

# Strategic research Principles and instruments

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## 1. Introduction

The main task of the Danish Council for Strategic Research is to allocate funds for thematically defined research reflecting national priorities determined by the Danish Parliament. The Council also provides scientific/academic evaluation in connection with the allocation of special, state research grants, that is grants in addition to the basic grants associated with a particular institution. Furthermore, the Council advises the Danish Government and Parliament on aspects of research strategy.

Allocation of the Council's funds takes place in open competition and in accordance with Act on the Research Advisory System, etc, the National Budget and other applicable administrative legislation, including the EU rules on state aid.

The Danish system of research councils currently rests on two main pillars - independent research and strategic research. These two pillars are mutually supplementary and complementary. Society needs both the research that originates from the independent ideas of individual researchers regarding areas meriting investigation (bottom-up research), and research that originates in priority areas determined by Parliament (top-down research).

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## 2. Vision

The Danish Council for Strategic Research undertakes to promote and advance research with high international impact, which is focused on key challenges in society and which will be potentially instrumental in achieving increased national economic growth and welfare.

## 3. Principles

The Board of the Danish Council for Strategic Research appoints a number of programme commissions with the competency to grant funding. The members of the programme commissions are recognised researchers.

The Board sets the general guidelines for the programme commissions' allocation of strategic research funds based on the Council's overall principles and strategies.

The Board has laid down the following principles for the allocation of funds and performance of research activities:

- Applications for research funds must be related to the broad thematic research issues set out in the respective call text. The most relevant methods of research are to be applied, meaning that no constraints are placed on **academic freedom** in strategic research as well as in independent research.
- The aim of strategic research is to clarify or resolve prioritised challenges in society. It will thus often be necessary to address the issues from many different disciplinary perspectives – ranging from those of the natural and technological sciences to the social sciences and humanities. The societal challenges are often cross-cutting in

nature and can thus also be resolved solely by means of **cross-cutting (interdisciplinary) research initiatives**.

- Strategic research is to be conducted in an interaction between **public and private-sector stakeholders**.
- Strategic research shall **serve to strengthen international research collaboration** through the inclusion of international collaboration in the research activities funded by the Danish Council for Strategic Research. This might include collaboration with growth countries such as China, India and Brazil and with the EU member states.
- **Relevant environmental, health-related and ethical issues** should be incorporated in the research activities.
- The Council places due emphasis on **good research management**.
- Research activities may be initiated within established or **entirely new fields of research**, including where the feasibility of completing a given research activity might be subject to some uncertainty.
- The **results of the research are to be assessed continuously** as a basis for adjustment of goals and the frameworks of the research activity.
- Research activities funded by the Council shall be characterised by their **transparency and visibility**. The results of the research must be **communicated actively** on an ongoing basis to society at large.
- Strategic research programmes must be **coordinated, to the greatest extent possible, with the allocation of funds for research and development in the ministries and relevant councils and foundations**.

#### 4. Strategic quality

Strategic research is subject to special success criteria.

The Council assesses quality on the basis of three equivalent criteria: the relevance, potential impact and quality of research (see figure on page 1).

This three-fold quality concept is employed in the evaluation of applications submitted to the Council.

##### **Relevance of the research**

The relevance of an application is assessed in respect of the extent to which it addresses the societal challenges that form the basis for the research theme in question.

The evaluation may comprise the following elements:

- The bearing of the hypotheses or research issues on the societal challenge that forms the basis for the research theme.
- Assessment of whether the method of research is well-suited to investigation of the issue in question.
- Incorporation of a sufficient body of expertise on the issues to be addressed, including interdisciplinary expertise.

- The involvement of private and public-sector actors in the process of formulating the issues and challenges to be addressed and in the ongoing research activities.

### **Potential impact of the research**

Evaluation of the potential impact of the research concerns its anticipated positive impacts on public and private-sector stakeholders, in other words, its potential to promote national economic growth and the development of the welfare society from a global perspective.

The evaluation may comprise the following elements:

- The potential of the research to stimulate value creation in the public and/or private sectors.
- The potential of the research to contribute to improvements in the welfare society.
- The expected contribution of the research to an improved knowledge base for society's decision-making and services.
- The expected contribution of the research to an increase in expertise in defined research areas.
- The contribution of the research to the advancement of postgraduate education and research training.
- The contribution of the research to raising the standard of education generally.
- The contribution of the research to international collaboration with strong research environments and increased recruitment of talented researchers from Denmark and abroad.
- The expected stimulatory effect of the research on innovation and hence its potential to increase the number of new knowledge-based enterprises.
- The potential of the research to promote the growth of small and medium-sized enterprises.

