



ACADEMY OF FINLAND

Experiences of Reviewing Inter- and Multidisciplinary Research Proposals in the Fields of Biosciences and the Environmental Research

Dr Laura Raaska
Director of the Biosciences and Environment Research
The Academy of Finland

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Outline

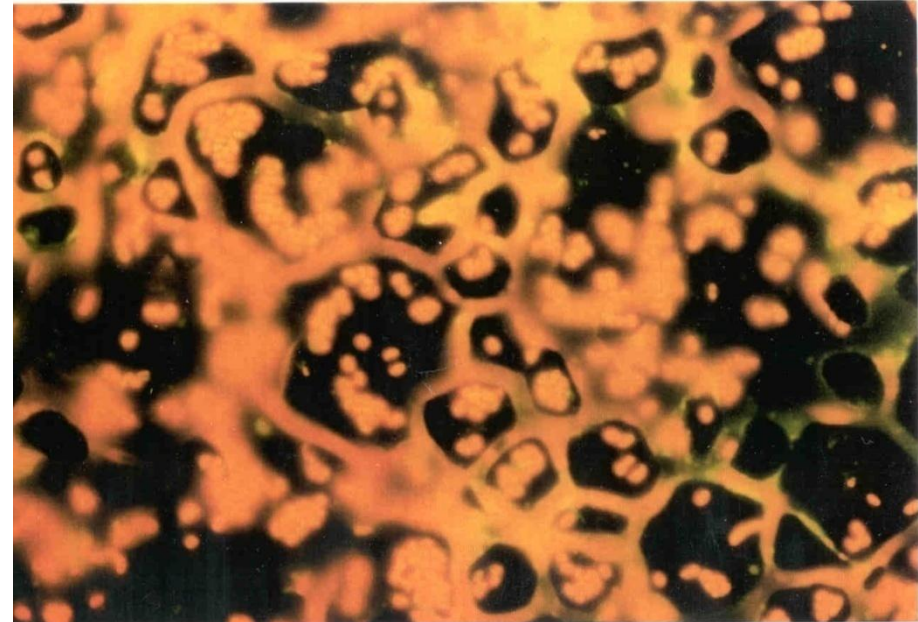
- Organization and tasks
- Evaluation and decision-making process
- Case studies: Geography & Environmental health
- Conclusions and recommendations





Microbiological corrosion

**Interdisciplinary research
is often imbedded in
interesting research
questions**



Form and depth of interdisciplinary research varies

- ✓ joint research question
- ✓ joint theory formation
- ✓ shared methods
- ✓ shared data & material

