Research Ethics, Integrity and Culture in the Context of Rapid-results Research

The responsible and ethical conduct of research is predicated on scientists generating knowledge with rigor and integrity. Funding agencies have a responsibility to support a high level of research ethics and integrity in national and international scientific communities. Fostering a culture that sustains and protects the highest ethical standards is critical to both the scientific enterprise and the public trust in science. The Global Research Council has discussed these topics in prior meetings, codified most notably in the GRC Statement of Principles on Scientific Merit Review in 2018 and the Statement of Principles on Research Integrity in 2013. Revisiting this topic is timely and urgent for several reasons. The rise in rapid-results research, most recently in response to the COVID-19 global pandemic, makes attention to research ethics, integrity, and culture paramount. The scientific community in this moment faces several generational global challenges that require the rapid enactment of research and interpretation of results, prompting specific attention in this white paper to rapid-results research. Additionally, this white paper represents an elaboration of the ideas in the GRC's Responsible Research Assessment Call to Action published in 2021.

To foster a culture of research ethics and integrity, participants in the Global Research Council Regional Meetings recognize the following principles to articulate the responsibilities of research funding agencies in creating an international environment where sound research ethics is at the core of all activities. Here we are building upon the Global Research Council's 2013 *Statement of Principles for Research Integrity*, while recognizing that as the research enterprise is evolving into an increasingly interconnected and interdependent global ecosystem, new challenges and opportunities arise. To protect and promote the open research environment and ensure that scientists can rapidly but ethically address new global challenges, we need to work together to advance a culture that integrates the responsible and ethical conduct of research into all aspects of the research ecosystem.

Considerations for Rapid-results Research

As the scientific community moves increasingly swiftly to address urgent and emergent global crises such as the COVID-19 pandemic and climate change, we must do so without compromising principles of research ethics and integrity as described in this document. Sacrificing ethical principles in the face of the need for rapid research responses to complex situations can critically undermine public confidence in the rigor, integrity, and trustworthiness of scientific research. This in turn can impact the sustainability of high-quality science and the public trust in scientific results. In the face of the need for rapid-response research, it is imperative that scientists, their respective research organizations, and funding agencies not only hew to the principles described in this guidance document, but also document and make transparent the ways in which they are able to accelerate scientific progress within the bounds of these principles.

Cross-border challenges such as mitigating and adapting to climate change and preventing and responding to pandemics only underscore the critical importance of international and public-private collaborations in research. These are challenges that no single research laboratory or nation can solve alone. While there may be national, organizational, and disciplinary differences in the details of how research is conducted – and these may be exacerbated by the urgency of emergent global challenges – the principles of research integrity must be embraced by all stakeholders in the research ecosystem.

Research ethics and research security

Research ethics and research security are distinct but related constructs. This is particularly notable in the context of rapid-results research, where facets of research security are inextricably intertwined with the ability to operationalize principles of research ethics. For example, recent advances in artificial intelligence technology have resulted in fabricated and falsified scientific papers during the current global pandemic (Turek, 2021), calling into question the integrity of the scientific enterprise. Cross-border scientific appointments can have immeasurable benefits, but may also raise important questions about conflicts of commitment and its intersection with research security. This discussion paper is most centrally focused on research ethics; where applicable and appropriate, research security issues are discussed in the context of research ethics. Working definitions of both constructs are provided at the end matter of this paper.

Statement of Principles and Practices

Research ethics and integrity are grounded in openness, transparency, merit-based competition, and reciprocity. The following eight practices and principles expand on these four themes and the prior work of the GRC and other national and international organizations.

Establish norms and cultures that support individual and collective ethical practice

A culture of research integrity is critical to the support of researchers in designing, enacting, and reporting on research in ways that are ethical, transparent, free of bias, equitable and inclusive, and that engender public trust in science. Individual researchers should be supported with the necessary tools, materials, and training to conduct responsible and ethical research. Moreover, it is essential that awardee organizations develop and maintain systems that encourage the safe and timely reporting of breaches of ethical conduct.

