

The High-Level International Recommendation Panel of the 2025 HFSP Grand Review

Final Report

Draft, 16 March 2026

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1 Executive Summary

The 2025 Grand Review, commissioned by the Human Frontier Science Organization (HFSPO), consisted of an independent assessment by two evaluating agencies, selected by public tender, and an overall evaluation by the High-Level International Recommendation Panel (the Panel). The assessment by the evaluating agencies addressed the uniqueness, excellence and impact of HFSP funded research. The overall conclusion, based on quantitative indicators as well as qualitative analysis, shows unequivocally that HFSP research is excellent and impactful. Importantly, HFSP fills a unique niche in the life sciences with its focus on frontier, international and interdisciplinary research. The assessment is provided in the Annex to the Panel's report and includes a wealth of quantitative and qualitative data that provided the basis for the Panel deliberations.

The member's breath of experience in science policy and funding in diverse countries and regions combined with the data from the independent assessment enabled the Panel to reinforce the overall conclusion that HFSP continue to excel in funding global, impactful frontier research in life sciences, in upholding its mission and in meeting its members needs. The Panel is therefore providing high-level strategic recommendations aimed at ensuring HFSP sustained excellence and relevance taking into consideration global research developments as well as funding gaps and opportunities. Recognizing the program's unique mission to support interdisciplinary frontier science across borders, the Panel's recommendations aim at selectively strengthening HFSP award programs, visibility, and resilience in an increasingly complex research and geopolitical environment. Therefore, the Panel concentrated on four key areas that govern the Organization's operations: Mission and Programs, Impact and Added Value, Outreach and Communication, and Finance, Governance and Membership.

Their key recommendations as detailed in this report are:

- 1) Assess the fellowship program to ensure it remains unique and attractive.
- 2) Consider introducing a transition award for fellows to independent investigators.
- 3) Establish the Early Career Research Grants as a separate funding stream.
- 4) Evaluate the peer review process to ensure it matches the frontier nature of the program.
- 5) Enhance data collection and analysis by HFSPO members to improve performance evaluation of the program and maximize its value added.
- 6) Continue targeted outreach and capacity building to achieve greater visibility.
- 7) Increase the critically low grants success rate by funding all the top frontier projects that meet the stringent selection criteria.
- 8) Address long term financial sustainability by reviewing Members contributions and considering diversification of funding sources.
- 9) Grow the membership in an orderly manner upholding the organization values and mission.
- 10) Streamline the governance using international best practices for similar organizations.

2 Introduction and Methodology

This report presents the consensus recommendations of the High-Level Recommendation Panel (from here on the Panel) on the 2025 HFSP Grand Review. The review included a quantitative and qualitative analysis by two independent evaluation agencies (Prognos, Digital Science) which were selected via a public tender by HFSP. The Panel, supported by the HFSP Secretariat, was given an oversight role with the following specific tasks:

1. Validate the proposed review concept based on a logic framework approach
2. Monitor review progress based on ad hoc reports by the evaluating agency
3. Assess review outcome in discussion with the evaluating agency
4. Prepare recommendation summary for the HFSP Triennial Meeting of Members (TCHM) in July 2026.

The members of the Panel were:

Mona Nemer, Chief Scientific Advisor to the Canadian Government (CHAIR)

Minoru Yoshida, Executive Vice-President RIKEN, University of Tokyo, Japan

Ottoline Leyser, former Chief Executive Officer of UK Research and Innovation

Robbert Dijkgraaf, former Dutch Minister of Education, Culture and Science; former Director and Leon Levy professor at the Institute for Advanced Study in Princeton, New Jersey, USA; President-elect of the International Science Council (ISC), Paris

Sylvie Retailleau, former French Minister of Higher Education and Research; University Paris-Saclay

David Julius, Department of Physiology, University of California at San Francisco (2021 Noble Prize in Physiology or Medicine)

Christine Cheung, Nanyang Technological University, Singapore

Pramod Kumar Garg, Professor and Former Associate Dean, All India Institute of Medical Sciences, New Delhi; Former Executive Director, THSTO, Dept. of Biotechnology, Ministry of Science & Technology

Timo Haapalehto, former Chief Advisor to the Finnish Ministry for Economic Affairs and Employment

Claire Donovan, School of Education, University of Greenwich, London

3 Summary of the Panel Deliberations

The external review was extensive and confirmed that at present HFSP is performing exceptionally well in its core mission. Future strategy should focus on protecting what makes HFSP unique, selectively scaling its most effective instruments, and strengthening its visibility and resilience in an uncertain global research environment. Therefore, the Panel's recommendations focus on aspects that will permit HFSP to strengthen its scientific strategy for the future regarding the portfolio for frontier research, the

preservation and assurance of scientific quality, the integrity of the peer review process while considering innovative approaches, and the balance of driving innovation with a small program in times of scarce resources for international collaboration. The Panel is also making recommendations regarding the resources of HFSP, its membership and the challenges of diversity, equity and inclusion.