### **Quality of the research**

The quality of the research is evaluated on the basis of the originality of the application and projected achievements on an international scale.

The evaluation may comprise the following elements:

- The originality and innovativeness of the hypotheses or research issues.
- The theories applied and the research method employed.
- Development potential and international positions of strength.
- The international reputation of the researchers.
- Publications, patents, licensing agreements and citations.
- The research manager's track record in research management of a high international standard.

## 5. Instruments

The Danish Council for Strategic Research has essentially three types of instruments at its disposal. In all three, research institutions are encouraged to participate with relevant public and private-sector actors. Co-funding is expected from any such participating public and private-sector actors. As of 2009, a cap of 10 per cent has been put on the proportion of co-funding required from national research institutions in Denmark.

### The three instruments



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The performance of strategic research activities with potential for significant impact requires substantial resources and a timeframe of several years. The Council therefore employs instruments based on substantial and long-term funding.

#### I. Strategic research centres

Strategic research centres are used as an instrument in areas where there is a need for focused environments at a high scientific quality with a high degree of strategic significance and societal or commercial potential. The main priority areas are defined at the start of the project, but there must be sufficient flexibility to accommodate the aim of achieving dynamic research projects that permit new priority areas to be defined over the course of the project.

The Council places due emphasis on research management. This entails that the research centre must appoint a head of centre with managerial experience and preferably an international track record in research, who will be capable of ensuring that the progress and activities of the research centre are consistent with the overall goals. A steering group must also be established, whose members must be composed of parties to the centre. Both male and female researchers must be represented in the steering group.

It is a precondition that the research centre entails a binding commitment to an international collaboration. It is also recommended that an international reference group of recognised researchers in the field be established.

Special focus should be placed on the potential for innovation and commercialisation in such a centre structure, and intensive and binding collaboration with relevant public and private-sector actors is a requirement.

The centres must be in operation for an extended period e.g. in the region of 5-7 years, and secure large-scale funding from around DKK 5 million annually from the Danish Council for Strategic Research. In addition to this will be co-funding, the scale of which will depend on the field of research. It is expected that the research activities can be continued once funding from the Council ceases.

Besides researchers from research institutions, participants in the centres may include relevant public and private-sector parties. In addition, there may be a varying number of key researchers, PhD students, postdoctoral students and international guest researchers.

In addition, a number of research activities will be conducted at the participating institutions/enterprises. In such instances, the research will often be part-funded by these parties which may be provided "in kind" by placing equipment, staff etc. at the disposal of the centre, or in the form of financial contributions.

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## **II. Strategic research alliances**

Strategic research alliances are a form of focused research initiative established in response to a pressing need in the future for research in a particular area, or where research in the given area is spread geographically across small-scale research environments, and where there is therefore a need to create alliances between existing Danish research environments or between Danish and international research environments in order to achieve greater capability at a high scientific quality.

The establishment of research alliances facilitates consolidation of expertise within more powerful units that can then be boosted further through collaboration with strong, international research environments. Research alliances also offer opportunities for forming new, binding partnerships with international research environments.

Strategic research alliances are expected to engage in binding partnerships with relevant public and private-sector actors.

Research alliances are required to have appointed a head of research to ensure that the alliances are consistent with the overall objectives and that the research activities are genuinely collaborative in nature. A steering group must also be established, whose members must be composed of parties to the research alliance. Both male and female researchers must be represented in the steering group.

A grant made for a strategic research alliance must be used primarily to fund research projects, although some funds should also be spent on networking activities. Grants are expected to cover a period of approx. 5 years and be in the order of DKK 10 to 20 million. Co-funding is expected from the parties to the research alliance.

### **III. Strategic research projects**

Strategic research projects are projects of 3 – 5 years' duration with a total budget of at least DKK 10 million. As a rule, a certain amount of co-funding is expected from the parties to the project. Co-funding may constitute a proportion of the minimum project budget of DKK 10 million.

