# Summary of reviewer feedback in the Academy's September 2021 call: natural sciences and engineering research applications

**ACADEMY OF FINLAND**

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# 1.    Overview

Majority of the applications submitted in the September 2021 call to the Research Council for Natural Sciences and Engineering were reviewed in international review panels. This time 30 review panels were organised to evaluate the applications in the fields of natural sciences and engineering. In the following is presented these panels' feedback for the benefit of the applicants.

# 2.    Scientific quality

All review panels identified excellent or outstanding applications (i.e. overall grade 5 or 6), which were competitive in an international comparison. However, the quality of the applications varied significantly (from very weak to internationally outstanding) within the panels and among the fields of research.

To improve the quality of the applications, many panels highlighted the importance of **including sufficient scientific details in the application**. This is particularly important for receiving a high grade in scientific quality and innovativeness (item 1.1) and in implementation of research plan (item 1.2) in the review form. **A clear description of the novelty and innovativeness of the proposed research** was a prerequisite for receiving a high grade in the review item 1.1. Notably, **the description of the implementation of the work was often insufficiently detailed**, and this was reflected in the grade.

Related to the description of the novelty, the applicants should clearly state **what is the relation of their application to their other** (e.g. EU funded) **projects**.

In some cases the panel expected more references to state of the art. Only general state of the art was given and what the other research groups are currently doing was missing. It should be clearly stated what is the novelty of the proposed research with regard to the state of the art.

There were quite many applications which were overambitious in scope. These applications would have benefitted if there had been more focussed and concrete implementation plan that would show what is achievable.

Some panels also commented that breakthrough capabilities as well as short and long-term impact of the research should have been emphasised in the applications.

# 3.    Competence, collaboration, and mobility

Several panels were impressed by the many highly networked and internationally-oriented applicants. However, there were also applicants with limited international experience and confined mobility plans.

The panelists often raised the concern regarding **non-specific description of research team and/or collaborators and their roles in the proposed research work**, and pointed out that simply providing a list of collaborators is not sufficient. In case of consortium applications the interconnections within and the added value of the consortium should be made clear.

**The planned mobility and collaborations should always be described clearly and in sufficient details. They should support the research plan and contribute to the scientific objectives. The mobility plan should be tightly connected to the schedule of the project.** Mobility could also go the other direction, inviting/attracting people from abroad.

Many panels commented that letters of collaboration were often missing or were found to be quite generic. The letters would give credibility and show genuine interest in the collaboration.

Industrial collaboration was missing from some applications, although there would have been opportunities for those projects for technology transfer.

There were quite many applications where AI and machine learning were mentioned. By utilising of AI and machine learning, the applicant should also know how to use these methods, not just add them to the application as buzzwords.

# 4.    Other feedback

- The applicants should **prepare the research plan, CV, publication list and other appendices according to the Academy's guidelines** so as to facilitate systematic panel review.

- The applicants sometimes included bibliometrics such as h-indices of the PI and collaborators in their applications against the guidelines.

- The applicants should place emphasis on **describing clearly and properly the state of the art, risk assessment, management and organisational aspects, research methods, research questions and/or hypotheses and objectives in the application**. A Gantt chart, deliverables and project evaluation criteria would be helpful.

- The applicants should note that researcher training is part of the scientific review and as such, it is **important to include researcher training aspects into the application**.

- **Responsible science issues were described very generically** / superficially in many applications and seemed like little effort was made to elaborate any details on the subject. There was no information how the responsible science will be put into practise.

- The applicants need to distinguish between open access publication and **open access to the data**. It is not enough that the data are stored in a local repository, but the applicants should set up ways to store data and make sure that the data are usable. The community relies on exchange of data for reproducibility of results, so open access to data should be encouraged.

- **The sustainable development section was rather weak** in some of the applications, as the applicants did not really consider **how their science is connected to the societal component**.

- Some of the applicants clearly put more effort in coming up with an interesting, feasible outreach plan.

- **The funding applied for** (the project costs) **and requested personnel should be carefully justified**.

- The applicants should **include only published and accepted papers** – not submitted ones – **in the publication list**.

- The applicants are encouraged to **add figures and tables in their application where appropriate**.

- In some cases, **the lack of coordination between applications from the same research group was surprising** – on occasion there were several applications on similar or overlapping topics.

- The applicants are encouraged to **discuss the application with colleagues before submission**. Receiving some mentoring in preparation of application is particularly important for younger applicants with limited experience in applying for research funding.

- Some applications were clearly hastily and poorly prepared and would have benefitted from **proof-reading**.