What type of research infrastructure is eligible for funding?

Funding may be sought for investments in and the operation of national and international research infrastructures.

The term "research infrastructure" refers to advanced scientific equipment and large-scale equipment facilities, electronic infrastructure (e-infrastructure), and scientific databases and collections.

Funding may only be sought for research infrastructure of national importance (defined below under item 2).

Funding may only be sought for infrastructure with establishment costs of more than NOK 2 million. The maximum amount of funding that may be sought from the Research Council is NOK 200 million and funding can be sought for a period of up to five years. Funding may be sought to cover investment, establishment and installation costs for new research infrastructure or costs for upgrades of existing infrastructure. Funding may also be sought to cover costs for coordination and adaptation of shared services based on existing research infrastructures.

In special cases, applicants may seek funding for operation of research infrastructure (please see item 5 below).

Although no more than NOK 200 million can be allocated to a single project under this call, applicants may submit a grant application seeking more than this amount (please see item 10 below).

1. Categories of research infrastructure

Under this call, the term "research infrastructure" refers to:

1.1 *Advanced scientific equipment and large-scale equipment facilities*

Funding may be sought for advanced scientific equipment within all scientific disciplines as well as for large-scale national laboratories, equipment components and research installations. Smaller equipment may be a part (improvement/upgrade) of a larger research infrastructure of national importance or a part (local node) of a larger-scale nationally coordinated infrastructure. The grant proposal must describe how the infrastructure for which funding is being sought is related to existing national and international research infrastructures.

1.2 *Electronic infrastructure (e-infrastructure)/data infrastructure*

E-infrastructure/data infrastructure for research encompasses equipment, advanced expertise, user support and related services for high-performance computing, data storage, software systems and high-capacity networks, as well as tools for efficient workflows and software for simulations and analysis of data. The term "e-infrastructure/data infrastructure" also refers to digital registries and scientific data repositories comprising structured, systematised, digitised data, as well as the tools and services for making data accessible for research purposes. The term also encompasses scientific collections comprising physical objects which are systematised and digitised for scientific purposes. Examples include biobanks and collections of fossils, specimens or artefacts.

Funding may be sought for:

- procurement, installation and operation of hardware;

- software for use of e-infrastructure, including adaptation of software for efficient use of a large number of cores for high-performance computing systems and effective utilisation of storage solutions;

- implementation of specialised solutions for research groups in order to ensure that the user group can effectively utilise the e-infrastructure/data infrastructure;

- Testing and development of new services, for example for experimental architectures, cloud-based services and similar methods for coordinating and adapting data and for making data accessible for research purposes. This includes the development of shared central services, such as repositories and data services, adaptation of research services at libraries and museums, and development of search engines and data portals that give researchers knowledge about, and access to, data. The services must be developed in accordance with the international FAIR Guiding Principles for scientific data management and stewardship[1].

  For further information, please see under item 4 below.

In the application you must describe how the project can be integrated with existing national/ international e-infrastructure/data infrastructures. We ask the applicant to contact relevant national e-infrastructures/data infrastructures to clarify integration and costs related to the expansion/use of this infrastructure. UNINETT Sigma2 is the national infrastructure for computing and storage of large amounts of data.

2. Research infrastructure of national importance

Funding may only be sought for research infrastructure *of national importance*. This means that:

- *The research infrastructure is of widespread national interest.* The establishment of the infrastructure must be of major interest to Norway as a whole. For more information, please refer to the Norwegian Roadmap for Research Infrastructure for 2023 (an updated roadmap will be published in June 2023), as well as to the Norwegian Government's [Long-term plan for research and higher education 2023–2032](#).

- *The research infrastructure will be available in only one or a few locations in Norway, as a general rule.* The Research Council encourages research institutions with common interests to implement task-sharing when appropriate and work together on grant applications.

- *The research infrastructure lays a foundation for internationally cutting-edge research.* Allocations are intended to support the activities of research groups that are already at the international forefront or demonstrate good potential realistically speaking to achieve that position.
- *The research infrastructure will be made accessible to relevant researchers and industries.* Access must be given to any groups outside the applicant institution that will need to utilise the infrastructure. Grant applications must include plans for user access.

