FRAMEWORK CRITERIA

(Update: 02 December 2019)

The following recommendations form the basis for the Framework for Global Research Infrastructures. The Framework is a living document that builds on the continuous work of the GSO and is based on previous experience with existing Global Research Infrastructures available worldwide, on the analysis of selected case studies, and on updates in the relevant Policy Areas addressed. The GSO proceeds with the periodic review and refinement of the Framework as well as to its testing on carefully selected case studies in the context of international cooperation in Global Research Infrastructures initiatives.

1. Core purpose of Global Research Infrastructures.

Global Research Infrastructures should address the most pressing global research challenges, i.e. those frontiers of knowledge where a global-critical-mass effort to achieve progress is required. Science, technology, innovation, and advanced research training goals should be fully integrated throughout the infrastructure plans from their early development.

2. Partnership management.

Global Research Infrastructures initiatives should explicitly and clearly define, as early as possible, the roles and responsibilities of the Partners through the different stages of the project's full life-cycle[1] to ensure effectiveness and sustainability. Rules of participation should also be defined to allow for the evolution of the partnership. The partnership's Terms of Reference should include the establishment of an independent scientific oversight body to advise the participating members on scientific and technical matters.

[1] https://ec.europa.eu/info/sites/info/files/research_and_innovation/gso_progress_report_2015_final.pdf See page 19

3. Defining scope, schedule, and cost.

Stakeholders should agree upon a shared understanding of the foreseen scope, schedule (including a timetable) and cost, addressing inherent uncertainties and any external constraints, and define processes to effectively address deviations.

4. Project management.

Appropriate management structures and experienced, professional top-level management should be established, consistent with good practices and principles derived from other Global Research Infrastructures and applicable professional standards, to help ensure that the scientific, technical and performance objectives of each lifecycle stage are met.

5. Contribution management.

Global Research Infrastructure development should enable an appropriate balance between cash contributions and in-kind contributions when considering the costs for each life-cycle stage to ensure proper implementation, delivery of excellent science, and long-term sustainability. The in-kind contributions should be carefully evaluated regarding the capability of the contributor to deliver, the scientific quality of the contribution, and the schedule for delivery in relation to the life-cycle stage.

6. Periodic reviews.

The scientific, technical, and performance objectives of Global Research Infrastructures (GRIs) should be externally evaluated and updated periodically. Good evaluation practices should be adopted at all lifestyle stages to help ensure excellence of the scientific output and achievement of the broader national and international goals of the GRI. An assessment of the quality of the services offered to the scientific communities that the GRI supports should be included to evaluate on-going performance and success during operations. A process supported by external review that includes both national and international representation and is tailored to the GRI lifecycle stage is strongly encouraged.

7. Termination or decommissioning.

Planning for termination or decommissioning of a Global Research Infrastructure initiative should be established early in the development of the facility where possible or relevant, by defining criteria for the conclusion of operation, and establishing exit criteria and procedures for closing down and recognizing future termination liabilities or encumbrances on the sponsors at the conclusion of operation

8. Access goal based on merit review.

The GRI policies should reflect the global-Excellence-driven Access (gEA) paradigm through publication of a clear and transparent access goal. The goal should incorporate a peer-reviewed process that recommends access based on the most promising emergent ideas, regardless of the country of origin or the ability of the proposer to contribute financially.

9. e-infrastructure.

Global Research Infrastructure initiatives should recognize the utility of the integrated use of advanced e-infrastructure services for accessing, processing and curating data, as well as for remote participation (interaction) and access to scientific experiments.

10. Data management.

Many Global Research Infrastructures (GRIs) have recognized that the data they produce are of value and utility to a broad scientific community. Effective data management and sharing has the potential to increase the pace of interdisciplinary research and scientific discovery, to inspire innovation, and to promote more efficient and effective use of research resources. GRIs that manage and maintain research datasets in service to the scientific community should have transparent and public data management policies for data preservation and sharing that are mutually agreed to by the users. These policies are encouraged to consider: (1) long-term data curation including metadata; (2) data interoperability; (3) data access and re-use; and (4)

alignment with community standards and practices, including standards for openness, while respecting the "*as open as possible, as closed as necessary*" principle.

11. Clustering of Research Infrastructures.

Where clustering of complementary Research Infrastructures appears to be consistent with the mission of the Global Research Infrastructure, schemes for access and mobility of researchers, engineers and technicians through the cluster should be actively encouraged.

12. International mobility.

Measures to facilitate the international mobility of engineers, project managers and researchers, including postgraduate students and postdoctoral fellows, to participate in design, implementation, operations and use of Global Research Infrastructures (GRIs), should be promoted by all stakeholders vested in the achievement of the broader national and international goals of the GRI.

13. Innovation, Technology Transfer and Intellectual Property.

Global Research Infrastructures should develop policies with clear goals and strategies for the promotion of innovation and technology transfer and the management of intellectual property. These policies should recognise the differing opportunities for innovation at each lifecycle stage as well as the barriers and drivers appropriate to the particular GRI context. GRI's are encouraged to regularly exchange information on good practices regarding: (1) innovation and intellectual property rights management; and (2) the sharing, exploitation and utilisation of data and technologies generated by usage of the GRI.

14. Monitoring impact.

In alignment with criterion 6, Global Research Infrastructures should maintain a set of core indicators relevant to the strategic objectives and the life-cycle stages of the GRI, which are suitable for monitoring the scientific and socio-economic impact of the GRI and are agreed to by the key stakeholders. GRIs should ensure that there are sufficient resources for collecting and making available data on these core indicators.