PUBLIC LISTENING SESSIONS ON SCIENTIFIC INTEGRITY

Summaries by the

SCIENTIFIC INTEGRITY FAST-TRACK ACTION COMMITTEE

of the

NATIONAL SCIENCE AND TECHNOLOGY COUNCIL

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About the National Science and Technology Council

The National Science and Technology Council (NSTC) is the principal means by which the Executive Branch coordinates science and technology policy across the diverse entities that make up the Federal research and development enterprise. A primary objective of the NSTC is to ensure science and technology policy decisions and programs are consistent with the President's stated goals. The NSTC also prepares research and development strategies that are coordinated across Federal agencies aimed at accomplishing multiple national goals. The work of the NSTC is organized under committees that oversee subcommittees and working groups focused on different aspects of science and technology. More information is available at http://www.whitehouse.gov/ostp/nstc.

About the Office of Science and Technology Policy

The Office of Science and Technology Policy (OSTP) was established by the National Science and Technology Policy, Organization, and Priorities Act of 1976 to provide the President and others within the Executive Office of the President with advice on the scientific, engineering, and technological aspects of the economy, national security, homeland security, health, foreign relations, the environment, and the technological recovery and use of resources, among other topics. OSTP leads interagency science and technology policy coordination efforts, assists the Office of Management and Budget with an annual review and analysis of Federal research and development in budgets, and serves as a source of scientific and technological analysis and judgment for the President with respect to major policies, plans, and programs of the Federal Government. More information is available at http://www.whitehouse.gov/ostp.

About the Scientific Integrity Fast-Track Action Committee

The Scientific Integrity Fast-Track Action Committee (SI-FTAC) is an interagency forum for discussing scientific integrity and facilitating improvement of policies that promote scientifically informed, evidence-based decision-making at the Federal level. The SI-FTAC is charged as the Task Force on Scientific Integrity to support short-term, high-priority tasks to implement the January 2021 Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking and lay the groundwork for longer-term coordination of agency efforts related to scientific integrity. It aims to offer insight and analysis that will move the Federal Government toward a more trustworthy science system to serve the American people.

About this Document

This document summarizes and provides transcripts of three listening sessions organized by OSTP and the SI-FTAC to gather input from the public and interested stakeholders on effective practices for improving scientific integrity in Federal agencies. The roundtables were held in a virtual format from July 28–30, 2021 and focused on integrity in the communication of science, scientific training and the conduct of science, and the use of scientific and technical information in decision-making. The IDA Science and Technology Policy Institute (STPI) facilitated the listening sessions and summarized general themes emerging from each one. This summary was prepared by STPI at the request of OSTP and does not necessarily reflect the views or position of STPI.

Copyright Information

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Summary of Public Listening Sessions

Background and Proceedings

In July 2021, the White House Office of Science and Technology Policy (OSTP) and the Scientific Integrity Fast Track Action Committee (SI FTAC) hosted three public listening sessions to inform work on scientific integrity in response to the Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking.[1] Information about the sessions was distributed broadly by members of the FTAC, OSTP, and through a notice in the Federal Register (Appendix A).

The listening sessions were organized around three themes of interest to the SI-FTAC (agendas for each session are available in Appendix B):

- *Session 1: Communications*. Held on Wednesday, July 28, from 2:00–4:00 p.m. EDT, solicited input on effective policies and practices to improve the communication of scientific and technological information, including for engagement of Federal scientists and contractors with news media and on social media. 368 people attended the session.
- *Session 2: Science and Education*. Held on Thursday, July 29, from 11:00–1:00 p.m. EDT, solicited input on effective policies and practices to improve the training of scientists regarding scientific integrity, address scientific integrity issues with emerging technologies and scientific practices, and handle disagreements on scientific methods. 355 people attended the session.
- *Session 3: Use of Scientific and Technical Information*. Held on Friday, July 30 from 2:00–4:00 p.m. EDT, solicited input on the effectiveness of Federal scientific integrity policies in promoting trust in Federal science and about concerns about a lack of scientific integrity impeding the equitable delivery of the Federal Government's programs. 243 people attended the session.

This report summarizes key themes emerging from each listening session. The themes have been generalized to summarize similar or related ideas that were introduced by participants during each session. The summaries are not intended to be comprehensive or prescriptive but to connect key points that were made during the session and highlight their relationship to strengthening scientific integrity

The listening sessions were conducted on a virtual meeting platform that supported both verbal commentary and text chat. Transcripts of the three sessions are included as Appendices C, D, and E of this report. The transcripts were formatted but were not edited.

[1] https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/memorandum-on-restoring-trust-in-government-through-scientific-integrity-and-evidence-based-policymaking/

Themes Emerging from Listening Session 1: Communications

1. Enhance Transparency

Participants discussed the need to improve the transparency of scientific information, as well as data, used for policy or other decision making. They suggested various actions that could be implemented to make progress in this area, including:

- Develop ways to document changes made to government agency websites, particularly those that host public data. Participants expressed concern about website alteration and data removal and proposed that gaps in information policies should be examined in addition to strengthening scientific integrity policies. This action was suggested as a way to provide transparency when website data or other information is updated or changed.
- Improve processes for clearing news media interviews with Federal scientists. Some participants suggested that agency policies should include explicit protection of scientific findings from political interference and provide clear policies and processes regarding interview requests. Improvements to clearance processes were suggested as a way to provide journalists with greater access to data sources and scientists and to provide transparency for what was described as the role of press offices in the presentation of scientific information.
- Increase public access to scientific data and information. A number of participants wanted better access to research results and data; however, some were not aware of current open science efforts, or how to find information on published results that are freely available to them.[2] Outreach efforts to improve understanding of where this information can be found may be relevant to this issue.

2. Improve Training to Make Information More Accessible

Participants suggested that improved training could help make scientific information more accessible to public audiences and that training for both scientists who wish to engage with media, as well as science communicators who regularly do so, could be beneficial. Actions they suggested to help improve the communication of science and science-based decisions include:

- Create evidence-based communications training modules. These modules would help ensure that communications are guided by research and best practices and effectively convey key messages to target audiences. This action was suggested as a way to help develop better methods to translate complex findings and employ the use of narrative elements when disseminating scientific results.
- Require communications training in concert with scientific training. This suggestion is based on the idea that researchers would benefit from communications training that is integrated into the educational curriculum alongside scientific training, rather than added on as a standalone training. The general view was that all researchers should receive communications training. Some participants suggested that training for public information

[2] See, for example, the Memorandum on Increasing Access to the Results of Federally Funded Research, OSTP, February 22, 2013. Available at: https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf

officers would be beneficial as well, since they are often the individuals responsible for translating scientific information for public dissemination in the form of press releases or other multimedia. This action could help strengthen efforts to communicate science, as well as foster a culture of scientific integrity.

- Provide additional assistance to researchers who need communications support. Some participants acknowledged that researchers are asked to do many things and that some researchers do not have the time or the desire to directly communicate their research results to the public. This action could support researchers who may need assistance in communicating broadly about their work by providing the assistance of professionals with training in science communication. These efforts could also help to put a human face on research and help fill gaps that improved training alone may not be able to address.

3. Expand Opportunities for Engagement

In addition to supporting researchers to help them more effectively communicate about their work, participants expressed a desire for increased engagement between stakeholders, researchers, and decision makers to provide additional insight relevant to the conduct of science and science-based decision-making. They suggested efforts to increase public engagement with science and science-based decision-making that include the following:

- Additional support for participatory opportunities. Some listening session participants suggested greater support for science at the local level. Others commented that people respond to scientific communication when it is about people rather than facts. Citizen science efforts, or other opportunities to invite broader participation in science or science-based decision making can make science relevant to the community and promote trust in science.
- Develop "boots on the ground" efforts for communities to learn about science-based local issues. Participants expressed a desire for places where community members and researchers or subject matter experts could have a dialogue in a safe space. Locations such as libraries, community centers, zoos, boys and girls clubs, and churches were suggested venues. This type of effort should be more about engagement than education—to listen so people feel heard—in order to build trust and a mutual understanding.
- Support engagement activities of Federal scientists. Listening session participants mentioned a number of efforts to improve scientific communication and public engagement with science. In addition, participants noted a desire to embed what is happening in terms of science engagement and science communication into research programs, rather than supporting them as efforts separate from the research itself or as "add-ons" that researchers engage in informally in addition to their other work.

4. Provide Additional Support for Researchers and Communicators

Participants mentioned additional resources or protections that could be provided to researchers and communicators to improve the integrity of scientific communications and foster a culture of scientific integrity. These suggestions included:

- Improve protections for whistleblowers. Many participants suggested that protections for whistleblowers were insufficient and that more needed to be done to support researchers in this respect. Participants noted that whistleblowers are unlikely to come forward due to

fear of retribution and suggested that more needed to be done when complaints are lodged.

- Support development and dissemination of communications resources. In addition to creation of evidence-based communications training modules, some participants suggested that researchers and communicators would benefit from access to artists and producers to help develop multimedia and visualizations to help communicate scientific concepts. These efforts could help improve the quality of scientific communications and help improve public understanding of concepts that otherwise may be difficult to understand.
- Support and incentives for science communication and engagement. Developing and deploying science communications training, and organizing and hosting engagement activities are resource-intensive. Specialized skills and personnel may be required to implement these activities in a sustainable way. Participants also mentioned the need to incentivize researchers to engage in communications efforts in order to prioritize this topic.

Themes Emerging from Listening Session 2: Science and Education

1. Expand Public Engagement

Participants identified lack of public trust as a key issue and suggested different solutions to increase public engagement, including citizen science, open data, and science communication. Specific suggestions included the following:

- Expand citizen science efforts. Participants described citizen science as a tool that can engage the community in the process of data gathering, serving to include people often left out. Citizen science could be integrated into existing scientific practices. To support these efforts, one participant suggested that agencies develop standards and tools to determine when and how to use citizen science.
- Increase open science and data sharing. Expanded access to data and information resulting from Federally supported science can allow underserved institutions to engage with the research findings. Participants gave the examples of institutions using data as an educational resource and to conduct replication studies.
- Support public understanding of fundamental science and scientific processes to promote informed engagement. Participants suggested increasing public understanding of fundamental sciences, such as biology, and of scientific processes, such as peer review. These actions could allow members of the public to better engage with scientific findings and critically assess the content of research articles, for example by helping people distinguish between non-reviewed publications and reputable peer reviewed journals.
- Promote science communication. Participants identified polarization, inaccessibility, and public mistrust of science as issues that could be helped with better science communication. Participants noted that scientists are often not trained in communication and suggested communication training for higher education faculty in scientific disciplines. Participants also suggested using creative science communication, by drawing lessons from the arts, humanities and human centered design, and by using demonstrations to

illustrate scientific findings in ways that are more readily understood and appreciated by the public.

2. Promote Diversification of the Scientific Workforce

Promoting diversity in science from early education through to scientific leadership roles was a priority for attendees. Suggestions included the following:

- Prioritize science education in underserved populations and minority-serving institutions. Suggestions to support students of underrepresented populations included: partnering with minority-serving institutions to provide paid internships, providing mentorship, and enhancing training for science educators at schools with high percentages or numbers of low-income students.
- Boost diversity across all levels of scientific research. One participant suggested Federal agencies make explicit commitments to diversity and focus on recruiting a diverse pool of early career scientists. Another participant noted the need to increase diversity amongst scientists in leadership positions, as diverse communities of researchers and educators often have undiversified leadership.

3. Define Scientific Integrity

Participants discussed the need to define scientific integrity, as the definition is key to developing guidelines, practices, and training. Participants suggested specific areas of scientific integrity needing better definition, including the following:

- Define scientific integrity's relationship to scientific misconduct, quality control, and clearance processes to publish research. Definitions can help aid public and private institutions in establishing clear guidance. Limiting political influence over science was a key concern, and one participant suggested agency policies should establish or strengthen firewalls between scientists and politics.
- Expand the definition of scientific integrity to include treatment of graduate students and postdoctoral researchers. Faculty may take advantage of graduate students' and postdoctoral researchers' research and deprioritize educational goals.
- Define scientific integrity based on use-cases and create clear measurements for scientific integrity. One participant specifically noted that scientific integrity is operationalized in different ways depending on the research context and suggested that scientific integrity take into account the different audiences and learners. It was also suggested that scientific integrity definitions be supplemented with clear metrics to measure success, beyond the absence of a breach in scientific integrity.

4. Improve Education to Support Scientific Integrity

Participants also discussed educational programs to enhance scientific integrity. Suggestions ranged from programs at the K-12 level to specific scientific integrity training in undergraduate and post-graduate education. Actions discussed include the following:

- Incorporate scientific integrity education into university curriculum for students in science, technology, engineering, and mathematics (STEM). Without a scientific integrity program in place, education may be ad hoc. As one participant noted, the only person from whom Ph.D.

students might learn scientific integrity is their advisor. Another participant discussed how often scientists discover the details of scientific integrity only when they experience a case of misconduct.

- Incorporate statistics into high school math education. Participants suggested statistics may be useful to those pursuing scientific careers and in the understanding of scientific results. It is not often part of a standard science-preparatory curriculum.
- Enhance data and algorithmic literacy at all levels. Machine learning and artificial intelligence systems are integral to science and society and understanding these systems is integral to understanding science. One participant suggested that critical awareness of the vulnerabilities and biases of data and algorithms be developed early, starting at the K-12 level.

Themes Emerging from Listening Session 3: Use of Scientific and Technical Information

1. *Make Input Processes More Inclusive*

A number of participants highlighted that building trust in government and in Federal science demands equitable access to opportunities to provide input and comment. Participants noted that the most affected and vulnerable communities, namely, minority, indigenous, and low-income communities, are often not included or feel excluded from such processes. Comments from participants included:

- The most vulnerable and impacted need a voice in the decisions that affect them, including science-based decisions. Current processes are often seen as top-down and exclude communities most impacted by environmental and public health issues, such as air, water, and soil quality. One participant noted that those most harmed by weak protections for Federal science or the politicization of science are people of color, low income, indigenous communities, and children.
- Conduct broad outreach, education, and orientation to include underrepresented communities. One participant noted that many minorities feel left out of policy-making processes and suggested that stronger outreach, with specific efforts to include underrepresented communities to participate, would increase engagement and help build trust.
- Seemingly small changes can have significant effects on engagement. For example, holding input sessions or community engagement sessions during daytime hours makes it difficult for people to engage who are unable to take time off work.

2. Strengthen Key Aspects of Scientific Integrity

Participants identified political and financial interference as a key issue and supported efforts to ensure qualified scientists can conduct and communicate the best science to inform policy. Suggestions included defining conflicts of interest, improving reporting processes, and strengthening enforcement:

- Define conflicts of interest. Multiple participants highlighted the need to protect science from political and financial interference. Ensuring qualified scientists can provide the best science to inform policy requires clear scientific integrity standards and communication of those standards. Another suggestion was to create disclosure deadlines for the conflict of interest and recusal statements made by political officials and scientific committee members.
- Improve reporting processes. Federal agency employees must not only know what is a violation of scientific integrity but also how to report it. They must have confidence they will be free from retaliation. It was also noted that government agencies do not always make clear the processes for members of the public to report violations.
- Strengthen enforcement. Multiple participants noted that policies need clear accountability processes and timely consequences to effectively deter breaches of scientific integrity. Another suggested eliminating requirements to prove intention in cases when scientific integrity policies may have been breached, in order to eliminate potential loopholes in enforcement.

3. Focus on the Integrity of Government Data

Participants noted that transparency, standardized access, and publishing metadata for government data support public evaluation of policymaking and build trust in the integrity of data. They made several specific suggestions, including:

- Expand access to government data. Participants suggested standardizing documentation and procedures for access to government-generated research results and data. Specifically, scientific integrity policies could incorporate standard procedures for evaluating data and making data publicly accessible in a timely manner. For data accessible through application programming interfaces, capabilities including search, sorting, bulk download, and export to a spreadsheet are key to researchers' ability to analyze data. One participant highlighted how the loss of these capabilities in the redesign of regulations.gov decreased the public availability of data.
- Standardize publishing of metadata. Knowing how research data were collected, sampling statistics, and potential biases is key to analyzing the integrity of the data and findings. Another participant noted that publishing information on data integrity, including where data comes from and how findings are extrapolated, would combat data skepticism and support the spirit of The Foundations for Evidence-Based Policymaking Act (or OPEN Government Data Act, Pub. L. 115–435).

Appendix A. Federal Register Notice for Listening Sessions

Public notice of the listening sessions was given through the *Federal Register* on July, 20, 2021. The Notice is included here as it appears online. The online version is available at: https://www.federalregister.gov/documents/2021/07/20/2021-15309/public-listening-sessions-on-scientific-integrity-and-evidence-based-policymaking

Public Listening Sessions on Scientific Integrity and Evidence-Based Policymaking

A Notice by the Science and Technology Policy Office on 07/20/2021

AGENCY:

Office of Science and Technology Policy (OSTP), The White House.

ACTION:

Announcement of meeting.

SUMMARY:

The White House Office of Science and Technology Policy (OSTP) is organizing a series of three virtual listening sessions to hear about issues and concerns related to scientific integrity from members of the public who produce, communicate, and use scientific and technical information. Perspectives gathered during the virtual listening sessions will inform the assessment of Federal agencies' scientific-integrity policies and identification of best practices and lessons-learned that the National Science and Technology Council's Task Force on Scientific Integrity is preparing, pursuant to the January 2021 *Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking.*

DATES:

Virtual listening sessions (all times Eastern Daylight Time):

1. Communications: Wednesday, July 28, 2021, 2:00 p.m. to 4:00 p.m.

2. Science and Education: Thursday, July 29, 2021, 11:00 a.m. to 1:00 p.m.

3. Use of Scientific and Technical Information: Friday, July 30, 2021, 2:00 p.m. to 4:00 p.m.

Registration deadline: Friday, July 23, 2021, 5:00 p.m.

ADDRESSES:

Register for a virtual listening session using the session-specific links below:

1. Communications: *https://ida-org.zoomgov.com/meeting/register/vJIsdeGrqTstHfZn-KhEXlhuusJW7sGzvx0*.

2. Science and Education: *https://ida-org.zoomgov.com/meeting/register/vJIsdeyspjgrG4tLkU3xiX8wbbxq_DPsDIM*.

3. Use of Scientific and Technical Information: *https://ida-org.zoomgov.com/meeting/register/vJItd-2grjMiHcF1JwMUaZQ9hxBRY9iJEKI*.

FOR FURTHER INFORMATION CONTACT:

For additional information, please contact Ryan Donohue, 202-456-4444, *ScientificIntegrity@ostp.eop.gov*.

SUPPLEMENTARY INFORMATION:

The *Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking,* issued on January 27, 2021, calls for the establishment of an interagency Task Force on Scientific Integrity of the National Science and Technology Council to review the effectiveness of agency scientific integrity policies developed since the issuance of the Presidential Memorandum of March 9, 2009 on scientific integrity. To inform its review, the Task Force is organizing a series of virtual listening sessions to hear from members of the public who produce, communicate, and use scientific and technical information. Perspectives gathered during the virtual listening sessions will inform the Task Force's assessment of Federal agencies' scientific-integrity policies and identification of best practices and lessons-learned.

Each of three listening sessions will be organized around a particular theme and audience, described below:

Session 1 (Wednesday, July 28, 2:00 p.m. to 4:00 p.m. EDT): Communications, including effective policies and practices to improve the communication of scientific and technological information, including for engagement of Federal scientists and contractors with news media and on social media. The target audience includes individuals from news media, science writers, and science communicators.

Session 2 (Thursday, July 29, 2021, 11:00 a.m. to 1:00 p.m. EDT): Science and Education, including effective policies and practices to support professional development of scientists and researchers of all genders, races, ethnicities, and backgrounds; address scientific-integrity issues related to emerging technologies, such as artificial intelligence and machine-learning, and evolving scientific practices, such as citizen science and community-engaged research; improve training of scientific staff about scientific integrity; and handle disagreements about scientific methods and conclusions. The target audience includes scientists, engineers, and educators from the Federal and non-Federal sectors.

Session 3 (Friday, July 30, 2021, 2:00 p.m. to 4:00 p.m. EDT): Use of Scientific and Technical Information, including the effectiveness of Federal scientific integrity policies in promoting trust in Federal science and concerns about a lack of scientific integrity impeding the equitable delivery of the Federal Government's programs. Target audience includes individuals who use

Federal scientific and technical information for decision-making or provision of services; individuals from disadvantaged communities; and other consumers of science.

Participants in all sessions may also comment on the predominant challenges they perceive to scientific integrity in Federal agencies and effective practices for minimizing political or other inappropriate interference in the conduct, communication, or use of Federal science. Speakers will have up to two minutes each to make a comment. As Start Printed Page 38364many speakers will be accommodated as the scheduled time allows.

Staff from the IDA Science and Technology Policy Institute will facilitate the meeting, which will be recorded for use by the Task Force. Participation in a listening session will imply consent to capture participant's names, voices, and likenesses. Anything said may be recorded and transcribed for use by the Task Force. Moderators will manage the discussion and order of remarks.

Individuals unable to attend the listening sessions or who would like to provide more detailed information may respond to the *Request for Information (RFI) to Improve Federal Scientific Integrity Policies* that was published in the **Federal Register** [86 FR 34064, June 28, 2021].

Dated: July 13, 2021.

Stacy Murphy,

Operations Manager.

[FR Doc. 2021-15309 Filed 7-19-21; 8:45 am]

BILLING CODE 3270-F1-P

Appendix B: Listening Session Agendas

Listening Session 1: Communications: Wednesday, July 28, 2021.

2:00 PM Start and Welcome from Alondra Nelson, Deputy Director for Science and Society for the White House Office of Science and Technology Policy

2:05 PM Introduction from Eduardo Misawa, Task Force on Scientific Integrity

2:10 PM Logistical Details for this Listening Session

2:15 PM Open Comment Period

3:10 PM BREAK

3:15 PM Open Comment Period

3:55 PM Closing Remarks and Thank You, Carmine Leggett, Task Force on Scientific Integrity

Listening Session 2: Science and Education: Thursday, July 29, 2021

11:00 AM Start and Welcome from Alondra Nelson, Deputy Director for Science and Society for the White House Office of Science and Technology Policy

11:05 AM Introduction from Eduardo Misawa, Program Director, Directorate for Engineering at the National Science Foundation, and Co-Chair, Task Force on Scientific Integrity

11:10 AM Logistical Details for this Listening Session

11:15 AM Open Comment Period

12:10 PM BREAK

12:15 PM Open Comment Period

12:58 PM Closing Remarks and Thank You, Carmine Leggett, Office of Management and Budget, and Co-Chair, Task Force on Scientific Integrity

Listening Session 3: Use of Scientific and Technical Information: Friday, July 30, 2021

2:00 PM Start and Welcome from Jane Lubchenco, Deputy Director for Climate and Environment for the White House Office of Science and Technology Policy

2:05 PM Introduction from Eduardo Misawa, Task Force on Scientific Integrity

2:10 PM Logistical Details for this Listening Session

2:15 PM Open Comment Period

3:00 PM Closing Remarks and Thank You, Carmine Leggett, Task Force on Scientific Integrity. This session closed earlier than scheduled, with no additional commenters wishing to speak.

Appendix C: Transcript of Listening Session 1

Closed Caption Transcript for Listening Session 1

Closed captioning was provided by transcriptionists typing in real time during the listening session in order to assist participants requiring accommodations. The closed captioning transcript was provided by the National Science Foundation. The transcript as it is included here includes all public comments and were edited minimally for typos but may contains minor errors and inconsistencies.

(recording in progress)

Thank you, I'm Andrew Rosenberg, Director of science democracy at the union of concerned scientists you want to make 3 quick points agencies should not be scared of scientists speaking up, they should be encouraged not just allowed to communicate the directly with the public and with the media. Including on social media. That's strengthens the public policy, when the public has access to the information and rationale of the particular decision must be made clear by decision makers to the public's benefit the weight of evidence must be, basis for decisions and that, must be reinforced following the Trump Administration, federal scientists need to think more broadly not be trapped into considering designed experiments or surveys, community members are experts in their own right and they're lived experiences, are critical data. To confront problems of equity injustice community data must be given full weight and openly communicated by agencies. Union of concerned scientists and many other national grass roots organizations have made recommendations for many years, trust building, scientific integrity and science communication. There's a great did he grow of alignment in the recommended changes to better serve the public interest in policy decisions rather than political or industry interests. It is time to take seriously the public interest role of science and technology and to do so, OSTP must use civil society recommendations to guide all agencies to implement not only scientific integrity policies but better communication, transparency, and science-based decision-making practices that are just equitable and responsive to public interests. Thank you very much.

