



Statement of Principles for Funding Scientific Breakthroughs

Preamble

A robust and broad foundation for researcher-driven basic research is needed as a source for future scientific breakthroughs and innovations.

Scientific breakthroughs can include outstanding discoveries, inventions, and the development of methodologies or technologies that change the scientific paradigm or that transform our fundamental understanding of the human state or the world. Scientific research driven by the free ideas of scientists has been recognized as a primary force of breakthroughs and development for humankind and society.

Research aimed at scientific breakthroughs, however, often involves entering unknown territory beyond existing topics and disciplines, where unpredicted and unexpected results may occur. It may also entail risk, where outcomes may or may not be achieved after a long period of endeavor. Moreover, breakthroughs do not happen in isolation: An effective research environment is critical—one that fosters diversity and provides researchers with the means and the flexibility to explore untrodden realms and to achieve unprecedented results. Scientific research trajectories tend to focus on the development of existing ideas, with science, technology and innovation policy overly slanted toward producing short-term socioeconomic impacts. Added value of scientific research, on the other hand, includes not only economic and social value but also intellectual or cultural value.

Recognizing that long-term investment is essential for scientific breakthroughs, it is imperative to ensure the availability of sustainable, stable and diverse sources of research funding. It is equally important to reaffirm the autonomy of research councils in terms of funding decisions and program administration, while ensuring that integrity in the research they support is an integral part of autonomy and thus crucial for public trust in the research endeavor. Most importantly, a compelling message needs to be conveyed to the global research community, and to its stakeholders, on the need to support researcher-driven basic research and an enabling research environment.

Accordingly, participants in the 4th Annual Meeting of the Global Research Council recognize that the following Principles are key elements in the funding of research for scientific breakthroughs and need to be shared within global research community.

Principles

Freedom, Flexibility and Risk-taking

Through their funding programs, GRC participants should:

- Ensure the freedom of researchers in defining their topics, their methodologies, and their resource allocations, while requiring integrity, ethical conduct and accountability in the implementation of publicly funded projects
- Provide researchers with the flexibility and intellectual space needed for serendipity
- Ensure support for research in diverse disciplines and foster interdisciplinary or cross-disciplinary exchanges to stimulate exploratory approaches
- Encourage risk-taking and tolerate failure in research activities.

Diverse Portfolio of Funding Approaches

GRC participants should adopt a diverse and balanced portfolio of approaches and instruments according to their organizational mission, as well as ensure effective linkages among them, to maximize their chances of achieving scientific breakthroughs. Participants may include support for:

- Researcher-driven and mission-oriented research
- Basic research and applied research
- Non-thematic and priority areas
- Centers of excellences and individual investigators.

Review and Evaluation

Building upon the "GRC Statement of Principles on Scientific Merit Review," GRC participants should work together in exploring novel and effective review processes that can identify cutting-edge ideas and creative researchers with high potential for breakthroughs.

GRC participants should track research outputs and outcomes so as to ascertain the value of funding, while recognizing that evaluation of success differs by program.

Partnership with Stakeholders

GRC participants should actively interact with various stakeholders - including governments, the scholarly community, industry and the public - to achieve their organizational mission and should be attentive to national priorities, societal needs and global challenges.

GRC participants should promote investment and engagement by, and partnership with, the stakeholders for supporting breakthrough sciences.

GRC participants should play a pivotal role in disseminating research outputs and outcomes, taking also into account the "GRC Action Plan towards Open Access to Publications".

International Collaboration

GRC participants should seek opportunities to cooperate in stimulating breakthrough sciences globally through bilateral or multilateral initiatives including, *inter alia*, workshops on sharing good practices, exchanges of administrative expertise, developing diversity initiatives, collaborative funding, facilitating bottom-up researcher networking, or providing access to core research facilities and infrastructures.