The work of establishing norms and cultures of research ethics extends across the layers of complex infrastructure systems. The conduct of individual researchers is only one component of a complex system; researchers operate within and across academic and research organizations, interact with and are supported by funding agencies, and collaborate on research and peer review facilitated by funding agencies. Establishing norms and cultures of ethical practice cannot start and end with the individual researcher; they must address the multiple layers of the system, including academic institutions, other non-academic research organizations, independent research facilities (both public and private), and funding agencies. The values that are expressed in the norms and cultures that are promoted must include both sanctionable values such as issues of fair credit, transparency, avoidance of falsification and fabrication and plagiarism (FFP), fair treatment, freedom from harassment, upholding of human dignity, and aspirational values such as integrity, inquisitiveness, reflexivity, collegiality, and trust (Valkenburg et al. 2021). These norms and practices of research ethics should govern all research; rapid-results research should not be subject to a different set of norms and practices simply because an issue is perceived as more urgent.

It is also important for funding agencies and research organizations to be transparent about the notions of culture and practice (Owen, Ladikas, & Forsberg, 2017). How are these terms being operationalized, what are the philosophies that underpin the notions of culture and practice, in what ways are systems supporting the development of cultures and practices that represent ethical scientific conduct, and how are training, incentive, reporting, and funding systems representative of those cultures and practices

(Valkenburg et al. 2021)? Just as we encourage individual researchers to engage in reflexivity to reflect on their own endeavors from the outside, so also should agencies and organizations engage in collective reflexivity through a clear articulation of the norms and cultures that support ethical practice and the means for fostering, revising, reflecting upon, and revising those norms and practices through a continuous improvement process. Consensus policy documents such as the Bonn PRINTEGER Statement (Forsberg et al. 2018) and the European Code of Conduct for Research Integrity (All European Academies, 2017) provide clear action steps to establish and strengthen norms and cultures of research integrity. Funding agencies are encouraged to take a leadership role by establishing research integrity policies in conjunction with research institutions to promote the core integrity principles.

Establish core principles that underpin the integrity of the research enterprise

Critical to a culture of ethical research practice are clear, identifiable principles that undergird the research enterprise. Such principles should be supported by funding agencies through both pre- and post-award processes, promoted and overseen by scientific and applicant and awardee organizations, and included in researcher and student training on research integrity. In a global scientific climate that has put a significant premium on rapid-results research, we build on the seven principles that the Global Research Council agreed to in 2013 which were:

- **Leadership**: Research funding agencies must lead by example in the responsible management of research programs.
- **Promotion**: Research funding agencies should encourage organizations to develop and implement policies and systems to promote integrity in all aspects of the research enterprise.
- **Education**: Research funding agencies should promote continual training in research integrity and develop initiatives to educate all researchers and students on the importance of research integrity.
- **Transparent Processes**: Research funding agencies should, within the scope of their mandate, publish policies and procedures to promote research integrity and to address allegations of research misconduct.
- **Response to Allegations of Misconduct**: During any investigation of misconduct, research funding agencies should support a process that values accountability, timeliness, and fairness.
- **Conditions for Research Support**: Research funding agencies should incorporate integrity in research as a condition for obtaining and maintaining funding by researchers and organizations.
- **International Cooperation**: Research funding agencies will work cooperatively with partners to support and facilitate research integrity worldwide.

Beyond the work of the GRC, international principles and norms of scientific research have been enshrined in documents over the years, and some were updated recently to reflect the changing times. The Singapore Statement on Research Integrity of 2010 identified four principles that it described as "fundamental to the integrity of research wherever it is undertaken." These are:

- **Honesty** in all aspects of research;
- **Accountability** in the conduct of research;
- **Professional courtesy and fairness** in working with others; and
- **Good stewardship** of research on behalf of others.

In addition to professional courtesy and fairness, **equity and inclusion** are non-negotiable components to core principles supporting research ethics. Funding agencies must recognize and attend to historical inequities in the research enterprise and develop principles that are explicitly inclusive in order to attend to and mitigate biases. In particular, we note the Statement of Principles and Actions Promoting the Equality and Status of Women in Research as crafted by the GRC Gender Working Group and the gender equality criteria established by Horizon Europe as examples of principles that explicitly attend to historically inequitable structures such as gender inequality.

Separately, a 1998 recommendation of the Organisation for Economic Cooperation and Development *(OECD)* was updated in June 2021 to include references to the importance of international cooperation, openness, mutual benefit, and research security. More specifically, the *Recommendation of the Council on International Co-operation in Science and Technology* aims to ensure scientific cooperation is based on **reciprocity and mutual beneficial** to partners, outlining a set of tools to support this goal. It goes on to "encourag[e] stakeholders involved in the funding and performance of research (including scientists, governments, universities and public research organisation, NGOs, foundations) to **establish a harmonised understanding of scientific values and norms** (such as research integrity and freedom of scientific inquiry and expression) when engaging in international co-operation in science and technology," which is consistent with what we are recommending here.