I'm Dr. David Dow a marine retired scientist in the upper cape code -- I was asked by the social environmental action committee, at our church to write a series of the pieces and challenging concerning the Cape Cod aquifers where I live as a case study for water quality, nutrients, toxic chemicals and climate change challenges I recent submitted comments to the STPI public web site on the challenges and translation and research and monitoring through action by regulator and policy makers at county, state and federal levels. We have numerous reports an local print and broadcast media, on -- results of investigation, by the US geological survey, University of. RYAN JONES: , silent spring, exchange web site, et cetera.

Summary, PFAS science. Other than the maximum label two parts of trillion, of the chemicals -- we have had, limited -- opportunities at the local level, by the Cape Cod Commission, recently the department of defense, believed the state levels is as a target for monitoring the safe drinking water act in Cape Cod. So those were the points I wanted to hear, last point was to

make public access more easily administered public access to information on the monitoring and research to the public in general. Wider constituent audiences so people can become more involved in the dialogue. Thank you.

Hello everyone my name is Alex Howard I'm working at something you called the digital democracy project in the past I've worked in a place called the sunlight foundation where we were very interested in how the White House and U.S. government was using the internet or not, to engage the public to inform the public to be more transparent, accountable ethical it's really excited to OSTP is taking an interest in this I would say that number one thing, with respect to the press is to end the practice of briefings on background. If you look at the White House web site right now you'll see there are many, many briefings on background by senior Administration official as, as you may know there's a -- a marked sense of truth decay in our society, people journalists make up sources that the data is false these things do not exist, you and I both know that's not the case but, unfortunately the Administration is contributing to the problem by continuing to require, even briefings by government scientists by officials, by government technologists be on background. There's also unfortunately issue over multiple Administration there's been limitations to, access to government scientists, to discuss research, um, with the press. And -- it could go back and cite different reports by the various watch dog organizations these limitations are long standing they continue today. CDC Director limited access to government scientists by members of the media. I think, all of these things, together, unfortunately, don't fundamentally reset the compact between the nation's public and those who represent us and those who desperately need to keep up with the information, so that we can better protect ourselves, both in pandemics and other context. The larger issue around climate change loams I think we'll need to see a shift towards crisis communication stance I really hope you can move the needle on that make sure that public access is preserved. Thank you for the opportunity to speak briefly with you today.

And -- my name is Augusta Wilson I'm an attorney with the client science legal defense fund I want to thank you for holding this Listening Session and for the opportunity to speak to you, brief will today. Since 2011, CSLD, has provided legal support to numerous federal scientists who experienced interference with their work and threats to scientific norms and, these are included attempts by federal agency personnel to alter scientific work product for political reasons and, prevent the release of valid scientific work that dealt what perceived to be sensitive political topics and CSLDF has published detailed analysis of scientific integrity policies at a dozen of the most important federal scientific agencies, giving us a deep understanding of the relative strength and weaknesses of those policies, we use that knowledge to deal model scientific integrity policy with specific proposed language to help agencies address these common weaknesses and gaps in the existing policies and, in addition, to all of that, together with the center for climate change Columbia law schedule we managed the silencing science tracker that documented 500 reported actions by federal state and local governments to restrict prohibit or misrepresent scientific research and education and discussion, since the 2016 election. So all of that experience, both as reflected with our direct work with scientists and in the broader tracker indicate that, communication of scientific information, is an area of particular weakness for overall scientific integrity close to half the

entries in the tracker involve censorship of scientific information so we urge OSTP to call on agencies to adopt strong explicit protections against censorship and other interference with the ability to communicate about their work for political reasons. And of particular importance, is -- ensuring that attempts to (muted)

My name is Brianna behalf of the humane society legislative fund and the family of organizations I appreciate to opportunity to provide comments today, non-profit organizations rely heavily on the data provided by the federal government, to communicate, effectively to our supporters congressional allies and the press how the federal government is operating enforcing laws and regulations additionally allows us to analyze where reforms are necessary, thus it is imperative that transparency and the data be pry order for the Biden Administration the following are two examples where previous Administrations failed to be transparent. 2017, USDA removed animal welfare inspection reports preventing the public from readily accessing and enforcement records for access of laboratory facilities that use animals for cosmetic testing biomedical research and roadside zoos and puppy mills, and trainers and owners intentionally inflict pain on Tennessee walking horses the public availability of these records is critical to ensuring proper enforcement of the well fair act. These records have been restored and -- part due to congressional allies we urge this Administration to promptly restore online access to the documents additionally the fish and wild life service, law enforcement information data base contains data documenting the millions and plants and animals that leave the United States each year for the opportunity hunting trophies, fashion, decor and Miranda decisional purposes. This is a source of confirmation of the media alike N2014, federal government, started withholding the data, through a series of lawsuits has the data been released despite the FOIA requests we urge this Administration to release the data we hope the Administration the realizes the first step to achieving evidence-based decision-making is ensuring the data is available to the public.

My name is Gretchen I'm representing the environmental data and governance initiative. We are multidisciplinary and cross professional organization that documents analyzes, federal environmental policies and actions. With particular focus on public access to data information, and decision-making processes. Our web site monitoring team has been tracking changes to 30,000 federal URLs and exampling changes to public access to or federal presentation of environmental information. What we found in the Trump Administration was deeply unsettling for two reasons first as we know there was a wanting disregard for public information. For example, the EPA blocked access to the entire clean power plan web site which was ripped of scientific information, more than five months before opening public comment and proposing to repeal that plan. But what is perhaps more unsettling this is entirely permissible under the current information and scientific integrity policies no repercussions for removing that information from the public for five months, before offering the public the opportunity to comment. So it's part of this effort, to federal, to strengthen integrity policies we must address the gaping holes in the information policies as well. Federal web sites could be, widely access means to build scientific literacy in the country we should make that possibility a reality. The federal agencies could be required to complete meaningful resources that expand civic and scientific literacy, communicating clear and visible links between existing and potentially

harmful policies in the scientific basis. Agencies should provide ladders of information to help people build their understanding step by step, of the complex subject no longer be able to simply, put a 3 sentence snippet alongside a several hundred page document, and think that sort of transparency is sufficient for real accessibility. Resources should also be protected. And if there's going to be alteration to a resource it needs to be explained and, given in the indication that resource has been changed.

I'm Bill, I'm managing editor for the focus magazine, co-chair of the national association of science writers, information access committee. Recent survey, of NSW members showed a landscape in which science journalists, faced -- inconsistent, confusing time wasting and barriers to information, when trying to, speak with government scientists. The majority of our Respondents say that information, access has decreased within the federal government. Particularly, in federal science agencies, since they began their careers. According to our information access standards that were developed in cooperation with the federal public information officers, journalists should have direct unrestricted access to sources in the federal government, PIOs and federal agencies, should encourage direct and unfettered communication between journalists and scientists. The terms of communication should be clear. Agencies, and PIOs should provide access to journalists in ways that are fair and transparent. And agencies should create and follow media and scientific integrity policies that up to date and in keeping, with our principles. Our members have recently experienced PIOs who do not respond to inquiries, experts not allowed to speak to the press, experts required to coordinate with PIOs, slowing down the reporting process. And agencies responding slowly to requests from reporters.

Good afternoon, thank you for inviting me today I'm Kristina I lead the data societies disinformation action lab, it is an independent non-profit research organization, whose mission is to advance public understanding, of the social implications of data centric technologies and automation beings today I want to tell you about network resilience, over the past 3 years our lab supported the work of a coalition of civil society organizations partnering with the census bureau to protect the integrity of the Census including the misinformation, this information, gets framed as a solvable equation resting on true false binary in the world of gate keepers scientific knowledge are trusted to set records straight that is missing, the innovative approach to the challenge reframes this information as a set of communications threats must be anticipated in all realms including the production of scientific knowledge and broadcasting, this is a uniquely network problem, linked to the constant interaction and technological variables our approach then build network resilience while minimizing the problematic narratives to safeguard the integrity we focus on networking resilience among a plurality of stakeholders bureau officials, trust and safety teams journalists and civil society actors at the national, state and local levels we engage these stakeholders in training, scenario training and gamified situations as the Census kicked off we provided the network with monitoring and briefing about Comms agreements to the between government and civil society approach provides a model for future multi-stakeholder collaborations to organize and to respond communications threats at scale, addressing complex challenges like public health campaign

and scientific knowledge about climate changes we encourage scientists to interact with trust building thank you for your time.

I'm Amanda I'm the Executive Director of compass and I am really happy to be here offering the comments compass champions and supports diverse science leaders for the well being of people in nature, we have more than 20 years of practice in the field of science communication we worked with many federal agency over the years to train scientists and science communication, risk communication, leadership and engagement. I'm going to try to offer, four key recommendations. First is invest in science communication training all scientists, federal scientists need training to communicate effectively with various publics they don't get in the course of their standard education. The second, is -- to ensure that training is high quality, and evidence-based. High quality, training, is grounded in principles of equity inclusion and creates inclusive spaces for learning. And provides opportunities for practice and feedback and prioritizes building relationships and communicating trust worthiness. Third, we need to create the support systems and incentives for scientists to communicate and engage it's not just enough to remove barriers good communication should be encouraged and rewarded. This requires leadership, to be behind, training and communicating with science. Leadership can, promote and sponsor training, and incentivize stronger communication and engagement efforts we also need to ensure there are systems in place to protect scientists whose work puts them at risk of back lash or harassment, lastly, training can create opportunities for communities stakeholders and other key audiences to directly engage, with scientists and inform scientists about their needs, their core values how best to engage with them. Thank you very much.

I -- live in California and I am an advocate for people who have been disabled by contaminants and water damage building from mould and -- any how I think I've been doing this for 18 years I have -- I was able to cause a federal audit in 2006 I've been able to do a lot, but there's a problem in this issue I think it probably crosses into other issues too is that, there's a tremendous amount of liability, that goes along with the acknowledgment that these illnesses are disabling, for the owners and insurers of the water damaged buildings. The primary it was the CDC agencies became involved about 20 years ago I don't know who made the mistake it was, um, it was basically expert defense witnesses and mold litigation started writing the policies that the CDC was, promoting. And it just, it the problem is still with us today. Because people are not able to get treatments from their physicians and, physicians cannot get information into government, there's just a heavy, heavy roadblock of these expert defense witnesses, controlling science with what is not really science. It is a litigation defense argument. So, what, what I would like to see is, um, somewhere the public aware of knees problems, physicians scientists and advocates like myself, there's someplace we can report these problems directly to one person. Hopefully get these taken care of thank you. I'm so appreciative you're doing this, this has been need forever.

Hi thank you very much. My name is Jim, I'm a professor of chemistry at Michigan State university I want to thank OSTP for working the series of interactions, I think it's going to be very beneficial in addition to you know, teaching responsibilities and giving seminars at various

academic institutions off then I'll give talks to, public talks in trying to distill down the science we do in the laboratory, um, to a -- you know a form that is digestible one of the problems that I uncovered it the course of this, is a tremendous gap, that exists, between, what people are doing in terms of federally funded for example, either in national labs or universities and the public's general understanding of science. Um, you know class of questions I might get is, people not understanding the difference between weather and climate or the fact that the solar panels people see on homes, is the result of fundamental funded research that was started back in the 60s and 70s I don't know to what extent OSTP does this I would strongly encourage them to consider, amplifying their effort toss engage practicing scientists, in their policy making or policy distribution efforts because, um, it is really that gap, that provides such a barrier, to people understanding, why is the sciences being done, so important for our future. I think absent those types of efforts we're just going to keep having this lag between you know the unfortunate level of scientific literacy we have in general, in the country and what we're trying it do, to sort of push things forward, um, in various aspects of society Amanda commented on some of these things in a different way and, so I think that's something, if OSTP is positioned to do that I think, generating some kind of Commission, where you are engaging practicing scientists, in conjunction with policy people, might be away to get a synergy between those two some desperate efforts into something that might be much more productive across the Board. So thanks again for -- giving me the opportunity to chat for setting these talks up.

I'm Timothy Wheeler Chair of the information freedom task for the SEJ is a non-profit association of more than 1400 professional journalists and academics dedicated to strengthening the quality reach and viability across all media, to advance public understanding of environmental issues. We are concerned about science integrity policy and public communications policies for federal agencies such as EPA and the interior department and bureaus that direct government scientists and staff to coordinate, refer news media interfere and information requests to their press offices. The requirements are supposedly meant to ensure the accuracy of information released to the public, press officers can be and off then are helpful. But when the press office act as gate keepers interviews get delayed too often denied. When information from suggest matter experts must be relayed through press officer, incomplete or unclear. That's slowing and hindering the gathering process, worse case denies journalist and the public full story undermining the confidence in the credibility and integrity in a recent example of the nature of -- press office gate keeping, EPA staff were reminded in an email they were not authorized to answer press questions directly all inquiries must go the press office this directive came on the healings of reports about four agency scientists filing a whistle blower complement, assessments of health risks by chemicals had been tampered to make them appear safer, that kind of censorship, does not engender the public trust that the complaint will be investigated. Requiring them to be funneled through a press office it is a prescription for information control and message management it reflects the lack of trust not only in the vital role of the press but in the professionalism and integrity scientists and staff, undermines the agency's scientific integrity. We urge you to declare the federal employees especially scientists are encouraged to talk directly to reporters without checking to the press office or them in the interview.

Thank you for this event and allowing all of us to participate. And -- engage. My name is Nick, I'm the founder of space time labs the creative agency for science. We develop advanced research projects in strategic communications, to support pioneers in science and R&D the national science foundation and Smithsonian air and space museum the first mentor interview was making an Smith former Director of OSTP the practice and search is, in human centered or design thinking, for science communication and we discovered a lot. Especially, that, science communication, is not always about science. It is about people first. We practice radical empathy to understand our audience to make a connection so then you can communicate, because listening is an important part of communication. People ignore science that ignores people. If they can't see themselves, in your research, it doesn't exist. And if they struggle to understand you, they will struggle to support you. And our goal should not necessarily be to convince anyone of anything or change minds because well that's not how minds work. To inspire curiosity, to start maybe with just a little bit of science fiction. Or as we call it, evidence-based wonder, sparking that curiosity, allows people to discover something new on their own, with expert guidance, of course. But then it becomes their science which is very difficult to deny or refute. When we speak of science let's not speak of it as something separate from everyday life. Curiosities and everything and anyone can science. Communicating science is a practice not an event. It requires a long view. And most importantly, scientists are pretty overworked under funded as it is, they rarely get the budgets and resources they need to communicate effectively, please look it professionals in communications to support them, to help them and connect with people on a very human centered level. Thank you again. My name is Nick DiPalma.

My name is John Rediske previously in farm a research and development and going back to school at NYU to address some of these concerns about science communication. Briefly my view is first acknowledge issues regarding scientific integrity are primarily problems of trust in the institutional operational aspect of science less about the validity of scientific knowledge, towards this realism, recommend focusing on the institutional curation of science by government's media platform science journals and academic institutions. This means transitioning from a journalistic communication science the news of the day by individual scientists, to creating science narratives, sort of to Nick's point about making it personal narratives which combine data research methodologies, study conclusions and ambiguities about conclusions regulatory frameworks just the social mechanics of doing science, institutions and collaboration with the individual scientists are the needed actors to address concerns about scientific integrity. And importantly, this curation also involves iterative institutions responses to critique. For example the federal government could routinely respond to the critiques of their policy, such asthmas being wearing on the web platform, reporting findings moving onto the next observation or clinical trial is in my view infect I have 21st century science model thank you for your time I very much enjoyed hearing all these insightful comments thank you.

Go ahead Elizabeth.

Briefly my comment should be brief, because my knowledge is more, I am at the perimeter of my -- as a technical and medical writer, I ulcer mice that, one thing that, caused failures of communication is, forgetting that the users or in this case the listeners the general public, the users' point of view just as much of a technical entity as is the technology that is to be discounted. So, I think as, acted as though most successful tech communication models, modeled out a sort of, evidence-based as much as possess I believing, evidence-based model of the user's point of view and then thought about how to make parity between that point of view and, the technical communication to be conveyed. Ah I don't know how much that, technical entity, declaration would help anything but, that is a missing piece in technical communication.

Hello this is Dave Arndt I'm a science and climate activist and, recent retiree of NIH. Today, there's a lot of bad actors selling their science by sponsoring research, that is supporting their cause for profit corporations. These actors, follow the recipe established by the tobacco industry and the 70s. We see many examples of this, from climate change denial to submitting reports to the EPA's new chemical program. The government needs to call out these bad actors publicly with repercussions whistle blowers need to be protected. This is an issue that, most whistle blowers, do not want to come forward because they feel like there's going to be attacks against them causing their jobs to be put aside or their careers to be delayed or, really kind of terminated. So please, look at the whistle blowers and please protect them. Thank you.

Okay Gabriel, up next again we've got -- a lack of hands.

Thanks for this opportunity and I -- I mostly want to echo and, support bill and Tim's earlier points I work with both of them on the, the society of environmental journalists information access task force. And national association of science writers, information access committee and, as I said we found that over the years, um, both through surveys through anecdotal data my own personal experience it's becoming harder and harder to speak with, experts within the federal government, even about scientific matters, on which, the federal government, employees many of the -- the world's top experts. So, you know, I would like to see, um, you know that trend to reversing OSTP has you know potentially a really valuable and important role to play in, coordinating among the many agencies, that, um, have science as part of their mission and part of their activities. And to ensure that, scientific integrity policy exists that they're followed, that, um, there's not a new or unnecessary barriers between government experts and media and the public, um, and that there aren't sort of unwritten rules within agencies you know, um, may make it harder for experts to speak directly to the press and for the press to get direct access to experts so you know I would love to see, um, some you know action from OST on this issue. Thank you very much.

All right Alex you're up.

Oh sure well, thank you for inviting little bit more time I'm, really grateful that you're creating more space for all of this. I'm going to share it in chat which I should say there's a great robust conversation going on there. Um, my understanding is this the CDC Director has limited press access which is to say she has directed, people not to speak, to the media without expressed

permission. Now I understand that, there may be some concerns and, the context of the pandemic. But if that's true, um, that kind of goes right in the face of what a lot of people here are asking for in terms of, direct public engagement with the scientists who are, able to explain the data, that's there. Um, I should say that the White House COVID task force those briefings are continuing. Terrific there's a opportunity for public engagement and Q&A, the kinds of they have done as fares the Twitter take overs are a great start, my hope is you'll go further observe the CDC, OSTP all the different agency that's are pushing forward and create ongoing iterative Q&As with the public where you take the answers to those questions, and create an ongoing frequently asked questions page so that people can see, what folks like them, have asked in the past, and people in government can see what questions keep coming up again and again and again and to try to put the people, who know the most about it the scientists, the researchers the doctors, who can explain the data, who can explain the research, right in front of the public to be able to directly engage where them. Um, I think that, we can know that maybe has not been optimal in the past four years, and as you're thinking about ways to improve this I hope that you'll talk with your colleagues at the CDC, and also other scientific agencies like EPA and make sure those kinds of iterative open exchanges that result in FAQs, are part of the public record. Thanks for a chance to speak again.

Great. Zach and then, Sharon, go ahead Zach

Hello all and thank you for the opportunity to speak. I'm with the IEEs neuro-technology for brain machine interfacing connections activity, specifically a working group on reporting standard of P2794. For -- reporting of neural interface research our objective is to improve the rigor reproducibility and represent applicable in neuroscience in the research my observation is really as, more as a private citizen, that, a common failure of scientific um, communication and integrity is, in the, in the reluct answer or even the unwillingness to communicate genuine uncertainty or doubt where, in areas where the understanding is rapidly evolving. And so my open call to the community and what I would love to see from OSTP are, are -- strong and useful guidelines, on how to convey uncertainty and doubt with scientific rigor and integrity so that a collective knowledge can evolve and can do so in service of our best humanity. Thank you all.

Okay Sharon and then James.

Go ahead Sharon.

I wanted to reiterate the gentleman's comment who said that there's a lot of big tobacco scientists who are influencing environmental policies. And you know they, they learned a lot from that playbook. They're out here in all kinds of environmental issues. And their job is to sell doubt as their product. Doubt of causation. And, um, I think there should really be some way to, um, cause these people to be held accountable, when they intentionally influence environmental health policies coming out of federal agencies. And then, profit from it. When serving as expert defense witnesses. It is a big problem. There was just um -- um, the toxic substance committee, um, scientific advisory council on chemicals, these private sector non-profits have to, address, here's who some of them are, please do not put them on the committee. They just did not get on that committee, that doesn't stop them from continuing to

do out in the private sector, what they have been able to get away with, to the federal agencies. I really think that's an area to help move science forward, to cause accountability for those who stiming advancements of the understanding of the environmental illnesses, for profit in the private sector. And any way thank you again I am so excited you did this. This is been needed for so long it's wonderful, to have someplace to communicate. Directly to decision makers high up within the federal government so thank you.

James we can't hear you.

There it goes, yes, I needed unmute thanks for letting comment again so I wanted to echo support for what I think it was Alex and Zach were saying, one of the problems that I think scientists have, um, is the notion that if we simply provide the public with even more facts somehow that will convince them a lot of studies shown that causes people to retreat. One of the things that I found really effective and this is just anecdote to the extent to which OSTP can think about something like, as a more generalized approach, um, I was giving a public lecture our research is solar energy conversion which has as a motivation, of course climate change one of the most challenging thing to get people to, to -- understand or appreciate because it is not something it's effecting them today, at least in their perspective. So what I ended up doing is engage the audience I brought in a chunk of calcium carbonate, coral reefs are made up water and HCL I talked about HCO2 in the atmosphere, where does it go, most people eventually decide it goes into the ocean. And as I say what happens when the CO2 goes into the ocean does it get more acidic and basic everyone says acidic I dropped the piece of calcium carbonate in the water I dropped in HCL the calcium carbonate disappeared it dissolved I reflected the audience to say I cannot tell you what is going to happen if all the core Al in the ocean disappears this is the physical consequence what is going on. And, then that didn't have to violate anyone's sort of deep held believes whether or not they believe in climate change they could see with their own eyes and draw their conclusions based upon physical observables there are a lot of context in science where analogous approach can be used so you're not having to basically trying to convince facts ABC but trying them to come, along with you to understand the points you're trying to make and a lot of times I found that to be, more effective than just presenting them with more information. So any way thanks again for letting me comment.

Can you hear me?

Yes we can. Thank you Katharine.

Okay. It is looking like -- um, I'm sorry, I had technical difficulties and didn't hear the previous statements. Um I appreciate the opportunity to speak. Over the last 2-3 decades agencies the federal government, like entities elsewhere, have implemented roles that ban employees from speaking to journalists without notifying authorities often through the public information officers it means, in essence that no word can pass without people in power controlling it. President Biden has been in Washington long enough to have known days when this was not the case. Um, this restriction is mean, ugly censorship the committee, or OSTP should have gotten a letter yesterday, from the 25 journalism groups and other groups to, sign onto owe pose this restriction. Um, please understand, in many agencies, reports can reporter cannot get

in the building they have no credentials for that, in HHS, the request often has to go up through 3 levels of the hierarchies. As of 40 year veteran reporter if there's one thing I can tell you, ask you to focus on is the fact that, um, always when we can't talk to people, without, these guards on us, there is more to the story. And, that's real dangerous for everyone, including the people who are trying to run the agencies. So, I -- I will give you my testimony later I appreciate the opportunity to speak.

Hi.Thank you so much for this opportunity my name is Caitlin I'm a senior scientific communications specialist for a non-profit philanthropic biomedical research organization and was previously a writer editor at the national science foundation. I would like to echo in part the comments from Amanda, Stanley and from Dan, from in the chat about the importance of the support systems for scientific engagement. I would encourage OSTP to examine the value, of encouraging federal agencies that funds stem research to employee public engagement, professionals and trainers to support our federally funded scientist to engage in a boots on the ground manner, for example, by partnering with local community organizations. Such as libraries community centers, zoos boys and girls clubs and churches. To have small group or one-to-one conversations with people about their topics of expertise. On that note, I would make an argument for the important role of zoos, museum, and libraries in the science education of our citizenry would encourage the White House to examine the role that these organizations, through support from the institute of museum and library services, can enable and promote science engagement activities, to ensure more informed science literate populous, thank you.

Okay Amanda Stanley and then Jules.

Hello again. I just wanted to add a couple of thing to my earlier complements. And one is there's a, a growing Community of Practice, of organizations and individuals who are working on developing really effective training and science communication and developing those support systems and working on public engagement with science. A lot of my colleagues are here on this call. So, it is great to see everyone chiming in. So there's groups like ours there's a growing field of practice, through the science communication trainers network. So I just wanted to put a shot out, there's a lot of people who can, help the agencies, as they're trying to create new systems and new programs, to more effectively communicate science to their broader public. Thank you.