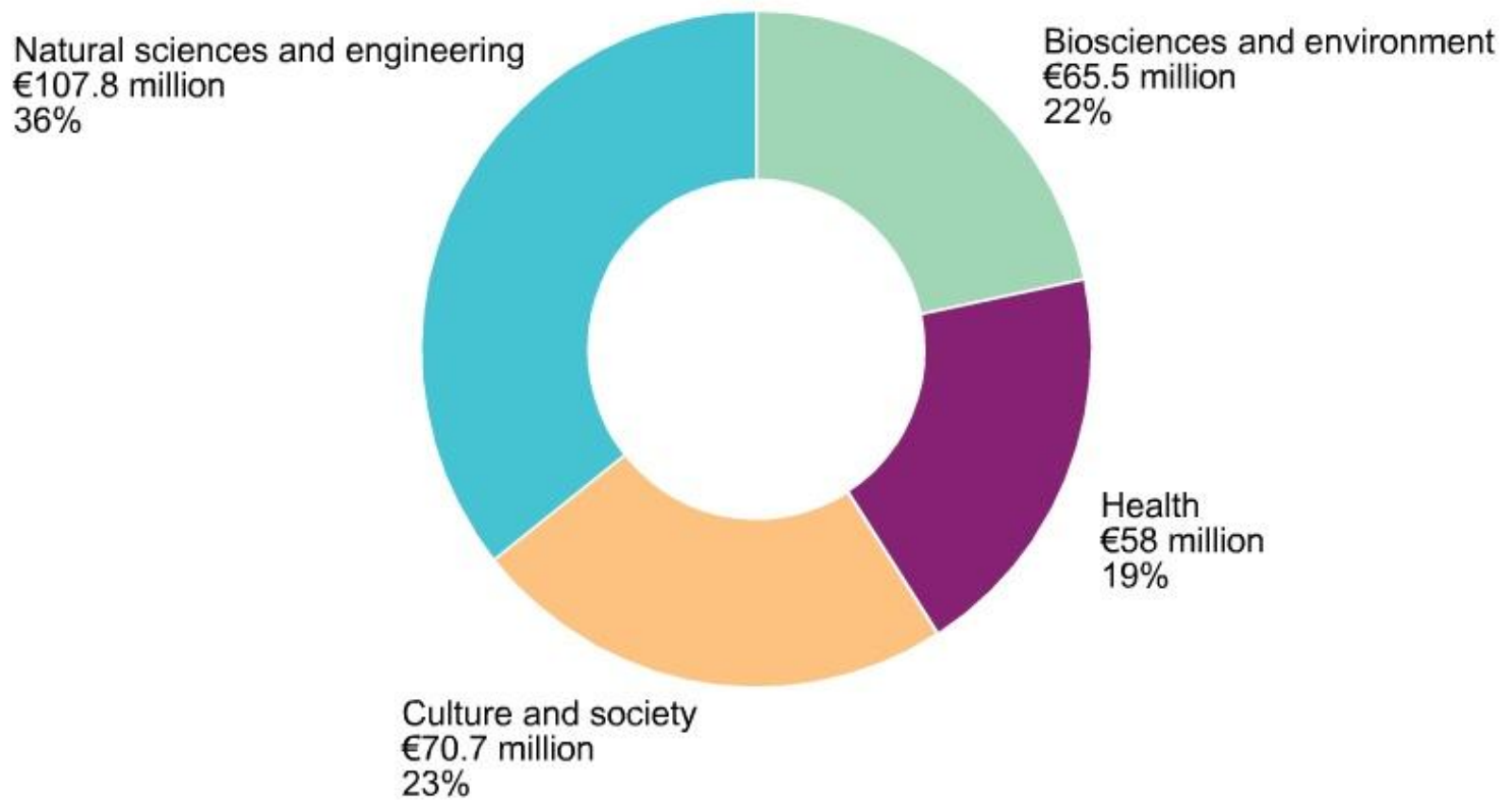


Academy of Finland

- Tasks
 - Promote scientific research and its application
 - **Award funding for cutting-edge scientific research, researcher training**
 - Advance international scientific collaboration
 - Provide expertise in science policy
 - Undertake other science-policy expert assignments
- 2011 funding for cutting-edge scientific research some €340 million
- Each year, some 5,000 people benefit from Academy research funding
- Has a staff of some 150.

