoring, and program evaluation provide key evidence for understanding how agencies are doing and how they can improve scientific integrity policies and practices.

A program roadmap or logic model is a graphic depiction of the relationship between a program's activities and its intended effects or outcomes. It concisely shows the relationship between planned work and intended results and helps ensure clarity and consensus about the main strategies/activities and intended program outcomes through the long-term outcomes/aspirations. A roadmap also serves as a foundation for identifying what and how we measure, monitor, and evaluate to show progress toward implementing activities and achieving intended outcomes.

The sections below provide a Roadmap of Activities and Outcomes for Federal Scientific Integrity policy and practice implementation, as well as metrics and measurement methods for the activities, short-term outcomes, and intermediate outcomes identified in the roadmap. The activities and outcomes tables also include (in *italicization*) the critical metrics for agencies to collect and report. These critical metrics are also compiled in Chapter 3, Tables 5-6. Agencies should use the information in Chapter 2 to develop and implement an evaluation plan to regularly measure, monitor, evaluate, and learn from ongoing scientific integrity activities and outcomes.

Table 1. Federal Scientific Integrity: A Roadmap of Activities and Outcomes

ACTIVITIES When we (Federal agencies) do this...	SHORT-TERM OUTCOMES ...then we expect these changes to occur...	INTERMEDIATE OUTCOMES ...which will lead to...	ASPIRATIONS ...our ultimate goals.
Establish and Implement Scientific Integrity (SI) Policies and Practices			
<ul style="list-style-type: none"> • Develop/update and implement SI policies and procedures • Educate workforce and maintain visibility of SI policies, practices, and culture • Conduct robust evaluation to improve policies and practices 	<ul style="list-style-type: none"> • SI policies are widely known within Federal agencies • Improved agency scientific processes and science-informed decision-making • Improved management and oversight of science with integrity • Federal employees and other covered entities demonstrate high levels of principled behavior 	<ul style="list-style-type: none"> • Strong organizational SI culture in Federal agencies • Federal science proposed, conducted, reviewed, and used with high levels of integrity • Scientific work is trusted and valued by agency leadership 	Federal agencies have institutionalized a culture of scientific integrity that adheres to professional practices, ethical behavior, and the principles of honesty, transparency, and objectivity. ↓ Accuracy and objectivity of science is preserved ↓ Improved public trust in Federal agency science
Demonstrate Engaged and Supportive Leadership			
<ul style="list-style-type: none"> • Model, support, and lead SI policy implementation • Set clear SI expectations • Ensure SI resources & infrastructure to support SI policies, practices, and evaluation • Use credible and objective scientific information to inform decisions 	<ul style="list-style-type: none"> • Increased demonstrations of SI importance to agency mission • Improved management of scientific activities including leadership recognition of inappropriate influences and preventive actions • SI better integrated into related agency policies • SI activities and evaluations are adequately resourced 	<ul style="list-style-type: none"> • Decision-makers proactively seek out relevant, credible, and objective science to guide Federal agency decision-making • Scientific integrity policies consistently and fully implemented across agencies 	↓ The United States is looked to as a model of scientific integrity
Promote Transparent and Free Flow of Scientific Information			
<ul style="list-style-type: none"> • Ensure timely, free flow of scientific information within and outside of agencies • Ensure clearance procedures do not interfere with transparency and timeliness of information • Ensure scientific accuracy of agency communications 	<ul style="list-style-type: none"> • Scientists are able to communicate their scientific activities and appropriately share their work with the public in a timely manner • Ability to have open discussion and legitimate scientific discourse • Communications accurately convey scientific content 	<ul style="list-style-type: none"> • Openness and transparency with media by Federal scientists • Scientific findings are communicated with quality, accuracy, clarity, consistency, objectivity, and transparency • Public is able to access and use Federal science 	

ACTIVITIES When we (Federal agencies) do this...	SHORT-TERM OUTCOMES ...then we expect these changes to occur...	INTERMEDIATE OUTCOMES ...which will lead to...	ASPIRATIONS ...our ultimate goals.
Ensure Accountability			
<ul style="list-style-type: none"> • Encourage early and confidential reporting and protect those who report • Effectively address and transparently report on SI violations and concerns, and their outcomes • Consequences and remedies for scientific integrity policy violations are clearly articulated • Enforcement responsibilities and processes are documented 	<ul style="list-style-type: none"> • Established and publicized channels for early consultations • Improved procedures for screening, investigating, documenting, and communicating outcomes • Reporters of concerns empowered and assured 	<ul style="list-style-type: none"> • Increased early SI consultations • Improved safeguarding of submitters who report potential violations • Improved agency community trust and use of scientific integrity system 	

Metrics and Measurement Methods for Scientific Integrity Activities and Outcomes

The tables below provide metrics and example measurement methods for the activities (Table 2), short-term outcomes (Table 3), and intermediate outcomes (Table 4) identified in the Federal Scientific Integrity Roadmap above (Table 1). Key points related to these three tables are as follows:

- Most of the metrics in the tables are *examples* of how agencies can monitor and evaluate how they are doing and how they can improve scientific integrity policies and practices.
- There are some critical metrics needed for OSTP to assess scientific integrity progress. These are noted within Tables 2-4 as follows:
 - The *italicized* items in Tables 2 and 3 are critical metrics agencies should collect and report to OSTP. Agencies can determine the most appropriate methods for collecting these metrics and may consult with the Subcommittee as needed.
 - The items marked with a “#” footnote are critical metrics that will be developed and collected by OSTP and the Subcommittee.
- The critical metrics from Tables 2-4 (italicized items and “#” footnote) are summarized in Chapter 3.
- These metrics may be updated over time as agency scientific integrity policies and practices evolve.
- In cases where there are multiple example metrics and methods for an activity or outcome, the numbers in the Metrics column align with the numbers in the Example Measurement Methods column (i.e., showing possible ways to measure the corresponding metric).
- These are not exhaustive or required metrics or methods, and agencies are encouraged to measure and evaluate in ways that are appropriate for their agency.

Table 2. Activities: Metrics and Measurement Methods

Activities	Metrics	Example Measurement Methods
Establish and Implement Scientific Integrity Policies and Practices		
Develop/update and implement scientific integrity policies and procedures	1. <i>Policy in place that meets OSTP critical Scientific Integrity Policy features.</i>	1. a. Assessment of policy content for alignment with OSTP critical policy features. b. Policy has completed review and clearance. c. Policy has been publicly published.
	2. <i>Clearly specified frequency of reviewing and, as needed, updating policies.</i>	2. Scientific integrity policy specifies frequency for periodic review and update, and reviews conducted accordingly.

Activities	Metrics	Example Measurement Methods
	3. <i>Clear documentation of procedures for implementing SIP.</i>	3. Analysis of document(s) describing procedures to ensure completeness in detailing scientific integrity policy
	4. <i>Evidence that key scientific integrity policy requirements are being implemented with fidelity.</i>	4. Process evaluation of policy implementation
	5. Agency scientific integrity committee charter with membership criteria, authority, and meeting frequency (for agencies that designate other scientific integrity points of contact).	5. Assessment of agency scientific integrity committee implementation: Analysis of charter, meeting frequency, and notes
	6. Assessment of agency scientific integrity committee effectiveness at implementing and promoting scientific integrity policies.	6. Survey of agency scientific integrity committee members: Leadership support of initiatives, effectiveness and usefulness of agency scientific integrity committee
Educate workforce and maintain visibility of scientific integrity policies, practices, and culture	1. <i>Agency scientific integrity policy training is accessible and it is clear who is required to complete the training.</i>	1. Web metrics: Number of hits to scientific integrity policy and practice documents (internal and external)
	2. Percentage of workforce trained to specific knowledge level.	2. a. Percentage of workforce [or staff required to take] trained at onboarding and ongoing basis. b. Percentage of those who took the training meeting minimum score and/or knowledge test score
	3. Number and type of guidelines, tools, and trainings available.	3. Analysis of the number of guidelines, tools, and trainings available.
	4. <i>Training for supervisors and leaders is provided.</i>	4. a. Percentage of supervisors or leaders trained at onboarding or when become supervisors, and on ongoing basis. b. Percentage meeting minimum score and/or knowledge test score

Activities	Metrics	Example Measurement Methods
Conduct robust evaluation to improve policies and practices	1. <i>Scientific integrity evaluation plan developed that includes clear articulation of expected activity and outcome measures being collected and how they will be used for improvement.</i>	1. Completed and approved evaluation plan that describes measures to be collected, how they will be collected and by whom, frequency of collection and analysis, and how data will be used for policy and practice improvement.
	2. <i>Evaluation plan implemented.</i>	2a. Evaluation plan implemented. Data collected are analyzed and used on ongoing/continuous basis to improve scientific integrity processes and practices. 2b. Evaluation appropriately resourced to implement and complete.
Demonstrate Engaged and Supportive Leadership		
Model, support, and lead scientific integrity policy implementation	1. <i>Information and document(s) describing leadership responsibilities and expectations.</i>	1. Analysis of document describing responsibilities and expectations for completeness and clarity of descriptions of leadership responsibilities
	2. <i>Evidence of communications about scientific integrity and expectations.</i>	2. Review of agency-wide communications (e.g., leadership emails to all staff, newsletters, intranet) about leadership support for scientific integrity and expectations around SI
Set clear scientific integrity expectations	3. Evidence of engagement on scientific integrity (e.g., meeting and consulting their SIO).	3a. Frequency of briefings, meetings, and consulting engagements with the SIO. 3b. SIO survey reports of being engaged in meaningful discussions with leaders

Activities	Metrics	Example Measurement Methods
Ensure scientific integrity resources & infrastructure to support scientific integrity policies, practices, and evaluation	1. <i>Assessment of estimated monetary and other resources allocated to scientific integrity.</i>	1a. Analysis of resources (e.g., dedicated FTEs, funding) 1b. SIO fed-wide survey: Accounting of resources including staff and other support.
Use relevant science to inform decisions	1. Perceptions by staff of whether/how leadership is using science to inform decisions.	1. Staff survey & SIO fed-wide survey: Perceptions of leadership use of science in decision making
	2. Processes in place to govern the use of science to inform decisions.	2. Review and assessment of agency processes for use of science to inform decisions.
Promote transparent and free flow of scientific information		
Ensure timely, free flow of scientific information within and outside of agencies	1. Scientists' perceptions of timeliness and free flow of information.	1. Survey of scientists on regular basis over time to track trends: Perceptions of timeliness of information sharing, perceptions of restrictions/free flow of information.
	2. Reports of allegations or expressions of concern regarding, or determinations of, suppression and delay.	2. Analysis of systems for reporting allegations/concerns: # reports, types, trends over time.
Ensure clearance procedures do not interfere with transparency and timeliness of information	1. Tracking clearance of scientific products to detect problem areas.	1. Analysis of clearance systems: timeliness of clearance, review of types of comments.

Activities	Metrics	Example Measurement Methods
Ensure scientific accuracy of agency communications	1. <i>Agency communications policy is consistent with the Model SIP and includes how and when scientists provide input on communications.</i>	1a. Assessment of agency communications policy. 1b. Survey of scientists whether they were consulted and agreed with agency communications about their products
Ensure Accountability		
Encourage early and confidential reporting and protect those who report	1. <i>Scientific integrity policy or procedures or both describe protections and a confidential reporting process and are published on a publicly facing website</i>	1. Assessment of policy and procedures for clarity, confidentiality, and ease of reporting
	2. <i>Reporting system and methods are easy for scientists to find on web, and easy to use</i>	2a. Assessment of reporting system for clarity, confidentiality, and ease of reporting 2b. Analysis of reports submitted: how early in process did reporting occur, completeness of data
	3. <i>Confidentiality limits and whistleblower protections are communicated, and reporting of retaliation is encouraged</i>	3. Survey of employees and other covered entities as appropriate: Knowledge of how to report. Knowledge of confidentiality limits and whistleblower protections. Ease of reporting and protecting confidentiality of submitters (actual process for those who have submitted, perceptions for those who haven't submitted). For those who reported: Whether they felt protected and experienced any retaliation.