The projects must promote the research institutions' and the public and private-sector parties' development of interdisciplinary expertise with a view to innovation among recipients in the public and private sectors. The projects are required to create a basis for subsequent international positions of strength.

## **6. Eligible expenses**

Irrespective of instrument (research centre, alliance or project), grants from the Danish Strategic Research Council can be used to cover different types of eligible expenses.

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Within the three different instruments, applications for grants may be made to cover the following:

- Salaries for research managers and key researchers
- PhD grants
- Postdoctoral grants
- Combination positions, that is, salaries/salary subsidies for researchers who are employed for a fixed period of time at two institutions or at an institution and an enterprise
- Salaries for technical/administrative staff
- Guest researchers e.g. bringing talented Danish researchers home from abroad for a limited period
- Procurement of research from high-quality research environments abroad that might be moved to Denmark for a period of time
- Equipment expenses
- Support for dialogue between research institutions and public-sector institutions and/or private-sector enterprises etc.
- Subsidies for expenses relating to collaboration with research environments abroad
- Other operating expenses

## **7. Evaluation and follow-up**

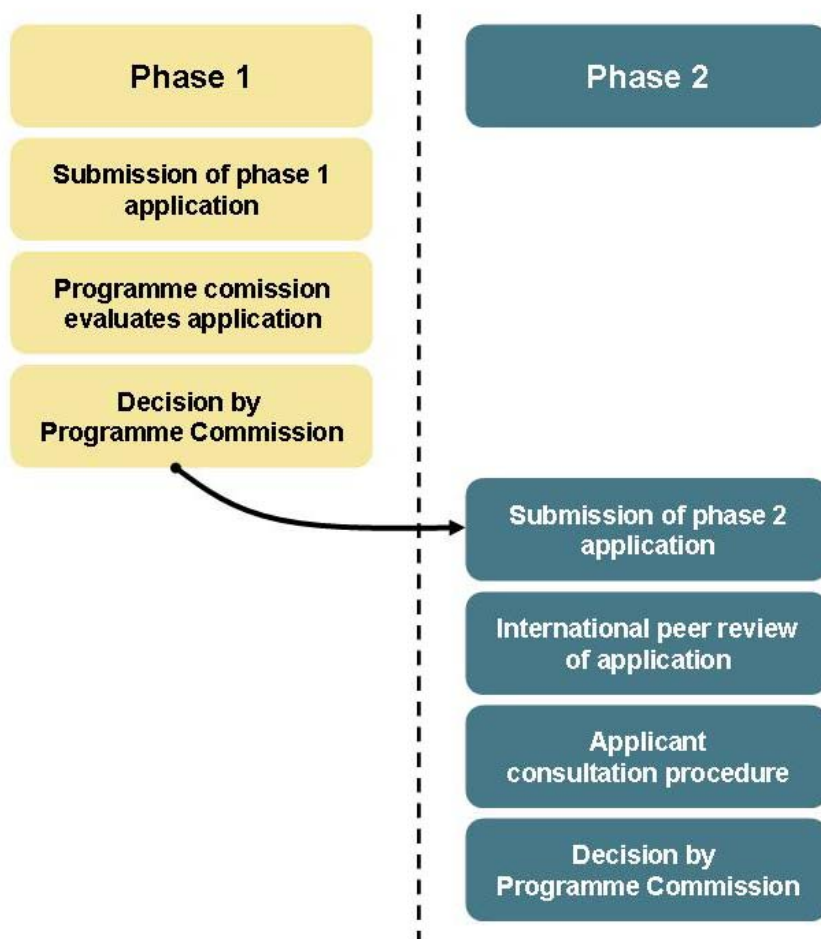
### **Evaluation of applications**

As a rule, the Council employs a two-phase application procedure. In phase 1 of the application, the Council evaluates the concept of the research project, together with its relevance and potential impact. Phase 1 applications are evaluated by a programme commission. A shortlist of phase 1 applicants will be invited to submit applications for phase 2. In phase two, the majority of the applications undergo international peer review. The Council has established a

standing panel from which it can retain the assistance of international peer reviewers. Applicants are given the opportunity to comment on the international peer reviews in a consultation procedure.

The programme commission then makes its overall evaluation of the applications based on the evaluation criteria set out in the individual call texts. At this stage, the strategic quality of the research (relevance, impact and quality) are significant. The international peer reviews and consultation responses form part of the overall basis for the programme commission's decision in respect of the quality of the research.