Hello. Oops. There we go. Hi, I'm Jules I'm with UC river side representing their college of natural and agricultural sciences and I was previously at Sandia national laboratories I want to say when reporters have access to scientists or PIOs many scientists or PIOs do not make points in language that is accessible to either nonscientists or even scientists in other disciplines. Not only do scientists and science communicators need to learn to translate complex information, they need to learn the elements of a good story like Mr. DiPalma and Rediske stated narratives are older than humanity they goes back to the epic of Gilgamesh they serve the cognitive need for order, placing those narrative elements in the opposite order of most research publications go from intro to methods and results to discussion, flip that. So rather than beginning with

methods beginning with results and frame them in terms that are assist succinct and universal as possible. That's what I have to say.

Sure. Let me just turn on my -- well I'll turn on my video so you can see me. Um -- first of all, um, my name is Adam I work in the pharmaceutical industry I speak only for myself in my comments but I would like to echo what one of the earlier speakers, said about the importance of protecting whistle blowers and giving them the means by which to be able to communicate, concerns with the public. I do not think that the current laws and the resources that are available to whistle blowers are adequate. And, whistle blowers who could potentially, provide a great disservice to the public by showing a light on scientific wrong doing and violation of ethics instead choose not to come forward, whistle blowers have inside information about a company that outside the company cannot obtain it is for that very reason the companies want to keep whistle blowers silent the laws current favor the companies. I would ask OSTP to do more to protect people, to have the courage to come forward and stand up for scientific integrity thank you for working this meeting giving me a chance to speak.

Okay. Thank you Nic, you're up now.

Thank you very much. Thank you for lets us come back, encourage anyone spoken to raise your hand and put, diversity of perspective is really, important. To what OSTP is trying to do and I think what all of us are trying to accomplish. By sharing our viewpoints. As a designer, and not a scientist, ah I often, um, have -- unfortunate position of being a contrarian to some of the, institutional practices I respect all of them, and I -- I think they're incredibly important, I just tried to bring new perspective and, new light to, ah, share being design as, Oliver Holmes a mind stretched by experience can never go back to the original did I messengers design as a research, research practice as sciences in outcomes and deliverables of course are very different when they collaborate they can be, incredibly powerful. One of scientists that we worked with astrophysicist -- after work withing them for a little while we found out that, his mother was an independent travel agent. Within weeks we launched astrotours which was an opportunity to bring people around the world to dark sky spaces. Ah, which was also an opportunity to talk or to show climate change in those areas we never ever once used the word climate change. It was an incredibly power experience for a lot of our, um, a lot of our travelers. Because that imagination, was so critical in opening the minds. It as Carl Sagen, imagination will often carry us to worlds that never were, without it we go nowhere, thank you again.

All right. Elizabeth and then we have Adam. Go ahead Elizabeth.

I wanted to reply briefly to something Jules said a few minutes Jules Bernstein I agree 100% with -- with the universality and primordial power of narrative. However there is some part of the format that is necessary for such a narrative effect. We, I don't think we can start with as she suggested well as I think she suggested a contusion or the results, um, because -- the, um, the statement ahead of time, whether it is the introduction any way, describes the history of the problem and I think you have to have before the, anyone can link the results or the discussion to anything meaningful, the problem has to be there, too. So, I think it should keep -- some parts of that to create a narrative specifically the problem. We could perhaps I agree that, you know

the -- the methods section maybe could be put at the end or something like that. Don't forget to tell the problem because, that is the, once upon a time section the narrative.

I'm Adam Fagen association of science and technology center membership organization for science and technology center and museums I wanted to lift up some of the earlier comments about the importance of really all of the community and helping convey, science and engaging the public in science. Our member institutions across the United States, generally welcome more than 70 million visitors a year and countless online we're grateful for the existing federal programs that help support, science engagement including science museums but we think there are many opportunity toss expand that, beyond those sort of dedicated programs but really thinking about, science communication science engagement, public participation, is an integral part of most research, agencies and -- activities. There's a number of researchers that clearly have, um, public interest and public concern and, engaging, those professionals who are well positioned and being that interface between the scientific community, and, local communities, can really help strengthen, the work that is happening, have more public understanding more public understanding and -- access. And as well as more engagement of those communities, in the scientific process itself. So looking for opportunities to really embed what is happening in terms of, a science and science engagement, science communication as part of research programs would be beneficial. Thanks.

Okay John and then Sally, go ahead John

Thanks for the opportunity to present again. And as a practicing scientists I have to -- you know, I acknowledge and appreciate everyone's suggestions the scientists get out there and talk more about what they do but from my perspectives scientists talk about the science, with a small S they talk about the science that is part of their research. I think what the public needs the whole COVID is a good example of it. They need science with a big S. Science integrates all the aspects we hear about biomarkers, mask immunization in such a way they understand it I really think you need other institutions or other individuals to do the science communication I keep going back to individual scientists to take this role. Otherwise I think we're going to simply stay in the position we are, for the next ten years. Thank you.

My name is Sally, um -- I just wanted to -- I was a transportation planner for 25 years. I'm retired coming back into the work force to deal with, climate, and other issues and not sure you can see me. Any way. I wanted to bring -- towards -- I've been involved empathy circles. Out of -- group -- um, formed by -- Edwin Rush on culture of empathy as far as a good as far as a communication process and outreach for problems situations especially for journalist and -- others trying to communicate with more complex situations that's what I have to say, culture of empathy, rush you request look it up on the web. Thank you

We have Nick

Thank you warrant other point we wanted to add and appreciate -- letting us come back more than once which is great. I encourage scientists to communicate to the public, to listen to the conversations one-to-one it's really important. But I think sometimes, we also -- um, ask scientists to do, an awful lot already. I would encourage OSTP to be mindful of that, I think

there's also, requirement to research, and recognize that scientists are dealing with different significant occupational organizational and institutional issues. That, they, don't talk about. You don't hear it, it is there. It is, misogyny, racism, ageism all those institutional issues that scientists just like anyone else, deals with. If you have not seen a program that is PBS I believe it's -- within the NOVA series independent film called picture a scientist. It is brilliant. Gives a window and understanding of what -- especially what women, in science, deal with if you're in the a woman, in science -- you don't see it, I'm telling you this is there and it is powerful, unfortunately getting in the way a lot of great discovery and exploration it's getting in the way of communication. It is making it much more difficult, for scientists to have the courage to be more creative. Because, that creative, that creativity, is actually what gives more integrity. It is not, going to diminish your credibility if you get creative and add a little speculation in fact I would say, that's what is keeping, most of science communication back is not being -- allowed to be more creative. Thank you.

Okay Amanda, you're up next go ahead please.

Agree with so much what you just said Nic thank you. Also -- echo the appreciation for being able to -- to come back and, add more. I want to speak a little bit to building trust. And, we know that building trust is, foundational to science integrity. We, have a lot to work to do to rebuild trust. That requires that we act and trustworthy ways, that also, requires that we communicate our trustworthiness. And so some of the work that we've been able to do, um, has been focused on that, right now, for example, we're working with, EPA, on a risk communication training program there is one of the things that's really helped us in building trust, is -- bringing in, community members, people from front line communities. Um, who are dealing with some of these, um you know, complex issues and facing risk in their communities. And providing that opportunity for them to share their lived experience and offer their feedback to the EPA staff. This gives a place a safe space, um, for people to learn from each other. To build mutual respect and understanding. And -- the community leaders we've brought in, have really reported that they're feeling increased positive feelings for the agency, the agency staff they feel like they understand so much more. I feel like that kind of work is so important. So, creating those -- places and spaces whether it's true training or other areas before things get loaded and difficult, creating those safe spaces, to build trust and mutual understanding. Well worth the investment it takes. Thank you.

So, we have run out of hands. I'm going to throw out a last call for comments. Give you all a few minutes to respond, if you don't feel comfortable raising your hand thank you Richard. Please go ahead.

Okay. Well, um, I am working for the department of natural resources here in Missouri. And I have been, in the role of, professional engineer, geologist and now risk assessor I've had a lot of dealings with the public. And, my experience in some of these public forums there's a couple of issues we need to fundamentally get beyond, before people will even start listening to the science piece of the things. The first of those is, that we do not have as anion as an agency unlimited authority to address everyone's issues when it falls in our shop, sure we'll deal with the issue but people fundamentally don't want to hear we don't have the authority to deal with

the problem that they're, interested in. When that happens, the ears kind of close up as far as, information exchange and listening to what we have to say is concerned. The other part of it is, convincing the public as a regulator we're working on they're behalf we're not the enemy. Too often is that is the, the sense that we get, from those that we deal with out in the public. So, communicating those two points early on, and making sure people understand the limitations to our authority, and we're working on their behalf, that goes a long ways towards get people to start to open up and then, listen to the actual science that under lies the problem that we are dealing with. Thank you for the opportunity to provide comment.

Thank you Richard. Um, Boden. Sorry if I mispronounced your name. Please go ahead.

Okay you have to press two buttons instead of one. I'm inturnist I've lived through the AIDS pandemic. And I'm submitting written material on communication and public health. With reference to the CDC, for me this pandemic -- was in some ways a God send, because, it repeated many of the mistakes of the, the AIDS pandemic I actually met with a Dr. Nelson in 2013, about these findings, that I've been carrying with me since the 1970s in brief, you know, the CDC has a very limited mission and communicating to the -- whole country, is very, very different. Not only that does not have the responsibility for identifying local diseases. And local places. Whether the AIDS broke and COVID pandemic broke -- the CDC had to be reactive. Because 99% of the employees are in the Atlanta. They're not familiar, with the -- the nitty gritty of intercity problems that lead -- wide spread COVID pandemic. I works with one of those populations as a clinician in the 1990s I tried to get to the CDC interested in that then I quickly realized it was totally beyond their reach I'm looking to submit these written materials, and -- they're too granular for the presentation. Thank you so much.

Elizabeth. Please go ahead.

Hi thank you so much for -- for, hosting this session. And for taking the time to listen. I'm Elizabeth, I'm the associate provost for research at hunter college in the city university SUNY university in New York I want to echo what the woman who spoke about trust and trustworthiness said and also, um, offer a suggestion that there were previous White House programs like the champions of change that recognized community members, who were working on, issues that, are sometimes, scientific but also sometimes community based. So, um, I was the champion of change for a precision medicine but other people were working on food insecurity or the social determinants of health I think that's, one way where there can be an integration. People in the community the office of science, technology and policy, the White House, and -- scientists who are working on behalf of the community health I want to thank you for having this Listening Session and also, for, for taking the time.

Alex you're up, please go ahead. You're still on mute.

Cool. So -- one of the thing hat I thought was, incredibly helpful for election integrity despite the wide spread feelings about the outcome among certain people is the rumor control web site the federal government was taking a active role if trying to improve people's trust in the integrity of the election and outcome of the election that continued throughout. Now, I think that's a tough example, obviously because there's a lot of people who, because of official

disservice, don't feel confidence. There are unfortunately analog s from climate change to the efficacy of masks, written now -- in, when people who are official position get information out that's inaccurate it causes disproportionate impact in polarized areas one of the things that I think the federal government could be doing right now is taking the approach which is effect at CECA around rumor control, apply to the scientific integrity context I think more scientists can be engaging with people, where they are, um, and -- giving them facts first, in response, to what they see as happening there I think the better we'll be. People have a lot of questions about, why the world is the way it is I think adds we've talked about in the chat elsewhere and just providing date or just information from it, is not enough, particularly if people have belief the sense is we have government scientists in front of the public and press are explaining how we know, what we know. Right. The deeper epistemic side of things the better off we're going to be overall, if the scientific integrity policies are in place for I think agencies to explain them and to say, this is why we know what we know and this is why we don't. To other people's points in chat again, to be really careful, with doubt. To explain why we should be skeptical and why we aren't. What the theory of gravity is, what the theory is elsewhere, thank you for this forum and opportunity to contribute.

Okay James you're up.

Yeah I just wanted to echo and agree with what Alex just said. Um, but -- I also think it is important for OSTP to reach out to people beyond, the government agencies we all know there's enough, there are enough people within the country, who because it is coming from government source are automatically going to dismiss it, right. If there's some ability for OSTP to partner, with academic institutions or private organizations, so that, the message coming out, doesn't look like it's coming strictly from the government but is actually coming from people they know in their community. Maybe provisions at colleagues or people who are not connected with the government all of the above approach is going to be more, beneficial, but that also requires, some kind of a centralized operation to ensure there's a synergy in the messages that are coming out from these different sources I think that's where OSTP could play a really important role. Thank you.

Elise you're up next.

Thanks so much for having me so my comments are really actually intended to build on the previous speaker and Jules comments about centralized infrastructure, as well as Amanda and Caitlin comments earlier about the importance for, developing sustainable meaningful lasting infrastructure for supporting, scientists and public engagement work I think one of the things that gets, under appreciated is how much effort, it takes to make sure that scientists are trained to ethically and effectively communicate especially around complex issues like many of the ones previous speakers raised during the call one of the valuable opportunities is that OSTP offers is, um, that -- the opportunity to do something about coalition building work as James' recommended. As well as, to use the power of the to call for more coordinated effort to support federal agencies, and developing mechanisms that are little bit more flexible to fund this different type, to fund public engagement work directly and, more sustainably. So that all I wanted to add I just wanted to make sure we talk a little bit about, making sure that the

conversation about the infrastructure to, to develop this work is really, centralized in place because without it, all the efforts to try and, get messages out, about the various different topics going to fall flat on it's face, thank you.

Bill you're up.

Can you her me now? I wanted to -- yeah I wanted to thank OSTP for today's Listening Session. To also say that I hope OSTP will listen to what journalists from several organizations what journalists are saying, that is practices in federal government, public information by in large not working journalists are finding a lack of access to experts and to sources of information because of those practices we see it, time and time again in the surveys we take of our members these policies need to be looked and addressed and rethought. Thank you going to pause here.

Caitlin please go ahead.

Hi this is just this spontaneous thought I think that we, um, really need to take into consideration um, what kind of information needs to be communicated based upon what our goals and outcomes are. So we work very hard for example to communicate that climate change is real, it's happening and it is here, it is going to have an effect on your life. But we don't think about the ways in which, talking about, other topics -- that may seem, um, disconnected from climate change can actually bring people on Board, with understanding the effects of these phenomena. For example, you know, talking about humans place in nature how we are connected to different, um, plants and animals even our evolutionary history actually corresponds to people thinking differently effects of climate change. Just to sum up I would say making information relevant to people's lives, and, helping them understand how these issues really are about them, and their loved ones, is key. I know that, you know, some of us in this, field are facing some challenges and trying to help people understand the value of for example wearing masks getting vaccinated. To effect people's own lives the people around them. I think that, we could be doing a better job we really need to think about the importance of social sciences what we know from social psychology about how people think about these issues and how they make decisions about them I don't think that just sharing facts is going to get us there. So, thank you. Thank you for this extra set of comments.

Zoom Chat Transcript for Listening Session 1

The Zoom chat was recorded automatically during the listening session and downloaded after the listening session concluded. The chat transcript is included here as it appeared during the session, and includes the public messages to all attendees.

14:02:45 From April Gillens : It's in the "Reactions" icon

14:03:18 From Matt Ferguson : nice! Must be a new update from when I last used it too

14:03:42 From Dan Wixted : Not seeing a hand raise in Reactions. Just see emojis.

14:04:01 From Dan Wixted : Oops, found it. sorry.

14:06:34 From Alex Howard : Thank you so much for hosting this, OSTP! For any who missed it, here's the memorandum Alondra Nelson referenced: https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/memorandum-on-restoring-trust-in-government-through-scientific-integrity-and-evidence-based-policymaking/

14:08:27 From Cassandra Sperow : Can you please send a link for the formal Request for Information that she mentioned closes today? Thanks

14:08:47 From Amanda Stanley | COMPASS : https://www.federalregister.gov/documents/2021/06/28/2021-13640/request-for-information-to-improve-federal-scientific-integrity-policies

14:09:55 From Frederick Wood : note seeing the raise hand tool?

14:10:33 From Margaret Murphy : "Raise hand" can be found in the "Reactions" icon on the bottom of your screen.

14:10:46 From Bohdan Oryshkevich, MD, MPH : The information letter listed an email address to send comments to.

14:11:13 From Laurie Dacus | STPI : Closed captioning is provided for this meeting. In order to view captions, go to bottom of Zoom toolbar, right hand side, click on CC, then click "Show Subtitles". Sign Language interpretation is also available; please pin the zoom window of the interpreter if you need to use this service. 2 interpreters: Jennifer Griffin and Jessie Lewis.

14:13:41 From Lori Tyler Gula, Ph.D. : Why am I seeing only an alarm clock on my screen?

14:13:51 From Earl Freeman : I think it's great that these sessions are taking place!

14:14:04 From Caroline Mills : also only seeing alarm clock.

14:14:07 From Kelly Lenox : Same as Lori Tyler Gula

14:14:20 From Bevin Wathen : Agree, Earl!

14:14:22 From Caitlin Bakker : I think the clock might be the time limit for each speaker?

14:14:25 From Andrew Rosenberg : Clock is the timer for the speakers

14:15:07 From Claire Stewart she/her/hers, UNL : You should be able to change your view - use the View button in the upper right corner, you can also have the speaker view shown next to the clock.

14:20:50 From CF McKane : I want to be able to view any sources cited in federal publications - open share citation platform without required university login

14:21:47 From CF McKane : open data

14:23:09 From CF McKane : universal web system? WH website was not activated on inauguration day

14:23:31 From CF McKane : scientific literacy

14:24:19 From CF McKane : quotes are useful / necessary - sources must be available

14:24:52 From Caitlin Schrein : We must have boots-on-the-ground, face-to-face, empathetic engagement between experts on a topic and their key stakeholder audiences. (Remember, scientists are members of the "public," too.)

14:24:54 From David Dow : A few other recommendations for converting PFAS science to management action: reinstate polluter pays process to aid grassroots entities in addressing PFAS contamintion issues; adopt European Union Essential use policy for commercial products containing PFAS chemicals; examine PFAS food and airborne exposure exposure pathways for PFAS chemicals & study. Bioaccumulation in aquatic food chains supporting finfish & shellfish,

14:25:22 From CF McKane : inconsistencies in terminologies and federal glossary

14:26:10 From CF McKane : ways to contact study publishers should be required

14:26:17 From Caitlin Schrein : @CFMcKane - are you familiar with public access portals for NSF and NIH publications

14:27:11 From CF McKane : data manipulation federal advsory

14:27:16 From CF McKane : advisory*

14:28:58 From CF McKane : ex. police data reflects data police departments collect not "actual" crime statistics #wallstisthemostcriminaldisrictofnyc

14:29:48 From Elyse Aurbach : Strong endorsement of @Amanda Stanley’s comments

14:30:11 From Caitlin Schrein : +2 Regarding Amanda Stanley's comments.

14:30:33 From Claire Holesovsky (she/her) : echo all of @Amanda Stanley’s points

14:30:41 From April Gillens : Same here

14:30:53 From Bevin Wathen : Agreed

14:30:59 From Russell Shilling : Amanda is exactly right!

14:31:42 From CF McKane : computer science vs. library science in elementary education - national security need for basic computer engineering

14:31:57 From Amanda Stanley | COMPASS : Thanks, everyone!

14:32:26 From William Schulz : https://www.nasw.org/infoaccessstandards

14:32:38 From CF McKane : how does the CRO obtain "scientific" information

14:32:41 From CF McKane : ?

14:33:56 From CF McKane : educating new members of congress about services provided by the CRO

14:34:29 From Caitlin Schrein : The challenge is not just people's understanding and knowledge of science, but their understanding of the scientific process - how science is done.

14:34:44 From Kishore Hari : great comments Amanda!

14:35:06 From Alex Howard : Following up on comments from UCS, I'd strongly recommend reversing the policies listed here: https://www.ucsusa.org/resources/state-science-trump-era

14:36:07 From Margaret Murphy | STPI : We received this comment by email from Frederic Eger, iTV (Publisher/Journalist), Riga, Latvia:
I cover science, tech and space, advanced or current innovations, breakthrough and entrepreneurship: I have noticed that there is a lack of sufficient in experience and number of staff member press officers to each scientific publication release and that the information on how to reach the authors of the research directly or through some press officer representing the scientist is not always available which makes the workflow of journalist less smooth therefore not as motivating to attend pressers or write any coverage; this issue is even more pressing when it comes to foreign journalists: any improvements in mind? Thanks so much for your time.

14:36:25 From CF McKane : computer science vs. library science in elementary education - national security need for basic computer engineering

14:36:37 From Amanda Stanley | COMPASS : Thank you Kishore!

14:36:44 From CF McKane : CRO information standards / processes

14:36:58 From CF McKane : information about the CRO for new members of congree

14:37:13 From CF McKane : open data

14:37:40 From Caitlin Schrein : I would argue that PIOs can help guide scientists who are not used to communicating with the press and the value of the support should not be disregarded.

14:37:41 From CF McKane : access to sources cited in federal publications

14:37:45 From Elizabeth Coons : Great presentation, Mr. (Dr.?) Wheeler.

14:39:25 From Elizabeth Coons : As technical writer I concluded that the user's point of view is just as much a technical entity as the technology to be documented. //

14:39:28 From Bevin Wathen : Here here! Nick

14:39:28 From Earl Freeman : Great point

14:39:31 From Caitlin Schrein : Well said, Nic DiPalma.

14:39:39 From CF McKane : corporate privacy, contracts, and data from computer models

14:39:42 From CF McKane : #source

14:39:48 From Amanda Stanley | COMPASS : Agree with Caitlin's point about the value of support from PIOs; including PIOs in training programs can be beneficial too.

14:41:32 From Awatif AlJudaibi : Hi every one, I am Awatif AlJudaibi from Saudi Arabia

14:42:52 From Bevin Wathen : great point!

14:43:24 From CF McKane : free press and science

14:45:19 From Gerald Joy : How does one save the transcript?

14:47:33 From Margaret Murphy | STPI : The listening sessions are being recorded and summaries will be made available to the public as soon as possible. We will send an email notice to those of you who participated today with additional information once the summaries become available.

14:48:26 From Kristin Inman : It is very interesting to see and hear all the different views from participants. I hear some calls to facilitate direct communication between researchers and the press. I personally have not worked with an press office previously- do they work to ensure findings are not overstated or misrepresented? If so, then they do play a very important role. In my career, I have seen the negative implications of overgeneralization and miscommunication of research findings. In many cases, this fosters public mistrust.

14:49:20 From Alex Howard : This reporting is relevant to to my comments regarding the CDC and press access to scientists and researchers: https://www.politico.com/news/2021/06/21/covid-19-cdc-rochelle-walensky-495095

14:49:43 From Bevin Wathen : great point!

14:49:54 From CF McKane : review and publish

14:50:17 From CF McKane : publish reviews

14:50:42 From Dan Wixted : I support those who talked about training and assisting scientists in science communication. Effective science communication is an acquired skill. The administration should provide training in science communication as well as risk communication, make use of people who provide such training and support, and also include the folks who develop the content of press releases, web sites, etc. Open access is needed, but will not solve anything if the ensuing communication is ineffective. I work in the realm of science and know first hand that most scientists, however brilliant they may be, are not very good at communicating with the general public. And the reason is simple: most have never received training in science communication, nor have they been encouraged to do so by whatever institution with which they are employed.

14:51:30 From Alex Howard : @Caitlin My experience with PIOs has been more mixed; they've often limited time or access with the principals. The best ones I've worked with were often former journalists — I don't think that's an accident :)

14:52:45 From William Schulz : Our NASW survey shows a disconnect between science journalists and PIOs. The latter believe and often state that their policies are meant to help journalists and facilitate the flow of information. But our journalist members have been saying for years now that PIO practices and policies hinder their reporting and block information access.

14:52:51 From Timothy Wheeler : Thanks for taking this input. I hope you'll make these videos public, or if not then a transcript of all the sessions.

14:52:55 From Alex Howard : +1 James. I'm experiencing what he's describing in real-time as we speak on Twitter, with respect to masks.

14:54:40 From Alex Howard : @William If PIOs view their jobs as making their bosses look good & preventing bad news from getting out — as opposed to getting trustworthy information out and engaging the public — they're antagonistic to journalists. In the last four years, however, we saw PIOs actively hostile to media, including calling reporters "fake news" from official accounts or flagging FOI requests.

14:56:43 From James McCusker : +1 Alex. It is simply counterproductive to convince people with more facts if the facts they already have do not sway them. You have to respect people sufficiently to find another way to reach them. Unfortunately, scientists live and breathe data, and it's difficult to reach across to someone for whom data doesn't sway them. It's on us as scientists to figure out a way to do that.