In synthesizing these perspectives, considering the GRC's own prior work, and taking into consideration the challenges to the research enterprise (both intellectual and political) of the past several years, we present the following core principles for discussion at the 2022 GRC Annual Meeting.

- **Openness and transparency** which enable productive collaboration and help ensure appropriate disclosure of potential conflicts of interest and commitment.
- **Accountability and honesty** to help acknowledge errors and correct behaviors that can hamper progress.
- **Equity, diversity, and inclusion** as an explicit consideration in all facets of the funding and research processes.
- **Impartiality and objectivity** which protect against improper influence and distortion of scientific knowledge.
- **Respect** which helps create an environment where all can be heard and contribute.
- **Freedom of inquiry** to encourage individual curiosity to guide scientific discovery.
- **Reciprocity** to ensure researchers and organizations exchange materials, knowledge, data, access to facilities and natural sites, and training in a way that benefits collaborating partners proportionally.
- **Merit-based competition** which helps ensure a level playing field where the best ideas and innovations can advance.

These principles may be operationalized differently in the context of rapid-results research; for example, the pace and configuration of a merit-based competition might differ in the context of an immediate global health crisis such as the COVID-19 pandemic, leveraging combinations of internal and written external reviews to facilitate rapid decision making or extending review invitations to international reviewers. They should not, however, be compromised nor should selected principles be ignored in the name of rapid results. Funding agencies should carefully weigh opportunities to increase the pace of review processes against potential compromises to the integrity of those processes.

Conduct merit review with the highest ethical standards

The 2018 GRC revised Statement of Principles on merit review describes seven principles that should frame the design and enactment of the merit review process:

- expert assessment;
- transparency;
- impartiality;
- appropriateness;
- confidentiality;
- integrity and ethical considerations; and
- gender, equality, and diversity.

These seven principles must remain at the core of the merit review process, especially in a demanding rapid research environment. In a time in which the credibility of research outcomes and science writ large is under significant public scrutiny, it is more important than ever for funding agencies to maintain and strengthen the merit review process. This section provides additional focused insights that cut across the seven GRC merit review principles.

Merit review processes must not be compromised in the context of the need for rapid-results research. Funding agencies should design mechanisms that afford opportunities for expedient merit review in scientific contexts that are time-sensitive, such as the COVID-19 global health pandemic. These mechanisms must still maintain the core aspects of the seven GRC principles for merit review. Funding agencies should consider merit review processes that leverage combinations of internal and external agency expertise, rolling or more flexible submission deadlines, or more narrowly scoped review criteria to expedite the merit review of time-sensitive proposals. Such processes must be made transparent to the scientific community and the public in ways commensurate with standard merit review processes.

The review of research proposals and the dissemination of results should be conducted in a fair, competitive, transparent manner. Funding agencies should identify reviewers with specific knowledge of the scholarly fields involved with proposals, broad or generalized knowledge of the field to assess the potential broader impacts of the work and provide diverse representation along a variety of dimensions. Criteria for reviewer selection should be transparent to the research community and the public.

Produced at the World Conference on Research Integrity in 2010, the Singapore Statement on Research Integrity outlines responsibilities relevant for peer review, and stated that “researchers should provide fair, prompt and rigorous evaluations and respect confidentiality when reviewing others' work.”

Funding agencies should develop merit review criteria that reflect principles for sound scientific research and principles of ethical research. Criteria should be sufficiently broad to reflect the range of scientific endeavors within the scope of the agency, but clearly enough defined such that reviewers can differentiate proposals with respect to the criteria and make informed and meaningful recommendations for funding. Feedback to applicants must be transparent, timely, and clearly linked to the merit review process.

The processes for merit review must be clearly delineated both to reviewers and to the scientific community. Processes must preserve the confidentiality of research proposal ideas both internally and externally, ensuring that critical research information is not misappropriated during the process. The merit

review process should also explicitly address issues of bias by providing multiple opportunities for reviewers to disclose conflicts of interest and to identify situations in which their personal or professional work may have a specific influence on their review of a funding proposal. Program officers and other funding officials should be provided meaningful and robust training to be able to adjudicate potential conflicts of interest and instances of implicit bias in addition to disclosing their own conflicts and biases as a part of the merit review process.