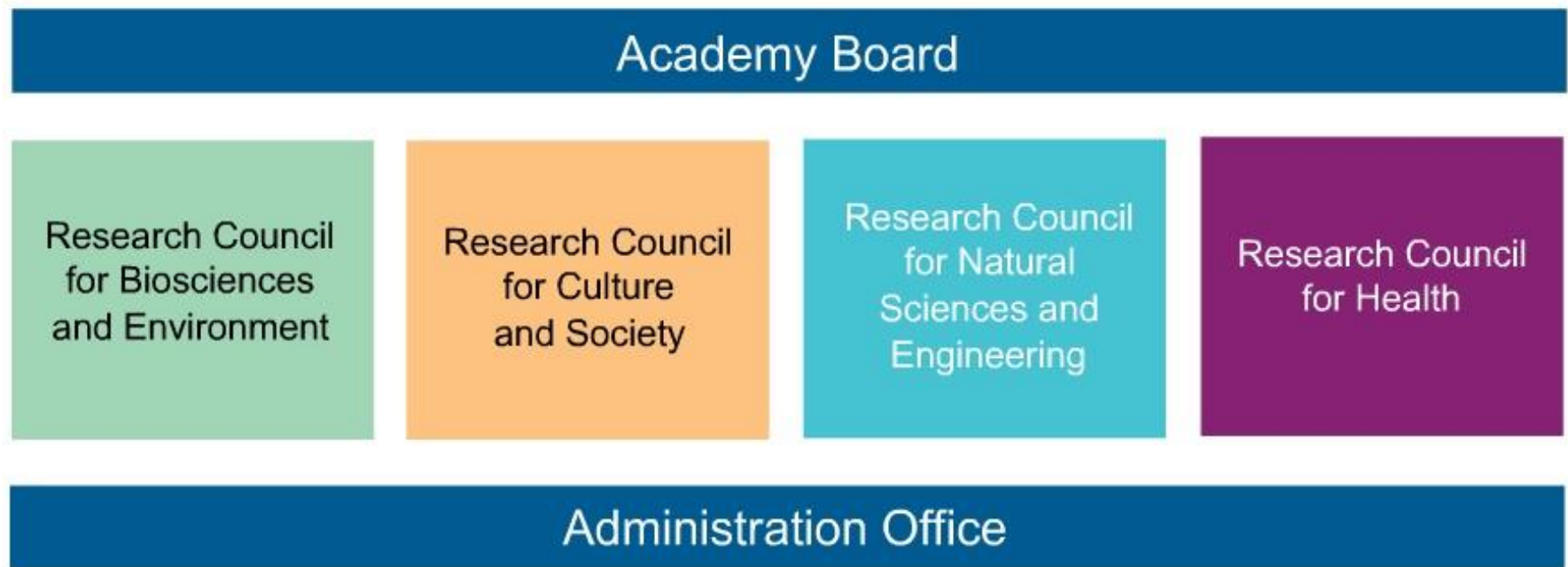


Funding decisions by Research Council domain 2010



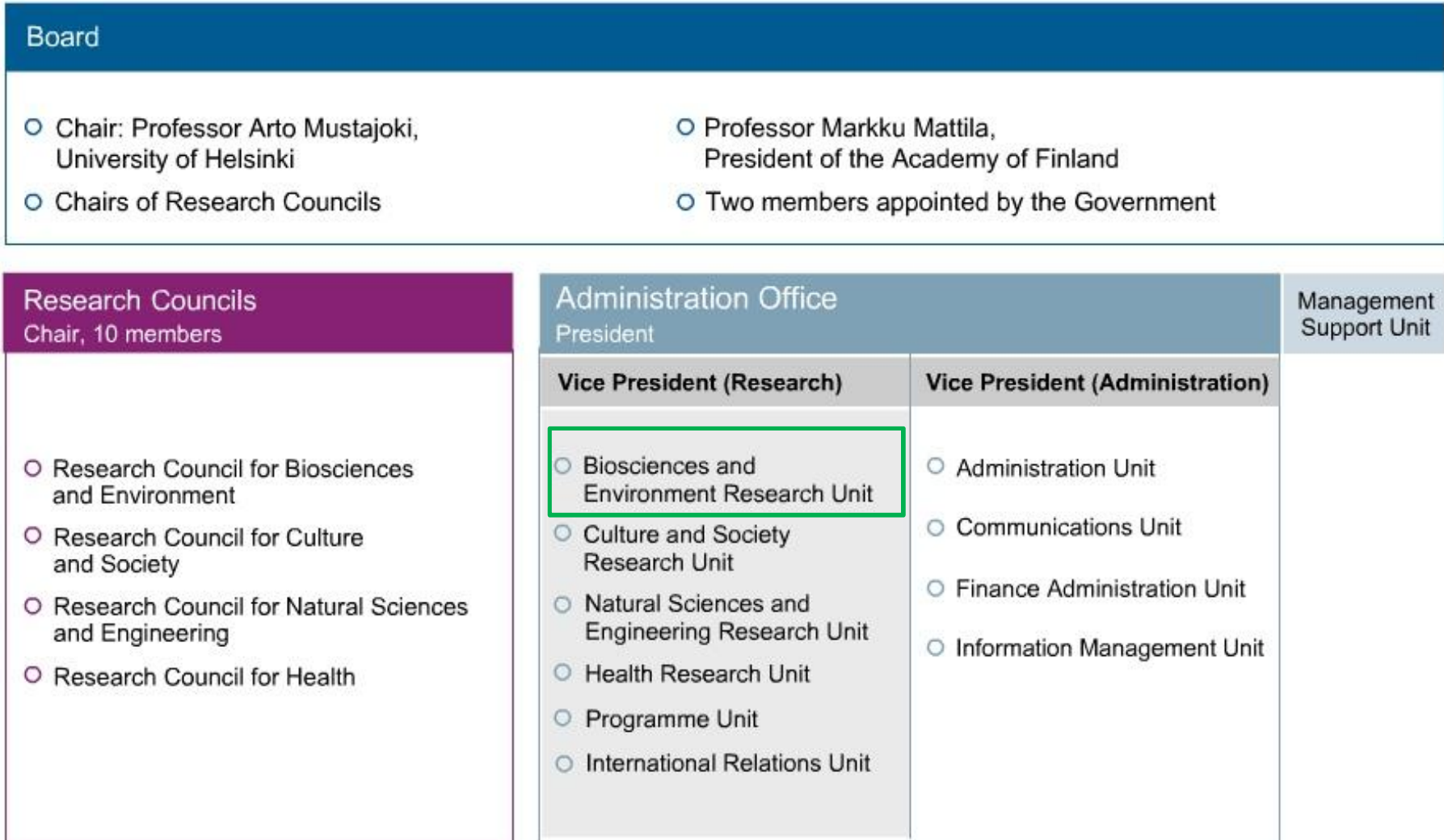


Organisation



Four Research Councils whose operations cover all scientific disciplines

Organisation



The Academy's reformed funding instruments

Research



Researchers



Research environments



Funding for interdisciplinary research can be applied from all funding instruments