The two-phase application procedure is illustrated below.



### **Follow-up**

Strategic research activities are to be performed with due emphasis on skilled research management. This applies equally to centres, alliances and projects.

The programme commissions must have an overview of the situation as well as the courage to make risky investments and halt activities that develop in undesirable directions.

Research activities under the Danish Council for Strategic Research are to be conducted within well-defined management structures, with responsibilities lodged explicitly. It will be the responsibility of the principal research manager to supervise collaboration between the parties and exchange of information across disciplinary boundaries and between the employer institutions/enterprises.

In order to ensure that the research is sufficiently dynamic, it must be possible to adjust the activities on an ongoing basis in relation to factors such as goals, action plans and the participant group.

The Danish Council for Strategic Research's programme commissions will perform continual follow-up on the project for its duration. An interim report and a final report must be submitted for approval by the programme commission.

In addition, it will typically be necessary to produce a brief annual progress chart for use by the programme commissions in assessment of the project's progress in relation to the milestones originally outlined.

Besides follow-up on the research itself, grant holders are required to submit financial reports comprising the project as a whole, i.e. both the grant amount and co-funding.

In addition, discussions in person may be required between the grant-holder/project group and the programme commission, e.g. in the form of meetings devoted to the individual project, or meetings at which the parties to several projects meet with the commission.

In certain instances, projects may be required to attend public presentation meetings organised by the Council.

Further to the programme commissions' conclusions drawn from the projects' reports, a programme commission may require that a given project be supplemented, revised, halted or expanded. Finally, where deemed necessary on the basis of a specific assessment, the programme commissions may hold meetings with the project manager to discuss the progress of the project.

Throughout the funding allocation process, the programme commissions adhere to the guidelines laid down by the Danish Research Coordination Committee (KUF).

## **8. Dialogue and dissemination**

The Danish Council for Strategic Research places due emphasis on the need for continuous dialogue with relevant parties concerning strategic research initiatives. A research grant from the Danish Council for Strategic Research carries a special obligation to disseminate the research findings obtained, since strategic research reflects broad, politically prioritised areas.

Besides scientific publication, the Council attaches importance to communication of research results to the general public in a concise, comprehensible form with popular appeal.

Such dissemination to the public might take place at presentation meetings held by the Danish Council for Strategic Research. At such events, the head of research, with the assistance of the project participants, can expect to be invited to outline the progress and findings of the project.

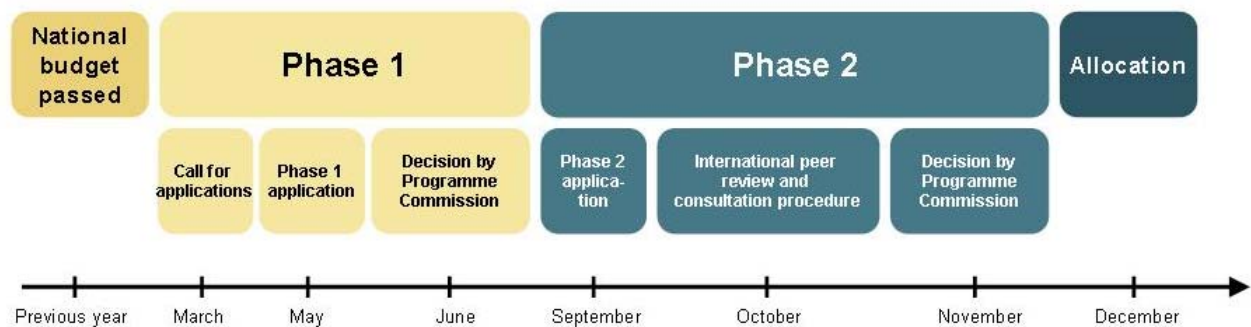
In addition, a dedicated website must be created to describe the research project's objects, progress and any interim findings in order to allow interested parties to follow the progress of the research activities.

On the website of the Danish Agency for Science, Technology and Innovation, under the section devoted to the Danish Council for Strategic Research, information will be published on the research activities.

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## 9. Annual plan

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For further information about the Danish Council for Strategic Research, please refer to the Council's publications on the website of the Danish Agency for Science, Technology and Innovation ([www.dasti.dk](http://www.dasti.dk)).