14:57:00 From Kelley Christensen : Responding to William Schulz's comment as a PIO for a midwestern research university: Our practice is to provide the researcher's email address and phone number directly to the journalist. If requested, we send imagery/videos along for use. Our comms/marketing office does not try to control what our researchers say at all. Is this an example of a practice journalists support/appreciate? Or are there other SPECIFIC things journalists would like to see PIOs doing? (And yes, I'm a former journalist.) It would be very helpful to have specific, actionable examples of how PIOs can better support journalists.

14:58:09 From Dan Wixted : Some may think I'm off the wall with this, but improv training can help scientists with their communication skills (yes, that's not a typo...I do mean "improv," not "improve"). Just google improv science communication. Might be a hard sell for the government to provide funding for improv training, but scientists can do it on their own.

14:58:14 From Caroline Coward : Shout out for libraries!

14:58:20 From Zach McKinney : +1 to James for your powerful reflection on engaging the public to 'bring them along' in a participatory process of truth-seeking

14:58:20 From Adam Fagen | ASTC (he/him) : Thanks for lifting up the full breadth of science communication, Caitlin!

14:58:54 From Caitlin Schrein : Dan - the Alda Center for Science Communication does improv training!

14:59:18 From Kelley Christensen : Highly recommend the Alda Center's improv training!

14:59:51 From William Schulz : To Kelley Christensen's comment: Our survey dealt with federal agency PIOs, not universities which have varying practices. What is more, our NASW Information Access Standards show in detail what journalists rightfully and lawfully expect when seeking information from federal agencies and experts. The standards are here: https://www.nasw.org/infoaccessstandards

14:59:53 From Amanda Stanley | COMPASS : Excellent points, Caitlin!

15:00:04 From Caitlin Schrein : Thanks Adam and Amanda!

15:00:32 From Elyse Aurbach : Strongly agreed with @Caitlin Schrein - these public engagement support roles are rarely funded through federal mechanisms, and these professionals are frequently ineligible to apply for federal funding unless they also hold PI status. Would strongly encourage OSTP to work with federal agencies to reexamine policies to reinforce the existing support systems, and then build on them further.

15:01:19 From Annette Flanagin JN : To be s

15:01:29 From Caitlin Schrein : Thanks, Elyse.

15:01:41 From Kelly Lenox : Re: journalists vs. PIOs—as a former EPA staffer, I witnessed times when employees/scientists held personal views that differed from the agency's—in both directions of stringency. The press office was charged with getting the agency's viewpoint across, when it otherwise might not have surfaced. Regardless of which side of what divide one stands on, the difference between personal and agency views is rarely discussed in these forums/surveys/opinion pieces. How should it be handled?

15:01:54 From CF McKane : public discussion boards

15:02:18 From Bevin Wathen : Excellent discussion today- Thank you!

15:02:24 From Claire Holesovsky (she/her) : Sharing links to some scicomm training organizations/networks to check out during the break: Alda Center (https://www.aldacenter.org/), COMPASS (https://www.compassscicomm.org/), and SciComm Trainers Network (https://www.sctn.online/)

15:04:00 From Francisca Yonekura : Thank you for the links @Claire Holesovsky

15:04:08 From CF McKane : federal scientific glossary

15:04:30 From CF McKane : federal sciences glossary

15:04:41 From CF McKane : #factbook

15:04:42 From Russell Shilling : The SciComm idea is essential. I spent 25 years in both DoD and Dept of ED as a scientist and PM and was never allowed to speak to press without PAO present. It would be quite the policy shift, but opens of science is essential.

15:04:47 From Dan Wixted : Also https://comscicon.com/ which is a communicating science workshop by and for graduate students. I've been to some ComSciCons and they are excellent.

15:05:31 From Claire Holesovsky (she/her) : Yes, thank you @Dan Wixted!

15:07:19 From Zach McKinney : To offer a 'build' on my comment on the communication of uncertainty, I'd like to thank those who have observed the insidious and harmful tactics of "selling doubt as a product" … thus, it appears essential to have a dialectic community-based process for discerning genuine scientific uncertainty from fabricating doubt and manipulating it to undermine scientific integrity

15:07:35 From William Schulz : @Kelly Lenox it should be handled by scientists or other agency staff making clear when they are stating personal opinion versus agency policy. Getting across the agency's policies or point of view should not require restricting free access to EPA scientists and other experts by members of the press. NASW members report that they have almost zero access to EPA scientists because of that agency's restrictive policies regarding media inquiries.

15:08:09 From Laurie Dacus | STPI : Closed captioning is provided for this meeting. In order to view captions, go to bottom of Zoom toolbar, right hand side, click on CC, then click "Show Subtitles". Sign Language interpretation is also available; please pin the Zoom window of the interpreter if you need to use this service. 2 interpreters: Jennifer Griffin and Jessie Lewis.

15:09:10 From Bevin Wathen : so true

15:09:12 From Dan Wixted : Excellent point, Zach McKinney. And being honest about what we don't know actually adds to our credibility.

15:10:22 From Amy Riegelman : FYI for folks unfamiliar with IMRaD, it's an acronym for Introduction – Method – Results – and – Discussion

15:11:27 From Kelly Lenox : @Wm Schulz—I know it's gotten harder since my long-ago days there, but it would be nice to see some writing that did indeed draw that distinction

15:12:08 From Zach McKinney : Great point, @Elizabeth! — the formulation of the problem and hypotheses can profoundly influence experimental design and interpretation of results!

15:12:10 From William Schulz : @Kelly Lenox—It's up to the government employees to make that distinction.

15:14:20 From James McCusker : +1 John. I do think you need an "all of the above" approach.

15:16:34 From Kathryn Foxhall : I agree with William Schulz. People in the U.S. should have the right to communicate with each other without notifying authorities. That very much includes reporters and scientists.

15:17:01 From William Schulz : Scientists paid by the US government are public servants and should be able to speak about and explain their work that is paid for by the US taxpayer.

15:17:35 From Barbara McGuinness (she/her/hers) : Picture a Scientist is currently available on Netflix. Very powerful.

15:17:43 From Lori Tyler Gula, Ph.D. : TY

15:18:25 From Jules Bernstein (she/her) : During the previous administration, BETO-funded papers had to include a disclaimer that the administration doesn't necessarily agree with the results of the paper, even though it was BETO funded. The disclaimer should be implied. Its statement raises doubt about the integrity of the result.

15:18:33 From Amy Riegelman : (speaking for myself) I'm an academic librarian who advocates for research rigor, transparency, and reproducibility. Sharing data is crucial for reproducibility and replicability. I would like to see more enforcement of data sharing laws. e.g., https://www.sciencemag.org/news/2021/04/first-fda-cites-violation-clinical-trials-reporting-law

15:19:08 From Elizabeth Cohn : Absolutely in agreement with a focus on Trust and Trustworthieness

15:19:16 From Sally Rodeman : Culture of Empathy Edwin Rutsch excellent means for communication outreach

15:19:20 From Alex Howard : I don't want to take up more air time from folks who haven't spoken up yet, as I've had two opportunities, but I hope OSTP can make recommendations to agencies that will help them maintain and defend scientific integrity from both political interference & the public perception of it. Given the manufacturers of doubt and merchants of misinformation today, this is likely a wicked problem, but I hope the White House pursues of a whole-of-society response to improving scientific literacy and trust responsive to the need Surgeon General Murthy outlined: https://www.hhs.gov/sites/default/files/surgeon-general-misinformation-advisory.pdf If medical dis/misinfo is a public health risk, then improving public trust in science is a national security imperative. I suspect the way forward looks a lot like what other folks are describing now — to create the spaces Stanley just described

15:19:40 From Elizabeth Cohn : and increasing transparency in science can help with that.

15:20:45 From Jules Bernstein (she/her) : Also, investing in education, so that more students more students develop scientific literacy will improve trust in science.

15:22:40 From Alex Howard : Here's a simple one: bring back the White House Science Fair!

15:22:54 From Jules Bernstein (she/her) : The average adult in the U.S. has not taken a college level science course, as far as I understand. It is natural that people will question what they do not understand. Education investment will create a society of more receptive listeners to scientific communications.

15:23:13 From Bev Corwin : @alex +1 Science & Technology Summit!

15:23:18 From Jules Bernstein (she/her) : And yes, bring back the White House Science Fair!

15:24:22 From Amanda Stanley | COMPASS : +1 Elizabeth Cohn

15:24:28 From Douglas Van Sant : Love the idea of bringing back the White House Science Fair. Great suggestion!

15:24:40 From Bev Corwin : @elizabeth +1

15:25:03 From Sally Rodeman : Sally Rodeman- I am developing an empathy game for children within the culture of empathy working group, looking for help.

15:26:43 From Douglas Van Sant : I love the idea of these listening sessions. Might I suggest a deeper dive into Digital. Helping the scientific community utilize social media and digital resources to connect with a broader audience. Thanks again for hosting this!

15:26:55 From Caitlin Schrein : One thing we haven't talked about is the connection between scicomm and formal education. (I know there is a science ed listening session tomorrow.) Classroom-based education is an important opportunity for science communication. How often do scientists get a regular, "captive" (ok, that's relative) audience of 200-300 potential voters, other than in a higher ed classroom? How can WHOSTP support the study/understanding of how higher ed STEM education connects to students' behaviors (e.g., voting, environmentally-conscious decisions) and attitudes about science? Many (most) federally funded scientists are faculty. How can we make this connection?

15:26:55 From Amanda Stanley | COMPASS : Such a great conversation today! So many interesting and thoughtful comments. Thank you again for hosting us listening session and giving us an opportunity to speak. I have to step away, but I am happy to follow up if I can be helpful to the Committee in any way. https://www.compassscicomm.org/

15:27:06 From Alex Howard : Thank YOU, Amanda!

15:27:39 From Bevin Wathen : Thank

you Amanda!

15:27:39 From Alex Howard : +1000 to reaching out beyond the agencies. Would love to hear from the USA’s academic institutions & their scientists

15:28:08 From Sally Rodeman : http://cultureofempathy.com/Projects/Bios/EdwinRutsch/

15:28:19 From Caitlin Schrein : As mentioned above, many federally-funded scientists are faculty and have direct connection with students.

15:28:42 From Zach McKinney : +1 @Alex Howard to addressing and cultivating the epistemic basis of knowledge via clear communication and understanding of scientific *processes*

15:29:07 From Dan Wixted : Keep in mind that Cooperative Extension, which is in every county of every state, is under USDA and should be included in efforts to improve science communication. Both to receive training and to provide training, as scicomm with the general public is essentially what Extension is all about.

15:29:32 From James McCusker : Great point, Elyse.

15:31:48 From Alex Howard : Thanks, Zach! I'm hopeful that OSTP is listening and the White House has brilliant people committed to improving scientific integrity in it. Any reason for optimism is welcome.

15:32:19 From Astrika Adams : Relevant to people's values too.

15:32:28 From Lori Schultz (she/her/hers) : Great point, Dan! And for some of our counties, that's where our most challenging audience lives

15:32:55 From Nic DiPalma : Thanks to all who have shared their perspectives today. I'm inspired by ALL OF YOU in science and research, you are my heroes. You have more support than you know, than you see, even when it doesn't feel like it. I'd be happy to connect with anyone here. Send a DM here or find me on LinkedIn, Twitter, etc.

15:33:22 From Alice Liu : Regarding other voices - the guys from the MythBusters show made science fun

15:33:23 From Dan Wixted : Thank you for this opportunity and for reading the chats as well as hearing the people who raised their hands.

15:34:17 From Nic DiPalma : I highly recommend this video as an example of human-centered science communication. https://youtu.be/tyaEQEmt5ls

15:34:21 From James McCusker : Thanks to OSTP!

15:34:28 From Nic DiPalma : THANK YOU OSTP!!

15:34:29 From Earl Freeman : Great job!

15:34:29 From James McCusker : And everyone for your comments!

15:34:33 From Alex Howard : Thank you, all!

15:34:34 From Alice Liu : Thank you!

15:34:35 From Elyse Aurbach | University of Michigan : Thank you!

15:34:35 From Bevin Wathen : Thank you!

15:34:38 From Kelly Lenox : Great discussion! Thanks so much!

15:34:40 From Cheryl Hogue : Thanks for listening, OSTP.

15:34:40 From Brianna DelDuca : I completely agree, Caitlin. I personally think we need a lot more communication regarding climate change and the science behind it. Not enough people know about or understand climate issues. Thank you all!

15:34:49 From Caitlin Schrein : Thank you very much.

15:34:58 From Kathryn Foxhall : Blog on the restrictions on teporters.

15:35:07 From Alex Howard : Thank you so much for convening and listening, OSTP folks — and STPI & IDA for facilitating

15:35:12 From Frederick Wood : very informative and useful thx

15:35:13 From Kathryn Foxhall : https://profficecensorship.blogspot.com/

15:35:44 From Awatif AlJudaibi : Thank you for this intresting comments

15:37:06 From Sharon Williams, STPI : We'll leave the meeting open for about 5 more minutes in case there are any chat additions

15:44:35 From Jennie Cheng : THANKS FOR LETTING ME TO JOIN IN

Appendix D: Transcript of Listening Session 2

Closed Caption Transcript for Listening Session 2

Closed captioning was provided by transcriptionists typing in real time during the listening session in order to assist participants requiring accommodations. The closed captioning transcript was provided by the National Science Foundation via Vital Signs LLC. The transcript as it is included here includes all public comments and were edited minimally for typos but may contains minor errors and inconsistencies.

Thank you. Hello I'm L Costello a family physician who practiced for 2 years in Washington where I focused on obstetrics and pediatrics. Though I cherished the opportunity to treat the family from cradle to grave. The way to integrate good science across government agencies is simple. It begins with recognizing good science and differentiating it from the marketing used by industry and others to reduce us to simple consumers. Our health as a nation and our ability to practice the democracy we preach on the world stage starts with integrity of the science we follow at home. It is imperative to address the government's failure to protect us from the ubiquitous toxins in our air, water, food, soil, cosmetics, clothing and household products. These toxins are simultaneously hastening the destruction of the environment that sustains life on the planet. I am convinced that our failure as a nation to provide healthcare for all is the root cause of essentially all of our problems. We rank 11th of 11 developed countries for healthcare quality while spending at least twice as much. The obvious conclusion is that our health and our very survival have become politicized. Record medical industry profits reaped from the pandemic are one example. Another is the FDA's recent approval of Biogena's Alzheimer's drug. Forbes recent rating of America's most and least trusted professions ranks nurses as usual at number 1 followed by physicians and pharmacists. Car sales people are second from the bottom and below them are members of congress. It's time to trade politics

Thank you very much for that Lauri. Next is Elizabeth Geltman. My apologies for not warning you ahead of time. But you're the next speaker.

Okay. Can you hear me?

We can, please go ahead.

Hi I'm Elizabeth Geltman Associate Professor and lecturer at John's Hopkins and chair of the American Health Association. I'm also a COVID 19 survival and COVID widow so my comments are both professional and personal. Yesterday there was an article that appeared in The New York Times that said that the CDC and other federal agencies have both a polarization problem and communication problem in science. I completely agree. You know one of the solutions I would like to offer in terms of integrating is better use of citizen science in the scientific process at all levels. That's more community engagement, more community gathering. The example I would like to give to my student is love canal where school yard epidemiology

Recording in progress.

Than did what the Department of Health was doing and that case parents identified reproductive for what we call issues as important while the Department of Health was looking at cancer risks. COVID 19 provides an important example of lost opportunities to use citizen science to have better data. We need to measure better things in terms of what's going on in

the public, we need public feedback in terms of doing that in gathering it and that will give an ability of the public to have better examples of what the government is doing for them and how to integrate citizens confidence into it. Fundamentally what we need to do is have better could have denies in science, we need the government to not talk at people but to include people, to include them in the gathering process of data, to listen to promote two way communication for better confidence and to make sure that we're answering and measuring the questions we need. I've submitted slides that have more detailed things of exactly what we need, questions answered and what measurements are and I see I have 2 seconds I welcome any questions from y' all

Thank you very much for that. Next speaker is Kyle Crider and after that is Jacob Carter. Kyle, go ahead, please.

Kyle are you able to unmute and speak?

Now I am, thank you.

Go ahead.

Thank you for the you want to comment. I'm Kyle, I will be speaking on their behalf and adjunct instructor but all views here are my own. Thomas Jefferson once advised when we surrender or reason we have no guard against absurd it's and like a ship without a rudder we are the sport of every wind. Then gull ability which we call fate takes the helm of reason and the mind is a wreck. How chillingly these words apply to what we are witnessing today as we saw on January 6 or most cherished institutions and democracy itself is at stake. We were warned long ago those can make you commit atrocities. We know the importance of critical thinking which most institutions of higher learning are imparting but rarely successful in doing so. I will quote from an article how professors must increasingly deal with conspiracy minded students. Deep in the 9/11 report is the conclusion many terrorists were products of educational systems that generally devoted little if any attention to the rest of the world's thought, history and culture. The zoned are education reflected a strong cultural preference for technical fields over the humanities and social sciences. Many of these young men if even able to study abroad needed to understand a different culture. The liberal arts are significant because they do not teach what to think but how to think. They're designed to broaden the mind that makes them our best weapon against conspiracy and thank you I will be submitting written comments but I'm done.

Thank you very much. Next speaker is Jacob Carter and after that is Breonna DelDuca.

Good morning I'm Jacob Carter the senior scientist at the Union of Concern Scientists. Thank you for the opportunity to speak about training for federal scientists. Scientific integrity training will be especially important as new federal scientific experts are hired into agencies replacing the thousands lost during the past 4 years. When thinking about ways to strengthen scientific integrity training the task force should consider: early hires will be scientists who may not be versed on scientific integrity in the context of federal agency process and these individuals also would likely be unaware of the unprecedented frequency of a task force science that occurred during the past 4 years. Therefore scientific integrity trainings will not only be essential for educating federal scientists on rights and protections but show new hires they prioritize a workplace that respects scientists and the work they do. Agencies also must recruit a diverse pool of early career scientists in their rebuilding efforts. This commitment to diversity

should be made explicit such as EPA's plan to hire 1,000 new staff by next May and considered scientific integrity training. In addition to these considerations we're offering the following recommendations on scientific integrity trainings. All federal employees should receive training on scientific training on how it manifests in day to day work and what violations look like. These trainings are important for employees who use science to a significant degree in their work but also equally important for political appointees. Lastly scientific integrity officials and federal scientists should receive training to identify and report discrimination, harassment or bullying within their professional environment. Thank you.

Thank you very much. Our next speaker is Breonna DelDuca followed by Andrea Calihanna. Please go ahead.

I'm Brianna and on behalf of the humane society legislative fund and family of organizations I appreciate the opportunity to provide comments today. Federal policies and practices must be fluid enough to incorporate emerging technologies that are scientifically proven to better the lives of animals. Alternatives to animal testing exists. The FDA is working to advance new alternative methodologies as evidence in its predictive tocks coaling roadmap document and the national Cadmus of science found that veterans affairs should scale back on dog testing as there are only a few areas where dogs are scientifically necessary. The EPA pledged to end animal testing in 2025. The urge to follow the science that shows new methodologies are efficient. Additionally conventional animal agriculture is a key driver of climate change. Meat, milk and egg production is 1.5 percent of greenhouse glass emissions and [Indiscernible] greenhouse gases that's conventional meat require a fraction of the amount of land. Additionally 73 percent of emerging infectious diseases in humans are originating in animals and more than 58 percent of known infectious diseases are transmitted by animals. We urge the administration to put more resources into transitioning to a more humane, safe and sustainable agricultural model. Scientific advances are always occurring and federal policies and practices must be flexible enough to incorporate these answers. We look forward to working with you to make sure the Biden administration incorporates these advances to benefit the lives of animals. Thank you.

Thank you. Next speaker is Andrea and the speaker after that is Leslie.

Thank you. I would like to speak about the scientific integrity of the study of music. Music is a scientific art. Music is intrinsically structured it includes the whole structure and parts of the structure, hierarchical structure. These are temporal structures and they can be measured using zero based counting as we do using any counting using a ruler. We can count and visualize sound, visualize the meter, rhythm and pitch. In linear circle and ski hill graphs, known as mathematical music theory. Many fine details of the music hierarchical infrastructure have become extinct due to the western theory which is designed to analyze notation. The cultural identity of people such as Nigeria's for instance is being suppressed not only through the government but the inability of western music theory to represent their traditional music. These people who suffered and gave so much through slavery in the African Diaspora through jazz and its embodiment in the dance Hollywood movies will only be discussed in terms of improved history, um, or more diversed curriculum but inclusion will never be achieved unless we have music theory that appreciates the contribution of the music that is not notated. So music is an cues particulars, engineers and music teachers study acoustics, the science of sound and now we can study the science of music through mathematical music theory to provide the bridge between music and science.

Thank you. Our next speaker is Leslie McIntosh followed by Virginia Zaunbrecher.

Thank you for the opportunity to speak. I am Leslie a founder of a company named Repeta and work to check scientific integrity in publications. Promoting trust in science means developing redeveloping a system that verifies individuals, institutions funding science and independent scientific research. As with most things these days much of this can be automated. The U.S. government should support the science to signs research and understand mechanisms to build trusted checks on science. Through automation and algorithm development we move the past into the future, by incorporating old data even current information into new algorithms that inform practice and carry the future. We also take current biases and incorporate them into future algorithms, this number addressed. This is more important than technology, it's the people. It matters who works on, maintains and improves systems to inform and create the scientific ecosystem with integrity. To be clear I'm talking about having a diverse workforce. Any attempt to improve the integrity of science must be built by a diverse workforce representing the demographics of the American people. There are no excuses to make our scientific ecosystem not reflective of the U.S. population. We have gone to the moon and we have built electric cars, we can have a diverse workforce if that's what we want. We can hire and we can keep these talented individuals. We can and should have people of all races, genders, backgrounds and capabilities leading the next generation of science and technology development in this country for us to truly be leaders. Thank you.

Thank you very much. The next speaker is Virginia Z followed by Felicia Etzkorn. Virginia, please.

Reinstruct U.S. federal scientific support for foreign researchers in response to valid national security and intellectual property concerns. This broad approach is inadvertently [Indiscernible] who work does not implicate these concerns and impaired their ability to practice science with integrity. There are many American researchers who collaborate with foreign scientists on topics of critical national and global importance like climate change and this work by necessity takes place internationally with other countries and their researchers posting American scientists to collect data and conduct experiments. But the broad and accelerating limitations on funding of non-American universities is affecting the ambivalence of these researchers to work with integrity in two ways. The first is moral: much of this research takes place in former colonies located in the global south and history of exploitative scientific research. American researchers should collaborate with local scientists instead of flying in and collecting samples and back to the U.S. That is not morally acceptable. Many local scientists lack access to funding, American scientists must be able to provide some financial support for the local scientists they're asking to dedicate time and resources to projects. This requires U.S. federal researchers to support foreign scientists under certain circumstances. The second issue is legal as countries implement the protocol they're requiring American researchers to share benefits of research with host populations. In order for American researchers to legally export samples for genetic analysis they must collaborate with local scientists. American researchers need resource to collaborate and comply with these international regulations and federal scientific agencies should provide that funding. I've also provided written comments which I invite the committee to look at. Thank you so much.

Thank you. Forgive me I was muted. Next speaker is Anita. We do want to hear from you so please do raise your hand if you have anything to contribute. We're very glad to listen. So with that let me hand it to Felicia.

Hi I'm a Professor of chemistry at Virginia Tech and come from the perspective of education at a research one institution. Don't pretend to know K 12 or even, you know, primarily undergraduate institutions. I created a course and wrote a textbook on Green chemistry so I care greatly about the environment and human health. Integrity in science education begins with the teachers who infuse undergraduate education with the newest ideas in science. Scientific integrity begins with training scientists. We must stop trying to determine the future of science from the top down, instead let the young people who are inspired and creative from their most recent work in the lab, let them determine the future of science. They know what the most pressing problems are and they are the best equipped to solve them. The brutal competition of the tenure tract breeds a tendency to slip on integrity, more papers, more grants lead to more cheating. Stop over funding the most established labs, fund the newest faculty adequately and maintain adequate funding for mid-career faculty. There also must be space and funding for fundamental research. We waste so much, so many science careers by over funding the top 1 percent and neglecting the rest. Thank you.

Thank you for that. Next speaker is Anita Desikan followed by Henning Schulzrinne.

Thank you very much. My name is Anita and I'm a research analyst for the Center of Science and Democracy. For over 40 years environmental justice research has shown that underserved communities face health burdens from exposure to pollution, toxic chemicals and stressors heavily impacted communities are marginalized in the federal scientific work and public policies. When community level impacts are not fully incorporated into scientific analyses the result is a continuation of inequity and injustice. Therefore federal agencies should take a hard look at their scientific processes to ensure it is fully and from the very beginning incorporating equity and justice into its framework. It is not enough for federal agencies to carry out data collection efforts on health disparities. They must ensure that all processes guiding the science are robust, community focused and free from political interference. Agencies should develop protocols that allow community input and allow communities to comment on these processes. Community science, also called citizen science, is one promising way forward. Because community science allows community members to exert a high degree of control over research focuses on addressing community concerns and form prime ministers and process between community members it has potential to serve as an important tool federal agencies can employ to help meaningfully engage with underserved communities. Agencies should develop clear guidelines how to have projects, provide standards and tools for communities to best inform the process and help agencies determine how and when to use and prioritize community science to support regulatory decision making. Thank you again for your time.