Activities	Metrics	Example Measurement Methods
Effectively address and transparently report on scientific integrity violations and concerns, and their outcomes	<ol style="list-style-type: none"> 1. <i>Publishing annually the number and outcome of administrative investigations and appeals involving alleged deviations from the agency’s scientific integrity policies on a publicly facing website, while protecting confidentiality of individuals involved.</i> 	<ol style="list-style-type: none"> 1a. Review SIO anonymized documentation reported violations and resolution. 1b. Survey of those who reported violations or concerns assessing their satisfaction with the timeliness outcome of the response
<p>Consequences and remedies for scientific integrity policy violations are clearly articulated</p> <p>Enforcement responsibilities and procedures are documented</p>	<ol style="list-style-type: none"> 1. <i>Scientific integrity policy or procedures or both describe consequences and enforcement responsibilities, or reference other agency policies that address consequences and enforcement responsibilities</i> 	<ol style="list-style-type: none"> 1. Analysis of scientific integrity policy and procedures for consequences and enforcement responsibilities

Table 3. Short-Term Outcomes: Metrics and Measurement Methods

Short-Term Outcomes	Metrics	Example Measurement Methods
Establish and Implement Scientific Integrity Policies and Practices		
Scientific integrity policies are widely known within federal agencies	1. Percentage of employees and other covered entities as appropriate, within agencies who are aware of policies, procedures, and practices	1. Survey of employees and other covered entities as appropriate, within agencies: Awareness of policies, procedures, and practices
Improved agency scientific processes and science-informed decision-making	1. Whether there are processes in place that can detect when there is a potential loss of scientific integrity	1. Analysis of scientific processes to determine if issues were identified and resolved
	2. Staff perceptions of whether decision making is being informed by science (within their unit and agency-level)	2. Survey of employees and other covered entities as appropriate, within agencies
Improved management and oversight of science with integrity	1. Perceptions among agency employees and other covered entities as appropriate, of scientific integrity in management and oversight of scientific activities (within their unit and agency-level)	1. Survey of employees and other covered entities as appropriate, within agencies and SIO input/survey
Federal employees and other covered entities demonstrate high levels of principled behavior	1. Perceptions among agency employees and other covered entities as appropriate, of whether others are operating with principled behavior within their unit and agency-level	1. Survey of employees and other covered entities as appropriate, within agencies
Demonstrate Engaged and Supportive Leadership		
Increased demonstrations of scientific integrity importance to agency mission	1. Frequency of leadership communication regarding importance of scientific integrity (incorporating scientific integrity in public engagement/interviews, internal communications, etc).	1. Review of leadership communications
	2. Increased engagement between leadership and SIO.	2. SIO survey
	3. Perceptions of leadership commitment to scientific integrity	3. Survey of employees and other covered entities as appropriate, within agencies
Improved management of scientific activities	1. Percentage of employees and other covered entities as appropriate, within agencies who agree: scientific activities	1. Survey of employees and other covered

Short-Term Outcomes	Metrics	Example Measurement Methods
including leadership recognition of inappropriate influences and preventive actions	are managed according to scientific integrity policy, leadership implements preventive actions, leadership avoids inappropriate influences, basis for leadership decisions is transparent. [#]	entities as appropriate, within agencies
Scientific integrity better integrated into related agency policies	1. Percentage of identified policies where scientific integrity has been integrated (denominator: number of policies where should be integrated).	1. Review of relevant policies for integration. Completed checklist for scientific integrity factors to be integrated into agency policies.
Scientific integrity activities and evaluations are adequately resourced	1. Tracking of resources devoted to scientific integrity activities and evaluations.	1. Database of resources for scientific integrity, such as staffing, funding for evaluations, policy implementation.
	2. <i>Tracking of full-time equivalents (FTEs) dedicated to scientific integrity activities.</i>	2. SIO survey
	3. Perceptions among employees and other covered entities as appropriate, within agencies and SIOs of resources devoted to scientific integrity: e.g., whether have sufficient staff to address scientific integrity issues and concerns, requests for support are thoroughly considered.	3. Survey of employees and other covered entities as appropriate, within agencies; SIO survey
Promote transparent and free flow of scientific information		
Scientists are able to communicate their scientific activities and appropriately share their work with the public in a timely manner	1. Percentage of employees and other covered entities as appropriate, within agencies who agree: they are able to communicate their scientific activities without interference, ability to speak about their work is not inappropriately impeded (e.g., presentations, publications, interviews). [#]	1. Survey of employees and other covered entities as appropriate, within agencies
Ability to have open discussion and legitimate scientific discourse	1. Percentage of employees and other covered entities as appropriate, within agencies who agree they are able to have open discourse without fear of repercussions. [#]	1. Survey of employees and other covered entities as appropriate, within agencies

[#] Critical metrics whose development and administration will be overseen by OSTP and the Subcommittee

Short-Term Outcomes	Metrics	Example Measurement Methods
Communications accurately convey scientific content	1. Percentage of employees and other covered entities as appropriate, within agencies who agree agency communications accurately convey scientific content. [#]	1. Survey of employees and other covered entities as appropriate, within agencies
Ensure Accountability		
Established and publicized channels for early consultations	1. Ease of finding information on consultations	1. Assessment of sources where information is publicized (e.g., web sites)
	2. Easily available and confidential consultations	2. Assessment of sources where information is publicized (e.g., web sites)
	3. Percentage of scientific integrity training materials that include information on early consultations (why needed early, how to report, how review process occurs)	3. Assessment of training materials
Improved procedures for screening, investigating, documenting, and communicating outcomes	1. Review of the procedures available and updated as needed to continuously improve their effectiveness.	1. SIO assessment and report on frequency and content of procedures updates
	2. Length of time taken from reporting through communication of outcomes.	2. SIO tracking and disposition data
Reporters of concerns are empowered and assured	1. Percentage of employees and other covered entities as appropriate, within agencies who are comfortable with reporting a concern without repercussions if it occurred.	1. Survey of employees and other covered entities as appropriate, within agencies
	2. Among staff who reported concern: % who agreed they were comfortable reporting concern, were assured there would not be repercussions.	2. Survey or other follow up method with people who reported concerns

[#] Critical metrics whose development and administration will be overseen by OSTP and the Subcommittee.

Table 4. Intermediate Outcomes: Metrics and Measurement Methods

Intermediate Outcomes	Metrics	Example Measurement Methods
Establish and Implement Scientific Integrity Policies and Practices		
Strong organizational scientific integrity culture in Federal agencies	1. Percentage of employees and other covered entities as appropriate, within agencies who agree their agency has a strong scientific integrity culture. [#]	1. Survey of employees and other covered entities as appropriate, within agencies
Federal science proposed, conducted, reviewed, and used with high levels of integrity	1. Percentage of employees and other covered entities as appropriate, within agencies who agree their agency science is (a) proposed, (b) conducted, (c) reviewed, and (d) used with high levels of integrity	1. Survey of employees and other covered entities as appropriate, within agencies
Scientific work is trusted and valued by agency leadership	1. Percentage of employees and other covered entities as appropriate, within agencies who agree their agency scientific work is trusted and valued by their agency leadership. [#]	1. Survey of employees and other covered entities as appropriate, within agencies
Demonstrate Engaged and Supportive Leadership		
Decision-makers proactively seek out relevant, credible, and objective science to guide Federal agency decision-making	1. Percentage of employees and other covered entities as appropriate, within agencies who agree their leadership proactively seeks out relevant, credible, and objective science to guide decision-making. [#]	1. Survey of employees and other covered entities as appropriate, within agencies and SIO survey
Scientific integrity policies consistently and fully implemented across agencies	1. Review and assessment of implementation across agencies.	1. Agency process evaluation of policy and practice implementation 2. Independent review and SIO survey
Promote Transparent and Free Flow of Scientific Information		
Openness and transparency with media by Federal scientists	1. Percentage of employees and other covered entities as appropriate, within agencies who report they a) are able to communicate with media, b) have permission to, and c) offered the opportunity (if applicable)	1. Survey of employees and other covered entities as appropriate, within agencies
	1. Percentage of employees and other covered entities as appropriate,	1. Survey of employees and other covered entities as

[#] Critical metrics whose development and administration will be overseen by OSTP and the Subcommittee.

Intermediate Outcomes	Metrics	Example Measurement Methods
Scientific findings are communicated with quality, accuracy, clarity, consistency, objectivity, and transparency	within agencies who agree agency findings are communicated with these attributes	appropriate, within agencies
	2. Percentage of communications products reviewed that meet specified review criteria for quality, accuracy, clarity, consistency, objectivity, and transparency	2. Review of communications products based on a rubric addressing quality, accuracy, clarity, consistency, objectivity, and transparency
Public is able to access and use Federal science	1. Frequency of access and downloads of documents ³	1. Web analytics for website hits and download of products
Ensure Accountability		
Increased early scientific integrity consultations	1. Percentage of concerns reported early	1. SIO data on reported concerns (consultations)
	2. Use of differing scientific opinion (DSO) processes	2. Survey of employees and other covered entities as appropriate, within agencies on use of DSO
Improved safeguarding of submitters who report potential violations	1. Percentage of covered entity reporters who experienced negative consequences	1. Survey of employees and other covered entities as appropriate, who reported concerns
Improved agency community trust and use of scientific integrity system	1. Percentage of employees and other covered entities as appropriate, within agencies who agree a) reported concerns will be addressed, b) validated concerns will have consequences, and c) violators of scientific integrity will be held accountable [#]	1. Survey of employees and other covered entities as appropriate, within agencies

³ Aligned with the [Foundations for Evidence-Based Policymaking Act of 2018](#) requirements for open data and confidential information protection.

[#] Critical metrics whose development and administration will be overseen by OSTP and the Subcommittee.

3. Critical Metrics for Regular Assessment and Iterative Improvement of Agency Scientific Integrity Policy Implementation

The tables below show the critical metrics that OSTP and the Subcommittee will use in their biennial assessment of agency implementation and improvement of scientific integrity policies and practices, including assessment of agency scientific integrity activities (Tables 5) and short-term and intermediate outcomes (Table 6), as submitted by agencies.

Tables 5-6 are the compilation of the critical metrics that agencies should collect (i.e. items italicized in Tables 2-3) and critical metrics that OSTP will develop and implement (i.e. items with the # footnote in Tables 3-4). Refer to Tables 2-4 for additional details on metrics and example measurement methods for the activities, short-term outcomes, and intermediate outcomes.

Table 5. Critical Metrics for Assessment of Agency Activities

ACTIVITIES
Establish and Implement Scientific Integrity Policies and Practices
<p>Develop/update and implement agency scientific integrity policies and procedures</p> <ol style="list-style-type: none"> 1. Policy in place that meets OSTP critical Scientific Integrity Policy features (see Chapter 5: <i>Critical Policy Features for Assessment of Scientific Integrity Policies</i>) 2. Clearly specified frequency of reviewing and, as needed, updating policies. (see Chapter 5: <i>Critical Policy Features for Assessment of Scientific Integrity Policies</i>) 3. Clear documentation of procedures for implementing scientific integrity policies (see Chapter 4: <i>Model Scientific Integrity Policy for United States Federal Agencies</i> and Appendix B: <i>Examples of Agency Scientific Integrity Policies, Procedures, and Related Materials</i>). 4. Evidence that key scientific integrity policy requirements are being implemented with fidelity.
<p>Educate workforce and maintain visibility of scientific integrity policies, practices, and culture</p> <ol style="list-style-type: none"> 1. Agency scientific integrity policy training is accessible and it is clear who is required to complete the training. 2. Training for supervisors and leaders is provided.
<p>Conduct robust evaluation to improve policies and practices</p> <ol style="list-style-type: none"> 1. Scientific integrity evaluation plan developed that includes clear articulation of activity <i>and</i> outcome measures being collected and how they will be used for improvement. 2. Evaluation plan implemented.
Demonstrate Engaged and Supportive Leadership
<p>Model, support, and lead scientific integrity policy implementation. Set clear scientific integrity expectations.</p> <ol style="list-style-type: none"> 1. Information and document(s) describing leadership responsibilities and expectations 2. Evidence of communications about scientific integrity and expectations
<p>Ensure scientific integrity resources & infrastructure</p> <ol style="list-style-type: none"> 1. Assessment of monetary and other resources allocated to scientific integrity
Promote transparent and free flow of scientific information

<p>Ensure scientific accuracy of agency communications</p> <ol style="list-style-type: none"> 1. Agency communications policy is consistent with the Model SIP and includes how and when scientists provide input on communications.
<p>Ensure Accountability</p>
<p>Encourage early and confidential reporting and protect those who report</p> <ol style="list-style-type: none"> 1. Scientific integrity policy or procedures or both describe protections and a confidential reporting process and are published on a publicly facing website. 2. Reporting system and methods are easy for scientists to find on web, and easy to use 3. Confidentiality limits and whistleblower protections are communicated, and reporting of retaliation is encouraged
<p>Effectively address and transparently report on scientific integrity violations and concerns and their outcomes</p> <ol style="list-style-type: none"> 1. Publishing annually the number and outcome of administrative investigations and appeals involving alleged deviations from the agency’s scientific integrity policies on a publicly facing website, while protecting confidentiality of individuals involved.
<p>Consequences and remedies for violations of the scientific integrity policy are clearly articulated. Enforcement responsibilities and procedures are documented</p> <ol style="list-style-type: none"> 1. Scientific integrity policy and/or procedures or both describe consequences and enforcement responsibilities, or reference other agency policies that address consequences and enforcement responsibilities

Table 6. Critical Metrics for Assessment of Agency Short-Term and Intermediate Outcomes⁴

<p>SHORT-TERM OUTCOMES</p>
<p>Demonstrate Engaged and Supportive Leadership</p>
<p>Improved management of scientific activities, including leadership recognition of inappropriate influences and preventive actions</p> <ul style="list-style-type: none"> • Percentage of employees and other covered entities as appropriate, within agencies who agree: scientific activities are managed according to scientific integrity policy, leadership implements preventive actions, leadership avoids inappropriate influences, basis for leadership decisions is transparent
<p>Scientific integrity activities and evaluations are adequately resourced</p> <ul style="list-style-type: none"> • Tracking of full-time equivalents (FTEs) devoted to scientific integrity activities⁵
<p>Promote Transparent and Free Flow of Scientific Information</p>

⁴ For more information, see Tables 3 and 4. Metrics for the outcomes will be developed and administered by NSTC Subcommittee on Scientific Integrity.

⁵ Unlike other criteria listed in this table, development of the metric for this outcome is complete.

