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# Guide for Applicants

7<sup>th</sup> Application Round for New  
Centers of Excellence

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## Table of Contents

<b>Introduction</b>	3
The Center of Excellence Program	3
<b>What Is a Center of Excellence?</b>	4
Excellent Frontline Research	4
Setting the Scene for Highly Ambitious Research	5
Distribution of Centers Among Scientific Fields	5
Six + Four Years of Funding	5
Eligible Costs	5
Contract Negotiation	6
Evaluation and Follow-Up	6
<b>Assessment and Selection</b>	7
Submission of Outline Proposals	7
Full Applications	8
Assessment Criteria	9
The Peer Review Process	9
Interview with Applicant	10
Board Processing and Decision	10
Overall Time Frame for 7 <sup>th</sup> Application Round	10

### **DNRF in Brief:**

- The DNRF was established in 1991 as an independent organization with the objective of funding basic research at a high international level.
- In 1991 the foundation received an endowment of 2 billion DKK (267 M euro) from Parliament.
- The foundation's lifespan was extended in 2008 by a capital injection of 3 billion DKK (400 M euro).
- Since 1991, the DNRF has committed itself to supporting Danish research institutions with 5 billion DKK (nearly 700 M euro).
- The DNRF spends approximately 400 M DKK (around 50 M euro) annually.
- A total of 77 centers have been established since 1993.

## Introduction

This guide provides information to potential applicants who intend to submit an outline proposal to the Danish National Research Foundation's 7<sup>th</sup> competition for new Centers of Excellence (CoE).

The deadline for outline proposals is **Monday, November 29, 2010, at 16.00.**

Outline proposals must be written in English using an application form that can be downloaded from: [www.dg.dk](http://www.dg.dk). The application form must be submitted electronically as a PDF document attached to an e-mail sent to: [outline@dg.dk](mailto:outline@dg.dk)

Applicants are advised to visit [www.dg.dk](http://www.dg.dk) for further information about the foundation, Center of Excellence funding mechanisms, and existing Centers of Excellence.

Applicants are also urged to contact the secretariat if they have questions about the application process. Questions may be directed to:

Director Thomas Sinkjær, E-mail: [ts@dg.dk](mailto:ts@dg.dk), Tel.: +45 3318 1950 or

Senior Adviser Vibeke Schrøder, E-mail: [vs@dg.dk](mailto:vs@dg.dk), Tel.: +45 3318 1958

### **The Center of Excellence Program**

The objective of the CoE program is to strengthen Danish research by providing the best possible working conditions and organizational set-up for selected top researchers. Excellence in conducting top-notch research is the main criterion when assessing applications for new centers.

Centers can be established within and/or across all research areas: Humanities, Life Sciences, Physical Sciences, Technical Sciences and Social Sciences.

The application procedure is conducted as a "bottom-up" process, and applicants from all research fields may apply. The application process is composed of two stages. The first stage involves an assessment of the outline proposals submitted. In the second stage, a number of applicants are invited to submit full applications. A detailed description of the funding mechanism and the application process can be found in the following pages.

## What Is a Center of Excellence?

Centers of Excellence consist of units based at research institutions (the vast majority at universities) sharing a common idea or vision and an overall and clearly defined set of research objectives.

There is no fixed formula for creating a CoE. The centers may differ in size and mode of organization, depending on their subject and scope. Some centers become rather large during the grant period, employing more than 60 people divided into several research teams, while others have fewer than 15 members. The center must have a well-defined framework for cooperation. The foundation encourages applicants to form a joint physical community facilitating a large degree of daily interaction. However, centers may form partnerships with researchers at other institutions, either in Denmark or abroad.

A Center of Excellence is headed by a center leader. This leader must not only be a distinguished researcher able to show excellence in his or her own research, but must also have proven himself or herself as a visionary leader able to create a dynamic and thriving research environment.

Education is an important part of a center's mission, because the centers serve as important training sites for the next generation, often attracting exceptional students from Denmark and abroad.

Centers are strongly encouraged to pursue collaboration with leading international researchers and to include and attract exceptional and talented employees and visitors from abroad.

### **Excellent Frontline Research**

The term "basic research" is included in the Danish name of the foundation, (Danmarks Grundforskningsfond) signaling that the foundation supports what may be defined as fundamental research.

However, the foundation agrees with the observation of the European Research Council (ERC) that the distinction between "basic" and "applied" research has become blurred because emerging areas of science and technology often cover substantial elements of both. The ERC uses "frontier research" to describe fundamental advances at and beyond the frontier of knowledge. "Frontier research" is also a term used by the National Science Foundation (NSF) in the U.S.