Reviewers should have high levels of disciplinary knowledge to bring to bear on the review of proposals and, as a collective set, provide diverse and meaningful perspectives on proposals and both their scientific and ethical integrity. Funding agencies should establish processes and structures that create diverse reviewer pools and to provide reviewers with training on the merit review process, mitigating bias, and research ethics prior to engaging in collaborative review. Where possible, merit review should be a collaborative, discourse-based process.

In supporting the conduct of peer review, funding agencies must support transparency and continued scholarly inquiry regarding the merit review process. This work may include continuing to understand bias and mitigate its role in the peer review process; understanding how peer reviewers make decisions, scholarly inquiry into research and publication ethics and their interactions with the peer review process and providing and studying models for peer review (Ioannidis et al. 2019).

At the conclusion of the merit review process, applicants should receive substantive feedback on their proposed work irrespective of whether the proposal is funded or not. Such feedback should focus on the research and be disseminated in ways that attend to and mitigate potential sources of bias. This promotes the transparency and trustworthiness of the merit review process as a key component of the research enterprise.

In the specific context of rapid-results research, the merit review process should maintain the rigor and standards outlined above and make use of innovative and expedient structures to expedite the merit review timeline. Examples of such an expedited process might include using different balances of internal and external expertise to conduct the merit review, using asynchronous written reviews in combination with synchronous discussions of proposals, and using videoconferencing technologies to rapidly convene merit review panels. Specific emergent rapid-research areas that require tightly scoped expertise may compel funding agencies to reach beyond typical reviewer pools to ensure that the criterion of expert assessment is fully met in a timely manner. These rapid review modifications must still include systems to attend to bias and conflicts of interest for reviewers and funding agency officers.

Disclose and mitigate potential conflicts of interest and conflicts of commitment

If not carefully managed, conflicts of interest and conflicts of commitment can distort the research process (e.g., selection of collaborators or funding sources) or research outcomes, thereby threatening research integrity and security. *Conflicts of interest* include situations in which individuals or organizations have financial or other interests that may directly and significantly affect the design, conduct, reporting, or funding of research. The term *conflicts of commitment* means a situation in which an individual accepts or incurs conflicting obligations between or among multiple employers or other entities. Many funding organizations define conflicts of commitment as conflicting commitments of time and effort, including obligations to dedicate time in excess of organizational or funding agency policies or commitments. Other types of conflicting obligations can also threaten research security and integrity,

including obligations to share improperly obtained information with, or to withhold information from, an employer or funding agency, and are elements of a broader concept of conflicts of commitment.

Funding agencies and applicant organizations should have policies that clearly define conflicts of interest and commitment for researchers and professional staff, require the disclosure of information to determine whether potential conflicts of interest exist, create systems that facilitate the reporting and documentation of such conflicts, and foster a culture that promotes and incentivizes the reporting of conflicts across the phases of the scientific research process. Conflicts of interest and commitment are not inherently problematic, but must be understood and – where possible – mitigated or managed.

Protect proprietary information and intellectual property from inappropriate disclosure

Funding agencies should implement policies that protect the privacy of the proprietary and personal information and intellectual property contained in research proposals, review data, and post-award data to prevent inappropriate disclosure of non-public results or research misappropriation. Agencies should implement policies for reporting and investigating such inappropriate disclosure, including appropriate sanctions for individuals found to have violated such policies.

In the context of rapid-results research, care must be taken to balance the need to expedite and share research findings, often in the context of public-private partnerships, with the need to protect the privacy of the personal and intellectual property contained in research proposals and results. Funding agencies should develop both general and specific guidelines when such rapid information sharing is vital, such as memoranda of understanding that detail rights and responsibilities in such instances.

Distinguish between principled international collaboration and improper foreign government interference

International collaboration is key to the progress of scientific research, particularly in the context of global challenges that require rapid-response research. International collaborations may include collaborations between individual researchers, organizations, and funding agencies, or between public and private interests that span borders. Such collaborations should adhere to agreed-upon principles for the responsible and ethical conduct of research and be free of interference from governmental authorities that would adversely affect the integrity of the research enterprise. For example, principled international collaboration should be reciprocal, where research materials, knowledge, data, access to facilities and research sites, and training and personnel exchanges are exchanged in a manner that benefits all of the collaborating partners. Researchers and institutions at the outset of such partnerships should share the norms, cultures, and practices that govern the ethical conduct of research across institutional and national borders. Conversely, governmental authorities should refrain from improper interference in all facets of the research process, such as funding studies contingent on a particular outcome or exerting direct influence on the merit review process.