<p>Scientists are able to communicate their scientific activities and appropriately share their work with the public in a timely manner</p> <ul style="list-style-type: none"> Percentage of employees and other covered entities as appropriate, within agencies who agree: they are able to communicate their scientific activities without interference, ability to speak about their work is not inappropriately impeded (e.g., presentations, publications, interviews).
<p>Ability to have open discussion and legitimate scientific discourse</p> <ul style="list-style-type: none"> Percentage of covered entities within agencies who agree they are able to have open discourse without fear of repercussions
<p>Communications accurately convey scientific content</p> <ul style="list-style-type: none"> Percentage of covered entities within agencies who agree agency communications accurately convey scientific content
<p>INTERMEDIATE OUTCOMES</p>
<p>Establish and Implement Scientific Integrity Policies and Practices</p>
<p>Strong organizational scientific integrity culture in Federal agencies</p> <ul style="list-style-type: none"> Percentage of covered entities (as defined in agency Scientific Integrity Policy) within agencies who agree their agency has a strong scientific integrity culture
<p>Scientific work is trusted and valued by agency leadership</p> <ul style="list-style-type: none"> Percentage of covered entities within agencies who agree their agency scientific work is trusted and valued by their agency leadership
<p>Demonstrate Engaged and Supportive Leadership</p>
<p>Decision-makers proactively seek out relevant, credible, and objective science to guide Federal agency decision-making</p> <ul style="list-style-type: none"> Percentage of covered entities within agencies who agree their leadership proactively seeks out relevant, credible, and objective science to guide decision-making
<p>Ensure Accountability</p>
<p>Improved agency community trust and use of scientific integrity system</p> <ul style="list-style-type: none"> Percentage of covered entities within agencies who agree a) reported concerns will be addressed, b) validated concerns will have consequences, and c) violators of scientific integrity will be held accountable

4. Model Scientific Integrity Policy for United States Federal Agencies

This model policy has been created as a resource for Federal agencies writing and updating their scientific integrity policies. It is an example of what an ideal policy would look like. It contains suggested sections and text for agencies to consider for incorporation, as applicable, into their scientific integrity policies. Agencies may adopt it in whole or in part. The order of appearance of sections may be customized by agencies. Text highlighted in gray contains guidance and suggestions. Agencies may customize to support both scientific integrity and agency missions. OSTP developed critical Scientific Integrity Policy features for assessing agency scientific integrity policies and the model demonstrates exemplary language for these critical policy features. Additionally, there are examples that supplement this model policy in appendices to *A Framework for Federal Scientific Integrity Policy and Practice (Framework)*. When language is taken from the foundational documents in Appendix C or the SI-FTAC Report, that reference is included in parentheses at the end of the sentence. Agencies may wish to reference these documents.

Scientific Integrity Policy of [Agency]

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Purpose

The purpose of this policy is to provide instruction to enhance and promote a continuing culture of scientific integrity. This policy aims to ensure the integrity of all aspects of scientific activities including proposing, conducting, reviewing, managing, communicating about science and scientific activities, and using the results of science. This policy establishes the expectations and procedures required to maintain scientific integrity at [AGENCY].

Background

Scientific and technological information, data, and evidence are central to the development and iterative improvement of sound policies, and to the delivery of equitable services and programs, across every area of the government. The 2022 NSTC Report of the SI-FTAC (2021 Task Force), *Protecting the Integrity of Government Science*⁶, found that strong scientific integrity policies and practices bolster the ability of Federal agencies to protect government science.

The Task Force Report summarizes recent foundational Executive branch actions on scientific integrity, including the 2009 Presidential Memorandum⁷, the 2010 OSTP Memorandum⁸, and the 2021 Presidential Memorandum⁹. The requirements of this policy are derived from these foundational actions, the collective experience of Federal agencies, and the informed engagement of stakeholders both inside and outside of government that were the basis of the 6

Definition of Scientific Integrity and Scientific Integrity Official

The [AGENCY] shall adopt the following Official Definition of Scientific Integrity:

Scientific integrity is the adherence to professional practices, ethical behavior, and the principles of honesty and objectivity when conducting, managing, using the results of, and communicating about science and scientific activities. Inclusivity, transparency, and protection from inappropriate influence are hallmarks of scientific integrity.

While the responsibility for upholding scientific integrity lies with all of [AGENCY] and its contractors and grantees, trainees, interns, and advisory committee members, the [AGENCY] has “designated a senior career employee as the agency’s lead Scientific Integrity Official to oversee implementation and iterative improvement of scientific integrity policies and processes.”⁹

The Scientific Integrity Official shall be empowered with the independence necessary to gather and protect information to support the review and assessment of scientific integrity concerns; as well as to ensure implementation of corrective scientific actions and to coordinate with appropriate agency authorities to enforce corrective and administrative actions as well as action to prevent scientific integrity concerns. The Scientific Integrity Official, in conjunction with the Chief Science Officer, shall also advocate for appropriate engagement of scientific leadership in decision-making.⁶

⁶ A Report by the Scientific Integrity Fast-Track Action Committee of the National Science and Technology Council. “[Protecting the Integrity of Government Science](#).” January 11, 2022.

⁷ [Presidential Memorandum for the Heads of Executive Departments and Agencies on Scientific Integrity](#). March 9, 2009. The White House.

⁸ [Memorandum for the Heads of Executive Departments and Agencies on Scientific Integrity](#). December 17, 2010. Office of Science and Technology Policy.

⁹ [Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policy Making](#). January 27, 2021.

Effective Date and Policy Amendments

This policy is effective when adopted. This policy shall be reviewed by [AGENCY] every 2 years. Amendments to this policy shall be overseen by the Scientific Integrity Official and communicated to the Director of the White House Office of Science and Technology Policy no later than 30 days after adoption.

Applicability & Scope

Scientific integrity is the responsibility of the entire [AGENCY] workforce. Covered entities who must adhere to the requirements of this policy include all [AGENCY] employees, contractors, political appointees, trainees, interns, and advisory committee members, when they propose, conduct, or review science or communicate about science and scientific activities and to all levels of employees who manage or supervise scientific activities and use scientific information in decision making.

All contractors, cooperators, partners, co-regulators, permittees, lessees, grantees, and volunteers, who engage or assist in scientific activities are expected to uphold the principles of scientific integrity established by this policy. Express requirements will be set forth in individual agreements, contracts, statements of work, memoranda of understanding, etc., and/or established via issuance of a separate rule or other policy.

Authorities

Agencies may include fewer or additional authorities as needed or required by their General Counsel, Solicitor, or other legal authority as appropriate.

Pursuant to the 2021 [Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking](#), and consistent with the 2009 [Presidential Memorandum on Scientific Integrity](#) and the 2010 [Memorandum from the White House Office of Science and Technology Policy on Scientific Integrity](#), all Federal agencies must establish a scientific integrity policy. This policy is established in accordance with:

1. The America COMPETES ACT, as amended
2. The Foundations for Evidenced-based Policymaking Act of 2018
3. Pub. L. No 106-554 ---The Information Quality Act of 2000
4. 67 FR 8451 --- OMB Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies
5. 70 FR 2664 --- OMB Final Information Quality Bulletin for Peer Review
6. 65 FR 76260-76264 --- Federal Policy on Research Misconduct
7. Pub. L. 101-12 --- The Whistleblower Protection Act (WPA) of 1989, as amended
8. 41 USC § 4712 ---- The National Defense Authorization
9. 5 CFR § 2635 --- Standards of Ethical Conduct for Employees of the Executive Branch as Amended
10. 5 USC Pub. L. 92-463, §1, Oct. 6, 1972, 86 Stat. 770 --- The Federal Advisory Committee Act of 1972
11. 5 CFR 735, Employee Responsibilities and Conduct
12. 2017 Human Subjects Rule (Federal Register /Vol. 82, No. 12 /Thursday, January 19, 2017 /Rules and Regulations). Activities Deemed Not to Be Research: Public Health Surveillance
13. PPD 19 -- Protecting Whistleblowers with Access to Classified Information, 2012
14. M-20-12 --- OMB Phase 4 Implementation of the Foundations for Evidence-Based Policymaking Act of 2018: Program Evaluation Standards and Practices

Exceptions

Agencies should consult their General Counsel, Solicitor, or other legal authority as appropriate regarding including specific content for this section.

This policy shall be implemented consistent with applicable law.

Definitions

Agencies should include the main SI definition below, and are encouraged to add a customized list of additional definitions for inclusion in their policies as appropriate to their mission and scope. Agencies should use previously published Federal definitions when available. A list of possible definitions to include can be found in Appendix A of the Framework.

Scientific integrity is the adherence to professional practices, ethical behavior, and the principles of honesty and objectivity when conducting, managing, using the results of, and communicating about science and scientific activities. Inclusivity, transparency, and protection from inappropriate influence are hallmarks of scientific integrity.

Principles/Core Values

Many agencies have found it beneficial to reaffirm their core scientific integrity values and principles in a separate section of their policies.

Code of Scientific Conduct or Code of Ethics for Scientists

Agencies are encouraged to consider developing Codes of Scientific Conduct or Ethics within or alongside their policies to establish clear expectations for behavior that is consistent with principles of scientific integrity. A code bridges policy language with more relatable tasks and can reinforce a policy by defining the accepted practices/standards of the relevant research or scientific community. Additionally, the Standards of Ethical Conduct for Employees of the Executive Branch 5 CFR 2635 et seq (page 5) apply to every Federal employee. Content from these standards as well as examples of existing codes are included in Appendix B of the Framework.

Policy Requirements

Examples of agency scientific integrity policies and supporting policy requirements can be found in the Framework Appendix B: Examples of Agency Scientific Integrity Policies, Procedures, and Related Materials.

Promoting a Culture of Scientific Integrity

[AGENCY] leadership at all levels shall recognize, support, and promote this policy and its underlying principles, as well as model behavior exemplary of a strong culture of scientific integrity.

[AGENCY] shall promote a culture of scientific integrity. This means both creating an empowering environment that is conducive to innovation and progress and also protecting scientists and the process of science. “Science, and public trust in science, thrives in an environment that shields scientific data and analyses and their use in policymaking from political interference or inappropriate influence”.⁸ Scientific findings and products must not be suppressed, delayed, or altered for political purposes and must not be subjected to inappropriate influence.

A strong culture of scientific integrity begins with ensuring a professional environment that is safe, equitable, and inclusive. Issues of diversity, equity, inclusion and accessibility are an integral component of the entire scientific process and attention to these issues can improve the representativeness and eminence of the scientific workforce, foster innovation in the conduct and use of science, and provide for more equitable participation in science by diverse communities. The responsible and ethical conduct of research and other scientific activities requires an environment that is equitable, inclusive, safe, and free from harassment and discrimination.⁶

To instill and enhance a culture of scientific integrity, [AGENCY] will post this policy prominently on its website and take other measures such as agency townhalls, written and oral communications, as possible and appropriate to keep scientific integrity visible at [AGENCY], educate all Agency employees and other covered entities, as well as contractors who perform scientific activities for [AGENCY], on their rights and responsibilities related to scientific integrity. All employees and other covered entities will receive scientific integrity information or training as new employees to make them aware of their responsibilities under this scientific integrity policy within 6 months of their date of hire. [AGENCY] will also provide training for those who propose, review, conduct, manage, and use the results of and communicate about science and scientific activities biannually. Training will be tracked to ensure covered entities have received appropriate training.

[AGENCY] shall ensure that different modes of science, such as citizen science, community-engaged research, participatory science, and crowdsourcing, have the recognition, support, and resources to meet the same high standards of scientific integrity that traditional modes are expected to uphold. Further, scientific integrity practices must be applied in ways that are inclusive of these modes of science. This may require expanded scientific integrity practices and expectations, such as granting communities more autonomy over research questions and research design, recognition of data and knowledge sovereignty, and inclusion of multiple forms of evidence, such as Indigenous Knowledge.

To promote scientific integrity at [AGENCY], this policy outlines seven specific areas:

- I. Protecting Scientific Processes
- II. Ensuring the Free Flow of Scientific Information
- III. Supporting Decision Making Processes
- IV. Ensuring Accountability
- V. Protecting Scientists
- VI. Professional Development for Government Scientists, and
- VII. Federal Advisory Committees

I. Protecting Scientific Processes

Scientific Integrity fosters “honest scientific investigation, open discussion, refined understanding, and a firm commitment to evidence”.⁸ It also enables consideration and documentation of differing scientific opinions, and includes peer review. Science, and public trust in science, thrives in an environment that shields scientific data and analyses and their use in policymaking from political interference or inappropriate influence.

It is the policy of this agency to:

1. Prohibit political interference or inappropriate influence in the funding, design, proposal, conduct, review, management, evaluation, or reporting of scientific activities and the use of scientific information.
2. Prohibit inappropriate restrictions on resources and capacity that limit and reduce the availability of science and scientific products outside of normal budgetary or priority-setting processes or without scientific justification.

3. Require that leadership and management ensure that employees and other covered entities engaged in scientific activities are able to conduct their work free from reprisal or concern for reprisal.
4. Require reasonable efforts by all employees and other covered entities to ensure the accuracy of the scientific record and to correct identified inaccuracies that pertain to their contribution to any scientific records.
5. Require that all employees and other covered entities represent their contributions to scientific work fairly and accurately and neither accept nor assume unauthorized and/or unwarranted credit for another's accomplishments. To be named as an author, contributors shall have made a substantial intellectual contribution, written or provided editorial revisions that include critical intellectual content, and approved the final version and agreed to be accountable for all aspects of the work.
6. Ensure independent review of scientific facilities, methodologies, and other scientific activities as appropriate to ensure scientific integrity.
7. Require that employees and other covered entities comply with agency policies and procedures for planning and conducting scientific activities and show appropriate diligence toward protecting and conserving Federal research resources, such as equipment and other property, and records of data and results that are entrusted to them.
8. Prohibit research misconduct and the use of improper methods or inappropriate methods or processes in conducting research and lack of adherence to practices that ensure the quality of research and other scientific activities such as quality assurance systems.
9. Require that all employees and other covered entities design, conduct, manage, evaluate, and report scientific research and other scientific activities honestly and thoroughly, and disclose any conflicts of interest to their supervisor or other appropriate agency official(s) for their determination as to whether a recusal, disclaimer, or other appropriate notification would be appropriate.
10. Require that research involving the participation of human subjects and the use of non-human animals is conducted in accordance with applicable, established laws, regulations and ethical considerations.
11. Ensure recognition and prompt action to address and prevent scientific integrity policy violations that have been shown to have a disproportional impact on underrepresented groups or weaken the equitable delivery of Federal Government programs.