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[1] The international FAIR Principles have been formulated as a set of guidelines for the reuse of research data. The acronym FAIR stands for findable, accessible, interoperable and reusable. Research data must be of quality that makes them accessible, findable and reusable. The concept interoperable entails that both data and metadata must be machine-readable and that a consistent terminology is used.

3. Development of equipment and software

Equipment and software funded under the National Financing Initiative for Research Infrastructure (INFRASTRUKTUR) normally comprise standard solutions that can be procured on the market. Under certain conditions, however, applicants may seek funding for development of equipment and software. Applicants must document that all of the following conditions are met:

- a service will be established and put into operation for research conducted under the project;
- there are no suitable solutions on the market;
- the users are identified, and the user group has a stated need for the equipment/software;
- the method/technology on which development will be based has been demonstrated to function in a relevant environment (Technology Readiness Level (TRL) 6 on the EU scale).

Each of these prerequisites must be documented.

4. Data collection

Funding may be sought for:

- procurement and establishment of equipment and tools (including IT tools) for data collection for research purposes;
- technical systems for quality assurance and preparation of data for use in research;
- technical systems for archiving data and making data accessible for use in research.

A prerequisite for funding is that applicants must identify and document the users of the data and that the user group has an expressed need for these data in its research.

Funding to cover other costs related to collecting/generating data will <u>not</u> be awarded under the INFRASTRUKTUR initiative.

5. Funding to cover operating costs

The INFRASTRUKTUR initiative is primarily intended to provide funding for investment in new or upgrades of existing research infrastructures. Operating costs for a research infrastructure are to be covered to the greatest possible extent by the projects using the infrastructure. The INFRASTRUKTUR initiative may award funding for operation of infrastructure during the start-up phase but will be restrictive in supporting long-term basic funding of operation of infrastructure beyond the start-up phase.

The INFRASTRUKTUR initiative will only award *long-term* basic funding for operation of a research infrastructure if <u>all</u> of the following prerequisites are met:

1. **Costly operation:** The research infrastructure is particularly costly to operate.
2. **Market failure:** It will be impossible to fully finance the operating costs with contributions from the projects using the infrastructure and/or institution-based core funding.
3. **Major need:** The infrastructure's number of user hours is high or expected to be high after a start-up phase.
4. **Research Infrastructure Resource (RIR):**[2] Appropriate budgeting and accounting practice for the operation of the infrastructure is in place.

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[2] A Research Infrastructure Resource (RIR) is defined as a laboratory or other common research infrastructure for which the operating costs are presented separately and distributed proportionally between the projects and activities which employ the infrastructure.

5. **Business model:** The business model for operation includes incentives for the projects using the infrastructure to contribute to covering operating costs.
6. **Own contributions:** Owner institutions with substantial basic allocations contribute significantly towards covering operating costs.
7. **The Research Council is participating in, or has participated in, establishment of the infrastructure:** The Research Council requires that funding for establishment of the research infrastructure is, or has been, awarded under the INFRASTRUKTUR initiative.

Applicants seeking long-term basic funding for operation must submit this information in a special attachment in addition to the project description and other mandatory attachments. A separate template for this attachment is available and must be used ("Attachment for long-term basic funding for operation").

Please note that all items in the template must be completed.

Basic funding for operation may be awarded for a period of up to five years; however, applicants should specify the projected need for support for a period of up to 10 years. Decisions to continue funding after the initial five-year period will be taken after a new review of grant applications received in response to subsequent calls for proposals under the INFRASTRUKTUR initiative.

6. International research infrastructures and projects on the ESFRI Roadmap

Norwegian institutions or consortia seeking to participate in international research infrastructures must apply to the INFRASTRUKTUR initiative in the same manner as applicants seeking funding for national research infrastructures in Norway.

Funding may be sought for:

- establishment and/or investment in the Norwegian node of internationally distributed research infrastructure;
- the Norwegian contribution to international research infrastructure located at a single site or shared services/installations.