Thank you. Next speaker is Henning followed by Andria Boggio. Please go ahead.

Good morning and thank you for the opportunity. I'm speaking probably as one of a few non-natural scientists. I work at Columbia University in the department of computer science, interested in computer networks and broadband infrastructure. I want to talk about two related topics on having worked both in academia as well as in the federal government. One of the problems is that many of the most pressing policy problems and incentives and initiatives such as 5G and broadband deployment almost exclusively rely on research and data either provided by or analyzed by conflicts of interest, even if well intentioned. Either conflicts because we might receive funding or because we are part of the telecommunications industry in that particular case. There's essentially no funding available through the National Science Foundation or other bodies to do more critical research of some of those initiatives. So that

priorities are largely driven by industry interests, not a neutral scientific investigation. Data for example on broadband data is not available to us, even though it is available, but just not to research, it's only held within the agencies. Thus better data availability would ensure that neutral nonconflicted parties can indeed contribute to these vital policy discussions that drive billions of dollars of federal investment. Thank you much.

Thank you. Next speaker is Andrea followed by Mark Underwood. Andrea, please.

Andrea you are muted or we can't hear you. I'm sorry. We can't hear you, if you're having audio difficulties please feel free to take yourself out of the queue for now and rejoin. We have time today. So with that we'll move to Mark Underwood. Followed by Jim McCusker.

Thank you so much. I work in cyber security at a fortune 200 company so I have a long list and I'll post my list which I've got in a blog post but the gist of this is about education. There are 9 points. The first is training in the intersection of science and public policy. This includes experimental methods, double blinds, statistical significance. And the second is teaching critical thinking in K 12 which uses Wikipedia skills and summarization and annotation of scientific information and confirmation bias. Third point is replacing trigonometry with statistics in high school integrated with the teaching of scientific methods across all subjects. Fourth is foster the adoption of knowledge of base tools including digital ontology in all college level degree programs with particular attention paid to automated reasoning approaches not only machine learning but hands on experience with reasoning software like protege. Fifth, fund programs to promote awareness of these challenges of specialization especially for privacy and weekly under technologies like pharmaceuticals and 5G. Six is embed lessons learned. Seventh is foster increase citation of primary source material including access to data sets, negative results, unreviewed material and to get away from long essays with citations in public discourse. And last to teach specific competencies in K 12 that are project based of the climate crisis across other disciplines. Thanks for your time.

Thank you. Next speaker is Jim followed by Tom. Jim please go ahead.

Okay thank you very much. My name is Jim, a professor of chemistry at Michigan State University for the past 20 years and professor of UC Berkeley for the decade preceding that. And what I want to talk about is echoing a thread part of the chat earlier in the discussion and that's OSTP's possible role in helping to define the nature of the problem. And I guess I would start by describing, if we listen to everyone speaking today, interpretations of what's meant by scientific integrity are widely divergent. This can mean a lot of things and OSTP has a potential role in terms of trying to frame this problem. This also translates into education. So whether you're teaching freshman chemistry or going out and giving public talks at Universities. I'll give talks to the general public on different research aspects and just in defining what you mean when you say something is critically important to put people on the same footing. The number of people who, in the general public, who don't know the difference between weather and climate, that's a critical problem when you try to discuss climate change for example. A lot of people outside the scientific endeavor think science and technology are one big word but science needs to be developed before technology takes hold so I think this lack of having a common language base within and outside the scientific community is a critically important thing for us to do. Because we don't have the same baseline to build off of it's going to be difficult to bridge these gaps that we know exist between what's going on in science and education and how the public perceives what's going on in science and education. And it seems like Office of Science

and Technology Policy, which is designed to bridge the gap between public policy and scientists, could help catalyze these types of things by providing an environment where we can begin developing these sorts of common technologies or common language base to allow the communication to be much more [Indiscernible] than it is currently.

Thank you. Next speaker is Tom Sinks followed by Barbara Stauffer. We have 4 or 5 hands raised we welcome your feedback so raise your hand and join the queue if you have anything you would like to share with us today. So please go ahead, Tom.

Okay. Thank you all very much and Margaret thank you for the help on the lack of hands raised. So my name is Tom Sinks and I will provide 5 specific recommendations. They're based on my 35 year experience as a senior scientist working at the Centers for Disease Control. And later at the Environmental Protection Agency and my involvement in the increasing transparency and regulatory science proposed regulation that EPA tried to pass. So my 5 recommendations. First I'm going to double down on what Jim just said. I think clear definitions for scientific misconduct, scientific integrity as well as quality control assurance and clearance are absolutely essential. So everybody is working from the same page. Secondly, this group should make recommendations that encourage public/private and governmental institutions and funders to establish guidance or policies on scientific misconduct, scientific integrity and quality assurance and control. For government agencies recommendations should establish or strengthen firewalls between scientists and political appointees, for example police department appointees should not approve scientific products and each agency should have a senior scientist established as the ultimate approval who is not a political appointee. Recommendations should include goals for undergraduate and graduate education on scientific integrity, scientific misconduct, quality assurance, quality control and clearance and finally the report should recognize the political influences trying to limit the science used in regulatory decision making and identify it as a core loss of scientific integrity. Thank you.

Thank you for that, next speaker is Barbara Stauffer followed by Cindy Bonfini Hotlosz.

Thank you. So I'm chief of community programs at the National Museum of Natural History and would like to speak to the importance of diversifying the field of science in order to produce a more science literate society, open science to a wider range of perspectives, and ensure no population feels excluded from or even worse targeted by the scientific endeavor. So we along with our collections research and exhibitions offer programs for students including pre K 12, internships, graduate fellowships, the spectrum of the student experience and we offer professional development for teachers. But just offering the programs isn't enough. We need to attract and retain a more diverse range of participants, especially from under represented populations. And so to do this we need an active and sustained effort to coordinate and improve our recruitment, onboarding and retention processes. By doing this we can address many of the factors that contribute to the lack of diversity in the field which include but are not limited to training teachers and prioritizing title I schools to counteract the inequity access to science instruction 234 schools. Partnering with minority serving organizations to offer paid internships, um, for students from under represented populations and providing strong administrative and mentoring support before, during, and after any experience with us, and creating an alumni network that for ongoing mutual support. And I know this sounds straight forward and obvious but it's a lot of effort and we're just getting started including with the fundraising but just wanted to speak to this because we believe strongly that initiatives like this

are essential if we're going to put into place the internal systems and the external outreach that are needed to create inclusive cultures and train a new generation of scientists. Thank you.

Thank you very much. Next speaker is Cindy followed by Dave Arndt. Cindy, please go ahead.

Hi my name is Cindy and you did a great job in pronouncing my name. One of the things that we do is help remove barriers of access to Higher Ed and we focus on education in marginalized context. We codeveloped with University of Geneva the edge case context and long ago and far away I was the first Director of the national Technology Transfer Center, Director of online learning. Last year the U.S. was in a crisis context in education. What happens in a crisis is that there's a norm, the crisis occurs then we emerge with a new norm. Right now we have an opportunity to really redefine how we think about higher education. One of the important flaws that we have in Higher Ed is faculty do not have education training. They do not have communication training. They're subject matter experts. Higher Eds focus on key skills like communication and understanding pedagogy. Scientific integrity can borrow from human centered design and look at how we effectively communicate with those we are serving. Integrity begins with trust and trust begins with the ability to communicate meaningfully with others. Our opportunity to emerge from this crisis is to rethink Higher Ed to include a focus on communication and pedagogy. Thank you very much.

Thank you. Our next speaker is Dave followed by Andrea Boggio. We have a relatively short number of speakers with hands raised to feel free to join the que. For those that have spoken if you would like to add to the conversation please feel free to rejoin the queue. Dave.

Hello I'm Dave Arndt a climate environmental and social justice advocate and recent retiree at NIH. Training is essential for everyone. However, it has to be really a core value of every organization. And what I mean by that is that people should feel free not only to report issues they should be really praised for making issues known to the organization. Unfortunately, many scientists are afraid to bring issues forward because it delays or derails their career. Pathways have to be created for independent review of all issues. These issues not only include integrity of the science itself but it must include reporting of discrimination all forms of bias, harassment, and hostile workplace areas. Thank you.

Thank you very much. Our next speaker is Andrea. Hopefully the audio will cooperate with us followed by Venkatesan.

Yes I think the issue is worked out.

Yes, please go ahead.

Thank you for the opportunity to contribute to your work. I'm a Professor of legal studies in Rhode Island. I want to contribute two comments. The first is to stress the importance of education which has been raised by other commentators. The members of the scientific of the members of the scientific community my experience as an expert in ethical legal issues of science is often scientists discover the details of scientific integrity when they experience the cases of misconduct and this is particularly true for doctoral students and those asked to do something dubious from a scientific integrity perspective. What is done is not sufficient. It should be an essential part of those who plan to join the scientific community throughout their professional lives. It's important the training reaches not just all scientists but also administrators, publishers, reviewers, personnel and so forth. Federal government should incentive such training within the agencies, but also if and where possible outside. The second

comment is on the idea of scientific integrity. We heard we need a definition but also how are we going to measure that? Measuring scientific integrity is a challenge because integrity is more easy to measure when breached.

Thank you very much. Next speaker is Vekatesan followed by Emma Thompson. Please go ahead.

Hello everyone thank you for the opportunity. I'm currently a faculty member at San Diego State University. I have submitted 7 proposals to National Science Foundation and 3 proposals to NASA in the last 4 years. All of them got rejected. If I look back carefully in most of the cases opinions are taken as face values and proposals are rejected without checking the validity of those comments. For example I have submitted a proposal related to carbon atoms. To the best of my knowledge no chemical products are available in the market. However, one wrote this field is saturated and molecules [Indiscernible] coordinate cash [Indiscernible]. So these kind of comments are taken as face value and the proposal's rejected. Even if you study in top 10 universities in the U.S. today no one is going to talk about molecules [Indiscernible]. Therefore [Indiscernible] fair manner is a question of scientific integrity. Unlike [Indiscernible] grant proposals don't have a rebuttal process. In my opinion it should be done so if we want to talk about scientific integrity in the first place. Another thing I would like to emphasize here is that funding agencies constantly ask for experimental preliminary data and they don't give a single penny to us. In some cases generating experimental preliminary data itself [Indiscernible] $50 to $60,000. How is faculty like me going to manage that? So with these two comments I would like to close it. Thank you.

Thank you very much. Our next speaker is Emma Thompson followed by Cassandra Sperow.

Thank you. I represent Cochrane. As an organization that's committed to independence and transparency in healthcare research for over 20 years we appreciate this opportunity to share our views. Information for those that might not know us, we produce high quality systemic reviews which summarize the best available evidence on the effects of interventions to inform decisions about health. [Indiscernible] I want to underline systemic reviews are uniquely valuable form of evidence and assess all research on a topic and check on studies. This can be more trustworthy. [Indiscernible] gold standard for high quality information. It's important to highlight that one of the reasons we have developed a trust reputation is our rigorous evidence-based research policies which are designed to protect and promote data sharing. The task force we shared information on the policies and our research activities. Some of these include our approach to conflict of interest, efforts to identify and manage how we approach potentially problematic or untrustworthy studies on transparency. We hope these can serve as useful resources for good practice and I'll finish my comment by saying we're available to discuss any of these policies and share information on our research integrity agenda with you or with other people on this call. We would be delighted to work together and further our efforts. Contact us if we can offer further assistance. Thank you.

Thank you. Our next speaker is Cassandra followed by Henning.

Hello can everyone hear me all right?

We can, yes.

Okay. Thank you so much. Thank you so much for this opportunity I'm speaking as someone as a former art educator and who is currently about to start a data science degree. Um, and my

art education background is melding with my science education as someone who has been learning to code and analyze data on a small scale now but also for the future generations. I was moved by other people, I wasn't planning to speak today, so I will be quick and be to the point. But I was moved by other things that I heard today to put together some brief remarks. As I'm transitioning to data science at American University my goals are to combine the qualitative with quantitative. As an arts educator it's paramount for education to engage in the arts. Educators in this very valuable combination in creating a critical thinker in students across age groups. I'm referencing project based learning from other speakers here today as well as the arts education scholar Isner at Stanford University. They express advantages of studying the arts for transfer of learning in other subject areas. One example is how the arts promotes thinking of finding multiple solutions to a defined problem. This is ideal for science education and indeed one can find many examples of art teachers and science teachers working together on projects. To not only achieve the standards in their subject areas but also creating an awareness in students that last a lifetime. This leads me briefly to touch on design thinking, which is a critical part of user interfaces today and that also touches on consumer technology such as smart phones. Thank you very much.

Thank you for that. Our next speaker is Henning followed by Deborah Stine.

Thank you for the second opportunity. I wanted to pick up a theme which the chat has been discussing, scientific peer review particularly from a computer science perspective. I think there is a fair amount of misunderstanding and lack of explanation both among policy makers and the general public that peer review is treated as a binary type of indicator, either something has been peer reviewed or it has not been. And there seems to be often some confuse that peer review and the general public is assumed to mean some other independent scientist has verified, validated, replicated the results. We all know as practicing engineers and scientists that neither of which is true. I think it would be quite helpful again speaking particularly from an engineering perspective that there's a better understanding among the public and better disclosure of the intensity of the actual peer review which for my conference and journal papers can be quite cursory and certainly for encouraging and labeling whether the results have been replicated, whether the data is available to other researchers to even do that. ACM and other societies are starting to make that easier but generally in terms of its use for example during regulatory proceedings there's almost no distinction between industry funded, non-reputable research and actual research which has had intensive peer review and replication. Thank you.

Thank you very much for that. Next speaker is Deborah followed by Alice Liu and those are the final two hands we have raised. We are looking to take a 5 minute break around noon so please do use that time obviously to hydrate and take a break but if you have thoughts you would like to share raise your hands and get yourself in the queue we'll resume at 12:05. So with that let me hand it to Deborah.

I'm Deborah the founder and instructor for the Science and Technology Policy Academy. I deal with Ph.D. students and graduates. I would like to make 3 proposals for action based on my interactions with these students. The first is that the definition of scientific integrity should include the treatment of graduate students and PostDocs as opposed to today where it's still false indication, plagiarism and so forth and that is because too often we see faculty members taking advantage of graduate students and PostDocs and things like in terms of the data they have collected and also their education in terms of focusing more on their own career path as opposed to educational aspect of the students and thinking about the student's career path

and the PostDocs. Second there should be a requirement on every campus that is independent of the administration. Right now some universities have ombuds people and others do not, so if there's a problem there's somebody they can go to independent from the University infrastructure. Then lastly I think all the funding agencies should have somebody on hand who can council students. So if they're under an NIH, NSF science grant they have somebody they can talk to if they have concerns about the grants that are funded by that proposal. Whether it be research integrity, the treatment they have of students and so forth. Out of the me too movement there's still not an opportunity for students or a place for them to go if that occurs. We've seen this at national academies and certainly in our federal agencies. Thank you.

Thank you very much for that and our last speaker before the break is Alice Liu and no further hands in the queue so please add yourself. The chat has been very active which is great to see but we would also love to hear from you so please raise your hand if there's something you would like us to hear.

Thank you for this opportunity. I'm speaking just on my own behalf but I do work in international digital health and AI. I'm just reflecting upon the experience we've been going through for the last year plus and really the anti-vax movement that has existed for quite a bit of time. And in thinking about the topic here, science and education and professional development of scientists and researchers, others have brought this up and I echo this that we need to there needs to be some emphasis on educating scientists on how to educate. So that is a unique skill in and of itself. Yesterday's talk also talked about science communications and similarly educating scientists on communication. And thirdly it's not necessarily just the scientists there are people who we can enlist from the communications experts, from people involved in public relations, even seams. This is something I've observed sometimes it's not so much what you say, it's how you say it. This is going on in the chat too. All the data and all the science and peer reviewed papers but you really need to know your audience and so I just wanted to iterate those points. The last one is that we are really in a battle for people's attention. So we do need to think creatively about how we educate and communicate to the general population. Some of the international health work involved uses animation, so films, celebrities and so forth so I think we need to look at other ways to reach people. Thank you very much.

Thank you very much for that Alice and with that we will take a 5 minute break. Jim I see your hand and we'll start with you when we return 12:06 to make sure we get a full 5 minutes so again gather your thoughts and raise your hands if there's anything you would like to add. Those spoken feel free to return but we would love to hear from people that haven't spoken to join the queue and we will resume at 12:06. Thank you everyone!

So hello everyone we're at 12:06 so wanted to get started right on time. We have a couple of hands in the queue so our first speaker will be Jim McCusker.

Okay thanks very much. I wanted to sort of go back to this theme of education and how we can better communicate with the public and I want to do this in the form of a small anecdote of something that happened to me. I think in a lot of ways as scientists we're our own worst enemy. If we're in a scientific discussion and present results and conclusion and if a fellow scientist doesn't believe us our response is to provide more data to back up our assertions. For people resistant to science in the general public it doesn't work but it backfires because they're more entrenched in their particular beliefs. So one thing I did when I was giving a public talk,

as part of an award thing I did a number of years ago, my research is in solar energy conversion so I typically involve discussions of climate change which can be a hot button issue depending on the audience so rather than presenting reams of data what I did was a small demonstration. I brought with me a beaker of water, a chunk of calcium carbonate and delighted HCL and asked the audience, you know, does everyone agree when you burn fossil fuels you emit CO2. Where does it go? Couple people said it goes into outer space. No otherwise well we would have bigger problems than global warming but dissolves in the ocean. When you bubble CO2 in water it becomes more acidic. I dropped it in the water and slowly drops in drops of the solution and the coral basically dissolved. The calcium carbonate will dissolve in acidic water so people say that disagree. I said I can't tell you what the consequence of losing the coral in the ocean is going to be but probably not good and that resonated much more with people than throwing facts at them. So that's something scientists may want to consider.

Thank you, next speaker is Cindy Bonfini Hotlosz. We do not have more hands after Cindy. We want to hear are from you so feel free to raise your hand if there's something you want to share or something you put in the chat you would like to enter into the speaking record, please could feel free to raise your hand.

Jim that was great in telling a story people can relate to. This past summer, the summer before last when we were commissioned by universities to convert 335 courses to online learning. We had to figure out a way to do it and one of the things we did was we looked at different pedagogical models we could easily convey in a short time. Typically there's like had 1: 6 ratio from Instructional Designer to being if a ultra. We were dealt 1 : 45 ratios of instructional designers to faculty. We came upon a pedagogical approach called cognitive apprentice ship that actually walked them through the idea of how they can teach in a connected learning way with students and we were dealing with a lot of ambiguity in terms of, you know, will they be back in class, will they be online. And we had to figure out a way to say okay we need to solve the future problem, not the current problem. And so by running them through a workshop we were able to scale. But what the feedback was, was how much they appreciated having the opportunity to learn about how people learn. And I think that that's a fundamental gap that we have currently in Higher Ed and it really raised its head during this past crisis. So I think if we can focus on how we become better communicators continuing would make everyone, um, not only be able to believe in science but then also be able be to judge whether or not they're doing a good job at being able to educate.

Thank you for that. Next speaker is James Heathers, followed by Mark underwood. James please go ahead. James if you're speaking we can't hear you.

How about that?

There we go. Please go ahead.

Okay there's too many options on this thing. Hello everyone. My name is James Heathers the chief scientific officer of Cyber scan. We build medical wearables and also a scientific integrity researcher. I'm speaking in a personal capacity and will confine my remarks to the work that I've done that is directly interrogating public research in the public domain. We have one that investigates scientists that breach scientific integrity. There's one case report. That is the formal oversight mechanism for computationally inaccurate published research in the continental United States. In the work they do and the work I do there are zero formal funding mechanisms in the NSF, NIH and vast majority of private foundations which address statistical

techniques for looking at scientific research and telling whether or not it is accurate. This has been so badly deprioritized it's not even funny. We have been predicting for years that something terrible would happen when this particular environment that we've developed in formal science hit a crisis that it wouldn't overcome. And last year it did. Science has had a very, very bad plague. There have been an awful, awful lot of mistakes which no one is funded to find. That's all.

Thank you very much for that. Next speaker is Mark Underwood followed by Jacob. Mark, please go ahead.

Yes I just wanted to comment on the thread regarding open science that's in the chat. There's some success stories around open science despite the problems and I think, you know, it deserves more attention on the integrity side of this. So the use cases for this for me are the whole ecosystem, which is an open creation security cure racial discourse environment which is enormously successful and influential affecting every product we touch including the Zoom PLWD. Wikipedia likewise is an example of an open science in engineer. It's artifact that's a living testament to what open processes can do. So I think this is more about the middle ground in which there is formal activities to being taken by government and regulatory agencies to promote open science but also more canonical ways in which we teach about how to interact with these artifacts and contribute to them and teach our kids and those of us that are in longer term careers, I'm in a late career setting and I think more about what people are doing in the last 10 or 20 years of their career this gets way too less attention so I think part of the integrity problem is about restructuring how we interact with the real complexity and depth of specialization that's involved in science itself.

Thank you for that. Next speaker is Jacob followed by Maria and after that we don't have more hands up so again we do want to hear from you. Please raise your hand if you want to reiterate or expand upon something. We want to hear from you. Jacob please go ahead.

My apologies my son changed the name on Zoom. I am associated with the NSF center. I also disclose that I am a professor in China. I would like to speak about a topic that has not yet been raised which is the discussion of foreign influence in the context of scientific integrity. I believe that this conversation does not belong in a discussion of scientific integrity for the following reasons. So foreign influence has been discussed at length in the context of scientific integrity. In congress in fact. I believe it doesn't belong there at all. The reasons for this are that I believe it's my job to help make American innovation and American research the best in the world. We've been there for a long time. It's my job to keep it there. There are efforts at foot to protect America from foreign influence. These include efforts that are well founded to make certain that foreign influence does not impede scientific freedom and scientific integrity in America. However efforts by grog to limit academic freedom are not effective. The idea of trying to free me from foreign influence that impedes science by limiting my academic freedom and collaboration is not a well founded idea and should be stopped. I believe that we need to be out there in other countries recruiting the best in the world and we need to be recruiting and maintaining the best students in the world for America to stay at the top of the international research effort. Thank you.

Thank you very much. Next speaker is Maria followed by Tom. Please go ahead.

Hi my name is Maria I am the founder and CEO [Indiscernible] company that aims to it translate technologies coming from the lab into different applications that people can use and I would

like to reiterate on the role that funding agencies have in scientific integrity. Defining scientific integrity as the proper use of funding and the appropriate treatment of data and the appropriate conclusions gotten from the data obtained. I think the core really in that aspect is the misalignment that the companies are imposing on sciences about how they get the dollar amount, how they get the proposals, everything being based on the number of publications and the more grants they get. So I think that we should really focus and think about how the funding agencies, what their role is and how the system's role and the incentives that are imposed on scientists leads to scientific misconduct and not being in alignment with what the goal of science should be and that's all. Thank you.

Thank you very much. Our next speaker is Tom Gathering and Tom is the last raised so again if you would like to join the queue please do that. We would like to hear from you. Tom, please go ahead.

Yes, my training in science proceeded to the Massachusetts Institute of Technology. I was lucky enough to be in computer science before it was a science so I have a lot of logic backing and linguistics with a famous person so understanding the meaning of words and building logic is the scientific method in many aspects p and I think that's missing in a lot of our discussion. So create a valid analogy say between what happened on the sixth of January and declare it the worst threat to democracy since the Civil War would require a large excel spreadsheet with all the comparisons but nobody's doing that. They just proclaim the results and so a lot of our discussions even here are not really based on science, they're just political proclamations. So I think we need to get back to writing down what we're talking about and giving meaning to words, because if the word atrocity is applied to the situation where no Congressman was shot, no building was burned on January 6th and yet dozens of these events and hundreds of murders occurred in Chicago during the same time period, we're losing touch with reality. So I would like to suggest that people actually write down the words that support their position so they can actually see where the thoughts are coming from and that would be more scientific. And that's all I have.

Thank you very much. I see a hand raised from Jim. Jim I'll turn it to you in a moment. Again please join the queue if you would like to share anything with us today. We do really want to hear are from you. Go ahead, Jim.