II. Ensuring the Free Flow of Scientific Information

For additional information see the Scientific Integrity Policy Intersections with Related and Supporting Policies: Integrity in Public Science Communications.

Open and timely communication of [AGENCY] science plays a valuable role in building public trust and understanding of [AGENCY] work. [AGENCY] shall facilitate the free flow of scientific and technological information and support scientific integrity in the communication of scientific activities, findings and products. Scientific and technological information will be disseminated to the extent allowed by and consistent with privacy and classification standards and responsible communication of scientific information. It is the policy of the [AGENCY] to:

1. Facilitate the free flow of scientific and technological information, consistent with privacy and classification standards. Consistent with Open Government requirements, [AGENCY] shall expand and promote access to scientific and technological information by making it available freely to the public in an online digital format.⁸
2. Ensure that scientific findings and products are not suppressed, delayed or altered for political purposes and are not subjected to inappropriate influence.
3. Permit, and even encourage, agency scientists to participate in communications with the media regarding their scientific activities and areas of scientific expertise. In communicating with the

media, scientists are strongly encouraged to seek advice from [AGENCY] trained career communications experts.

4. Provide scientific communication training and communications support to agency scientists to enable their ability to clearly communicate their findings, both to policy makers within their agencies and to the public and stakeholders more broadly.
5. Ensure that mechanisms are in place to resolve disputes that arise from decisions to proceed or not to proceed with proposed interviews or other releases of public information or related activities.
6. Ensure that the work and conclusions of agency scientists and the work and conclusions of work funded/supported by the federal government are accurately represented in agency communications. If documents significantly rely on a scientist's research, identify them as an author, or represent their scientific opinion, the scientist(s) shall be given the option to review the scientific content of proposed documents.
7. Ensure that agency scientists may communicate their scientific activities objectively without political interference or inappropriate influence, while at the same time complying with agency policies and procedures for planning and conducting scientific activities, reporting scientific findings, and reviewing and releasing scientific products. Scientific products (e.g., manuscripts for scientific journals, presentations for workshops, conferences, and symposia) shall adhere to agency review procedures.
8. Allow [AGENCY] employees and other covered entities to report their scientific findings and communicate with the media or the public in their official capacities at [AGENCY]. [AGENCY] scientists shall refrain from making or publishing statements that could be construed as being judgments of, or recommendations on, [AGENCY] or any other Federal Government policy, unless they have secured appropriate prior approval to do so. Such communications shall remain within the bounds of their scientific or technological findings, unless specifically otherwise authorized.
9. Allow scientists to communicate with the media or the public in their personal capacities subject to limitations of government ethics rules. [AGENCY] scientists may express their personal views and opinions; however, they should not claim to officially represent the agency or its policies or use the agency or other U.S. Government seals or logos. Employees and other covered entities shall use appropriate written or oral disclaimers for personal activities.
10. Require that agency officials, including public affairs officers, shall not alter, nor direct agency scientists and technology experts to alter, scientific and technological research findings.
11. Require that agency officials, including public affairs officers, shall not direct an agency scientist or technology expert to alter a presentation of their scientific findings in a manner that would knowingly compromise the objectivity or accurate representation of those findings, nor affect a change in presentation without concurrence of the principle agency scientist or technology expert.
12. In response to media requests about the scientific or technological aspects of their work, agencies will offer knowledgeable spokespersons who can, in an objective and nonpartisan fashion, describe these dimensions (OSTP 2010). This does not include describing the policy implications of their work. That requires a separate permission.
13. Require that technical review and clearance processes include provisions for timely clearance and expressly forbid censorship, unreasonable delay, and suppression of objective communication of data and results without scientific justification.
14. Ensure that scientific information is accurately represented in responses to Congressional inquiries, testimony, and other requests.
15. Accurately represent the work and conclusions of agency scientists in agency social media communications and that agency scientists are appropriately guided on use of social media, which includes but is not limited to blogs, social networks, forums, and micro blogs.

- a. When communicating on social media in their personal capacities, and subject to limitations of government ethics rules, agency social media regulations, and obligation to protect nonpublic information, [AGENCY] scientists may express their personal views and opinions and may name their agency, in the context of biographical information, as long as it is clear in context that they are not speaking on behalf of, or as a representative of, the agency.
- b. If employees and other covered entities choose to disclose their [AGENCY] on their personal social media, a disclaimer clarifying that the account or communication represents personal views may be appropriate.
- c. Agencies should examine their social media rules to ensure that they are not overly restrictive.
- d. Social media managers are responsible for correction of any errors pointed out by scientists whose work is represented in [AGENCY] social media.

III. Supporting Decision Making Processes

For additional information see Scientific Integrity Policy Intersections with Related and Supporting Policies: Credibility of the Science to Support Policy Decisions.

It is the policy of the [AGENCY] to:

1. Ensure the quality, accuracy, and transparency of scientific information used to support policy and decision making including:
 - a. Use scientific information that is subject to well-established scientific processes.
 - b. Ensure that scientific data and research used to support policy decisions undergo review by qualified experts, where feasible and appropriate, and consistent with law.
 - c. Adhere to the Office of Management and Budget Final Information Quality Bulletin for Peer Review [and relevant AGENCY peer-review guidelines]¹⁰ When independent peer reviews of scientific products are conducted by contractors, a conflict of interest review shall be conducted for all reviewers.
 - d. Reflect scientific information appropriately and accurately and ensure that it is free of misinformation; and make scientific findings or conclusions considered or relied on in policy decisions publicly available online and in open formats, to the extent practicable.
2. Where legally permissible and appropriate, enable scientists to directly participate in policy and management decisions for which they are the agency subject matter expert in order to ensure that the science is accurately represented and interpreted.
3. Ensure the accuracy of communication of the science upon which a policy decision is based.
4. Ensure that the Scientific Integrity Official, with input from the other scientific officials, develop a transparent mechanism for Agency employees and other covered entities to express differing scientific opinions. When an agency employee, who is substantively engaged in the science informing an agency policy decision, disagrees with the scientific data, interpretations or conclusions that are to be relied upon for that decision, the employee is encouraged to express that opinion complete with rationale and in writing. If differing scientific opinions are not resolved during internal deliberations, they can be part of peer review charge questions with the results publicly available. When there is no peer review, the differing opinion will be represented in the agency deliberative documents for the decision maker's consideration.

¹⁰ Office of Management and Budget. "[Final Information Quality Bulletin for Peer Review.](#)" *Federal Register*. Doc. 05-769, January 14th, 2005

IV. Ensuring Accountability

Examples of agency procedures for addressing scientific integrity concerns are contained in the Appendix B of the Framework.

In consultation with [AGENCY] Office of General Counsel, it is the policy of the [AGENCY] to:

1. Ensure correction of the scientific record, the implementation of recommendations to prevent such allegations in the future and the enforcement of administrative actions when allegations of a loss of scientific integrity are substantiated.
2. Encourage and facilitate early informal or formal consultation with scientific integrity officials to seek advice on preventing a situation of concern, to determine if it is a potential violation of the Scientific Integrity Policy, and to ascertain if it should be referred elsewhere in the agency for resolution.
3. Provide clear guidance on how to formally and confidentially report concerns and allegations of Scientific Integrity Policy violations. Those who report concerns and allegations need not be directly involved or witness a violation.
4. Ensure that the Scientific Integrity Official, together with the other Agency scientific integrity officials, as applicable, drafts procedures to respond to allegations of compromised scientific integrity in a timely, objective, and thorough manner. These procedures shall include the following steps: an initial assessment and review, a fact-finding process, an agency adjudication or determination including description of remedies and preventative measures to safeguard the science, an appeals process, follow-up to track implementation of remedies, and reporting.
5. Ensure that procedures document the necessary aspects for each step of the process including burden of proof, any necessary determination of intentionality, and reporting as well as the roles of the Scientific Integrity Official and Agency staff in the process.
6. Ensure that subordinate agencies have Scientific Integrity policies that are consistent and in alignment with this policy. Subordinate agencies are free to enact stronger policies than their parent department and departments shall not inappropriately influence agency Scientific Integrity matters.

V. Protections

For additional information see Scientific Integrity Policy Intersections with Related and Supporting Policies: Diversity, Equity, Inclusion, and Accessibility and Whistleblower Protections.

To assure the protection of government scientists and as appropriate other covered entities from retribution, retaliation or reprisal, and in consultation with [AGENCY] Office of General Counsel, it is the policy of [AGENCY] to:

1. Select and retain candidates for scientific and technical positions based on the candidate's scientific and technical knowledge, credentials, experience, and integrity, and hold them and their supervisors to the highest standards of professional and scientific ethics [including those described in the Code of Scientific Ethics/Conduct if one exists].
2. Promote diversity, equity, inclusion, and accessibility in the scientific workforce and to create safe workspaces that are free from harassment and discrimination. Support scientists and researchers including, but not limited to, Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQI+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality; and advance the equitable delivery of Federal programs.
3. Protect those individuals who report allegations of compromised scientific integrity in good faith, as well as those agency employees and other covered entities alleged to have compromised

scientific integrity in the absence of a finding that the individual compromised scientific integrity, from prohibited personnel practices (as defined in 5 USC 2302(b)).

4. Prevent supervisors [and managers] or other agency leadership from intimidating or coercing scientists to alter scientific data, findings, or professional opinions or inappropriately influencing scientific advisory boards.
5. Comply with whistleblower protections, specifically:
 - a. By protecting employees from prohibited personnel practices (as defined in 5 U.S.C. 2302(b)), especially those who uncover and report allegations of loss of scientific integrity in good faith, as well as those [AGENCY] employees alleged to have compromised scientific integrity in the absence of a finding that the individual compromised scientific integrity;
 - b. The requirements of the Whistleblower Protection Act of 1989, and its expanded protections enacted by PL 103-424 and the Whistleblower Protection Enhancement Act of 2012;
 - c. The National Defense Authorization Act's expansion of certain whistleblower protections to employees of federal government contractors, subcontractors, and grant recipients. 41 USC 4712; and,
 - d. Presidential Policy Directive 19, which prohibits supervisors from taking, failing to take, or threatening to take or fail to take any action affecting an employee's eligibility for access to classified information in reprisal for making a protected disclosure.

VI. Professional Development for Government Scientists

For additional information see Scientific Integrity Policy Intersections with Related and Supporting Policies: Professional Development and Advancement of Scientists.

It is the policy of the agency to encourage agency scientists and other agency employees and covered entities involved in agency scientific activities to interact with the broader scientific community, in a manner that is consistent with Federal rules of ethics, job responsibilities, and to the extent that is practicable given the availability of funding to support such interactions and any budgetary restraints. This includes:

1. Encouraging timely publication of research such as in peer-reviewed, professional, scholarly journals, [AGENCY] technical reports and publications or other appropriate outlets;
2. Encouraging the sharing of scientific activities, findings, and materials through appropriate avenues including on digital repositories;
3. Encouraging attendance and presentation of research at professional meetings including workshops, conferences and symposia;
4. Permitting service on editorial boards, as peer reviewers, or as editors of professional or scholarly journals;
5. Permitting participation in professional societies, committees, task forces, and other specialized bodies of professional societies, including removing barriers to serving as officers or on governing boards of such societies, to the extent allowed by law;
6. Permitting government scientists to receive honors and awards for contributions to scientific activities and discoveries to the extent allowed by law, and to accrue the professional recognition of such honors or awards; and
7. Permitting scientists to perform outreach and engagement activities, such as speaking to community and student groups, as part of their official duties.

VII. Federal Advisory Committees (FACs)

This section may not be applicable – not all agencies have FACs.

Federal Advisory Committees are an important tool within [AGENCY] for ensuring the credibility, quality, and transparency of agency science. [AGENCY] shall adhere to the Federal Advisory Committee Act and develop policies, in coordination with the General Services Administration and consistent with the guidance on lobbyists serving on Federal advisory committees (FACs), for convening FACs tasked with giving scientific advice, consistent with the following:

1. “The recruitment process for new FAC members should be as transparent as practicable. [AGENCY] should, when practicable and appropriate, announce FAC member vacancies widely, including notification in the Federal Register with an invitation for the public to recommend individuals for consideration and for self-nominations to be submitted.”⁸
2. “Professional biographical information (including current and past professional affiliations) for appointed committee members should be made widely available to the public (e.g., via a website) subject to Privacy Act and other statutory/regulatory considerations. Such information should clearly illustrate the individuals' qualifications for serving on the committee.”⁸
3. “The selection of members to serve on a scientific or technical FAC should be based on expertise, knowledge, and contribution to the relevant subject area. Additional factors that may be considered are availability of the member to serve, diversity among members of the FAC, and the ability to work effectively on advisory committees. Committee membership should be fairly balanced in terms of points of view represented with respect to the functions to be performed by the FAC.”⁸ The selection process should be overseen by career [AGENCY] officials.
4. Except when prohibited by law, [AGENCY] should make all COI waivers granted to committee members publicly available.⁸
5. Whenever possible, [AGENCY] should engage members of scientific and technical FACs as Special Government Employees to further transparency goals.
6. Except when explicitly stated in a prior agreement between [AGENCY] and a FAC, all reports, recommendations, and products produced by FACs should be treated as solely the findings of such committees rather than of the U.S. Government, and thus are not subject to intra- or inter-agency revision.⁸
7. [AGENCY] must comply with current standards governing conflict of interest as defined in statutes and implementing regulations.