Communication and coordination among funding agencies, research organizations, and researchers is a valuable way to share information and good practices and guard against improper interference, including governmental. Funding agencies should develop and maintain common international standards and principles for such communication and collaboration that promotes the exchange of scientific ideas while maintaining boundaries to guard against inappropriate governmental interference in research pursuits (see for example, the EU Continuous Quality Assurance Framework). Structures such as regional scientific

advice teams and knowledge security centers can provide researchers with opportunities for such collaboration under governmental or non-governmental auspices. Funding agencies and professional societies have also begun to collaborate on principles by which organizations, laboratories, and funding agencies can agree to maintain the impartiality of research endeavors from influence by inside or outside interests. An important next step would be for funding agencies and societies to promote mutually beneficial international collaboration in part through the adoption of common principles and guidelines to support open and inclusive science.

Identify and mitigate risks to the integrity of the research enterprise

Norms and cultures for ethical research can only be sustained if researchers, their organizations, and funding agencies are continually vigilant to risks to research integrity. Persistent pressures in academia related to publication have been a perpetual threat to research integrity, and the rush to be the first to publish new scientific ideas is particularly salient in rapid-results research. New challenges and threats to research integrity have emerged including from some actors that exhibit increasingly sophisticated efforts to unfairly exploit and distort the open research environment for their own interests. Identifying and mitigating these risks is particularly important in the context of rapid research results. With pre-publication data and analyses being made more widely and publicly available, it is critical that such results made public prior to peer review are contextualized, conflicts of interest clearly identified, and used and interpreted appropriately. These concerns are paramount to strengthening the public trust in science and scientific research. Risks to the scientific research enterprise include:

- Conflicts of interest and commitment;
- Undisclosed research duplication and researcher commitments to research entities outside the researchers' employing organizations and/or funding agency officials;
- Compromises to the merit review system, including those that undermine funding decision processes;
- Unauthorized use of pre-publication data and information; and
- Misinterpretations or faulty conclusions from research due to a variety of factors, including insufficient attention to equity, diversity, and inclusion (such as in the sample population, theoretical constructs, or implicit researcher bias).

The UK's *Trusted Research Guidance for Academia* recommends researchers ask themselves the following questions:

- Are there any potential ethical or moral concerns for the application of your research?
- Could your research be used to support activities in other countries with ethical standards different from our own, such as internal surveillance and repression?
- Could your research be of benefit to a hostile state military or be supplied to other hostile state actors?
- Are there any dual-use (both military and non-military) applications to your research?
- Is any of the research likely to be subject to your own or other countries' export license controls?
- Do you need to protect sensitive data or personally identifiable information? This may include genetic or medical information, population datasets, details of individuals or commercial test data.

- Is your research likely to have a future commercial or patentable outcome which you or your organisation would want to benefit from?

The GRC recognizes that new challenges exist, as have other multinational groups such as the Group of Seven (G7) and the OECD. The G7 established a *Working Group on the Security and Integrity of the Research Ecosystem* in June 2021 to help protect the research and innovation ecosystem from risks to open and reciprocal research collaboration. The OECD launched an 18-month project on *Integrity and security in the global research ecosystem: managing conflicts of interest and conflicts of commitment* in January 2021. This new project in part looks to deliver on the recommendation in the OECD's updated *Recommendation of the Council on International Co-operation in Science and Technology* that recommends the promotion and support for the use of tools for mutually beneficial international co-operation in science and technology including through "taking appropriate measures to mitigate and to counter the possible risks associated with international co-operation in science and technology in order to facilitate the effectiveness and efficiency of co-operation for mutual benefit."