Thanks very much. I've been sitting here trying to think because ultimately this is about OSTP trying to get insight or advice as to what they can do. I think one thing that's become problematic, you know, I've been in academics for almost 25 years so one trend I've seen which is problematic is the deemphasis on fundamental science. You know the a number of years ago Congressman dated NSF change the priorities in terms of what they want to see for research to emphasize broader impact which has a variety of definitions. But there's been a tendency toward emphasizing short term return on investment, if you will, on research. And while there are certain agencies that are very mission oriented like the Department of Energy and Department of Defense agencies like NSF need to be broader. I wonder how OSTP can be a mechanism to help engage the public on the importance of fundamental science. I'll give another anecdote to a talk I gave and I drew the formula for ethanol on the chalk board and said who would give me a million dollars to come up with a technique to tell this proton from this proton. Nobody raised their hand. That's unfortunate is why we have MRI today. The thread between fundamental science and how this impacts people is difficult for the people to see in general because a lot of timings it's a long term prospect but essential to moving technology

forward so I don't know to what extent OSTP can get involved in these efforts but it would certainly help to emphasize how important fundamental science is not just applications driven in our society. Thanks.

Next speaker is Adam Iaizzi.

Thank you. So I'm a science and technology fellow just to be clear this is my opinion not [Indiscernible]. I wanted to echo the comments that I believe Dr. Sinks earlier, I'm sorry I wrote her name down and I'm not with my notes right now, that we need to consider how one treats other scientists as part of scientific integrity. I believe be very strongly, you know, it's not true that someone is a great scientist but a serial harasser if they harass other scientists then they're not a good scientists because they're hurting the scientific endeavor and I think that needs to be part of what we consider to be scientific ethics. So thank you very much. I yield my time.

Thank you very much for that. So we currently don't have any hands raised. Again happy to give people some time just to gather their thoughts if there's anything you would like to share. The chat has been very active which we're glad to see and all this is captured as mentioned. Please raise your hand. Okay we have a raised hand from Chaowei Yang. Please go ahead.

Okay thank you for the opportunity to speak. I want to talk from my experience based on scientific research and also education. I'm a professor the George Mason University and also innovation center. I want to touch base on 4 aspects on how to strengthen our relations leadership globally. First thing, in order to be a global leader in scientific innovation including fundamental and advanced technology research we need to get our best students to the top schools. Harvard, Princeton, Thomas Jefferson should get the best students. Secondly [Indiscernible] scale workers. We need to strengthen that to our 3 year for example, the associate degree students so they can be prepared with advanced knowledge. And also in order to man taken our [Indiscernible] I think we should [Indiscernible] collaborations, we see a lot of concerns especially with developing countries. The third part is we have very diverse communities of researchers and educators that on the leadership level it's very undiversified. So we need to have more under represented groups or members serving in a leadership role in the science community. Thank you.

Thank you very much. We have a couple of hands raised. The next speaker is Cassandra. Please go ahead.

Thank you for the extra time. I heard someone say earlier that they would recommend taking out trigonometry and putting in statistics. From my personal perspective, um, I'm finding statistics to be more useful on an everyday level as a citizen. Even though I enjoyed calculus so I recommend having statistics as one of the required math courses in K 12 math education. I've also seen some initiatives they University of Florida I believe for computer science K 12 standards. And I would add to that I'm not sure if they include already some sort of game design because I think game design for students in terms of designing and programming a video game then they can analyze it with statistics, some sort of initiative like that. I don't know if the DOE is currently looking at that but I know that there is some initiative for computer science K 12 standards. But yeah I would include game design, game theory, statistics with the design thinking. Thank you. I don't need any more time.

Thank you very much. And our next speaker would be Amy Kullas. Again after her no more hands raised. So again please do feel free to put your hand if you will like to speak. Amy over to you.

Thank you so much. My name is Amy and I am here today to speak as a member of the scientific community and enterprise. I speak in a personal capacity and from my own experience. Scientific advancement is incremental and requires a solid foundation of rigorous and reproducible information to translate fundamental discoveries into real world applications. Poorly designed experiments, reporting bias and misconduct all contribute to the publication of erroneous and nonreproducible information and hinder scientific inquiry. The scientific enterprise should commit to public accomplishing all good quality research including replication studies, negative results and reanalysis. All stakeholders including funding agencies, research and academic institutions, journals, professional associations, individual investigators, private sector and industry partners and research groups have a role to play in ensuring rigor and integrity in scientific practice. Now is the time where OSTP can provide clear guidelines to these stakeholders so that these groups can sin guise their efforts and resources so there's no longer the siloing of information nor dupe duplicative efforts and communicate with each other. Additionally it would be helpful if federal agencies with OSTP coordination and stakeholder input published clear guidelines governing data stewardship and open access and that there is adequate funding for the data management and data infrastructure. Without access to data it is virtually impossible to evaluate through reproducibility and potential causes or explanations or any lack of reproducibility. It's imperative to the entire scientific enterprise for researchers and beyond to establish and maintain a healthy data management plan.

Thank you for that, Amy. Do feel free to join the queue again if you have more comments you would like to share. That was the last raised hand so again if anyone would like to raise their hand and speak we welcome hearing from you. I'm happy to just give everyone a couple minutes. Okay great I see Rachel Connolly. Rachel go ahead, please.

Hi, yeah. I just wanted to say it would be useful the outputs of this effort would really frame clearly and impact what scientific integrity means in your context. And how you're operationalizing it in different context and different learners and audiences because even in this conversation today it sounds like research integrity and scientific integrity are being used interchangeably and I would just see it sometimes as being more nested, but whatever you do being very clear about how even these listening sessions have been chunked and denoted as a frame for integrity I would say if we can start with that up front it would be really helpful to know exactly which context you want to be talking about. Thanks.

Thank you for that. Next speaker is Alice Liu followed by Adam. Alice, please go ahead.

Yes hi. Again I spoke earlier I'm just speaking on my own behalf but I do work in international digital health and AI and actually came out of the old days to the dot com boom and bust. You have a few comments coming out of the chat and people speaking here. One is these are a little bit not directly on scientific integrity in education but they're related. One is about people have been talking about the influence of big tech. This is something that affects scientific integrity in the sense that the big tech companies have the massive volumes of data. They have the processing power and platforms, they have such a huge advantage over any other institution. There was a call at Stanford and I think a co Director of the Stanford Center for human centered intelligence calling for a national science cloud because they see academia being on a

disadvantage to big tech in terms of those resources. So that will affect the integrity of the science that's put out if only big tech has the data and the platforms to do the research. Another thing that's been talked about is trust and I think we've got to see consequences we're seeing some now with pharma. I've seen some of these comments on Twitter where people don't trust the vaccine or thought it came out too quickly. The crisis and the companies behind that does not help engender trust so we have to make sure there are consequences and lastly teaching ethics and integrity at the undergraduate level I remember as a computer science under grad I barely thought about it although there was one class offered so that was always a good opportunity.

Thank you for that Alice and yeah just to reiterate today we are interested in hearing about what you just raised about emerging technologies and professional development and training and handling disagreements. So again would love to hear your thoughts on any of those topics and appreciate those of you who have spoken so far. Next speaker is add many an. Please go ahead.

Hi I just wanted to somebody said this in the chat too. I wanted to third the comment about how useful it would be to teach stats in high school. I'm a trained physicist so I used more math than almost anyone I went to high school with and looking back the thing I'm most glad I took because it was optional even someone interested in math was statistics and it's not now like I do know how to do things like a T test or whatever but like the thing that was useful especially in the years following that where I didn't use it for anything technical was just that I had literacy in how to understand when someone cites a margin of error and I think that is something that unlike trigonometry I don't want to beat up on it too much but if you don't remember how to do the cosine of something it doesn't really help you but you don't have to remember how to do statistics to be useful for a person going about their everyday life and even for a scientist because we often don't get very, you know, like we don't get our own separate training in that necessarily. I think it is really important some of the efforts that are ongoing with NSF certainly to have even just like two afternoon seminar for graduate students on scientific integrity because otherwise the only person you learn that from is your Ph.D. advisor and if they are not a scientific if they do not show you the right behavior you will have no way of knowing that's wrong or have the independence sense of how to evaluate what should happen with authorship or data management, et cetera. So thank you.

Thank you very much. Our next speaker is Jason Williams and again no hands raised after Jason so please do raise your hands if you would like to speak after him. Please go ahead, Jason and I see a hand with Dorothy Bennett. Jason please go ahead.

Hi everyone thank you for the opportunity to speak. I'm in a laboratory in New York speaking in a personal capacity. There's so much to say, so many great comments but I want to generalize, you know human beings we grow up in societies, we have values, we have, you know, we think about things over the time course of generations and so much of the bad things that happen in science are because we are divested from cultural values that could help us to really think about the spurred stewardship of science. From let's divide the age 0 to Ph.D. we put books and facts in front of students and basically under serve them by not making them think of themselves as stewards of science and the things that they're learning and that their values and purposes are connected to it so why should they be concerned about scientific integrity? It's not something on the list. Learning how to do a reaction or solve an equation is all we put in front of them for the most part and as we get past the Ph.D. and as one of the last speakers said you start thinking about, you know, modeling the behavior of your advisor if that

was in fact good behavior, that's when we pick up all these things we're not trained on at all and the post graduate educational pipeline and career spanning learning which I'm holding on meeting on later because it's an interesting topic we're not only under served but we will continue to get worse as someone mentioned big tech, AI, machine learning most of the people making decisions about those aren't qualified and we're going to make bad ones so really there's a lot of work to do and that we can funding agencies and others can help to undo a lot of those mechanisms that have gelled and crystallized things as they were instead of structurally reforming policy and how we think of stewardship of science and creating ownership for the public for every one. Thank you.

Thank you very much. Our next speaker is Dorothy Bennett and following Dorothy will be Mark Underwood.

Yes I'm the Director of creative pedagogy at the New York hall of science in Queens New York one of the most diverse counties in the country and our focus is on making stem education and science inclusive and accessible to everyone. And I'm just kind of following up on a lot of the comments here about the importance of citizen science maybe as a means for improving scientific integrity of research, this collaboration between, you know, our communities and actual scientists responsible for reflecting the questions of the community and people are often left out. I'll just say that another piece that we've been really focusing on and would like to know more from this community is the importance of data literacy and algorithmics. Just thinking about AI, machine learning, many of the systems that govern how we live also guide our science and we have to kind of develop these educational experiences that allow them to know that those systems are also, you know, susceptible to prospectus and the biases. I see that as a critical and missing piece that's often definitely at the K 12 level, not happening. There's a big focus on programming much less focus on this kind of critical awareness of how these systems really contribute to and shape the ways in which we analyze and make decisions. So I will leave it at that.

Thank you very much. And next speaker is Mark again he's the last person with a hand raised. We have about 20 minutes and we would like to listen to anything you would like to share with us so please raise your hand and I'll hand it to Mark.

My point was going to be similar. This is the topic of the role of automation and AI and the conduct of science itself. That's why I was advocating for statistics. I work in security, we're seeing it deeply embedded in the tools we buy. It's not just a nice to have talent like a microscope this is something that changes how science happens. It changes how hypotheses are going to happen and what we do with neglective information and negative findings because these influence the data collection that we choose to automate down the road so I think the automation of science itself and that includes the publishing infrastructure, how renewals are done and how we ask people to summarize their work and maybe that available to science journalists and to our peers that are not specialists inside our own enterprises, these are all part of the thing we're wrestling with here. Thanks.

Thank you very much. And we have a hand up from Ben Marwick.

I'm a professor at anthropology at the University of Washington I just wanted to add my voice to am my and others making points about the integrity and reproducibility of public research. These are essential to the sustainability of science that is not only relevant to society [Indiscernible]. There's substantial benefits so people of genders, races, ethnicities and socio

economic backgrounds that are under represented in science. The reason for this is when a paper is published with a data set and code file in an open source programming language this shows how the research went from more data to published finding and they give access to others small isolated institutions and independent researchers and citizen scientists such as high school teachers for example, these become, these open materials become vital public resources in pouring scientific literacy in populations away from big research intensive institutions thus the free and open availability of data code not only enhances scientific integrity but also expands the accessibility of science and serves to decolonize science for people that historically had limited participation in scientific processes. Thank you.

Thank you for that and I did see Cindy raised her hand but saw you lower it so I want to make sure I'm not overlooking an indication to speak. Okay. I'm going to take a lowered hand as a lowered hand. All right everyone we've got about 15 minutes left. I wanted to just do one final request forehands if there's anyone who would like to speak today. We do want to hear from you so please do put your hands up but we'll wait a minute or so and if we don't have any more hands we can wrap up this session. Okay. It looks like everyone feels like they said their piece. We're glad about that and glad to see all the action happening in the chat and all the conversation. So with that we'll look to wrap up today's session and I will hand it over to Carmine from the White House Office of science and technology policy to close us out for the day. Carmine please go ahead.

Thank you so much. Good evening or good morning everyone depending on where you are. I am Dr. Carmine Leggett and on behalf of the task force we would like to thank you for joining us today and for this listening session and for the many interesting comments provided. If you were unable to speak today or would like to share some additional thoughts on scientific integrity, you may send please send an email to ScientificIntegrityRFI@ostp.eop.gov within 24 hours we'll be happy to read additional comments. It was very enlightening to hear your opinions as they will be certainly they will certainly provide valuable information for the task force assessment so we will consider your input as we prepare our report and make recommendations for improving scientific integrity across the federal government. Again thank you for joining us and I hope you have a great rest of the day! Good bye!

Zoom Chat Transcript for Listening Session 2

The Zoom chat was recorded automatically during the listening session and downloaded after the listening session concluded. The chat transcript is included here as it appeared during the session, and includes the public messages to all attendees.

11:15:19 From Kyle Crider : I can't unmute

11:15:26 From Tom Sinks : I cannot find a raise hand option on my zoom application :(

11:15:56 From Ann Gallagher : Happy to connect on LinkedIn, too.

11:16:05 From Ishrat Jabin : Select More, then Reactions, and you will see Raise Hand Option

11:16:34 From Ann Gallagher : I'm the Ann M. Gallagher from Bethesda, Maryland with National Park Service and Start School Later, etc.

11:17:48 From Alice Liu : You can also click on Participants and then hover over your name and you'll see the Unmute option

11:18:11 From Malaika Simmons : Good afternoon, who was just speaking? I couldn't find their box in time.

11:18:53 From Rachel Connolly : Kyle Crider was just speaking

11:19:03 From Ann Gallagher : @ jacobcarter The remaining government scientists could use the training to understand the role and importance of science regardless of the administrative misunderstandings.

11:19:17 From Malaika Simmons : Thank you @Rachel.

11:19:30 From Daniel Kulp (he/him/his) : Hello all. I'm currently the Chair of COPE(Committee on Publication Ethics) and the Senior Director for the journals of the American Chemical Society.

11:19:47 From Alice Liu : You can go into View in the upper right corner and Choose "side-by-side Speaker view" to see the speaker

11:21:19 From Elizabeth Geltman : Can we get a list of presenters today? And a copy of this recording?

11:22:22 From Laurie Dacus | STPI : Closed captioning is provided for this meeting. In order to view captions, go to bottom of Zoom toolbar, right hand side, click on CC, then click "Show Subtitles". Sign Language interpretation is also available; please pin the Zoom window of the interpreter if you need to use this service. 2 interpreters: "ASL Interpreter" – Leah DiSabatino and Jess.

11:23:18 From Mark Underwood : Mark Underwood, Cybersecurity Innovation at Synchrony, IEEE member, views are my own https://linkedin.com/in/knowlengr

11:23:53 From Sharon Williams (STPI) : To raise your hand, open the “Participants” window by clicking the “Participants” button in Zoom. A “Participants” panel will appear to the right of your Zoom screen or in a separate window if you are in full screen mode. Click “Raise Hand” and a blue hand icon will appear next to your name in the Participants window.

11:25:23 From Laurie Dacus | STPI : The listening sessions will be recorded and summaries made available to the public as soon as possible. We will send an email notice to registered participants with additional information once the summaries become available.

11:27:39 From Mark Underwood : FYI My remarks are partly guided by IEEE initiatives like this: https://standards.ieee.org/industry-connections/ec/autonomous-systems.html

11:28:00 From Betsy Stefany : Citizen Science Programs need to apply Leslie McIntosh's presentation to their practice. The need to be inclusive must also develop a process of peer review of field and community practice that all engaged understand is part of the science and builds the acceptance of reports.

11:29:41 From Mark Underwood : I too began thinking about the importance of college ed, but in many fields the "training" is lifelong, especially in technology.

11:29:42 From Nicholas Jankowski : @jacobcarter - every DOD employee, and I believe federal exec branch employee is required to take annual training in gov't employee ethics, EEO topics (diversity, discrimination, and whistleblower protection), prevention of harassment&abuse, and now generally applied extremism training, among others. These are often seen as somewhat hollow while watching activities from the upper echelons in gov't. Curious what training suggestions would either add to this training or make existing training more useful/effective. As it stands, whenever there's a new news headline, a jaded workforce responds with "oh great, another hour of annual training is coming."

11:33:34 From Mark Underwood : @Henning same complaint applies to cybersec engineering

11:33:39 From Russell Shilling : Just like the general public government employees and policy makers need to be trained to be good consumers of knowledge. They need to understand the research process and the current issues around replicability and equity in data sets. These issues include assessing the impacts of emerging technologies like AI adoption.

11:34:09 From Ann Gallagher : @nicholasjankowski and @jacobcarter Training has not ensured that the science is getting out of the agencies. When an administration places nonscience people at the head of agencies, agency scientists have been self-censoring even though they have protections.

11:36:50 From Mark Underwood : My remarks here: https://knowlengr.com/uncategorized/science-specialization-and-education-in-the-age-of-ai/

11:37:12 From Henning Schulzrinne : To be more specific: agencies like the FCC gather data on broadband availability, performance, adoption and reliability, but industry pressure has made it unavailable (or available in only limited way) to researchers. The agencies themselves do not have the resources to do the analysis. Thus, it is not possible to conduct high-integrity research that is not biased by industry concerns.

11:38:43 From Mark Underwood : A lesson learned from working with standards organizations is that goals toward "definition" are well-intentioned but are often better served by use cases and vignettes from which the discourse can be nurtured

11:39:13 From Jacob Carter : Nicholas - Thank you so much for posing the question. I'll first point out that UCS has many recommendations on strengthening scientific integrity training, as well as other ways to strengthen scientific integrity, in this report: https://www.ucsusa.org/sites/default/files/2020-08/si-report-roadmap-for-science.pdf. SI training would be another training, yes, but an important addition for agencies that currently don't have a training (or may now need training given the memorandum on strengthening SI). Political appointees have not always received training but should. And while federal employees may receive training on ethics already - those may not be specific to conducting science (e.g., bias or discrimination in scientific products). Happy to connect on other recs if you'd like!

11:40:00 From Rachel Connolly : It would be useful to unpack “scientific integrity” and how it is operationalized in different contexts and with different learners/audiences.

11:40:03 From Henning Schulzrinne : In general, federal regulatory agencies (at least in the sectors I’m familiar with) do not solicit the input of the researchers and academia on data gathering (scope, methodology, access).

11:40:27 From Jim McCusker : +1 Rachel.

11:40:57 From Ann Gallagher : Hear, hear! Love these 5 ideas!

11:40:59 From Mark Underwood : Is anyone going to mention the peer review process?

11:41:29 From Nicholas Jankowski : @jacobcarter - yes, I can see where SI training would usefully expand on existing training as you described (existing ethics training focuses more on what you can't do). will check out the roadmap, thanks!

11:41:44 From Lori Schultz (she/her/hers) : @Mark - Yes! and the construct that creates conditions for compliance issues

11:42:29 From Adam Fagen | ASTC (he/him) : Thanks for highlighting the great work that AMNH and all museums do for science and education, Barbara.

11:42:54 From Rachel Connolly : +1 Adam

11:43:15 From Jim McCusker : Well said.

11:43:37 From Susan Mikorski : I am a Medical Laboratory Scientist who has worked in clinical and public health laboratories and who has taught clinical laboratory science at a university. Clinical and public health scientists who test human specimens report data based on strictly regulated parameters to include time, place, operator, population beging tested and that methods are all verified prior to use. Even under the most highly controlled circumstances the random error rate is about 5%. The proliferation of waived tests and the unprecedented off label use for contact tracing and surveillance during the COVID pandemic has left us all at a loss of interpretation of the plethora of data generated and collected. It would seem that without a structured plan for collection and use of nonclinical data during this pandemic has led to a great deal of wasted time and efforts in testing as well as supplies and materials, as well as creating a great deal of critical public concern. Also believe public can understand more about the science

11:43:43 From Nicholas Jankowski : @Mark - +1 for getting statistics understanding into general HS curriculum. would significantly help general public understanding in the life sciences as well, as evidenced by the attempt to disseminate useful information to the general public during the pandemic.

11:44:18 From Felicia Etzkorn : @markunderwood The peer review process is riddled with problems, not the least of which is the good old boys network for reviewing grant proposals, both NIH and NSF.

11:45:25 From Laurie Dacus | STPI : CLOSED CAPTIONING: To view, go to bottom of Zoom toolbar, right hand side, click on CC, then click "Show Subtitles". ASL INTERPRETER: 2 interpreters: “ASL Interpreter” – Leah Disabatino and Jess. Please pin the interpreter Zoom window to view.

11:51:00 From Cindy Bonfini-Hotlosz : The recent anti-vaccine issue isn’t a scientific integrity issue, it is a communication issue.

11:51:39 From Lori Schultz (she/her/hers) : @Cindy - Yes, and a basic science education issue. We all ended up knowing way more than we ever had to before about how this all works.

11:52:16 From Cindy Bonfini-Hotlosz : Peer-reviewed journals do not reach public audiences in ways that make the information meaningful and believable.

11:52:23 From Rachel Connolly : +1 Cindy. Understanding and communicating about the process of science.

11:53:08 From Jim McCusker : I agree that scientific education is a critical issue, but there is also a problem with willful ignorance, which in my experience is much more difficult to penetrate.

11:53:58 From Lori Schultz (she/her/hers) : @Jim - definitely. Hard to get through to people who already don't think that new information should changes minds/directions/thoughts.

11:54:17 From Daniel Kulp (he/him/his) : +1 Cindy. Exactly. Peer review journal output is for fellow scholars, in general, and not focused on the public. Communicating scholarly results to the public is definitely a skill set and one that is necessary if we want a well-informed public.

11:54:31 From Nicholas Jankowski : @Cindy - i would suggest that the misinformation portrays it as a sci integrity issue, and the current sci-comm does an extremely poor job countering that. Communicating more and better data doesn't undo mistrust formed by those intentionally undermining public trust.

11:54:36 From Jason Borenstein : This series of reports provides some insight into the state of science education: https://ncses.nsf.gov/indicators

11:54:39 From Cindy Bonfini-Hotlosz : @jim I think that is an assumption — but the heart of that is human-centered design where you begin with empathy

11:54:44 From Alice Liu : We have to recognize that part of the attitude amongst the population is about mistrust of medical professionals, Pharma companies, the "scientific elite" if you will

11:54:57 From Sean A McWillie : For a project, I was embedded into anti-vaccine and anti-mask groups. It is less about the science and "not understanding" something, and more about wanting to feel like they have exposed something or uncovered a hidden truth no one else has. The science can be sound all day, but the mistrust comes from wanting to reject the authority of science completely.

11:55:01 From Ann Gallagher : @cassandra And art to convey science information using new, innovative communication techniques!

11:55:13 From Cindy Bonfini-Hotlosz : It is really difficult to begin a conversation if you start with "you are wrong"

11:55:24 From Russell Shilling : When we had a STEM Office at the Dept of Ed during the Obama Administration, we included making and the arts in our thinking of programs. Was not re-staffed in the subsequent administration.

11:55:28 From Cassandra Sperow : Yes to Ann =)

11:55:41 From Daniel Kulp (he/him/his) : The communication of science through media and other outlets can be skewed and given a political slant

11:55:57 From Cassandra Sperow : Thank you for that Russell, I will look at that

11:56:17 From Mark Underwood : @Cindy I see your point, and it's generally true, but there are numerous examples in which partially understood "knowledge" is communicated as fact. The The anti-vax movement at this point in time may be demonstrably false, but this overlooks the importance -- and this is an integrity issue -- of presenting science as point in time. There will be *some* deleterious reactions, and it should be presented based on the evidence presented rather than "solved" science. In other words, this is nuanced, despite the anti-vax "simple" use case

11:56:25 From Elizabeth Geltman : Susan, You are correct that there has been a LOT of lost data. We should have a great deal more information about COVID-19 than we do two years into the pandemic.