Scientific Integrity Committee/Other Scientific Integrity Officials

[AGENCY] shall establish a Scientific Integrity Committee comprised of senior Agency career employees and chaired by the Scientific Integrity Official to provide oversight for the implementation of the Scientific Integrity Policy at [AGENCY], act as liaisons for their respective Agency units, assist with training and policy assessment, updates and amendments, and to be available to address any questions or concerns regarding this policy. The Scientific Integrity Official together with the Committee will draft a Scientific Integrity Committee Charter outlining criteria for selection as a member, other duties of members, and the frequency of meetings.

Procedures

Agencies are encouraged to use this header to enumerate and briefly describe any agency policies through which their Scientific Integrity Policy is implemented. These may include already extant policies and ones to be written. For those to be written we suggest agencies lay out a time-line for their completion as well as a summary of what they will contain. Alternatively, many agencies have scientific integrity handbooks that include these important details for full implementation of their Policies. Examples of agency procedures for addressing scientific integrity concerns are contained in the Appendix B of the Framework.

The Scientific Integrity Official in conjunction with other [AGENCY] career officials shall expeditiously draft and prominently post on [AGENCY's] website the following procedures: addressing scientific integrity concerns, handling differing scientific opinions, clearance of scientific products, scientific communications, authorship and attribution and other topics as needed. These policies shall be completed within one year of the release of this policy.

Roles and Responsibilities

Agencies may modify the position titles but should retain the positions as applicable and outline roles and responsibilities with enough detail to provide clarity. It may be appropriate to include additional role descriptions and/or modify text to align with individual agency structures and roles on scientific integrity. Agencies may want to consider including a description of the circumstances under which the Scientific Integrity Official and other scientific integrity points of contact may be removed from these roles.

Scientific Integrity is everyone's responsibility and the following have specific scientific integrity roles and responsibilities:

i. [Agency Head]

1. Provides leadership for the agency on scientific integrity such as leading through example, upholding scientific integrity principles and regularly communicating the importance of scientific integrity.
2. Ensures that all agency activities associated with scientific and technological processes are conducted in accordance with the policy
3. Ensures all supervisors and managers comply with the scientific integrity policy and ensure accountability for those who do not.
4. Violations of scientific integrity policies shall be taken as seriously as violations of government ethics rules and must come with appropriate consequences.
5. [Designates a senior agency employee with agency-appropriate qualifications and scientific credentials for the role of chief science officer, science advisor, or chief scientist ("Chief Science Officer") as applicable and support their role as advisor on scientific issues.]
6. Ensures that the scientific-integrity policy considers, supplements, and supports agency plans for forming evidence-based policies, including the evidence-building plans required by 5 U.S.C. 312(a) and the annual evaluation plans required by 5 U.S.C. 312(b).
7. Provides adequate resources and funding to implement this policy including staffing, monitoring, evaluation, and reporting, and training.
8. Supports and respects the scientific integrity official's independence, recommendations and designation of and agency compliance with corrective scientific actions when violations of this policy are substantiated.

II. Chief Scientist/Chief Science Officer *[Agency Head if the appointment of a chief scientist/chief science officer is not required.]*

1. Serves as the principal advisor to the head of the agency on scientific issues and ensures that the agency's research programs are scientifically and technologically well-founded and conducted with integrity.
2. In cooperation with the Scientific Integrity Official, oversees the implementation and iterative improvement of policies and processes affecting the integrity of research funded, conducted, or overseen by the agency, as well as policies affecting the Federal and non-Federal scientists who support the research activities of the agency, including scientific-integrity policies.
3. Supports the scientific integrity official's designation of and agency compliance with corrective scientific actions when violations of this policy are substantiated. Assistance may be sought from the National Science and Technology Council Subcommittee on Scientific Integrity in cases of disagreement.
4. Ensures agencies establish as necessary clear administrative actions for substantiated violations of scientific integrity policies, designating responsibility for each aspect of accountability.⁶

III. Scientific Integrity Official

1. Is a designated, full-time equivalent, career employee who has agency appropriate scientific credentials and is appointed at a senior level, for example as an ST (scientific or professional), Senior Leader (SL), or in the Senior Executive Service (SES).
2. Oversees implementation and iterative improvement of scientific-integrity policies and processes providing leadership, acting to champion scientific integrity, and serving as the primary Agency-level contact for questions regarding Scientific Integrity and ensuring scientific integrity activities and outcomes are appropriately monitored and evaluated.
3. Leads training and outreach initiatives to facilitate employee awareness and understanding of this policy.
4. Serves as a neutral point of contact for receiving scientific integrity questions and concerns and allegations of compromised scientific integrity.
5. Conducts an initial assessment of allegations and submitted materials, following established procedures, to determine whether the allegations pertain to compromised scientific integrity and the appropriate handling of said allegations. Provides independent oversight of agency responses to allegations of compromised scientific integrity referred for an inquiry or investigation, including:
 - a. Reviewing agency-submitted reports of allegations and their disposition; and
 - b. Maintaining a status report of responses to allegations as a means of monitoring the progress toward resolution.
6. Leads efforts to update this policy and any accompanying guidance, as appropriate.
7. Reports to the [Chief Science Officer] or similarly placed individual with an appropriate background] on matters involving scientific integrity.
8. Coordinates with the [Office of the General Counsel (OGC), Office of Inspector General (OIG), the Office of Ethics, the Office of Human Resources Management, Office of Communications, the Office of the Chief Information Officer], and other offices, as necessary.
9. Reports any potentially criminal behavior related to waste, fraud or abuse to OIG that is uncovered during the course of responding to an allegation of compromised scientific integrity and coordinate as appropriate related to the referral provided to OIG.
10. Keeps the [Chief Science Officer and] the Agency Head informed on the status of the implementation of this policy and any compliance concerns, as warranted.

11. Delegates responsibilities to other scientific integrity officials exercising a purview applicable to organizational submits (e.g., offices, bureaus, directorates) of the agency, and chairs their regular meetings.
12. Publishes an annual scientific integrity report as described below.
13. Leads efforts for the iterative improvement of this policy and scientific integrity initiatives overall including development and implementation of an evaluation plan to regularly monitor and evaluate ongoing scientific integrity activities and outcomes.
14. To the extent possible, be involved in high level discussions and strategic planning on the recruitment, retention, development, and advancement of scientists—especially scientists from underrepresented communities—to help ensure that scientific integrity is appropriately and carefully considered.

IV. Scientific Integrity Committee

1. As delegated by the Scientific Integrity Official, oversee implementation and iterative improvement of scientific integrity policies and processes.
2. Coordinate with the agency's Scientific Integrity Official in implementing the agency's scientific-integrity policies and processes.
3. Provide oversight for the implementation of the Scientific Integrity Policy at [AGENCY].
4. Act as liaisons for their respective Agency units.
5. Assist with training and policy assessment, updates and amendments.
6. Be available to address any questions or concerns regarding this policy.
7. Other duties as delegated.

V. Managers and Supervisors

1. Comply with and ensure agency and employee compliance with the scientific integrity policy and to listen, advise, and report allegations of compromised scientific integrity and take action as appropriate.
2. Be aware of and uphold the principles contained in this policy [and the Scientific Code of Conduct]. Lead through example by upholding scientific integrity principles and communicating the importance of doing so.
3. Report any knowledge of potential losses of scientific integrity to the Scientific Integrity Official or other scientific integrity officials.
4. Refrain from committing prohibited personnel practices (as defined in 5 U.S.C. 2302(b)) against all agency employees and other covered entities including those who uncover and report allegations of compromised scientific integrity in good faith, as well as those agency employees alleged to have compromised scientific integrity.
5. Consult, as appropriate depending upon the nature of the allegation, with the Scientific Integrity Official, human resources officer, contracting and grant personnel, ethics officer, [OIG, OGC, and the Office of Civil Rights].

VI. Employees and other covered entities

1. Should be aware of the principles contained in this policy [including the Code of Conduct] and how the policy applies to their duties.
2. Comply with this policy.
3. [Abide by the Code of Conduct, and] adhere to accepted professional values and practices of the relevant research/scientific communities so as to ensure scientific integrity;
4. Are encouraged to report to the Scientific Integrity Official or any Deputy Scientific Integrity Official any knowledge of compromised scientific integrity

Monitoring and Evaluating Scientific Integrity Activities and Outcomes

[AGENCY] will develop and implement an evaluation plan to regularly measure, monitor, and evaluate ongoing scientific integrity activities and outcomes. The plan will include a roadmap of activities and expected outcomes, the steps and methods needed to assess the processes and outcomes, the methods and metrics used to evaluate the activities and outcomes, and how the data will be analyzed on a regular basis and used for ongoing improvement of SI processes, procedures, and policies. The plan shall include, at a minimum, the metrics for agencies to collect and report as identified in Chapter 2, subpart *Metrics and Measurement Methods for Scientific Integrity Activities and Outcomes* and Chapter 3: *Critical Metrics for Regular Assessment and Iterative Improvement of Agency Scientific Integrity Policy Implementation*.

The plan shall also include a timeline for implementation and frequency of data collection, analysis, review, recommendations, and implementing recommendations. Monitoring and evaluation results, recommendations, and policy/procedure changes based on results will be reported to agency leadership and will be made available to agency staff and the public in a timely manner.

Reporting

This report is from the Scientific Integrity Official [and other scientific integrity points of contact] to leadership and hence should not be edited by that leadership before release. Agencies are encouraged to track informal queries and report summary statistics including date and topic.

Annual Reporting. The Scientific Integrity Official [with input from the Scientific Integrity Committee] is responsible for generating and making prominently available on the agency's public facing website an annual report to the [AGENCY] leadership on the status of scientific integrity within [AGENCY], per the January 27, 2021, Presidential Memorandum. The report shall highlight scientific integrity successes, accomplishments, or progress across [AGENCY] such as any new scientific integrity hires, training, enhancements to scientific integrity policies, etc.), identify areas for improvement and develop a plan for addressing critical weaknesses, if any. It shall report on progress toward achieving the critical metrics¹¹ identified in Chapters 2 and 3, including comparisons to the same metrics from prior years to show trends over time, whenever feasible. It will also include the number of formal administrative investigations, informal requests for assistance, inquiries and appeals involving alleged or actual deviations from the scientific integrity policy and the number of investigations and pending appeals. Annual Reporting will also include anonymized individual closed scientific integrity case summaries. These summaries may be posted in a timely manner after completion of inquiries and/or incorporated into the annual report. The identities of complainants, respondents, witnesses and others involved in the investigations shall be protected.

¹¹ The metrics may be collected every other year.

Scientific Integrity Policy Intersections with Related and Supporting Policies

Involving Scientific Integrity Officials in the writing and updating of related policies can help provide needed perspectives before such policies are issued and better ensure they support scientific integrity. Officials should consider the scientific integrity-related components of other policies (e.g., professional development of scientists, science-related communications, etc.) and determine where those other policies should be referenced, or perhaps reinforced, within the agency scientific integrity policy to help ensure their longevity. Violations of related and supporting policies may result in a loss of scientific integrity and it is appropriate for scientific integrity officials to coordinate with their agency counterparts in these matters.

Scientific integrity officials should have an awareness of policies and programs that intersect with the development of the culture of scientific integrity within the agency. Scientific Integrity officials, where possible, shall be involved in the development or revision of the broader set of policies and practices that affect the culture and applicability of scientific integrity within [Agency].

Related Policies that Can Intersect with Scientific Integrity

Diversity, Equity, Inclusion, and Accessibility (DEIA) in Addressing and Strengthening Scientific Integrity and the Disproportional Impact of Scientific Integrity Policy Violations on Underrepresented Groups. Policies, practices, and agency culture to promote diversity, equity, inclusion, and accessibility in the scientific workforce and Federal workforce at large and to create safe workspaces that are free from harassment and discrimination are foundational for achieving a culture of scientific integrity. Because of existing power structures, racism, sexism, discrimination and other forms of bias in the workplace, scientific integrity and DEIA policies may intersect in many places. Similarly, scientific integrity entails greater transparency into research processes and policy-making outcomes. The agency will review and address potential scientific integrity policy violations that have a disproportionate impact on underrepresented groups or weaken the equitable delivery of agency programs.

Public Access. Policies and practices that help to ensure that publications, data, and other outputs of government-funded research are equitably and publicly available to other researchers, innovators, students, and the broader public, including underserved communities, consistent with the [2022 OSTP Memorandum on Ensuring Free, Immediate, and Equitable Access to Federally Funded Research](#).

Human and Animal Subject Protections. For the protection of human subjects of research and clinical investigations, requirements for Federal departments or agencies (conducting or supporting) as applicable, are provided in the Federal Policy for Protection of Human Research Subjects (the Common Rule) outlined in 45 C.F.R. §§ 46.101-46.124 and the FDA Policy for the Protection of Human Subjects outlined in 21 C.F.R. §§ 50, 56, 312 and 812.

To protect the welfare of animals used in research or other activities conducted or supported by federal departments or agencies, compliance with the Federal regulations and policies governing animal care and use is required, including regulated species under the United States Department of Agriculture [Animal Welfare Act \(AWA\) and regulations](#) (AWAR), the [Public Health Service Policy on Humane Care and Use of Laboratory Animals](#) (PHS Policy) administered by the National Institutes of Health, Office of Laboratory Animal Welfare and the [Guide for the Care and Use of Laboratory Animals](#).