Both the ERC and the NSF have objectives similar to those of the Danish National Research Foundation, and the foundation has adopted the use of the term "frontier research" or "frontline research" in addition to "basic research" in order to define the kind of research that can obtain support.

Looking at centers already funded by the foundation some centers produce results that are immediately useful, while others pursue pure "blue sky" research. What matters is that the research is considered truly novel, highly ambitious and excellent.

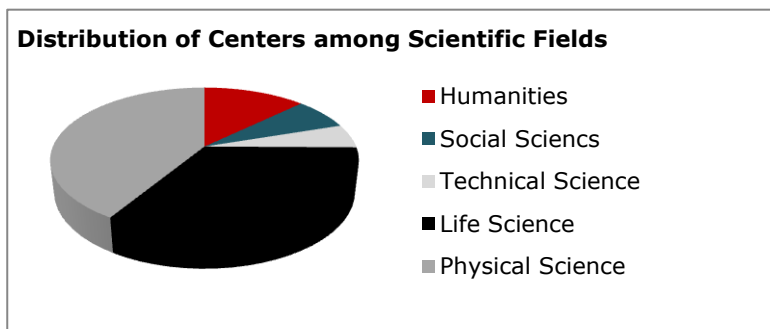
### Setting the Scene for Highly Ambitious Research

The foundation welcomes outstanding research of a high international caliber that may be described as ambitious, highly creative, original, scientifically daring, and potentially groundbreaking.

Centers are expected to engage in pondering some of the large unsolved questions and address the challenges that intrigue them the most. The philosophy is that when excellent people work with problems they are most passionate about, groundbreaking results is likely to follow. In other words, the foundation welcomes curiosity-driven research – or what might be described as exceptional researchers’ “dream projects.”

### Distribution of Centers Among Scientific Fields

The foundation welcomes applications from all fields of research. A majority of the centers can be described as trans-disciplinary and, therefore, do not readily fit into one of the five categories in the figure below showing the distribution among scientific fields of the 77 centers established so far.



### Six + Four Years of Funding

Until 2009, centers were established for a five-year period with the possibility of an additional five years, provided the center received a favorable mid-term evaluation and presented an ambitious research plan for the second period.

Starting with this round of applications, the DNRF has decided to change this structure by extending the first period to six years while maintaining 10 years as the maximum length of a center grant. By providing more time in the first period, the foundation hopes to encourage the centers to take up major new challenges and venture into truly novel and scientifically risky projects that might lead to groundbreaking results.

### Eligible Costs

A center grant is large and flexible. When submitting an outline proposal, applicants should include with the application form an estimated budget for a six-year period.

The grant may cover expenses for salaries, Ph.D. students, travel costs and conferences, operational costs and equipment, and overhead (44 percent for universities). Salaries for permanent staff are generally not funded by the foundation, while salaries for Ph.D.-students, post-doctoral staff, visiting staff, and technical and administrative staff may be included.

In the second phase, when submitting complete applications, applicants should also include an elaborated budget estimate.

### Contract Negotiation

After the board makes its final decision, the foundation and the center leader initiate negotiations with the host institution regarding co-financing, office and laboratory space, and plans for the center after support from the foundation ends. A standard contract may be found on the DNRF's website: [www.dg.dk](http://www.dg.dk)

An official inauguration of the new center is held shortly after it starts operating.

### Evaluation and Follow-Up

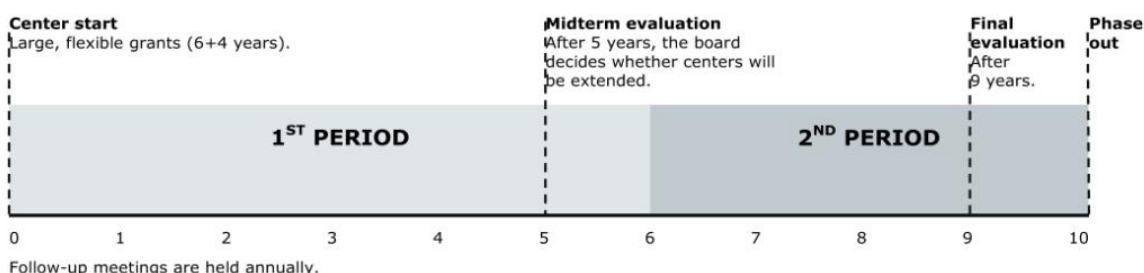
The foundation takes a keen interest in the development of the centers and visits each one annually at follow-up meetings. This set-up provides an opportunity to give advice or make adjustments if things go awry. The annual meetings also provide an opportunity, both for the foundation and for the centers, to learn more about the funding mechanism and how it can best be organized.