11:56:34 From Mark Underwood : Agree - Peer reviewed is seen as binary

11:56:49 From Cindy Bonfini-Hotlosz : @dan I agree with that! We need to find ways to communicate scientific in an engaging way

11:57:16 From Elizabeth Geltman : Among data needed are:

11:57:25 From Jim McCusker : @Cindy, I agree one must be careful in terms of making any assumptions along these lines, but I've had a number of experiences in the context of public talks I've given where someone would ask a question, I would try to explain, and they say that they simply believe what they believe and are not interested in any new information. That's a problem…and unfortunately it's an expanding problem.

11:57:27 From Elizabeth Geltman : Measure:

Antibodies in general population pre-vaccine

- Antibody levels of COVID survivors
- Symptoms of long haulers
- Symptoms post vaccine
- Antibodies post vaccine
- Symptoms of those who seek COVID test—both positive and negative

Research questions we need answers:

- Is asymptomatic really asymptomatic?
- How long do antibodies last?
- Do vaccines need to be adjusted based on size, weight, age or other characteristics? To prevent adverse side effects? To prolong antibodies?

11:57:41 From Mark Underwood : I was tempted to go down the Open Science thread here. Maybe there is still work to be done there

11:57:44 From Daniel Kulp (he/him/his) : We need to couch scientific results into a language that shows the impact to the everyday, when possible.

11:58:08 From Adam Iaizzi : !!!! Definition of scientific integrity needs to include how you treat your fellow scientists! A serial sexual harasser is not a good scientist no matter how many Science articles they have published.

11:58:18 From Elizabeth Geltman : Daniel, We need to train scientists to speak at an 8th grade level— as well as scientific speak

11:58:45 From Elizabeth Geltman : It is hard for folks to believe what they find confusing.

11:58:50 From Daniel Kulp (he/him/his) : @geltman. Absolutely!

11:58:51 From Cindy Bonfini-Hotlosz : Understanding the other is key in creating meaning.

11:58:55 From Benedict Truman : The exemption of federal statistical reports from policy review by elected officials and political appointees is the most effective federal policy for preventing elected and appointed federal officials from distorting the content of federal scientific reports to support a preferred policy objective. That exemption should be expanded to include all scientific reports, including practice recommendations and guidelines. Doing so removes the opportunity for political interference with the scientific process and products.

11:59:17 From Daniel Kulp (he/him/his) : One needs to speak to the audience, not yourself.

11:59:39 From Cindy Bonfini-Hotlosz : @dan totally agree with that.

12:00:29 From Susan Mikorski : I think you do need educators who understand public health and science to be able to communicate effectively with the public. Understanding that it is a very tough job, but well worth the effort to avoid some of the speculations going on. High school chemistry teachers might do well for the job or MLS professors who understand testing and testing parameters as well as infectious diseases.

12:00:29 From Betsy Stefany : Public Science Education fails to have the capacity to inform the public on the rapidly changing digital technology data progress as they build their science content. Efforts to aid local and rural locations to access are business decisions and qualifications with the tools that they have available. Alice Liu's comments on audience is critical.

12:00:31 From Earl Freeman : Well said!

12:00:35 From Mark Underwood : @DanielK This 'language" goal is not easy! People think they understand concepts that in fact they know shallowly. (e.g how a cell phone works.) This rather sloppy discourse, which is essential for human communication, leads to confounding and spontaneous inference based on poorly understood notions

12:00:44 From Elizabeth Geltman : Mark, IMHO a lot of the anti-vac movement is a misunderstanding of risk assessment. Long term impacts of the vaccine are unknown… but only those who live through the pandemic get to experience those long term risks. And long term risks of the disease, if survived, are also very very significant.

12:02:29 From Brianna DelDuca : I saw that some of my remarks were transcribed incorrectly and I just wanted to post what I said for when the transcript may be pulled: "Alternatives to animal testing exist. The FDA is working to advance new alternative methodologies as evidenced by its Predictive Toxicology Roadmap document and the National Academy of Science found that the Veterans Affairs should scale back on its dog testing as there only a few areas of current research where dogs are scientifically necessary. The EPA has pledge to end animal testing on mammals for chemicals and pesticides by 2035. We urge the administration to follow the science which shows that new alternative methodologies can be more human-relevant, effective, and efficient.
Conventional animal agriculture is a key driver of climate change. Meat, milk, and egg production account for 14.5% of total global greenhouse gas emissions. Plant-based meats are far less carbon intensive, emitting 30-to-90% less greenhouse gases than conventional meat. . . .

12:03:09 From Brianna DelDuca : and requiring a fraction of the amount of land. Additionally, 73% of emerging infectious disease in humans are zoonotic, originating in animals, and more than 58% of known infectious diseases affecting humans are transmitted by animals. We urge the administration to put more resources into transitioning to a more humane, safe, and sustainable agriculture model." Thank you.

12:03:30 From James Heathers : Here's a poll for everyone:

There is a federal office responsible for the oversight of scientific integrity at research universities. As might be expected, they're called the Office of Research Integrity.

Can anyone tell me how many case summaries - formal reports written about serious scientific integrity breaches from universities - have been released so far in 2021?

If you don't know, guess. Don't be shy.

12:03:45 From Sean A McWillie : I had a colleague suggest that Corona (the beer company) fund medical research as a "good will gesture" and to clear up the confusion over their name being related to the virus. It was difficult to explain to him that we as scientists need

to have ethics and integrity, he seemed like it was a normal thing for alcohol companies to fund medical research

12:04:13 From Sean A McWillie : If it is hard to explain that to a literal doctor, I can't imagine clearing things up with the general public

12:05:32 From Nicholas Jankowski : @Mark - open science is definitiely it's own can of worms. The ideal promise is open and freely available information for all. The reality is an inbox full of predatory, 'pay to publish', faux peer review, spam solicitations. In the US there have been numerous publicly funded research open access mandates, but with limited impact. How do we get to the former ideal when the established industry and publication/profit models push to the latter? And how do we translate that into better scientific integrity instead of the scientific version of 'abuse of the commons'.

12:06:17 From Sean A McWillie : There is strong evidence emerging that the anti-vaccination movement is a coordinated information campaign that wants to just sow discord and doubt, rather than something organic. It filled up a void the public had, in that science had been repeatedly de-valued and politicized in the last few years. In some very deep dives there are links between anti-vaccination rhetoric, and conspiracy theories

12:06:33 From Alex Olvido : I apologize in advance if my comment will come across as insensitive: The best education one can have is a lived experience. No amount of scientific data will convey the rational argument for vaccination. So, let's hold on to our compassion for any anti-vax folks who want that lived experience, and let's be ready to help them when their lived experience will convince them that vaccines do work.

12:06:40 From Heidi Schweingruber : @James Heathers -- zero

12:06:47 From James Heathers : Close.

12:06:49 From Rachel Connolly : +1 Betsy. The NRC's Framework for K-12 Science Education has greatly improved the integration of practices into education. However, as the nature of evidence evolves (big data) and the data volume increases, this issue will only accelerate, especially in the face of climate change and other complex/dynamic issues.

12:06:52 From James Heathers : One.

12:07:04 From Laurie Dacus | STPI : CLOSED CAPTIONING: To view, go to bottom of Zoom toolbar, right hand side, click on CC, then click "Show Subtitles". ASL INTERPRETER: 2 interpreters: "ASL Interpreter" – Leah Disabatino and Jess. If you wish, pin the interpreter Zoom window to view.

12:11:52 From Nicholas Jankowski : @alexolvido yes, and recent studies have shown that a huge fraction of antivaccine misinformation stems from only a dozen or so very financially successful sources. It suggests that they have identified a lucrative niche with a

receptive audience. From there, misinformation spreads just like the disease the vaccines are supposed to prevent. most people are actually misled, but they're misled in ways that somehow speak to their personal fears, beliefs, and lived experience as you state it. So, yes, we need to address those misled in an appropriate way. Help the victim, don't persecute them. but also need to be prepared to address the sources of the problem.

12:13:12 From Mark Underwood : Problem-based learning is great, but there is a lot of science for which that doesn't cut it. Not everything can be boiled into 10 min soundbytes or edutainment. That middle ground in which complexity plays is vast and deserves more attention

12:15:08 From Susan Mikorski : You have resources at hand within the APHL, Assn of Public Health Laboratories with members across the country at each public health laboratory (scientists, educators and regulators) who could develop some of this content for you relative to clinical and public health laboratory testing as well as for waived testing done in the field. They could tell you the problems associated with waived - field -testing.

12:16:56 From Susan Mikorski : The APHL membership includes physicians, microbiolgoists, molecular scientists and environmental chemists as well as clinical laboratory scientist regulators and educators.

12:17:13 From Lori Schultz (she/her/hers) : My two cents: the Federal agencies conflate integrity with foreign influence & compliance so they don’t have to follow the rule making process to change policies

12:17:57 From Mark Underwood : @Rachel I'd also call out the NIST Big Data public working group, especially the security and privacy sections https://csrc.nist.gov/publications/detail/sp/1500-4r2/final

12:19:18 From Mark Underwood : Diving a little into my specialization, there is a role for metadata and ontology tagging / curation

12:21:54 From Cindy Bonfini-Hotlosz : @Tom, I agree. We treat some very important skills as “soft skills”.

12:22:20 From Susan Mikorski : Public health departments bring together scientists, lawyers and policy makers. Scientists need to have more say in decision making at the state level.

12:22:38 From Andrea Calilhanna : Meter signatures can only represent one or two pulses a listener experiences because they are based on the notation rather than the sound. On the other hand ski-hill graphs are an instrument of mathematical music theory with the capacity to represent all the pulses and all the meters of the listener’s psychoacoustic experience. I propose that the ski-hill graph replace the meter signature in the discussion of the meter in

textbooks and wherever the meter is detected, analysed and notated wherever acoustics is studied.

12:22:42 From Cindy Bonfini-Hotlosz : There is a formula that commentators use that is very effective to evoke trust

12:22:55 From Mark Underwood : A focus on language attempting to "linguistically"separate security from privacy semantics in the big data landscape was ultimately unhelpful.

12:23:17 From Fred Oswald : +1 @Mark for metadata/ontologies helping to frame, organize, communicate scientific research

12:24:25 From Alicia : Kick out industry invested science - contains heavy bias

12:24:28 From Mark Underwood : OSTP should acknowledge the disproportionate role played by technology investments made by Big Tech and by DoD R&D . . . NSF, for instance, is a minor player -- alas.

12:25:49 From Jim McCusker : I don't think there's anything wrong with have (potential) applications as motivation for fundamental research. The skewed balance is the problem.

12:27:11 From Jim McCusker : It's also the case that short-term profit has motivated many companies to divest from basic R&D and effectively rely on government-supported research in academia and National Labs to do their basic R&D for them. Not universally true, of course, but it's a problem.

12:28:08 From Mark Underwood : I do think scientists and engineers need to collaborate with the humanities. (It's currently down, but I operate poetryandscience.com) where some of the more gifted communicating can occur. And talk about underfunded . . .

12:29:29 From Russell Shilling : Cassandra, we were certainly pushing tat in Obama Administration and I'm pretty certain those types of programs are still being pushed. We've also had discussions like that on some of the philanthropic programs I've helped with…look at AERDF

12:29:56 From Malaika Simmons : +1 for Design Thinking. I am a proponent of any efforts to introduce, proliferate and make accessible empathetic practices and approaches across science and education.

12:30:32 From Mark Underwood : Publishers (Elsevier, Springer -- we mean you) need to be part of the conversation, but also the journalism that makes it into NYT, Atlantic, PBS segments -- where citing is weak and summarization pervasive

12:31:28 From Jim McCusker : Agreed.

12:31:40 From Russell Shilling : Good point RACHEL

12:31:49 From Ishrat Jabin : Personally, I agree that statistics should be part of the curriculum but don't think that it should replace trigonometry. Not because I love trigonometry but I think it is good for students to learn things for the sake of learning and not because it leads to a 'useful' life skill later on.

12:32:11 From Susan Mikorski : In order to have better scientific data analysis at the state level, support scientist development through participation in online Bioinformatics programs such as those offered through Johns Hopkins.

12:33:53 From Mark Underwood : One annoying practice (related to journalism) is presenting findings by attributing the institution ("John Smith of Harvard, Jose Gonzales of Mayo Clinic etc.) or by only reading JAMA for health coverage. It's a huge problem, and not easily solved without deep embedding into how science really works in practice -- warts and all

12:34:11 From Sean A McWillie : Stats absolutely needs to be added to Math curriculums -- probably *before* Trig and Calculus

12:34:53 From Alex Olvido : I like and would support more stats in K-12 ed. But I think the "powers that be" at my institution (and the regents that set university system guidelines) would go for more math in higher ed. So, there'd be little incentive for pre-college students (and their parents, in particular) to support more rigorous college prep.

12:34:56 From Mark Underwood : su true, never mind analysis of variance

12:35:07 From Mark Underwood : And now machine learning is making that education even more important!

12:36:54 From Amy Riegelman : Regarding the comments about equity and effectively sharing findings with the public, I recommend reading this--- A Toolkit for Centering Racial Equity Within Data Integration. I like the flow of problematic practices paired with positive practices--- https://www.aecf.org/resources/a-toolkit-for-centering-racial-equity-within-data-integration

12:38:04 From Rachel Connolly : +1 Amy. I would also recommend https://data-feminism.mitpress.mit.edu/

12:38:25 From Susan Mikorski : Rutgers University several years back received an NIH grant to prepare post-docs for jobs outside of academia. Their program provided externships with industry and at the public health laboratory to learn ethics, regulatory and business skills.

12:38:29 From Cindy Bonfini-Hotlosz : We are currently involved in a PEER research project where we train refugees to become peer researchers to conduct data collection and analysis for their community. What is fascinating

12:38:30 From Ishrat Jabin : Thank you Amy!

12:40:03 From Adam Fagen | ASTC (he/him) : Thank you, @Dorothy, for raising up the essential work that NYSCI and other science centers do to engage their communities in science.

12:40:11 From Jim McCusker : Great comments, everyone. Thanks to all…and especially the folks at OSTP for providing this forum.

12:40:16 From Laurie Dacus | STPI : CLOSED CAPTIONING: To view, go to bottom of Zoom toolbar, right hand side, click on CC, then click "Show Subtitles". ASL INTERPRETER: 2 interpreters: “ASL Interpreter” – Leah Disabatino and Jess. If you wish, pin the interpreter Zoom window to view.

12:40:25 From Cindy Bonfini-Hotlosz : is that they are much more effective at getting authentic data from their community than NGOs who poll refugees. The project is with Open University, Mosaik and Centreity.

12:41:22 From Betsy Stefany : Amy-Please consider expanding the tool kit to the" regionally underserved. " This term offers an opportunity to step over geopolitical boundaries that attempt to balance funding by numbers. The reach to those who are limited by the experience with multiple environments will become increasingly critical as we adjust to climate events.

12:41:51 From Amy Riegelman : @Betsy I am not an author of that toolkit. I am just a fan.

12:42:32 From Venkatesan Thimmakondu : I have written an article about my overall experience with NSF and NASA about how peer-review affects the grant proposals. Please go through it when time permits. https://www.linkedin.com/pulse/how-get-experimental-preliminary-data-without-any-thimmakondu-samy/

12:42:54 From Nicholas Jankowski : i shudder to think of taking calc without trig first, but somehow stats needs to be pushed to national educ standards. the general public gets upset at a study reporting a 100% increase in a risk, but the fact that the risk went from 0.0001% to 0.0002%, is lost on them. similarly, there's a lack of recognition of strength of a study - a small preliminary study of 10 subjects shows something with possible effect, larger and better studies with hundreds/thousands then show diminished or no effect, but whole industries pop up capitalizing on those initial preliminary results, popular media showcases the 'new science', and the general public throws up their hands saying 'there's data on both sides'. We saw a lot of this in 2020, when it's not just a diet fad but life and death health decisions. Life sciences are hard and implicitly statistically messy. we can't wait until college to teach that.

12:43:15 From Stephen Uzzo : Some thinking about rigor from an initiative from NIH NINDS: https://elifesciences.org/articles/55915

12:43:17 From Mark Underwood : yes, #transparency I'm on this working group https://standards.ieee.org/project/7001.html

12:43:39 From Russell Shilling : Also keeping in mind lessons from the social sciences when developing and assessing emerging technologies for fairness, privacy, and equity.

12:43:47 From Mark Underwood : "decolonize science" nice one

12:44:37 From Lori Schultz (she/her/hers) : thanks, everyone! Great conversation!

12:44:38 From Mark Underwood : https://www.frontiersin.org/articles/10.3389/frobt.2021.665729/full?&utm_source=Email_to_authors_&utm_medium=Email&utm_content=T1_11.5e1_author&utm_campaign=Email_publication&field=&journalName=Frontiers_in_Robotics_and_AI&id=665729

12:44:44 From Rachel Connolly : Thank you all

12:45:01 From Cindy Bonfini-Hotlosz : Thank you so much,

12:45:04 From Earl Freeman : Great information!!

12:45:05 From Amy Riegelman : Book recommendation: Science Fictions

12:45:10 From Betsy Stefany : Thank you, all.

12:45:20 From Dorothy Bennett : @Amyriegelman very useful!

12:45:42 From Frederick Wood : useful and informative thx to organizer

12:46:06 From Elisa Charters : Please put that link in chat. Ty.

12:46:10 From Laurie Dacus | STPI : If you have any additional comments, please email ScientificIntegrityRFI@ostp.eop.gov. This email address will be available for the next 24 hours.

12:46:19 From Andrea Calilhanna : Thank you

12:46:21 From Katherine Roe : Thank you

12:46:26 From Anita Desikan : Thank you!

12:46:27 From Mark Underwood : Thanks, all

12:46:31 From Nicholas Jankowski : ScientificIntegrityRFI@ostp.eop.gov

12:47:01 From Awatif AlJudaibi : Thank you so much

12:47:10 From Sean A McWillie : Thanks everyone!

12:47:30 From Sean A McWillie : If anyone would like to stay in touch: https://www.linkedin.com/in/sean-mcwillie/

12:47:37 From Alice Liu : Thanks everyone - great speakers and conversations in the chat!

12:48:32 From Alice Liu : Here's the paper I referred to if interested: https://www.ft.com/content/7802ebd6-73c1-4ef6-9c9d-33e909d26822

Appendix E: Transcript of Listening Session 3

Closed Caption Transcript for Listening Session 3

Closed captioning was provided by transcriptionists typing in real time during the listening session in order to assist participants requiring accommodations. The closed captioning transcript was provided by the National Science Foundation. The transcript as it is included here was edited minimally for typos, and contains minor errors and inconsistencies.

Could you just clarify for me by what you mean about specific allegations.

You cannot name specific people or potentially institutions.

Oh, okay. You can't name an agency, a specific agency?

You can talk about agencies but you can't name people.

Thank you. So I'm Mason Marks a law professor in New Hampshire. I want to draw your attention to the FDA's treatment of controlled substances specifically the FDA may recommend an international ban on Kratom recommending be classified as a scheduled one classified substance. That's a mistake unsupported by science. It's used for chronic pain and addiction and we saw overdose delegates over 93,000. The FDA has waged a campaign in conjunction you with the DEA but they base their arguments on poor evidence. Scientists, chemists and veterans and state and federal law makers oppose the ban. The FDA persists which harms its credibility. Especially in the wake of its controversial approval of the Alzheimer's drug based on insufficient evidence which prompted 3 agencies advisors to resign. I urge the Biden administration and the FDA to pay attention to the science and not the influence by politics or industry. Banning it would be a disaster. It would prohibit scientific research on Kratom and people who rely on it would shift to elicit through or heroin often tainted by fentanyl. Many people could die by suicide or unintentional overdose. The government made a similar mistake in the 70's by banning psychedelics. Research ceased for decades and now get being back on track only after 50 years. Banning a substance based on insufficient evidence is just as bad as approving a drug based on inadequate data. Thank you.

Thank you for those remarks. All right up next had we have Elizabeth Geltman followed by Genna Reed.

Hello. Can you hear me?

Yes.

Good afternoon. My name is Elizabeth Geltman an Associate Professor at the CUNY school of public health and lecturer at John's Hopkins University and chair at the American public health association. I want to talk about the revamping of regulations.gov. The Trump administration introduced a beta version last fall of the new regulations before the election and excuse me the Biden administration made it permanent in February 17 of this year. The new version creates extreme difficulty in researching and government action. Under the new version it is difficult to know who is speaking to the government and what's not. Specifically we're finding it difficult to find E documents, it's hot dockets and harder to find specific submitted comments. You can no longer easily sort through submitted comments or download comments in bulk or download a spreadsheet representing it, it limits the ability to sign up for email alerts and decreases the

use for application API to sort data. These changes erode democracy by eroding public ability to evaluate whether regulations are in fact evidence based and shakes public confidence in government. Modernizing it is a celebrate idea including comments like this that the White House is seeking for listening sessions and calls for information be submitted on a standardized site is an even better idea. It's important that the new site create greater transparency rather than increasing capacity. Please remove the new restrictions and restore the search capabilities in the old version to the researchers and commentators can resume use of the site in manners that best serve democracy. I've submitted written comments in your call for information and happy to take questions they come up and I thank you for this opportunity to speak.

Thank you for your comments. Next we have Genna Reed followed by Kevin Doran.

Had good afternoon I'm a senior analyst. Independent science, science free of political or financial influence helps our government make informed decisions to protect public health and safety and enhances public trust. However conflicts of interest endangered science. Conflicts can undermine public trust, participate erode the credibility of individuals or entire fields of expertise and ultimately harm people in our environment. Where federal policy decisions must be informed by scientific evidence in addition to strong scientific integrity policies we need qualified individuals who are unencumbered by conflicts of interest and able to make decisions that benefit the pun. Agencies must first, define conflicts of interest, ensure that taking public policy positions receiving federal research grants and being a member of a scientific association are explicitly not considered conflicts because they do not preclude an objective assessment of scientific information. Second enforce ethics law and establish guidelines about conflicts that disqualify individuals from decision making authority or participating in science committees or peer reviews. Third, publicly disclose conflicts of interest and recusal statements of all political officials and science committee members in a timely manner with specific disclosure deadlines and all positions are filled with people with relevant training or experience and without real or perceived conflicts of interest. With OSTP leadership and guidance agencies will be better able to clarify, make public and consistently abide by practices that prevent conflicts of interest in science based decision making. Thank you for the opportunity to comment today.

Thank you for that input. Up next we have Kevin Doran followed by Breonna DelDuca. Brianna.

Thanks for having me I'm Kevin with the western governor's association I'm a senior policy advisor handling a number of issues across the spectrum but one area I'm focusing on is utilizing state data in federal decision making. For those unfamiliar with the western governor's association we represent the 19 western states from the today coat at that south to Texas West including 3 western U.S. territories. We're doing a lot of work in the area of data and utilizing state data in federal decision making and when one talks about scientific integrity and I know that's a very broad term but when talking about scientific integrity we're looking at it from the data integrity side. And given the partisan nature of many of these days and skepticism of data from the federal government whether right or wrong we feel showing where the data is coming from and how the feds extrapolate findings will be useful in showing this science is not an attempt to further a partisan agenda rather it's based on data from varied sources across the spectrum and those even with no political agenda whatsoever. In our view states are terrific sources of data and that data is closer to the people since it's coming from the states rather than the federal level. I'm not taking anything away from federal research and data that is critical but showing the data is from trusted sources and not the federal government which I

think that turns some people off it helps show the integrity of the data and policies and programs based on the data is trusted and all departments and agencies should follow the spirit for evidence based policy making after 2018 public law 115 435 and look to the states as partners when it comes to utilizing data for creating federal policies programs and specific decisions, especially those affecting states. Thank you.

Thank you for your comments and I encourage people who have related comments or follow on components put that information in the chat or raise your hand if you would like to speak. So next we have Brianna DelDuca followed by David Ortman.

I'm Brianna and on hind of the humane society I appreciate the opportunity to provide comments today. Federal decision making must be based upon sound science. The following are examples of where the previous administration failed to use the best science available. The department of the interior prematurely removed gray wolves in the lower 48 and warn that it was not scientifically warranted. Had the African lion, leopard. The U.S. is the number one importer of these animals despite the endangered species act. We urge you to reform to allow trophy imports only when science demonstrates the benefits of such imports for the survival of the species as required by law. Additionally we urge the administration to follow the recommendations of the premier scientific authority the national academies of sciences regarding reforms to improve animal programs within federal agencies includes NIS recommendations from January 2001 enforcement of horse protection to end the inhumane actions. They confirm inspectors conduct inadequate examinations within recommended the USDA have qualified veterinarians as inspectors. A report the NIS reported the most animal testing most animal testing by veterans affairs department is unnecessary. I have a little bit more to add if I have time at the end I'll add on. Thank you so much.

Thank you for your comments. Next we will have David Ortman followed by Lauren Kurtz and for anybody who has just entered if you would wish to speak please use the raise hand feature within Zoom. David.