Scientific Integrity with Research Security. Scientists are encouraged to interact with the broader scientific community as well as to engage with collaborators with a commitment to a shared research environment of openness, transparency, honesty, equity, fair competition, objectivity, and democratic values. However, some foreign governments are working vigorously in contradiction with these values to acquire, through both licit and illicit means, U.S. research and technology. Research security policies, such as the [National Security Presidential Memorandum 33 \(NSPM-33\)](#) and subsequent [Guidance for Implementing NSPM-33](#), must harmonize with scientific integrity policies by both guarding against foreign

abuses and protecting intellectual property rights, while ensuring the scientists maintain honesty, objectivity, transparency, and professional and ethical behaviors.

Foundations for Evidence-Based Policymaking Act (“[Evidence Act](#)”). Scientific integrity is a foundational component of Federal policies and data infrastructure investments supporting information quality, access, protection, and evidence building and use. The Evidence Act, also anchored in scientific integrity, called on agencies to strategically plan and organize evidence building, data management, and data access functions to ensure an integrated and direct connection to data and evidence needs. Title II of the Act – the OPEN Government Data Act - requires federal agencies to make public data assets available online, using open standards, machine-readable, open formats, and without restrictions (other than intellectual property rights) that would impede use. The metadata associated with open government data assets is made available through the Federal Data Catalogue at data.gov. Title III – the Confidential Information Protection and Statistical Efficiency Act (CIPSEA) of 2018 - requires agencies to enable statistical agencies to uphold their fundamental responsibilities to provide timely, relevant, credible, and objective data and statistics and to maintain public trust. Agencies should consult OMB’s implementing guidance, (including OMB M-19-23, OMB M-20-12, and OMB M-21-27, and Statistical Policy Directive 1) to ensure that scientific integrity policies and procedures complement and reinforce related requirements of the Evidence Act. Agency Learning Agendas and Annual Evaluation Plans, required by the Evidence Act, are posted on agency websites and linked at Evaluation.gov.

Notification and Federal Employee Antidiscrimination and Retaliation Act (“[No FEAR Act](#)”). Federal agencies are required to be held accountable for violations of antidiscrimination and whistleblower protection laws. Under the No FEAR Act, agencies must pay for settlements, awards or judgments against them in whistleblower and discrimination cases out of their own budgets.

Dual Use Research of Concern. [The United States Policy for Oversight of Life Sciences Dual Use Research of Concern](#) stipulates that additional review is required for scientific research that could be directly misapplied to pose a significant threat with broad potential consequences to public health and safety, agricultural crops and other plants, animals, the environment, materiel, or national security.

5. Critical Policy Features for Assessment of Scientific Integrity Policies

In accordance with the 2021 Presidential Memorandum, agency scientific integrity policies will be periodically assessed by OSTP, through the NSTC Subcommittee on Scientific Integrity. The following critical policy features were derived from the Model Scientific Integrity Policy (Chapter 4), which adheres to the principles of the 2009 Presidential Memorandum, 2010 OSTP Memorandum, 2021 Presidential Memorandum, and 2022 Task Force Report, and will form the basis of that assessment. All agencies' Scientific Integrity Policies will be assessed by OSTP in 2022 and again on a rolling-basis as new agency policies are developed and established agency policies are updated.

Table 7 provides critical policy features aligned to components of the Model Policy. The critical policy features that agencies should include in their scientific integrity policies are listed in the first column, titled "Critical Policy Features for Assessment." The second column, titled "Model Policy Component", lists the corresponding sections within the Model Scientific Integrity Policy (Chapter 4) that agencies can reference for exemplary language that would meet the corresponding criteria.

While OSTP does not necessarily expect agencies to use the exact text of the Model Scientific Integrity Policy components in their own policies, agencies can look to the Model Policy language in the right column of Table 7 for an example of the level of detail, scope, and outcomes that OSTP and the NSTC Subcommittee on Scientific Integrity will be looking for in their assessment. Therefore, agencies are encouraged to adapt their scientific integrity policies with the critical policy features in mind, using the model policy as a guide. A potential use of Table 7 is as a tool for agencies to map the critical policy features. We suggest agencies might replace the Model Policy Component column with relevant text or explanation from their policy. Specific feedback resulting from this assessment will be provide to agencies by OSTP and the NSTC Subcommittee on Scientific Integrity.

Table 7. Critical Policy Features for Assessment of Scientific Integrity Policy with Model Scientific Policy Components

Critical Policy Features for Assessment	Model Policy Component
Policy includes sections and structure equivalent to the <i>Model Scientific Integrity Policy for United States Federal Agencies</i> , as appropriate for agency mission, structure, and function.	Table of Contents
Agency policy includes the Federal Definition of Scientific Integrity.	Definition of Scientific Integrity
Detailed list of categories of covered entities to include all those who conduct, manage, design, evaluate, communicate, or use science to support policy and decision making.	Applicability & Scope
List of agency-specific and general authorities of the policy is included.	Authorities
The policy addresses, as appropriate, the following seven major areas or equivalent: Protecting Scientific Processes, Ensuring the Free Flow of Scientific Information, Supporting Decision Making Processes, Ensuring Accountability, Protections, Professional Development for Government Scientists, and Federal Advisory Committees (FACs).	Policy Requirements
Policy is prominently and publicly available and accessible on agency website.	Promoting a Culture of Scientific Integrity
Policy articulates scientific integrity training requirements and cadence.	Promoting a Culture of Scientific Integrity
Policy prohibits political interference and inappropriate influence with agency science and scientific activities.	Protecting Scientific Processes
Policy prohibits research misconduct.	Protecting Scientific Processes
Policy requires that those agencies who assign authorship to agency scientific products require that	Protecting Scientific Processes

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scientists' contributions are represented fairly and accurately.	
Policy ensures the free flow of scientific information and activities, including ensuring that scientists' work and conclusions are accurately represented in agency communications, including permitting scientists to communicate scientific information on social media platforms.	Ensuring the Free Flow of Scientific Information
Policy ensures that science is accurately represented in agency communications. Scientists shall be given the option to review the scientific content of proposed agency communications that rely on their research, identify them as an author, or represent their scientific opinion.	Ensuring the Free Flow of Scientific Information
Policy prohibits the agency from inappropriately influencing scientist communication with the media and public, including by unreasonably delaying the release of scientific information.	Ensuring the Free Flow of Scientific Information
Policy prohibits the suppression, delay or alteration of scientific products and findings for political purposes or due to inappropriate influence.	Ensuring the Free Flow of Scientific Information
Policy requires that scientific information is accurately represented in Congressional inquiries, testimony, and other requests.	Ensuring the Free Flow of Scientific Information
Policy ensures use of appropriate peer review.	Supporting Decision Making Processes
Policy ensures scientists may express differing scientific opinions.	Supporting Decision Making Processes
Policy describes allegation reporting and adjudication processes, including consultation with SIO.	Ensuring Accountability
Policy recognizes that diversity, equity, inclusion and accessibility in the scientific workforce intersects with scientific integrity.	Protections

A FRAMEWORK FOR FEDERAL SCIENTIFIC INTEGRITY POLICY AND PRACTICE

Policy ensures protections for whistleblowers and individuals reporting allegations of losses of scientific integrity including research misconduct.	Protections
Policy requires agencies select and retain candidates for scientific and technical positions based on the candidate’s scientific and technical knowledge, credentials, experience, and integrity.	Protections
Policy encourages agency scientists and other covered entities involved in agency scientific activities to interact with the broader scientific community in a manner that is consistent with Federal rules of ethics and job responsibilities.	Professional Development for Government Scientists
Policy includes guidance for Federal science advisory committees.	Federal Advisory Committees
The roles and responsibilities of the Scientific Integrity Official and other agency scientific integrity staff are clearly defined in the policy.	Roles and Responsibilities
Policy requires regular public reporting on agency scientific integrity activities, to include the number of investigations and appeals involving alleged deviations from the SI policy.	Reporting
Policy describes intersections with other, related agency policies and procedures.	Related Policies that Can Intersect with Scientific Integrity, Procedures

6. Appendices

Appendix A: Definitions for Possible Inclusion in Agency Scientific Integrity Policies

This list of definitions is meant to be illustrative, but not exhaustive, of terms that might appear in agency scientific integrity policies and procedures. With the exception of the definitions of Research Misconduct and Scientific Integrity, these definitions are examples and are pliable for agency specific use.

Allegation refers to a formal accusation of a suspected loss of scientific integrity.

Administrative Record refers to the set of non-deliberative documents that the decision-maker considered, directly or indirectly, in making a final decision. The record should include all the factual, technical, and scientific material or data considered in making the decision, whether or not those materials or data support the decision.

Conduct of Science refers to the formulation of hypotheses, study design, testing, data collection, systematic review, statistical analysis, interpretation, findings, conclusions, and peer review.

Covered entities refers to those persons who must adhere to the requirements of [AGENCY] policy include all [AGENCY] employees, contractors, political appointees, trainees, interns, and advisory committee members, when they propose, conduct, or review science or communicate about science and scientific activities and to all levels of employees who manage or supervise scientific activities and use scientific information in decision making.

Decision-making/policymaking refers to the (1) development of policies or making determinations about policy or management; (2) making determinations about expenditures of Federal agency funds; (3) implementing or managing activities that involve, or rely on, scientific activities.¹²

Ethical behavior refers to activities that reflect norms for conduct that distinguish between acceptable and unacceptable behavior, such as honesty, lawfulness, equity, and professionalism.

Federal agency refers to an Executive department, a Government corporation, and an independent establishment.¹³

Federal science refers to science conducted by Federal scientists.¹⁵

Federal science agency refers to a Federal agency that conducts intramural research and/or funds extramural research activities.¹⁵

Federal scientist refers to a scientist who is a Federal employee or Federal contractor.

Inclusivity refers to the practice of intentionally ensuring full participation of all people and all groups, including marginalized, underserved, and underrepresented contributors, without bias or prejudice. Full participation is enabled through equitable access and fair treatment in the organization. Inclusivity also means asking questions and conducting scientific activities that serve diverse constituencies and

¹² This definition is consistent with that used in the Report “Protecting the Integrity of Government Science,” and was adapted from the definition of [“Decision-makers” in NOAA’s scientific integrity policy](#).

¹³ 5 USC § 105

contribute to the equitable delivery of Government services. For example, in the context of human subjects research, full participation happens when researchers, oversight committees and human subjects themselves have equal access and treatment in research studies, no matter what their role. Inclusivity happens when the perspectives of those persons who are studied are taken into account. Particularly in situations when human subjects may come from marginalized, underserved or underrepresented populations, their voices should be heard to deflect any concerns about exploitation or unfairness.

Inappropriate influence refers to the attempt to shape or interfere in scientific activities or the communication about or use of scientific activities or findings against well-accepted scientific methods and theories or without scientific justification.^{14,15}

Interference refers to inappropriate, scientifically unjustified intervention in the conduct, management, communication, or use of science. It includes censorship, suppression, or distortion of scientific or technological findings, data, information, or conclusions; inhibiting scientific independence during clearance and review; scientifically unjustified intervention in research and data collection; and inappropriate engagement or participation in peer review processes or on Federal advisory committees.

Loss of Scientific Integrity refers to the failure to comply with the Scientific Integrity Policy or to adhere to the principles of honesty, objectivity, and transparency; professional practices; and ethical behavior when conducting, managing, using the results of, and communicating about science and scientific activities.

Misinformation refers to incorrect, misleading, or misattributed information.

Objectivity refers to the quality of being explicit, unbiased, honest, and impartial.

Policy refers to laws, regulations, procedures, administrative actions, incentives, or voluntary practices of governments and other institutions.¹⁶

Political interference refers to interference conducted by political officials and/or motivated by political considerations.

Professional Practices refers to conducting oneself with the qualities that are characterized by skill, competence, ethics, and courtesy.

¹⁴ Examples may include 1) suppressing a decisionmaker's ability to offer the best judgment based on scientific information; 2) preventing the use of best available science; 3) insisting on preclearance of a scientific product for purposes other than providing advance notification or opportunity to review for technical merit; 4) suppressing, altering or delaying the release of a scientific product for any reason other than technical merit or providing advance notification; 5) removing or reassigning scientific personnel for the purposes of undermining the science; 6) using scientific products that are not representative of the current state of scientific knowledge and research (for example because of a lack of appropriate peer review, poor methodology, or flawed analyses) to inform decision making and policy formulation; or 7) misrepresenting the underlying assumptions, uncertainties, or probabilities of scientific products. This is not intended to be an exhaustive list.

¹⁵ Differences of scientific opinion are not necessarily inappropriate influence.

¹⁶ This definition is consistent with that used by the CDC. See <https://www.cdc.gov/policy/analysis/process/definition.html>.

Quality assurance refers to the systematic monitoring and evaluation of scientific activities to ensure that standards of quality, information security and research integrity are being met.

Research misconduct refers to fabrication, falsification, or plagiarism in proposing, performing or reviewing research, or in reporting research results or ordering, advising or suggesting that subordinates engage in research misconduct. Research misconduct does not include honest error or differences of opinion.¹⁷

Research security refers to safeguarding the research enterprise against the misappropriation of research and development to the detriment of national or economic security, related violations of research integrity, and foreign government interference.¹⁸

Retaliation refers to, per 5 U.S.C. § 2302(b)(8), taking or failing to take or threatening to take or failing to take a personnel action with respect to any employee or applicant for employment because of any disclosure of information that the employee or applicant reasonably believes evidences any violation of any law, rule, or regulation or gross mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety if such disclosure is not specifically prohibited by law and if such information is not specifically required by Executive Order to be kept secret in the interest of national defense or the conduct of foreign affairs. Per Pub. L. 112-199 § 110

Science refers to the full spectrum of scientific endeavors, including basic science, applied science, evaluation, engineering, technology, economics, social sciences, and statistics, as well as the scientific and technical information derived from these endeavors.²¹

Scientific activities refer to activities that involve the application of well-accepted scientific methods and theories in a systematic manner, and includes, but is not limited to, data collection, inventorying, monitoring, statistical analysis, surveying, observations, experimentation, study, research, integration, economic analysis, forecasting, predictive analytics, modeling, technology development, and scientific assessment.