Funding agencies should establish processes to foster regular, rigorous review of their research integrity efforts, to report the outcomes of reviews, and to revise policy and training requirements to better address current and future risks to research integrity. Such processes should be established in consultation with the research community. For example, in Japan, the Cabinet Office established the Research Integrity Investigation Committee which consists of experts from academia and representatives from funding agencies, and in 2021 they published a *Research Integrity Investigation and Analysis Report.* The Government of Canada's Universities Working Group has a regular dialogue to facilitate the identification, sharing and promotion of best practices to minimize security risks, protect data and intellectual property. Horizon Europe's funding application processes ask explicitly for researchers to identify potential misuse of the research results at the application phase, including questions specifically related to potential environmental harm and the use of trustworthy practices in artificial intelligence as applicable to the project's scope and content.

Encourage training on research ethics and security

The responsible and ethical conduct of research (RECR) is critical for excellence, as well as public trust, in scientific reserarch. RECR involves not only a responsibility to generate and disseminate knowledge with rigor and integrity, but also a responsibility to:

a. conduct scientific research and peer review with the highest ethical standards;
b. diligently protect proprietary information and intellectual property from inappropriate disclosure; and
c. treat students and colleagues fairly and with respect.

Consequently, education in RECR is considered essential in the preparation of future researchers (National Science Foundation *Proposal and Award Policies and Procedures Guide,* Chapter IX.B.1.; VIRT^{2}UE – Virtue Based Ethics and Integrity of Research, University of Helsinki; DFG Code of Conduct).

According to the United States National Institutes of Health, the goals of RECR training are to:

- Develop, foster, and maintain a culture of integrity in science;
- Discourage and prevent unethical conduct;
- Empower researchers to hold themselves and others accountable to high ethical standards;

- Advise researchers to act upon policies and guidelines to ensure research environments are equitable, diverse and inclusive and free from harassment, bullying, racism, sexism, ableism and other forms of discrimination;
- Improve the ability to make responsible choices when faced with ethical dilemmas involving research;
- Provide an appreciation for the range of accepted scientific practices for conducting research;
- Inform scientists and research trainees about the regulations, policies, statutes, and guidelines that govern the conduct of the funded research and promote compliance with the same; and,
- Promote a career-long positive attitude toward research ethics and the responsible conduct of research.

(US National Institutes of Health RECR Training Webpage.)

Funding agencies should encourage applicant organizations to have a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral researchers participating in the proposed research project. Such training should be continually updated and revised, where necessary to reflect current needs and issues within the scientific enterprise and include attention to issues related to rapid response research. For international and cross-disciplinary collaborations to be successful, it is important not only that there are certain standards for good research practices that are universally accepted, but also that researchers are provided with the knowledge and skills to understand and uphold these standards across different countries and research settings (Evans et al. 2021). Funding agencies should also implement policies for reporting and investigating research misconduct, including appropriate sanctions for individuals and organizations that are found to violate such policies.

Timely and regular training, along with systems to ensure compliance, are particularly important in the context of rapid-results research. When science must respond to immediate and urgent threats, the scientific enterprise is collectively slowed if time must be spent determining if researchers' training is up to date. It is then incumbent on funding agencies to encourage regular research training for all researchers. Delaying until potential funding decisions are made to ensure training compliance may result in the delay of commencing the research activity and unduly slow the research process. Global training requirements also can serve to increase the public's trust in the outcomes of the research and development enterprise.

Towards stronger global implementation of rapid-results research ethics, integrity, and culture

As a convening body of national funding agencies, the Global Research Council is uniquely positioned to take substantive steps to support research ethics, integrity, and culture in the context of rapid-results research. In light of the discussions surrounding this paper at the GRC regional meetings, we recommend that the GRC consider the following activities and endeavors going forward:

- Discuss and agree upon a Statement of Principles and Practices related to research ethics, integrity, and culture in the context of rapid-results research, along with examples and guidance for operationalizing those principles and practices
- Establish mechanisms for research agencies to share and regularly discuss policies and practices related to rapid-results research, including guidance for when rapid-results processes are called for and when standard scientific review is appropriate
- Convene interested stakeholders to discuss the development of international systems that promote principled international collaboration, possibly including shared systems for reviewing researcher CVs, common methods to register conflicts of commitment, more transparency regarding how to mitigate conflicts in the interest of international collaboration, and training opportunities for researchers and institutions
- Facilitate an ongoing forum to discuss and share practices that have been effective for incentivizing ethical conduct as well as identifying and remediating unethical conduct
- Share examples and guidelines related to the development of Memoranda of Understanding that govern public-private and/or international collaborations
- Provide opportunities to discuss policies that promote stronger research security and international collaboration in ways that do not fuel xenophobia, prejudice, or other forms of discrimination