Hello, can you confirm the volume on this? Okay thank you. My name is David Ortman an attorney in Seattle Washington and would like to on comment on the failure to follow the national environmental policy act which undermines scientific integrity in 2012 the bureau's plant in central Washington state had irrigation water storage projects and it only presented the plant in a no act alternative. Nothing in between and no range of alternatives. This plan would construct a lake dam which would flood habitat and forest valued at close to $2 billion, a dam which would flood out habitat and a pumping plant at the lake which would also impact trout endangered species on problems continue with the bureau of reclamation. The bureau continues to ignore a Washington State University water research center 2014 report on benefit costs of the plant on the above projects all which have very low benefits compared to the cost. Finally the bureau supported congressional passage in 2019 of a lake pipeline for which no final EIS had ever been prepared and yet recently because of other problems that now have arisen they've abandoned that project even though they lobbied to have congress authorize this. We need agency to follow the environmental policy act and not undermine it. Thank you very much.

Thank you for your comments. Next we have Lauren Kurtz followed by Deidre DesJardins and again if you are just entering and would like to speak in today's listening session please use the raise hand feature within Zoom. And Lauren.

Thank you. I am Lauren the Executive Director of the climate science legal defense fund we provide legal support to scientists. Today I would like to talk about what we've learned from running a silencing science tracker with Columbia Law School. We categorized 343 entries of federal government attempts to silence science. Each damages public trust in science and going through hundreds of these reports show the scientific integrity policies failed to predict several major categories. I will make quick points about what we learned. We documented 1359 agencies of censorship and bias and misrepresentations and terminating federal advisory committees and many others. All of the public trust in science and much could be prevented by stronger integrity policies. In particular we need to do a better job of protecting against political interference including attempted interference and ensuring scientists can communicating both of which are key issues for preventing inappropriate censorship. We also need protections for federal advisory committees and stronger [Indiscernible] clearer methods for filing complaints and doing it much more to guarantee policy making incorporates the best available science. We can learn from the ways best agencies and other institutions including in other countries incorporated these protections, my organization climate sciences legal defense fund has gone through numerous other policies and put together specific recommendations on what a model policy should contain that can be found on our website. Thank you very much for your time on this important issue.

Thank you Lauren. Next we have Deidre and then Taryn Mackinney.

Hello. This is Deidre. I'm the Director of California water research our organization works on science based advocacy on California developed water issues. My comments are with respect to the bureau of reclamation scientific integrity policy. We also submitted these in writing. Reclamation scientific integrity policy requires a finding that the actions causing the scientific misconduct or loss of scientific integrity be committed intentionally, knowingly or recklessly. This is a high burden of proof and should not be required for a finding that remedial actions are necessary to restore scientific integrity. Procedural requirements to prove intention in scientific integrity policies should be eliminated. Second, there needs to be a process to address instances where there was a wholesale loss of scientific integrity in the previous administration. While complaint processes were available during the previous administration, if there was overt political influence at the highest levels of agency administration, complaints were unlikely to be filed. As an example, there was blatant and overt political interference with reclamations endangered Species Act consultation on the reinitiation of consultation on long term operations of the central valley project and state water project. While the Biden administration has promised to reinitiate consultation on long term operations by October 1, the situation which led to blatant interference in regulatory decisions by agency scientists has not been addressed.

Thank you for those comments. Up next we have Taryn then March that Kinsella and those are the last two hands. I will remind everybody if you would like to speak please use the raise hand feature within Zoom. Thank you. Taryn.

Good afternoon I'm a researcher for the union of concerned scientists. You've heard excellent policy ideas today but all of them are for not without consistent enforcement and remediation. It's particularly problematic when agencies encourage employees to report violations but then can't or don't punish violators and reverse harms. These gaps weaken federal science and prevent it from those who need to most. What would fix this? I'll run through 3 tenants which we urge OSTP to consider. Number one safe reporting processes. All federal agency employees

must know what constitutes a violation and how to report it. Agencies must establish safeguards to protect these employees from retaliation. Agencies should also make sure that members of the public can report violations. Number two, agency authority. Agencies must have the power to conduct speedy investigations and enforce appropriate penalties for violators. This authority could come from several sources, like a scientific integrity office or an Office of inspector general. Violators must face consequences strong enough to deter transgressions in the future and establish scientific integrity. This must apply to political officials no matter their rank. When policies lack the teeth of enforcement bad actors in our government take advantage and those most harmed by weak protections for federal science are people of color, low income, indigenous communities and children. We can do better. Thank you for hosting this session and for the opportunity to speak.

Thank you for your input. The next speaker we have is Martha then followed by Margaret Gordon.

Good afternoon. My name is Martha a senior counsel at the Center for Justice at NYU School of Law. We appreciate the Biden administration's commitment to scientific integrity and the federal government and the opportunity to participate in today's listening session. The COVID 19 pandemic has made clear the role that science data and expertise must play in federal policy making. Episodes of political interference in the last several presidential administrations demonstrate the need to improve safeguards. Scientific integrity policy can be a tool to save guard against political interference. This is true for example in the wake of when there was an [Indiscernible] and recommended implementation of measures to save guard against future abuse. Although the policies are not uniformly robust nor uniformly enforced. That's why clear standards, procedures and enforcement and accountability mechanisms are needed across the board. I'll highlight a few of the center's policy proposals which we also submitted as a comment. First scientific integrity policies how would make clear the process that federal agencies shall be free from politics, ideology and financial conflicts of interest. Second they should prohibit politically motivation and suppressing of government research and data and third should apply broadly to employees and contractors. Scientific integrity policies should also contain standard procedures for the evaluation and public presentation of government generated research and data. There should be standard procedures to increase public access to government research and data and safeguard against oppression of scientific information including during the regulatory process and finally there should be enforcement and accountability mechanisms there should be routine scientific integrity training and

Thank you for that input. Up next we have Margaret Gordon and Brianna DelDuca and those are the last two hands. If there's anyone else who wishes to speak Lisa use the raise hand feature within Zoom. Thank you. Margaret.

My name is Ms. Margaret Gordon. Hello.

Yes, we can hear you.

Okay. Hi name is Ms. Margaret Gordon I am a residential entrapment of the West Oakland community. We are EJ community and this whole process should have been a road show for education and orientation of those are most vulnerable and impacted. Having this type of daytime meetings you are excluding and not including and it's not and every day people do not have the access to the information that needs to be provided to make policy, change structures, institutions and just the structural racism that has been brought into our

communities over the last 50 years. There's no real content of talking about why is environmental justice is [Indiscernible] science integrity. So the whole this whole process needs to be revitalized in such a way that those are the most vulnerable and impacted can have a real voice into the process. As of right now we are totally excluded because the way we're having this meeting at this time of the day. For those who are not in a position like myself can be able to have a voice to advocate what they want. Because clearly it's very top heavy, it's not bottom up and it does not support relieving the impacts that many of these communities have dealing with air, water and soil, housing, jobs and more protections and not including where is the public health process in this. Thank you very much.

Thank you Ms. Margaret Gordon. I encourage anybody who has additional comments or related information to share on Ms. Margaret Gordon's component raise their hand and comment on that as well. Those were very insightful. Next Brianna followed by Lori Mosby.

Thank you so much I just wanted to add my following example that I didn't get to before. Again we urge this administration to follow the recommendations of the national Cadmus of sciences regarding reforms to improve animal welfare programs within federal agencies including the NAS recommendations from January of this year for USDA as horse protection act and the inhumane program of soring Tennessee walking horses and related breeds. Industry inspectors often conduct improper and inadequate examination and recommending USDA rely on qualified veterinarians as inspectors. We urge you to adopt this by reinstating and publishing the USDA's to 17 final rule on horse soaring. In July of 2020 the NIS, NAS released a report fining most p animal testing is unnecessary. The NAS report recommended that the veterans affairs department move away from such animal testing and develop a roadmap to incorporate nonanimal approaches and to its biomedical research program. Federal decision making must be made based upon the best available science. We urge the administration to write previous decisions that have not been based on sound science. Thank you for your time.

Thank you for those additional comments. We have Laurie Mosby with a hand raised to speak next. We have no other raised hands. Again if you have additional comments or thoughts raise your hand and we'll give you additional time to speak. Thank you.

Yes, hi. Can you hear me? Hello. Can you

Yes we can hear you.

Okay, great. Okay, yes I would like to piggy back off the other woman that was basically speaking about minorities being involved in meetings such as this. This is my first time being involved. My name is Lori Mosby and I am the President and owner of level up consultants located in Florida and we need more access to things like this. We need when I say we I'm talking specifically about black people, minorities. We need more access. Um, I see a lot of times when you have these type of programs you don't have a lot of minority or black people involved in this and this is critical so that we can be involved. Because it's one thing to actually to put it in writing and say you want to do it but it's another that your actions are so that you're inviting more black people to be involved in this. This is no more time for the good old boy's network this is time to actually have minorities involved in this type of session, these type of listening sessions, this type of scientific integrity participation so that we can participate in what's going on in our government because a lot of times a lot of black people feel left out and they feel like they have to take other means to get things done when if we're invited we have access to these types of programs and these types of seminars, it's going to make it better. I

mean we need to like I said just basically have this opened up to more people because this is my first time and I was just hearing about it so please I would like to just have you to open this up that more black people can be involved. Thank you.

Thank you for your comments. Next we have Deidre and Richard Runyon following that.

Hello, thank you for the opportunity to provide further comments. Um, I also had some comments about data availability. Um, scientific integrity requires transparency and timely public access to relevant data used in policy decisions. I haven't seen data access addressed in scientific integrity policies but I think it should be. Stakeholders are currently experiencing issues in the reclamation central valley operations office is not providing timely updates to the 2021 central valley project water delivery monthly tables. Reclamation has not yet reported deliveries from May or June of 2021 although in prior years data was available shortly after the end of the month. Given reclamation's operations are being projected to result in extra spawning Sacramento river, it's a high public interest to provide this information on a timely basis. A second issue that we identified was a process to review whether working groups created under the previous administration institutionalized political interference in the utilization of data in science and decision making. In the case of the bureau of reclamation the last administration created a delta monitoring work group which includes state and federal water contractors and involves them in scientific decision making about time operations of the central valley project to protect fish. Union of concerned scientists and others advocated the use of science to inform agency decision making

Thank you for your comments. Up next we have Richard Runyon this is the last person with their hand raised so if anybody else wishing to speak or enter some comments please use the raise hand feature within Zoom. Thank you.

All right this is Richard Runyon I'm a retired employee of the food and drug administration. My last assignment was to assist the group, the field group component of FDA to use risk based methods in making decisions. And what I've found is well when there was a change in administration within FDA they decided to disband our group entirely but continued to say they were using risk based information to make their decisions. Yet it was clear they did not know what that meant nor were they actually using risk based information. And I suspect this is true elsewhere, where folks are saying they're using a particular methodology but in fact they are not and by saying that it keeps people off their back who would otherwise object to their decisions, yet in reality they're just naming their particular decisions as being risk based and in reality they are not. Thank you for allowing me to speak.

Thank you for those comments. If we have anybody else who wishes to speak the floor is now open. Please raise your hand and we will ask you to unmute. Zach I see your hand is raised.

Hello and thank you all. One additional consideration that I would like to contribute speaking as a biomedical engineering and researcher and also involved in standardization activities for improving scientific integrity is the need to state how studies and investigations are run because the choice of outcome measures and analyses conducted can have profound effects on the results. As you have heard of p hacking as it is often called in the sciences and I submit that scientific integrity requires being able to know not just how data were collected but what the dimension of the search space was and what biases might have influenced therefore the data that were collected and the findings that were therefore obtained. I cede my time.

Thank you for those comments. If anybody else would like to speak, please raise your hand in the chat or insert your comments into the chat.

Eduardo's hand is up.

Here we go.

I want to make a quick comment. We heard allegations and I want to just remind people to report those allegations to the officer or the Office of inspector general in the appropriate agencies. I think it will be very helpful. Thank you.

Thank you Eduardo. Anybody who has just recently joined if you would like to speak during the session please raise your hand using the raise hand feature within Zoom and you will be asked to unmute. You will have 2 minutes to speak. All right, seeing no additional hands I'm going to pass it on over to Dr. Carmine Leggett.

Thank you. Sorry about that I was having some technical difficulties. Good afternoon everyone. I am Dr. Carmine Leggett and on behalf of the Task Force on Scientific Integrity we would like to thank you for joining us in this listening session. We've heard many interesting comments that you all have provided and if you were unable to speak today or would like to share additional thoughts you may send an email to scientificintegrityrfi@OSTP.eop.gov and it's enlightening to hear your opinions and suggestions as they will certainly provide valuable information for the task force assessment. We will consider every input we've heard today as we prepare a report and make recommendations for improving scientific integrity across the federal government. So again we like to thank you for joining us and hope you have a great rest of the day. Good bye.

Zoom Chat Transcript for Listening Session 3

The Zoom chat was recorded automatically during the listening session and downloaded after the listening session concluded. The chat transcript is included here as it appeared during the session, and includes the public messages to all attendees.

14:09:56 From CF McKane : I want the availability of sources cited in federal publications to be part of the Scientific Integrity policies

14:11:00 From Laurie Dacus | STPI : Closed captioning is provided for this meeting. In order to view captions, go to bottom of Zoom toolbar, right hand side, click on CC, then click "Show Subtitles". Sign Language interpretation is also available; please pin the Zoom window of the interpreter if you need to use this service. 2 interpreters: “ASL Interpreter” – Leah Disabatino and Sequoia.

14:12:59 From CF McKane : (law) enforcement doesn't reassure anyone these days, ha ha

14:13:50 From CF McKane : spelling of cretum (craytum) svp

14:14:12 From Robert Smith : kratom

14:14:13 From Nicholas Jankowski : kratom

14:14:24 From CF McKane : thx

14:16:08 From CF McKane : agency?

14:16:55 From Sherry Lake : +1 Elizabeth Geltman’s comments

14:17:05 From djw47 : The new regulations.gov is more cumbersome.

14:17:08 From CF McKane : www.regulation.gov broken link

14:17:37 From CF McKane : "server IP address could not be found"

14:18:10 From Zach McKinney : +1 Elizabeth As well — this echoes the sentiment of the FAIR principles (fundability, accessibility, interoperability, reusability) for data management, which have been inv

14:18:34 From CF McKane : attestation

14:18:45 From Zach McKinney : *have been prioritized by various scientific communities, including neuroscience and neuroinformatics

14:19:11 From Nicholas Jankowski : @CFMcKane: https://www.regulations.gov/ , maybe the gov should register https://www.regulation.gov/ with a redirect as well

14:20:35 From Sherry Lake : Yes, data provenance is important.

14:20:59 From CF McKane : thanks

14:22:00 From Zach McKinney : Pardon me, but has the term in “scientific integrity” been officially and precisely defined?

14:22:15 From Lori Schultz (she/her/hers) : @Zach - not well, or consistently

14:22:42 From CF McKane : https://www.epa.gov/scientific-integrity/epas-scientific-integrity-policy

14:23:30 From CF McKane : U.S. Fish and "Wildlife"

14:23:49 From CF McKane : "report fish and wildlife crimes"

14:25:07 From CF McKane : dams

14:25:52 From CF McKane : cold water released changes downstream ecosystems

14:26:13 From CF McKane : what is the violation of the act?

14:26:28 From CF McKane : NEPA violation

14:26:59 From CF McKane : #yakimaBasin

14:28:34 From Carmen Benson : Please share the website you referenced.

14:28:56 From CF McKane : www.regulations.gov

14:29:29 From CF McKane : scientific integrity and national security - verification of publishers

14:30:21 From CF McKane : public verification

14:31:27 From CF McKane : enforcement is post-crime

14:31:59 From CF McKane : we need to teach ethics

14:32:02 From CF McKane : for all topics

14:32:57 From CF McKane : elementary ed

14:33:04 From Zach McKinney : Thank you @Lori … perhaps such clarity on how integrity is defined would help to fulfill it…

A definition of personal integrity that I appreciate and abide by is ‘alignment between thought, speech, and action’ … which would seem to require some adaptation for application to scientific integrity, but could perhaps be a useful guide…

14:33:21 From CF McKane : teaching the constitution and teaching ethics

14:33:43 From Lori Mosby : Why am I prevented from raising my hand?

14:33:50 From David Ortman : For background on Bureau of Reclamation/WA Department of Ecology's Yakima Plan see:
http://ucrsierraclub.org/pdf/OCR-Power-Report_12-3-2016%20.pdf

For B/C report on Yakima Plan see:
BENEFIT-COST ANALYSIS OF THE YAKIMA BASIN INTEGRATED PLAN PROJECTS REPORT TO THE WASHINGTON STATE LEGISLATURE December 15 2014 - State of Washington Water Research Center https://wrc.wsu.edu/documents/2014/12/ybip_bca_swwrc_dec2014.pdf/

14:34:08 From CF McKane : thank you David

14:35:16 From CF McKane : "scientific integrity officers"

14:35:20 From Deirdre DesJardins : additional points

Scientific integrity requires transparency and timely public access to relevant data used in policy decisions. Data access is not addressed in scientific integrity policies, but should be.

There are currently issues that Reclamation's Central Valley Operations Office is not providing timely updates to the 2021 Central Valley Project Water Delivery Monthly Tables.5 Reclamation has not yet reported deliveries for May or June of 2021, although in prior years data was available shortly after the end of a month.

14:35:54 From CF McKane : data access is essential to peer review - essential to information integrity

14:36:19 From Deirdre DesJardins : Another point

There should also be a process to review whether working groups created under the previous administration institutionalize political interference in the utilization of science in decision-making. In the case of the Bureau of Reclamation, the new Delta Monitoring Work Group includes state and federal water contractors, and involves them in decisionmaking about real-time operations of the Central Valley Project and State Water Project to protect fish.

The Union of Concerned Scientists has advocated that the "use of science to inform agency decisionmaking must be as unbiased as possible, and the science itself should be independent—in other words, free of political, ideological, or financial influence."7 For these reasons, our organization advocates that only agency staff should be in work groups making determinations about real-time operations of the CVP and SWP.

14:36:35 From Randy Randol : We need to follow the Information Quality Act, especially the Peer Review guidelines…

14:36:41 From CF McKane : Justice & Integrity

14:36:59 From CF McKane : ethics

14:37:26 From CF McKane : you can read peer reviewed eugenicists from the early 20th century

14:37:31 From CF McKane : ethics is essential

14:37:40 From CF McKane : Ethics

14:37:56 From Bevin Wathen : yes CF McKane

14:38:40 From CF McKane : "Justice" sounds like law enforcement / punition to some audiences

14:39:20 From CF McKane : animals can't sign consent forms, cannot consent as research subjects

14:39:23 From Awatif AlJudaibi : @CF Mckane agree with you we need to teach ethics for all topics, this should be globle

14:40:10 From CF McKane : case studies - abberrance approach can use animal case information

14:40:19 From Cassandra Sperow : Regarding Margret's comments: Yes, having it during the daytime business hours is excluding those who do not get a chance to take off work. Having it online is also automatically exclusive to those who have a good enough internet connection or mobile device.

14:40:43 From CF McKane : #phineasgage

14:41:08 From Bevin Wathen : this is absolutely imperative

14:41:33 From CF McKane : funding schools by local taxes bases is a national security risk to education

14:42:09 From Sean A McWillie : @CF I agree! Make schools state-funded and jails locally funded and see how fast society changes

14:42:14 From CF McKane : the local funding of schools leaves poor communities with poor schools

14:42:42 From CF McKane : No Sean, local funding is security risk

14:42:53 From CF McKane : allocation should be by population #fed

14:43:28 From Nicholas Jankowski : data.gov was started in 2009, claiming >300k 'datasets' available. maybe OSTP should review this project, what has been successful, and what challenges remain in creating a centralized curated source of open government data.

14:44:38 From Zach McKinney : Thank you for your passionate and powerful perspective @Ms. Margaret Gordon! - your comments raised for me the critical point that an essential component of scientific integrity is the prioritization of data and metrics that reflect our highest human values,

including diversity, equity, and inclusion (in particular, of underrepresented and underserved populations)!

14:45:18 From CF McKane : sorry Sean, funding/national security/education is not a "let THEM suffer" joke

14:46:06 From Laurie Dacus | STPI : CLOSED CAPTIONING: To view, go to bottom of Zoom toolbar, right hand side, click on CC, then click "Show Subtitles". ASL INTERPRETER: 2 interpreters: “ASL Interpreter” – Leah Disabatino and Sequoia. If you wish, pin the interpreter Zoom window to view.

14:46:28 From CF McKane : if "risk-based", risks must be named - context?

14:47:23 From CF McKane : #regeneron

14:47:41 From CF McKane : p-hacking

14:49:45 From CF McKane : thank you

14:49:46 From Zach McKinney : *I also meant to mention as part of my comment that the pre-registration of clinical trials via ClinicalTrials.gov provides a good model of methodological transparency in health sciences

14:50:40 From CF McKane : thx

14:50:46 From Daniel Kulp (he/him/his) : Pre-registrationa and transparency are very important ethical practices

14:51:19 From CF McKane : pre-registration and IRB?

14:51:31 From Laurie Dacus | STPI : If you have any additional comments, please email ScientificIntegrityRFI@ostp.eop.gov. This email address will be available for the next 24 hours.

14:51:34 From Eduardo Misawa, SI-FTAC (he/him) : ScientificIntegrityRFI@ostp.eop.gov

14:51:50 From Bev Corwin : Thank you!

14:51:56 From CF McKane : thanks

14:52:05 From Zach McKinney : I also appreciated the comment of @Lori Mosby, and would encourage her to speak further on how she and her communities experience access and lack thereof… e.g. what do you see as the specific points of failure? (e.g. it sounds like publicity/visibility are one major component…)

14:52:31 From CF McKane : IRB

14:52:58 From CF McKane : how is pre-registration different than submitting an IRB?

14:52:59 From Cassandra Sperow : Margaret and Lisa both mentioned disparities of their access from their respective communities

14:53:03 From CF McKane : glossary neede

14:53:06 From CF McKane : needed*

14:53:18 From Awatif AlJudaibi : Thank you for this new experience and knowledge

14:53:32 From Deirdre DesJardins : The deadline for filing scientific integrity complaints for Reclamation is 60 days from when one first learned of the issue. Similar deadlines exist for other agencies.

14:53:35 From CF McKane : what can be accessed on paper as the times move digital?

14:53:49 From CF McKane : libraries and physical/hard copy publications

14:53:57 From CF McKane : federal science in print

14:54:08 From CF McKane : GPO - government publishing office

14:55:54 From CF McKane : there are military scientific texts (ex. William Bragg, RAF, Electromagnetism) - how can us military texts on the sciences be made publicly available? Engines, electric systems, etc.

14:56:14 From David Ortman : The Administration also needs to review the Federal Advisory Committee Act and determine whether agencies are following the law. The Bureau of Reclamation, together with the WA Department of Ecology, created a Yakima "Workgroup," to push a Yakima plan supporting new irrigation projects in central Washington state that closed some committee meetings to the public and was never chartered under FACA. Just another example of the Bureau of Reclamation undermining scientific and public integrity.

14:56:15 From Randy Randol : The IQA Peer Review Guidelines includes models and postings on govt web sites. Highly Influential Science requires INDEPENDENT review…agencies should be held accountable any time they deem info to be only “influential” so they don’t have use INDEPENDENT review. This is a typical scam.

14:56:38 From Laurie Dacus | STPI : This listening session has concluded.

If you have any additional comments, please email ScientificIntegrityRFI@ostp.eop.gov.
This email address will be available for the next 24 hours.

The listening sessions was recorded and summaries will be made available to the public as soon as possible. We will send an email notice to the registrants with additional information once the summaries become available.

14:57:19 From CF McKane : #BureauofReclamation

14:57:35 From Deirdre DesJardins : There are also disparities of access issues with

respect to California water issues, particularly for tribes and disadvantaged minorities.

14:57:58 From CF McKane : designation of information as "influential" - agency?

14:58:40 From Richard Runyon : To CF McKane yes the risks must be named. However, in my case the individuals are either not looking for the hazard or know the risk, but are not using any risk based method to understand or articulate the risk. They are just using the same method they have always used which is which is their own opinion on how to manage the risk

14:59:05 From Deirdre DesJardins : Thanks to the organizers of this listening session.

14:59:06 From CF McKane : so term "risk-based" is being misused?

14:59:17 From CF McKane : where? agency?

15:00:38 From CF McKane : "risk-based" being used similary to "national security " i.e. to override thoroughness (?)

15:00:56 From CF McKane : or policy / statute

15:06:21 From CF McKane : Sir William Bragg - The Story of Electromagnetism , made for the Air Training Corp youth program. Printed in Great Britain by William Clowes and Sons, Limited London and Beccles