In order to systematically collect information on the progress of each center – and the CoE funding mechanism as such – the DNRF asks the centers to submit information annually on a number of key indicators, including, among others, publications, dissemination of research, outreach activities, educational activities, external relations, and organizational development.

The DNRF conducts a mid-term evaluation of each center after five years. Centers will be asked to submit a self-evaluation and an application for a second funding period. An international review panel will evaluate the center, and the review process will include a site visit to the center by the panel.

A final evaluation of the center is carried out after nine years.

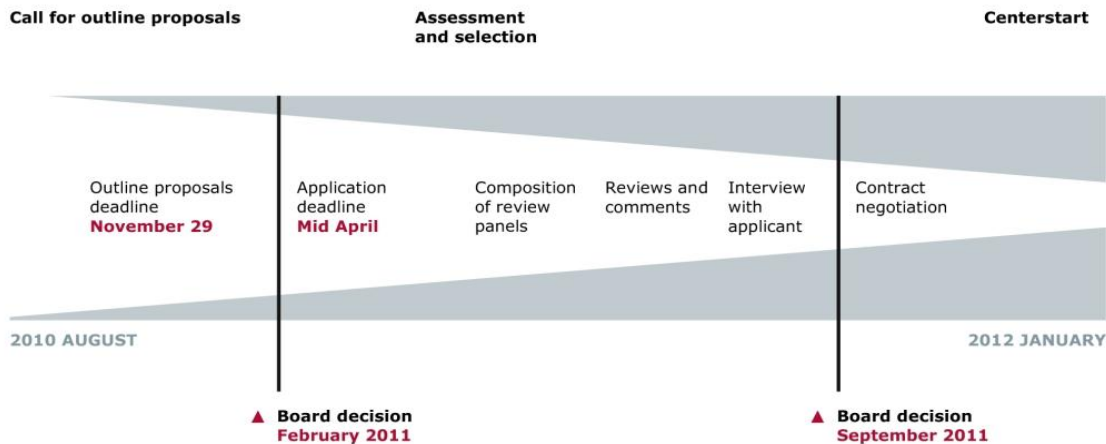
### Lifecycle of a center



## Assessment and Selection

Calls for new centers are announced approximately every two years, and they involve a two-stage application process. In the first stage, prospective center leaders are invited to submit letters of interest with short outline proposals. These proposals are processed by the board alone. In the second stage, applicants submit full applications that are thoroughly scrutinized by a set of international experts in the field. Prior to the final selection, the board meets with each applicant.

### The Assessment and Selection Process



The overall success rate from submission of outline proposals to establishment of a center has been only 6 percent in the two previous application rounds. About 20 percent of the outline proposals have moved on from the outline stage to the full application phase, and about 30 percent of those applications have resulted in new Centers of Excellence.

### Submission of Outline Proposals

Outline proposals must be submitted using an application form that can be downloaded from [www.dg.dk](http://www.dg.dk). The application form should be submitted electronically as a PDF document attached to an e-mail sent to: [outline@dg.dk](mailto:outline@dg.dk). The foundation must receive all applications no later than **Monday, November 29, 2010, by 16.00**.

As specified in the application form an outline proposal must include:

- A one-page (maximum: 2400 characters including spaces) argument for supporting the proposed endeavor, for instance, by addressing the following questions:
  - How will it redefine the research in its respective field?
  - What kind of new insights and results may it produce?
  - Why should this particular proposed team pursue this research?
- A presentation of the research idea (maximum: 10,000 characters including spaces), which could include:

- A description of the proposed *research idea*, including its dimension of novelty and potential for groundbreaking results and an argument for its scientific or investigative relevance.
  - A *strategy* for addressing the challenges. How will the center be organized? Which competences/capacities will be involved? How will a creative and dynamic research environment be established? Which methodologies and approaches will be employed?
- A short description of the proposed research endeavor (maximum: 2.400 characters including spaces). This text will be used as an introduction to the proposal when identifying potential peer reviewers if the applicant is invited to submit a complete application.
  - References to the relevant literature (maximum: 4.800 characters including spaces).
  - A description of institutional affiliations (maximum: 2.400 characters including spaces). Please note that construction of a center may involve more than one institution.
  - Information about formalized international cooperation and, if relevant, how the applicants envisage attracting junior and senior researchers to the center (maximum: 2.400 characters including spaces).
  - CV of the proposed center leader, including a brief and concise outline of professional career (maximum: 4.800 characters including spaces). Also please enclose a list of his or her publications over the last 10 years. Please highlight the five most essential publications by underlining them. Please include a paragraph summarizing which work has had the greatest importance and impact. Furthermore please indicate the total number of publications within the following categories: articles, proceedings, monographs, book chapters, other.
  - CVs for each of the participating senior researchers, including the total number of publications (maximum: 2.400 characters including spaces per CV).
  - An estimated budget for a six-year period.