3.1 Mission and Programs

HFSP occupies a distinct and unique value adding niche in the global funding landscape based on a unique combination of basic biological sciences, interdisciplinarity, and international collaboration at a level rarely matched by national or regional funders.

1. The Panel underlines that HFSP funds the type of research that no single country can easily or efficiently support alone, reaffirming the program's philosophy to support basic research without borders.
2. HFSP has a global reputation for scientific excellence because the research it supports is conducted conscientiously and responsibly. Therefore, the Panel invites the organization to maintain its efforts to raise awareness for responsible conduct of research and to remain vigilant given rising obstacles for international collaboration and research security concerns.
3. HFSP should continue to foster frontier science and conceptually novel thinking, the kind of research that leads to opening new fields and ushering innovative concepts.
4. The panel is firm that HFSP's support for early career is consequential and therefore recommends the following modifications and improvements:
 - a) Assess the fellowship program to ensure that it remains unique and is attractive in the current and evolving international funding landscape. Both schemes (Long-Term and Cross-Disciplinary Fellowships) support highly competent and technology savvy young researchers that cross disciplinary boundaries with ease. They are not bound by labels and therefore it seems beneficial to merge both schemes with renewed emphasis on change in research direction which the applicants have to propose to be eligible.
 - b) There is a significant gap in the "continuum" of HFSP awards that presents a vulnerability to the highly talented young scientists at the completion of their fellowship. To close this gap between the postdoctoral and investigator stage, HFSP is encouraged to introduce a transition award (HFSP Investigator) allowing postdoctoral fellows to establish themselves as independent investigators on their own right (conditional on institutional commitment).
 - c) Finding international collaborators from different disciplines is a significant barrier for applicants to the HFSP Early Career grants, potentially limiting their interest and ability to apply. This group of applicants is further disadvantaged as they compete for research grants in the same financial pool as applicants to the Program Grants. The Panel therefore recommends establishing the Early Career Research Grants as a separate program with revised guidelines and a stronger emphasis on international collaboration among future scientific leaders.

5. Because of its increased global footprint, the Panel suggests that HFSP considers collaborations with other organizations for supplementing the fellowship funds to match the required institutional salaries for postdoctoral researchers and aid in supporting the new HFSP Investigator Grant.
6. The Panel values the immense effort that HFSP invests in the peer review process but views the current process as excessively long and complex due, in part, to the very high number of external reviews that are solicited. It is recommended that the peer review process should match the frontier character of the program considering the following suggested modifications:
 - a) The current peer review process is very heavy and should be streamlined. It should be possible to decide about frontier research with a system that is more lean and agile.
 - b) HFSP should analyze the peer review process for hidden bias and reinforce the explicit wording in the application guidelines and reviewer instructions.
 - c) The panel invites the organization to carry out a trial on fully gender-blinding the letter of intent stage that stands at the beginning of the peer review process.
 - d) The use of AI-based tools in research is happening at break-neck speed and for HFSP as a funder of novel and innovative research, it would be timely to develop applications for using AI-tools that could support the peer review process.

3.2 Impact and Value Added

HFSP-supported research demonstrates exceptional scientific quality shaping emerging research areas at the interfaces of life science with other disciplines.

- HFSP referenced publications arising from international collaborations drive higher impact by generating new concepts, theories, methods, and tools - the essential upstream inputs to downstream technological, medical, and industrial innovation.
- Seeding durable international collaborations, HFSP systematically increases and sustains cross-border collaboration thereby strengthening scientific ties among member countries and beyond. As a result, the science profile of the member states gains a greater visibility and impact.
- Novel and frontier basic research in the life sciences opens up new research fields with socio-economic impact by expanding the pool of high-quality, reusable scientific knowledge on which applied research and industry depend.
- Quantitative analysis provides evidence for synergistic, value-added contribution to national research ecosystems. HFSP's system of "shared investment - shared returns" allows member states to collectively support frontier research that benefits all, while avoiding duplication and fragmentation.

At the level of the individual member states, the full impact and value added provided by HFSP research may be underestimated due to insufficient comparative data of HFSP performance against domestic or other international programs (e.g. Horizon Europe). A more systematic approach to assessing valorization would be desirable.

The Panel encourages the HFSP Members to enhance the data collection and comparative analysis for improved monitoring of the performance of the program to maximize the value added.

3.3 Outreach and Communication

The Panel recommends continued targeted outreach and capacity-building to achieve greater visibility across member countries and key scientific communities to broaden participation while maintaining excellence-based selection for HFSP awards.