Funding may also be sought to cover the contribution for national membership of international research infrastructures, including research infrastructures on the ESFRI Roadmap.

With regard to Norwegian membership of *distributed* international research infrastructures, infrastructure located at Norwegian research institutions must comprise one or more nodes of the international research infrastructure. Costs related to Norway's membership, including membership fees, are considered part of the operating costs for the Norwegian node. As a general rule, operating costs for a research infrastructure are to be covered to the greatest possible extent by the projects using the infrastructure. Thus, the Norwegian node must include funding to cover membership fees in its operating budget. The INFRASTRUKTUR initiative may grant funding for operation of research infrastructure during the start-up phase, and in special cases it may also provide long-term basic funding for operation beyond this period (see above). Continued funding from the INFRASTRUKTUR initiative for operating costs beyond the start-up phase will only be possible when operating costs of the Norwegian node are very high, and will not be provided <u>only</u> to finance membership fees for participation in international research infrastructure.

Grant applications for Norwegian participation in international research infrastructures, including projects on the ESFRI Roadmap, must include a concrete description of the Norwegian contribution/design for the Norwegian node for which funding is being sought, as well as of Norway's role and commitments under the international participation. Applicants must submit this information in a special attachment in addition to the project description and other mandatory

attachments. A separate template for this attachment has been drawn up and must be used ("Attachment for membership in international RI-projects"). All items in the template must be completed.

Grant proposals for realisation of Norwegian participation in projects on the ESFRI Roadmap must be coordinated with the activities of the European consortium (see the ESFRI webpages). The review of the projects will take into consideration that final plans regarding the organisation of international cooperation and task distribution for Preparatory Phase projects may not yet be completed.

The Research Council may give a recommendation on ESFRI participation which includes equipment the institutions already own - without funding from us to upgrade the equipment - if desired by the institutions and approved by the ESFRI project. In such cases, the Norwegian institution/consortium should contact the Research Council. In cases where you are applying for an upgrade of equipment the institutions already own, it must be made clear in the application whether ESFRI participation based on existing equipment is relevant if the application for upgrading is not approved.

7. The research infrastructure's building-related needs

Applicant institutions must provide suitable facilities for the research infrastructure. Funding may not be sought to cover expenses associated with this, with the exception of extra outlay for particularly costly technical installations essential to establishing the research infrastructure. The project description must specify any building-related needs and costs associated with the research infrastructure, including those that extend beyond what is covered under this call for proposals, and describe plans for how these needs will be financed and implemented.

8. Examples of infrastructures that are not eligible for funding

Funding may not be sought for *basic equipment* that a number of research institutions may generally be expected to have. Equipment that is not of national importance may be financed partially by contributions from research projects funded under other programmes and initiatives at the Research Council. Read more about equipment costs and research infrastructure on the Research Council website.

Funding may not be sought for infrastructures whose primary purpose is to establish and maintain networks between people, even if the aim of the network is to lay a foundation for research or provide assistance to researchers.

9.Pre-projects

Funding may be sought for pre-projects of up to two years' duration, starting in 2024, to investigate opportunities for establishing research infrastructures that are based on appropriate national/international coordination and that promote cooperation on investments and operations. The funding will contribute to new infrastructure initiatives becoming sufficiently mature to submit an application to a subsequent call for proposals.

10. Research infrastructure requiring investments that exceed NOK 200 million

The establishment of research infrastructure involving external investments that exceed NOK 200 million is decided at the ministerial or government level, in accordance with national strategies.

However, the Research Council may assess grant proposals seeking more than NOK 200 million as part of the review process for other grant proposals in order to make its recommendation to the

relevant ministries. Institutions or consortia seeking to establish research facilities with investment costs over NOK 200 million are encouraged to contact the Research Council for submission and assessment of such proposals together with other applications.

A positive recommendation may be provided for projects that have received high marks in relation to the assessment criteria stipulated by the Research Council. In exceptional cases, the Research Council, in consultation with the Ministry of Education and Research, may allocate funding for the planning phase of a project.