Scientific integrity is the adherence to professional practices, ethical behavior, and the principles of honesty and objectivity when conducting, managing, using the results of, and communicating about science and scientific activities. Inclusivity, transparency, and protection from inappropriate influence are hallmarks of scientific integrity.

Scientific Integrity Official refers to a senior career employee designated as an agency's lead to oversee implementation and iterative improvement of scientific integrity policies and processes consistent with the provisions of the 2021 Presidential Memorandum.²¹

Scientist refers to an individual whose responsibilities include collection, generation, use, or evaluation of scientific and technical data, analyses, or products. This includes, but is not limited to, Federal scientists, contractors, and trainees. It does not refer to individuals with scientific and technical training whose primary job functions are in non-scientific roles (e.g., policymakers, communicators).²¹

¹⁷ This definition is consistent with that contained in OSTP, [Federal Policy on Research Misconduct](#), Dec. 6, 2000.

¹⁸ This definition is consistent with that contained in a report by the Scientific Integrity Fast-Track Action Committee of the National Science and Technology Council. "[Protecting the Integrity of Government Science.](#)" January 11, 2022.

Special Government Employee refers to an officer or employee who is retained, designated, appointed, or employed by the Government to perform temporary duties, with or without compensation, for not more than 130 days during any period of 365 consecutive days.¹⁹

Transparency refers to ensuring all relevant data and information used to inform a decision made or action taken is visible, accessible, and consumable by affected or interested parties, to the extent allowable by law.

Appendix B: Examples of Agency Scientific Integrity Policies, Procedures, and Related Materials

Provided in this appendix are links to examples of various scientific integrity policies, procedures, codes of conduct, sample language for extramural grants and Federal contracts for agencies where these entities are included, and guidance on authorship designation and addressing differences in scientific opinion. These examples are provided as illustrative of a diverse range of well-established policies and practices from different agencies. Scientific integrity policies and practices change over time, and these examples are meant to be a contemporaneous resource that may evolve with changing practices.

Agency Policies

Pursuant to the 2021 Presidential Memorandum, agency policies should be prominently publicly available and accessible on an agency website. These online examples of agency scientific integrity policies are provided for reference.

Centers for Disease Control and Prevention

<https://www.cdc.gov/scientific-integrity>

Department of Energy

<https://www.energy.gov/downloads/department-energy-scientific-integrity-policy>

Department of the Interior

<https://www.doi.gov/scientificintegrity>

Environmental Protection Agency

<https://www.epa.gov/scientific-integrity/epas-scientific-integrity-policy>

National Oceanic and Atmospheric Administration

<https://www.noaa.gov/organization/administration/nao-202-735d-2-scientific-integrity>

United States Department of Agriculture

<https://www.usda.gov/directives/dr-1074-001>

United States Geological Survey

<https://www.usgs.gov/survey-manual/50025-scientific-integrity>

¹⁹ 18 U.S.C. § 202

Agency Procedures

These examples of agency procedures for protecting scientific integrity are provided for reference. Some agencies prefer to include their procedures directly in their scientific integrity policies while others establish stand-alone guidelines and handbooks to supplement the policy.

Department of the Interior

SCIENTIFIC INTEGRITY PROCEDURES HANDBOOK (305-DM-3)

[https://www.doi.gov/sites/doi.gov/files/elips/documents/305_DM_3_Handbook - Scientific Integrity Procedures.pdf](https://www.doi.gov/sites/doi.gov/files/elips/documents/305_DM_3_Handbook_-_Scientific_Integrity_Procedures.pdf)

National Oceanic and Atmospheric Administration

PROCEDURAL HANDBOOK FOR SCIENTIFIC INTEGRITY (NAO 202-735D-2)

https://www.noaa.gov/sites/default/files/2021-08/Scientific_Integrity_ProceduralHB_NAO_202-735D-2.pdf

United States Department of Agriculture

PROCEDURES FOR RESPONDING TO ALLEGATIONS OF COMPROMISED SCIENTIFIC INTEGRITY (DM 1074-001)

<https://www.usda.gov/directives/dm-1074-001>

Codes of Conduct

Several agencies have produced codes of conduct that intersect with scientific integrity in accordance with their missions. Federal scientists and managers are also subject to the US Office of Government Ethics Standards of Ethical Conduct for Employees of the Executive Branch.

Department of the Interior

DOI Code of Scientific and Scholarly Conduct

<https://www.doi.gov/sites/doi.gov/files/migrated/scientificintegrity/upload/DOI-Code-of-Scientific-and-Scholarly-Conduct-Poster-December-2014.pdf>

National Oceanic and Atmospheric Administration

NAO 202-735D-2: Scientific Integrity Section 7: Code of Scientific Conduct

<https://www.noaa.gov/organization/administration/nao-202-735d-2-scientific-integrity>

United States Agency for International Development

USAID Employee Standards of Conduct

https://www.usaid.gov/sites/default/files/documents/1868/USAID_EmployeeStandardsOfConduct.pdf

United States Department of Agriculture

Appendix A USDA Code of Scientific Ethics of the Departmental Regulations on Scientific Integrity DR 1074-001

<https://www.usda.gov/directives/dr-1074-001>

Department of Justice

Code of Professional Responsibility for the Practice of Forensic Science

https://www.justice.gov/sites/default/files/code_of_professional_responsibility_for_the_practice_of_forensic_science_08242016.pdf

Extramural Grant, Award, and Contract Language

Sample Language for Statements of Work from the Department of the Interior (page 27):
https://www.doi.gov/sites/doi.gov/files/elips/documents/305%20DM%203_%20Handbook%20-%20Scientific%20Integrity%20Procedures.pdf

Solicitation Provisions and Contract Clauses from the Federal Register: Environmental Protection Agency Acquisition Regulation (EPAAR); Scientific Integrity:
<https://www.federalregister.gov/documents/2020/10/19/2020-20665/environmental-protection-agency-acquisition-regulation-epaar-scientific-integrity>

Scientific Integrity Language for Grants from the Environmental Protection Agency EPA General Terms and Conditions Effective October 1, 2018: <https://www.epa.gov/grants/epa-general-terms-and-conditions-effective-october-1-2018>

Proposal and Award Policies and Procedures Guide from the National Science Foundation (2022): https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg

Research Terms and Conditions from the National Science Foundation:
https://www.nsf.gov/bfa/dias/policy/fedrtc/agencyspecifics/nsf_1021.pdf

Contracts and Financial Assistance from the National Oceanic and Atmospheric Administration: NOAA Procedural Handbook for NAO 202-735D.2: Scientific Integrity Section 5. Contracts and Financial Assistance (2021): https://www.noaa.gov/sites/default/files/2021-08/Scientific_Integrity_ProceduralHB_NAO_202-735D-2.pdf

Guidance on Designation of Authorship Guidelines

Centers for Disease Control and Prevention

Authorship Guidelines: <https://www.cdc.gov/maso/policy/authorship.pdf>

Environmental Protection Agency

Best Practices for Designating Authorship: https://www.epa.gov/sites/default/files/2016-09/documents/best_practices_designating_authorship.pdf

National Institutes of Health

General Guidelines for Authorship Contributions:
https://oir.nih.gov/sites/default/files/uploads/sourcebook/documents/ethical_conduct/guidelines-authorship_contributions.pdf

Processes for Authorship Dispute Resolution: <https://oir.nih.gov/sourcebook/ethical-conduct/responsible-conduct-research-training/processes-authorship-dispute-resolution>

United States Geological Survey

Fundamental Science Practices: USGS Authorship of Scientific Information Products:
<https://www.usgs.gov/survey-manual/50210-fundamental-science-practices-usgs-authorship-scientific-information-products>

Guidance on Addressing Differences in Scientific Opinion

Environmental Protection Agency

Approaches for Expressing and Resolving Differing Scientific Opinions (EPA):

https://www.epa.gov/system/files/documents/2021-09/epas_approaches_for_expressing_and_resolving_differing_scientific_opinions.pdf

Food and Drug Administration

FDA Staff Manual Guide (SMG 9010.1) – Scientific Dispute Resolution at FDA

<https://www.fda.gov/media/79659/download>

United States Nuclear Regulatory Commission

Management Directive 10.159, NRC Differing Professional Opinion Program:

<https://www.nrc.gov/docs/ML1513/ML15132A664.pdf>

Appendix C: Summary of White House Scientific Integrity Memorandums

This appendix includes excerpts of the foundational elements contained in the March 2009 Presidential Memorandum,⁷ the December 2010 OSTP Memorandum,⁸ and the January 2021 Presidential Memorandum.²

Presidential Memorandum on Scientific Integrity for The Heads Of Executive Departments And Agencies from President Barak Obama, March 2009

Science and the scientific process must inform and guide decisions on a wide range of issues, including improvement of public health, protection of the environment, increased efficiency in the use of energy and other resources, mitigation of the threat of climate change, and protection of national security.

- Political officials should not suppress or alter scientific or technological findings and conclusions.
- If scientific and technological information is developed and used by the Federal Government, it should ordinarily be made available to the public. To the extent permitted by law, there should be transparency in the preparation, identification, and use of scientific and technological information in policymaking.
- The selection of scientists and technology professionals for positions in the executive branch should be based on their scientific and technological knowledge, credentials, experience, and integrity.
- The selection and retention of candidates for science and technology positions in the executive branch should be based on the candidate's knowledge, credentials, experience, and integrity;
- Each agency should have appropriate rules and procedures to ensure the integrity of the scientific process within the agency;
- When scientific or technological information is considered in policy decisions, the information should be subject to well-established scientific processes, including peer review where appropriate, and each agency should appropriately and accurately reflect that information in complying with and applying relevant statutory standards;
- Except for information that is properly restricted from disclosure under procedures established in accordance with statute, regulation, Executive Order, or Presidential Memorandum, each agency should make available to the public the scientific or technological findings or conclusions considered or relied on in policy decisions;
- Each agency should have in place procedures to identify and address instances in which the scientific process or the integrity of scientific and technological information may be compromised; and
- Each agency should adopt such additional procedures, including any appropriate whistleblower protections, as are necessary to ensure the integrity of scientific and technological information and processes on which the agency relies in its decision making or otherwise uses or prepares.

OSTP Memorandum on Scientific Integrity for the Heads of Executive Departments and Agencies from John P. Holdren, December 2010

I. Foundations of Scientific Integrity in Government

Scientific and technological information is often a significant contributor to the development of sound policies. Successful application of science in public policy depends on the integrity of the scientific process both to ensure the validity of the information itself and to engender public trust in Government. For this reason, agencies should develop policies that:

1. Ensure a culture of scientific integrity. Scientific progress depends upon honest investigation, open discussion, refined understanding, and a firm commitment to evidence. Science, and public trust in

science, thrives in an environment that shields scientific data and analyses from inappropriate political influence; political officials should not suppress or alter scientific or technological findings.

2. Strengthen the actual and perceived credibility of Government research. Of particular importance are:
 - a. ensuring that selection of candidates for scientific positions in the executive branch is based primarily on their scientific and technological knowledge, credentials, experience, and integrity;
 - b. ensuring that data and research used to support policy decisions undergo independent peer review by qualified experts, where feasible and appropriate, and consistent with law;
 - c. setting clear standards governing conflicts of interest; and
 - d. adopting appropriate whistleblower protections.
3. Facilitate the free flow of scientific and technological information, consistent with privacy and classification standards. Open communication among scientists and engineers, and between these experts and the public, accelerates scientific and technological advancement, strengthens the economy, educates the Nation, and enhances democracy. Consistent with the Administration's Open Government Initiative, agencies should expand and promote access to scientific and technological information by making it available online in open formats. Where appropriate, this should include data and models underlying regulatory proposals and policy decisions.
4. Establish principles for conveying scientific and technological information to the public. The accurate presentation of scientific and technological information is critical to informed decision making by the public and policymakers. Agencies should communicate scientific and technological findings by including a clear explication of underlying assumptions; accurate contextualization of uncertainties; and a description of the probabilities associated with both optimistic and pessimistic projections, including best-case and worst-case scenarios where appropriate.

II. Public Communications

Agencies should develop public communications policies that promote and maximize, to the extent practicable, openness and transparency with the media and the American people while ensuring full compliance with limits on disclosure of classified information. Such policies should ensure that:

1. In response to media interview requests about the scientific and technological dimensions of their work, agencies will offer articulate and knowledgeable spokespersons, who can, in an objective and nonpartisan fashion, describe and explain these dimensions to the media and the American people.
2. Federal scientists may speak to the media and the public about scientific and technological matters based on their official work, with appropriate coordination with their immediate supervisor and their public affairs office. In no circumstance may public affairs officers ask or direct Federal scientists to alter scientific findings.
3. Mechanisms are in place to resolve disputes that arise from decisions to proceed or not to proceed with proposed interviews or other public information-related activities.