Research fields within the Research Council for Biosciences and Environment

- **Biochemistry and molecular biology**
 - **Microbiology**
 - Genetics
 - **Cell biology and physiology**
 - Biotechnology, biophysics, and bioinformatics
 - **Ecology, evolution, and biosystematics**
 - **Forest and agricultural sciences**
 - **Food sciences**
 - Research into substances hazardous to the environment
 - Research relating to the state of the environment and to environmental protection
 - **Geography and regional studies**
 - Environmental policy, environmental economy and environmental law
 - Other research on environment and natural resources
 - **Biotechnology, molecular biology, cell biology, biophysics and bioinformatics, and economic and technological research relating to the above fields**
- Baltic Sea Research
➤ Aquatic resources
➤ Climate change

Processing of applications



Research fields of panels

BIO1	Cellular and molecular biology, bacteriology, virology, structural biology, enzymology
BIO2	Genetics, microbiology, immunology, neurobiology, developmental biology, bioinformatics
BIO3	Food sciences, microbiology, biotechnology, nutrition science
ECO1	Molecular ecology, Evolutionary ecology, Ecological genetics, Evolutionary-development biology, Behavioral ecology
ECO2	Population ecology, community ecology, biodiversity, landscape ecology
ENV1	Environmental science, Ecotoxicology and environmental impacts, Environmental research
ENV2	Environmental science, Environmental research, Plant biology, Forest Sciences
ENVSOC	Geography, Environmental economics, Environmental sociology, Environmental justice, Environmental policy, Environmental management

Evaluation criteria

Rating (Panels)

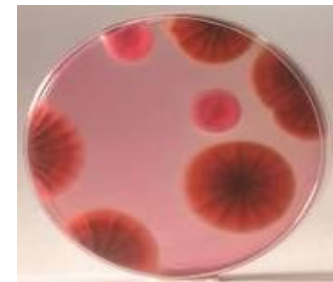
- Scientific quality and innovativeness of the research plan
- Competence of the applicant/research team
- Feasibility of the research plan
- Research collaboration
- Significance of the research project for the promotion of professional careers in research and for researcher training
 - A starting point is that the project to be funded will benefit Finnish research, society or international cooperation
- Research projects aiming at a high target level and new breakthroughs often involve a risk of failure
 - Not an obstacle for positive funding decision

Ranking (Research council)

- The decisions are based mainly on expert evaluations but other science policy-related factors may also play a role in the decisions e.g. gender equality and the multidisciplinary and interdisciplinarity in research

Environmental health research

- Field at the borderline of two councils: Biosciences & Environment and Health
- Developing research field – few applications and applicants
- Has not been included in the research field classification used
- 40 applications between 1989-2009, one applicant, two councils
- Research field classification;
 - Ecotoxicology, environmental research, environmental impacts (40 %)
 - Biochemistry, molecular biology, microbiology, biotechnology (30 %)
 - Public health research
- Applications evaluated: two independent experts, panel of experts
- Funding obtained only two times, only when evaluated in international expert panel



Updated research field classification

- Research field is chosen by the applicant
 - Previously applicant could chose primary and secondary research fields (research field classification according to OECD)
- Reformed research field classification
 - Able to better identify new research fields (e.g. nano technology, environmental health)
 - Enhance identification of multi- and interdisciplinary research:
 - New research field classification allow applicant to chose one primary research field and up to five secondary research fields

Geography

- 95 applications between 2005-2009
- Success rate 23 %
- Most of the applications represent several research fields
- Applications evaluated in panels of experts
- Joint panels arranged by two units: Biosciences and Environmental Research and Culture and Society Research
- Human geography
 - Economic geography, regional development and tourism research
 - Social and cultural geography, urban studies, regional studies





Conclusions

- Current funding instruments and evaluation system support well equal handling of inter- and multidisciplinary research proposals
 - Handling of inter- and multidisciplinary research proposals **in panels** of broad international experts ensure fair handling
 - **Joint evaluation panels** between different councils is a good and efficient way of ensuring the fair handling of inter- and multidisciplinary research proposals
 - Use of **additional review** when ever needed recommended



Conclusions

- Evaluation practices are most problematic when:
 - interdisciplinary research field is new and has not yet established: environmental health
 - interdisciplinary researcher has not yet established position in the new research field: geographer applies funding for culture research
 - interdisciplinarity is interlinked: gender research itself is a research field or gender aspect can be part of any research field