### **Full Applications**

When invited to submit full applications, applicants should further develop the outline proposal following the guidelines set by the foundation. The full application should consist of:

- A visionary presentation of no more than five pages or 12.000 characters including spaces expanding the overall research idea, including:
  - A description of its dimension of novelty and potential for groundbreaking results and an argument for its scientific or investigative relevance and expected impact.
  - A strategy for addressing the challenges. How will the center be organized? Which competences/capacities will be involved? How will a strong, creative, and dynamic research environment be established? With which institution(s) will it be affiliated? What are the qualifications of the proposed center leader (scientific as well as managerial skills)? Will specific initiatives be made to attract young and talented researchers? How do the applicants plan to attract

international researchers? What sort of international collaboration is envisaged? How will the research activities relate to existing Danish research in this area?

- A description of the planned research program (not exceeding 10 pages or 24.000 characters including spaces excluding necessary references).
- CV of the proposed center leader, including a brief and concise outline of professional career (maximum: 4.800 characters including spaces). Also please enclose a list of his or her publications over the last 10 years. Please highlight the five most essential publications by underlining them. Please include a paragraph summarizing which work has had the greatest importance and impact. Furthermore please indicate the total number of publications within the following categories: articles, proceedings, monographs, book chapters, other.
- CVs for each of the participating senior researchers, including the total number of publications (maximum: 2.400 characters including spaces per CV).
- A declaration from the host institution.
- A budget for a six-year period.

### **Assessment Criteria**

The foundation will emphasize the following dimensions:

- The research idea is ambitious and original and has the potential for real scientific breakthroughs in the relevant research field(s).
- The proposed center leader has a high standing in the international research community as well as managerial skills.
- The center includes high-quality personnel in order to establish a creative and dynamic international research environment that will provide an inspirational training ground for young researchers.
- The focus, structure, and size of the proposed center is such that it sets the stage for scientific ventures that are not feasible within conventional funding from other sources.

### **The Peer Review Process**

The DNRF will send full applications to three international (foreign) high-level experts within the relevant research area(s) for external peer review. The reviewers should possess at least the same international standing as the applicants. Each reviewer is asked to deliver a report of three to five pages addressing a number of crucial questions. Reviewers are not asked to rank or grade the applications.

Before the DNRF sends the applications to the reviewers, both reviewers and applicants are asked to declare a possible conflict of interest. If such a conflict is identified, the reviewer will not be used.

The DNRF seeks advice on identifying potential external peer reviewers from external sources such as:

- The Danish Councils for Independent Research (DFF)
- The European Science Foundation (ESF)
- The National Science Foundation (NSF)
- Applicants

Each applicant may submit the names of three experts, one of whom will be chosen by the foundation to serve on the panel of reviewers that assess the application. The foundation will choose the other two reviewers based on recommendations from external or internal sources. The foundation has chosen this process in order to ensure that the composition of the expert panel is relevant to the applicant's field of study.

The foundation uses an open and transparent process. Reviewers and applicants will know each other's identities. Applicants are given an opportunity to comment on the composition of the review panel and can, in addition, comment on the reviews prior to the board's final decision.

### **Interview with Applicant**

The D NRF conducts a short interview with each applicant (proposed center leader) prior to the final decision. Interviews for this round of applications are expected to be conducted on September 28 and September 29, 2011. During the interview, the applicant is asked to present the overall research idea and to elaborate on the strategy for realizing the idea.

### **Board Processing and Decision**

The board bases its decision on the full applications, the three peer reviews for each application, the applicant's responses to the reviews, and the interview. The quality of the reviews received is generally very high, and the reviews usually provide good advice to the board as well as to the applicants/centers. However, although the reviews serve as very important inputs to the board's decision, it is the board that makes the final decision. The board has thorough discussions of each proposal/application arguing in each case why an application should or should not be funded. Ultimately, the board must choose to fund relatively few research proposals from a large number of exceptional applications.

### **Overall Time Frame**

Outline proposals must be submitted electronically to [outline@dg.dk](mailto:outline@dg.dk). The foundation must receive all applications no later than Monday, November 29, 2010, by 16.00. An application form can be downloaded from [www.dg.dk](http://www.dg.dk).

The board will assess the outline proposals at a meeting early 2011. By mid-February a number of applicants will be asked to submit full applications. The deadline for submission of full applications is expected to be mid April 2011.

Extensive peer review of each application will be carried out during the spring and summer 2011, and the board will make its final decision on funding at a meeting in September 2011. Prior to making its decision, the board will conduct an interview with each proposed center leader.

The foundation will enter into contract negotiations with the host institutions during the fall, and new centers may be operating as of January 1, 2012.