III. Use of Federal Advisory Committees

Agencies should develop policies, in coordination with the General Services Administration and consistent with the Administration's guidance on lobbyists serving on Federal advisory committees (FACs) for convening FACs tasked with giving scientific advice, consistent with the following:

1. The recruitment process for new FAC members should be as transparent as practicable. Departments and agencies should, when practicable and appropriate, announce FAC member vacancies widely, including notification in the Federal Register with an invitation for the public to recommend individuals for consideration and for self-nominations to be submitted;

2. Professional biographical information (including current and past professional affiliations) for appointed committee members should be made widely available to the public (e.g., via a website) subject to Privacy Act and other statutory/regulatory considerations. Such information should clearly illustrate the individuals' qualifications for serving on the committee;
3. The selection of members to serve on a scientific or technical FAC should be based on expertise, knowledge, and contribution to the relevant subject area. Additional factors that may be considered are availability of the member to serve, diversity among members of the FAC, and the ability to work effectively on advisory committees. Committee membership should be fairly balanced in terms of points of view represented with respect to the functions to be performed by the FAC;
4. Except when prohibited by law, agencies should make all Conflict of Interest waivers granted to committee members publicly available; and
5. Except when explicitly stated in a prior agreement between an agency and a FAC, all reports, recommendations, and products produced by FACs should be treated as solely the findings of such committees rather than of the U.S. Government, and thus are not subject to intra- or inter-agency revision.

IV. Professional Development of Government Scientists and Engineers

Agencies should establish policies that promote and facilitate, as permitted by law, the professional development of Government scientists and engineers. Such policies should, consistent with Federal ethics rules, job responsibilities, and existing agency policies regarding political appointees:

1. Encourage publication of research findings in peer-reviewed, professional, or scholarly journals;
2. Encourage presentation of research findings at professional meetings;
3. Allow Government scientists and engineers to become editors or editorial board members of professional or scholarly journals;
4. Allow full participation in professional or scholarly societies, committees, task forces and other specialized bodies of professional societies, including removing barriers for serving as officers or on governing boards of such societies; and
5. Allow Government scientists and engineers to receive honors and awards for their research and discoveries with the goal of minimizing, to the extent practicable, disparities in the potential for private-sector and public-sector scientists and engineers to accrue the professional benefits of such honors or awards.

Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking from President Joseph R. Biden, January, 2021

- It is the policy of my Administration to make evidence-based decisions guided by the best available science and data. Scientific and technological information, data, and evidence are central to the development and iterative improvement of sound policies, and to the delivery of equitable programs, across every area of government. Scientific findings should never be distorted or influenced by political considerations. When scientific or technological information is considered in policy decisions, it should be subjected to well-established scientific processes, including peer review where feasible and appropriate, with appropriate protections for privacy. Improper political interference in the work of Federal scientists or other scientists who support the work of the Federal Government and in the communication of scientific facts undermines the welfare of the Nation, contributes to systemic inequities and injustices, and violates the trust that the public places in government to best serve its collective interests.
- This memorandum reaffirms and builds on the Presidential Memorandum of March 9, 2009 (Scientific Integrity), and the Director of the Office of Science and Technology Policy's Memorandum of December 17, 2010 (Scientific Integrity).
- Executive departments and agencies (agencies) shall establish and enforce scientific-integrity policies that ban improper political interference in the conduct of scientific research and in the

collection of scientific or technological data, and that prevent the suppression or distortion of scientific or technological findings, data, information, conclusions, or technical results.

- Heads of agencies shall ensure that all agency activities associated with scientific and technological processes are conducted in accordance with the 6 principles set forth in section 1 of the Presidential Memorandum of March 9, 2009, and the 4 foundations of scientific integrity in government set forth in part I of the Director’s Memorandum of December 17, 2010.
- Heads of agencies shall ensure that their agency scientific-integrity policies reflect the findings in the Task Force report produced under section (2)(b)(v) of this memorandum and apply to all agency employees, regardless of the nature of their appointment, as well as contractors who perform scientific activities for agencies.
- The head of each agency with an existing scientific-integrity policy shall submit an updated policy to the Director within 180 days of the publication of the Task Force’s report.
- The head of each agency without an existing scientific-integrity policy shall submit a draft agency scientific-integrity policy to the Director within 180 days of the publication of the Task Force’s report.
- Policies shall respond to the Task Force’s analysis, adhere to the policy directives in this memorandum, and uphold the highest standards of scientific practice.
- Publish the agency’s scientific-integrity policy on the agency’s website, and disseminate information about the policy through the agency’s social media channels;
- Develop and publish procedures, as appropriate and consistent with applicable law, for implementing the agency’s scientific-integrity policy, including establishing and publishing an administrative process for reporting, investigating, and appealing allegations of deviations from the agency’s policy, and for resolving any disputes or disagreements about scientific methods and conclusions;
- Educate agency employees, as well as contractors who perform scientific activities for the agency, on their rights and responsibilities related to scientific integrity, including by conducting routine training on the agency’s scientific-integrity policy for all employees, and by ensuring any new employees are made aware of their responsibilities under the agency’s scientific-integrity policy shortly after they are hired; and
- Publish, consistent with any requirements related to national security and privacy, as well as any other applicable law, an annual report on the agency’s website that includes the number of administrative investigations and appeals involving alleged deviations from the agency’s scientific-integrity policies, as described in section (3)(c)(iii) of this memorandum, for the year covered by the report, and the number of investigations and appeals pending from years prior to the year covered by the report, if any.
- Agency Chief Science Officers and Scientific Integrity Officials. (a) Within 120 days of the date of this memorandum, the heads of agencies that fund, conduct, or oversee scientific research shall, to the extent consistent with applicable law, designate a senior agency employee for the role of chief science officer, science advisor, or chief scientist (“Chief Science Officer”), who shall:
 - Serve as the principal advisor to the head of the agency on scientific issues and ensure that the agency’s research programs are scientifically and technologically well-founded and conducted with integrity; and
 - Oversee the implementation and iterative improvement of policies and processes affecting the integrity of research funded, conducted, or overseen by the agency, as well as policies affecting the Federal and non-Federal scientists who support the research activities of the agency, including scientific-integrity policies consistent with the provisions of this memorandum.
- Because science, facts, and evidence are vital to addressing policy and programmatic issues across the Federal Government, the heads of all agencies (not only those that fund, conduct, or oversee scientific research) shall designate expeditiously a senior career employee as the agency’s lead

scientific-integrity official (“Scientific Integrity Official”) to oversee implementation and iterative improvement of scientific-integrity policies and processes consistent with the provisions of this memorandum, including implementation of the administrative and dispute resolution processes described in section (3)(c)(iii) of this memorandum. For agencies with a Chief Science Officer, the Scientific Integrity Official shall report to the Chief Science Officer on all matters involving scientific-integrity policies.

- To the extent necessary to fully implement the provisions of this memorandum, heads of agencies may designate additional scientific-integrity points of contact in different offices and components, who shall coordinate with the agency’s Scientific Integrity Official in implementing the agency’s scientific-integrity policies and processes.
- Heads of agencies should ensure those designated to serve in the roles described in this section, along with their respective staffs, are selected based on their scientific and technological knowledge, skills, experience, and integrity, including experience conducting and overseeing scientific research and utilizing scientific and technological information and data in agency decision-making, prioritizing experience with evidence-based, equitable, inclusive, and participatory practices and structures for the conduct of scientific research and the communication of scientific results.
- Ensure that members and future nominees of scientific advisory committees reflect the diversity of America in terms of gender, race, ethnicity, geography, and other characteristics; represent a variety of backgrounds, areas of expertise, and experiences; and are selected based on their scientific and technological knowledge, skills, experience, and integrity, including prioritization of experience with evidence-based, equitable, inclusive, and participatory practices and structures for the conduct of scientific research and the communication of scientific results.

Appendix D: Text of the Charter of the NSTC Subcommittee on Scientific Integrity

CHARTER
of the
SUBCOMMITTEE ON SCIENTIFIC INTEGRITY
COMMITTEE ON SCIENCE
NATIONAL SCIENCE AND TECHNOLOGY COUNCIL

[AS ADOPTED JULY, 2022]

A. Official Designation

The Subcommittee on Scientific Integrity (SOSI) is hereby established by action of the Committee on Science of the National Science and Technology Council (NSTC).

B. Purpose and Scope

The SOSI is established in response to the 2022 NSTC Scientific Integrity Fast-Track Action Committee's report entitled *Protecting the Integrity of Government Science* (2022 Report) which found that an interagency deliberative body would be critical to building successful scientific integrity programs across the whole of government. This body is essential to the long-term protection of scientific integrity in the Executive Branch (agencies).

The scope of the SOSI is to assess and communicate on matters of Federal scientific integrity for the purposes of (1) fostering and strengthening a culture and practice of scientific integrity government-wide and (2) providing coordination, information-sharing, and support across agencies and components of the Executive Office of the President (EOP). This scope enables SOSI to be a primary vehicle for cross-agency coordination, assessment and improvement of agency policies and practices, while maintaining a role as an independent voice on matters of Federal scientific integrity.

The SOSI shall be comprised of career Scientific Integrity Officials (SIO) from Federal agencies and staff members of EOP components.

C. Functions

The SOSI shall (no order of priority is implied):

- Promote a culture of scientific integrity across government by sharing and celebrating agency achievements and milestones involving scientific integrity;
- Convene SIOs from Federal agencies for the purposes of interagency coordination on matters related to scientific integrity;
- Share developments in, case studies about, advice, and resources for, scientific integrity policies and practices;
- Review and provide guidance on newly established or amended agency scientific integrity policies;

- Assist the White House Office of Science and Technology Policy (OSTP) in assessing regular performance and improvement of agency and EOP component scientific integrity policies, practices, and culture;
- Assess, analyze, and offer recommendations to the extent allowed by law, applicable regulations, and consistent with privacy obligations, regarding public allegations of scientific integrity violations, such as allegations that involve senior-level officials, political appointees, or scientific integrity officials;
- Provide advisory responses to agency inquiries about scientific integrity;
- At the discretion of SOSI, and only when the agency provides the level of access that SOSI deems necessary to any internal information needed for a valid analysis, provide advisory responses to agency requests for another agency to review their internal scientific integrity policies and processes, such as inquiries related to senior-level officials, political appointees, or SIOs; and,
- Coordinate, accelerate, and advise agencies and EOP components on important and emerging issues with scientific integrity implications, including but not limited to those identified in the 2022 Report such as: diversity, equity, inclusion, and accessibility of science; scientific engagement with underserved communities; advances in automated decision-making technologies; new modes of science; and, coordination of related or adjacent policy domains such as research security and open science.

In conducting its work, the SOSI may, as needed (no order of priority is implied):

- Liaise between the OSTP Director, heads of agencies, Chief Data Officer Council, Evaluation Officer Council, OMB Director, Chief Scientific Officers, SIOs, and other Federal agency stakeholders as appropriate to best optimize, streamline, and prevent duplicative work across the Federal government;
- Confer with and gather input from stakeholders outside of government, using a variety of methods including convening meetings, requesting data calls, and issuing requests for information or comment;
- Convene meetings with and gather input from relevant agency and EOP component members;
- Consult and collaborate with other NSTC bodies;
- Create standing and term-limited subgroups;
- Share findings and recommendations with the Chair(s) of the Committee on Science on allegations of scientific integrity violations brought before SOSI by agencies for review and to other Federal agency stakeholders, as appropriate, to raise awareness, share best practices between agencies, gather input, and recommend institutional improvements;
- Publish SOSI proceedings, final reports, guidance, and other materials, to the extent permitted by law, regulations, and consistent with privacy obligations, on OSTP and/or agency websites; and,
- Establish meeting cadence, parliamentary procedures, notetaking procedures, and other requirements in the conduct of SOSI administration.

Membership

The Membership of the SOSI shall be constituted by the SIOs of Executive Branch departments and agencies. Representative agencies include, but shall not be limited to:

Department of Agriculture
Department of Commerce
Department of Defense
Department of Education
Department of Energy
Department of Health and Human Services
Department of Homeland Security
Department of Housing and Urban Development
Department of Justice
Department of Labor
Department of State
Department of the Interior
Department of Transportation
Department of Treasury
Department of Veterans Affairs
National Aeronautics and Space Administration
National Science Foundation
Smithsonian Institution
The Office of Personnel Management
United States Agency for International Development
United States Consumer Financial Protection Bureau
United States Consumer Product Safety Commission
United States Environmental Protection Agency
United States Nuclear Regulatory Commission
Federal Communications Commission

The following components in the Executive Office of the President are represented on the SOSI:
Office of Management and Budget; and
Office of Science and Technology Policy (permanent co-chair)

The following agencies members shall serve as co-chairs for a one-year term, effective from the date of this charter:

Department of the Interior
United States Environmental Protection Agency

D.2. Member Roles, Responsibilities, and Procedures

OSTP and agency co-chairs shall act as an executive council on the SOSI, establishing SOSI priorities, agendas, and acting as principal authors of SOSI communications. Election of agency co-chairs shall be subject to SOSI parliamentary procedures as decided and led by the Executive Secretaries. Elected agency co-chairs shall serve a term of two years and may be re-elected.

Agency members shall participate in SOSI meetings, serve on subgroups of the SOSI, provide information to the SOSI, and perform duties on SOSI business as appropriate and as designated by the SOSI co-chairs.

All agency and EOP component members shall hold a single vote on proposed actions by the SOSI.

E. Private-Sector and Inter-Governmental Agency Interface

The SOSI may work with the President's Council of Advisors on Science and Technology (PCAST) to secure appropriate private-sector advice, and will recommend to the Director of the OSTP the nature of additional private-sector advice needed to accomplish its mission. The SOSI may also interact with and receive *ad hoc* advice from various private-sector groups as consistent with the Federal Advisory Committee Act.

The SOSI may seek input from communities affected by scientific integrity policies and practices. Input from these communities may be acquired through interactions with national or international state, local or Tribal governments, or with private and non-profit organizations, as appropriate.

The SOSI may consult with agency inspectors general or other legal counsel and liaise with the Council of the Inspectors General on Integrity and Efficiency on matters related to scientific integrity.