1. HFSP Members are encouraged to actively raise the profile of the organization and to raise awareness of their engagement (e.g. the HFSP Awardees Meeting) and acknowledge the standing of the awardees in their countries as outstanding members of the academic enterprise
2. HFSP should expand preparatory support to scientists in underrepresented regions and scientific communities. (e.g. topical workshops, Master Classes, mentoring, proposal-development guidance).
3. The HFSP alumni base should be developed into a highly valued network of “Ambassadors” for the organization. It is essential to enhance the efforts in this direction and invest in support for community building activities.
4. HFSP should make a greater effort to enhance visibility of the program in connection with scientific meetings in the member countries
5. The organization should capitalize to a much greater extent on the outstanding scientific community it supports. HFSP Awardees, together with additional participants, should be offered an opportunity to meet for thematic round table discussion that would result in forward-looking ideas, publications, and reports that may seed new collaborations.
6. The annual HFSP Awardees Meeting but also other national or international scientific meetings would provide an ideal venue for mentorship support for Awardees’ trainees and students.

3.4 Finance, Governance and Membership

HFSP’s philosophy is grounded in the principle of shared global asset based on solidarity across the Members rather than a transactional funding mechanism. Durable international networks resulting from HFSP collaborations are a key value proposition for member states and science diplomacy. In the view of the Panel, a strong membership base and long-term commitment of existing and new members is key to a sustainable future. But external geopolitical and economic volatility poses a structural risk to multilateral programs such as HFSP. Therefore, the organization needs to develop a mitigation plan and adaptation strategy to face abrupt changes/shocks arising from such risks to finance, membership, and governance.

3.4.1 Finance

1. The panel recommends that HFSP funds all the top frontier projects that meet the stringent selection criteria (“Frontier Gap”), representing about a 30% increase in numbers of Research Grants with the added effect of increasing the currently critically low success rate.

2. Additional funding may need to be considered to support the separate program for Early Career Research Grants and for the program enabling HFSP fellows to transition to independent positions as HFSP Investigators at their respective institutions or elsewhere in the world.
3. The critical level of HFSP funding by its Members and the diversification of funding sources supporting the organization should be given high priority because they are essential for long-term sustainability. In this context additional funding should be secured from the current and new Members and possibly through philanthropic donations or partnerships.

3.4.2 Membership

There is value in a gradual expansion of HFSP membership to become a truly global organization while preserving HFSP's underlying philosophy of Science without Borders. The "corps d'esprit" of HFSP is that of a global research community that extends far beyond the current member states. Many like-minded countries are undoubtedly eager to become members while others could be approached to join because they have developed a strong research basis and can contribute to increasing the HFSP talent pool in the future.

The Panel therefore encourages the organization to develop a plan to orderly grow its membership consistent with its founding vision, values and mission

3.4.3 Governance

The governance of HFSP reflects the prevalent geopolitical state at the time of its creation in 1989 with a limited number of members. More than 35 years on, the constituency has grown substantially over the years giving the organization a truly global footprint. The Panel is of the view that the time has come for the mature and successful organization to review its governance structure enabling more agile workflows and decision making throughout its hierarchy. The timing is particularly opportune for HFSP to review its governance as it considers expanding its membership.

The Panel recommends the following actions as part of a governance refresh:

1. Clarify the role and mandate of the various governance instances with a view to simplify and streamline processes and responsibilities consistent with current best governance practices.
2. The HFSP Board of Trustees (the Board) should carefully examine which authorities should remain the responsibility of the Board and which decisions could be delegated to an Executive Committee (EC) of the Board (replacing the current Board Steering Committee)
3. Decisions such as the annual approval of the new HFSP awards but also other decisions relating to the program or resulting from the peer review process may be delegated to the Executive Committee thus enhancing system efficiency.
4. The organization would greatly benefit from an independent high-level Scientific Advisory Committee (SAC) comprised of eminent scientists and professionals, replacing the current HFSP Council of Scientists. Current international best practice should be used to establish the terms of reference and the composition of the SAC.

4 Conclusions

For Members of the HFSP, supporting this organization represents a strategically important investment that provides added value and visibility to their domestic research and development activities. Their membership also speaks to their engagement towards the global life-science community and to their underlying commitment to human kind and global wellbeing. The program delivers exceptional scientific quality, seeds long-term innovation, strengthens international collaboration, and develops scientific talent in ways that national programs alone cannot achieve. For member states, HFSP provides both scientific returns and value added in various ways, reinforcing its continued relevance in an increasingly complex and competitive global research landscape. The Members should carefully consider concrete ways to maintain the impeccable reputation and relevance of their organization and establish a financial sustainability plan that allows HFSP to keep up with the rising research needs and cost.