Questions for Discussion

1. What do you see as the most critical threats to research ethics?
2. What are the most critical messages for funding agencies to communicate to the global scientific community around ethical rapid response research?
3. How can funding agencies ensure that research ethics standards are not compromised due to the pressure to advance science rapidly?
4. How should research organizations and funding agencies distinguish between principled international collaboration and improper foreign government interference? What tools are or should be made available to do so?
5. How can research organizations and funding agencies promote international collaboration and openness while protecting research integrity and security?
6. How can research organizations and funding agencies promote disclosure and manage conflicts of interest and conflicts of commitment and ensure the integrity of the merit review process?
7. How can funding agencies provide guidance and incentives to research organizations to strengthen research integrity? What new policies and processes might research organizations or funding agencies consider given new and emerging threats, including from actors that subvert existing rules?

Scenarios for Discussion

Each of the brief scenarios below are based on documented accounts of research ethics events. To minimize implicit bias and maintain confidentiality, names and identifiers have been anonymized in these accounts. For each scenario, consider how you might respond on behalf of your funding agency and which principles, norms, or regulations exist that would guide your decision making.

Scenario 1

During an online discussion of a set of rapid research proposals, a peer reviewer discloses a conflict of interest with a scientist on the proposal being discussed. The funding agency's program officer needs to determine an appropriate course of action, knowing that their agency has committed to making funding decisions in the next 20 days.

Scenario 2

A funding agency has three merit review criteria for research proposals: scientific and intellectual merit, broader societal impacts, and ensuring broad participation of diverse researchers. The agency invites proposals to address an immediate and urgent environmental crisis. The agency head suggests only reviewing proposals based on the scientific and intellectual merit criterion.

Scenario 3

The outcome of a rapid-results research project funded by a nation's funding agency are monetized in the form of a life-saving health intervention by an international private corporation. A media entity raises questions about the integrity of the science in light of the monetization. Is the criticism fair, and how should the agency respond?

Scenario 4

An organization applies for and is awarded a grant to conduct research in a specialized field of chemistry. After the award was made, it is discovered that the research has already been completed in another country by a lab with which the researcher is affiliated. How should the funding agency respond?

Scenario 5

A peer reviewer is discovered to have a title as Senior Research Director at a non-domestic lab. This title was not disclosed at the time of their peer review engagement. How should the program/project officer for the funding agency handle the review going forward?

Scenario 6

A national funding agency makes an award for engineering research. The researcher then secures patents in another country based on the funded work. How should the funding agency respond?

Working Definitions[1]

We recognize that not all funding agencies and national documents may share the same definitions for the facets of research ethics and integrity discussed in this document. The following working definitions guided the authoring team's use of language in this document.

Foreign influence – The promotion of national priorities in an open and transparent manner in ways that do not exert undue influence on the proposing, performing, evaluating, or reporting of research and development.

Foreign interference – Interference carried out by or on behalf of a foreign actor which exerts undue influence on the proposing, performing, evaluating, or reporting of research and development.

International collaboration – Any collaborative engagement in research and development between researchers based in different countries, organizations based in different countries, or combinations of researchers across the public and private sectors based in different countries. Such collaborative engagement might include, but is not limited to, data sharing, collective data analysis, collaborative dissemination, and the securing of patents or intellectual property protections.

Mmerit review – The process of recruiting scientific experts to evaluate the quality of research and development proposals and advise funding agencies on priorities for funding.

Research ethics – The broad set of norms, cultures, values, practices, and principles that frame the conduct of research and development activities such that the proposing, performing, evaluating, and reporting of the research are trustworthy and transparent, make meaningful contributions to the understanding of the phenomena under study, minimize harm, and promote research integrity.

Research integrity - Adherence to professional values and principles in proposing, performing, evaluating, and reporting research and development activities.

Research security – The set of principles and actions that safeguard the research enterprise (public and private) against the misappropriation of research and development to the detriment of national or economic security, related violations of research integrity, and foreign government interference.

[1] Working definitions are informed by the resources listed at the close of this document, the Singapore Statement on Research Integrity (2010), those developed by the United States White House Office of Science and Technology Policy (27 August 2021), and those developed by the OECD Global Science Forum (03 September 2021).

Resources

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