Summary of reviewer feedback in the Academy's September 2022 call: natural sciences and engineering research applications

ACADEMY OF FINLAND

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1. Overview

Majority of the applications submitted in the September 2022 call to the Research Council for Natural Sciences and Engineering were reviewed in international review panels. This time 26 review panels were organised to evaluate the applications in the fields of natural sciences and engineering. The panels' feedback for the benefit of the applicants is presented in the following.

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 the review form items "scientific quality, novelty and innovativeness of research" and "feasibility of research plan". **A clear description of the novelty and innovativeness of the proposed research** was a prerequisite for receiving a high grade in the first item mentioned above. 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 commented that the description of the state of the art was not at the level one would expect and what the other research groups are currently doing was missing.

Some panels also commented that importance, 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. Several panels emphasized **the importance of mobility for career development of early career researchers**. For example, the mobility plans could often have included more frequent and longer stays abroad.

The panelists often raised the concern regarding **non-specific description of collaborators and their roles in the proposed research work**. **Letters of collaboration were often missing or were found to be too generic.** The letters would give credibility and show genuine interest and commitment in the collaboration.

Industrial relevance played a large role in justifying some applications, but related industrial partner contributions were sometimes unclear.

The planned mobility and collaborations should always be described clearly and in sufficient detail. 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.

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 should place emphasis on **describing clearly and properly the state of the art, risk assessment (incl. mitigation plan), 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.

- There were some applications where AI was used as a buzzword.

- **Responsible science aspects 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.

- **Ethical aspects part of the application was typically very generic.** If the research involves animal experiments, they should always be well justified in the application.

- **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**.

- 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 mentoring in preparation of

application is particularly important for early career researchers with limited experience in applying for research funding.

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

- The applicants should note that researcher training is part of the scientific review and as such, it is **important to include researcher training aspects in the application**. In some cases, the role of the PhD student in the Academy Research Fellowship project was described rather vaguely. Often the applicants do not have formal training in supervising a research student and have limited supervision experience. It is extremely important that a new PhD student receives appropriate supervision and that there is a clear plan for their training.

- Some **Academy Research Fellow applicants** made good use of the career planning section while others **could have elaborated better and more personally on the benefits of the Fellowship for their career advancement and increased expertise**. Some panels expected more discussion on leadership development.