

## Implementation Model for Pioneer Centres

### Purpose

The establishment of the Pioneer Centres is an ambitious national initiative which will be executed in close cooperation between the Minister for Higher Education and Science, the Danish National Research Foundation, the Carlsberg Foundation, the Lundbeck Foundation, the Novo Nordisk Foundation, the Villum Foundation and, where relevant, other large private foundations, and the universities.

Through extremely high professional and financial ambitions, the cooperation provides a unique opportunity to attract the very best individual researchers from around the world.

The Pioneer Centre Initiative is to result in the establishment of two or three co-funded world class research centres. The centres will be established within selected and broad strategic priority areas.

The participating parties have agreed that the implementation model for the Pioneer Centres is not to set the precedent for the future cooperation and future implementation models.

Under the management of exceptionally talented research directors recruited specifically to manage the centres, the Pioneer Centres are to launch new initiatives and engage in basic research with a potential to transform their field through new discoveries and understandings of the world and ourselves.

The initiative is innovative in that importance is more than ever before attached to co-funding between the Danish National Research Foundation and several of the private Danish research-funding foundations: the Carlsberg Foundation, the Lundbeck Foundation, the Novo Nordisk Foundation and the Villum Foundation.

The ambition is to establish excellent research environments with both top researchers and students who produce groundbreaking findings through long-term efforts and contribute to solving major societal challenges.

### *Structure of implementation description:*

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## 1 What is a Pioneer Centre

In a Danish context, a Pioneer Centre is an exceptionally ambitious research initiative. The centres will be established as centres for basic research with the aim of transforming science and solving major societal challenges. The centres may be both mono- and interdisciplinary.

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With Bell Labs, the MRC Laboratory of Molecular Biology and, in a Danish context, the establishment of the Niels Bohr Institute serving as a model, a Pioneer Centre will be established with the expectation that the match of top-level research directors and particularly promising research areas will result in research breakthroughs which will both develop key paradigms within a given mono- or interdisciplinary research area and be transformative for the societal challenges that the centre aims to solve.

The research units are to be headed by research directors who, by virtue of their quite exceptionally high research standards, are among the world's best researchers. The research director is to be recruited from the global research community, and the centre is to operate for the benefit of Danish research.

The centres will enjoy tremendous freedom in their research, financial continuity and a long time horizon. For that reason, the centres are expected, throughout the period of grant, to have well-defined, risky sub-projects which have a particular potential for pioneering the research field at the highest international level.

The research units are to be attached to one or more Danish universities, and they are to provide the setting for an environment which not only focuses on top research, but also on educating next generation's top researchers through research-based education and measures targeted at particularly talented students. In other words, the centres are very much expected to integrate into the host institution(s), among other things through the involvement of students at all levels.

The grant period for a Pioneer Centre is generally 13 years with periodic evaluations/visits by advisory boards and an option for renewal (see Attachment 3: Model for length of grant). The financial limit for each centre ranges between 200 and 500 million Danish kroner.

The establishment of a Pioneer Centre is to pave the way for the realisation of exceptional research visions with a particularly good framework in terms of time horizon, economy and flexibility. The financial and temporal dimensioning for the individual centres will be adapted to the specific project, which is to be characterised by high professional ambitions and open and long-term frameworks.

The Pioneer Centres will be established within selected strategic priority areas. A steering group with representatives of the foundations involved will initially select one to three broad subjects which, individually or together, allow for all disciplines to be relevant. The work of the group is to keep within the scope of this implementation model.

The Danish National Research Foundation will provide secretariat services to the steering group.

## 2 Search process

To improve recruitment opportunities from a relatively small group of exceptionally talented researchers, funds are to be granted through a search process. This means that a very small number of persons will be given the opportunity to submit a project proposal including a budget, which will give the funding foundations a basis for making the final decision on whether to award a grant.

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Each of the Danish universities will be requested to identify potential candidates in the global research community and nominate the best suitable candidates (up to five proposals for each university) for a so-called long list. Before that, the Independent Research Fund Denmark ("DFF") will be requested, together with two or three international experts appointed by DFF for each of the identified strategic priority areas, to suggest up to ten candidates to serve as inspiration for the universities (stage 2). The universities may choose (stage 3) to nominate persons from DFF's inspirational list, but are not bound by it and may add other candidates. Each of the suggested candidates must be accompanied by a short statement that demonstrates how they meet the criteria for appointment of research directors (see section 4 on evaluation criteria). The candidates suggested by the individual universities are expected to fit well into the long-term research and education strategy of the institution.

On the basis of the nominated candidates and the below criteria for the appointment of the research director, the panel of international experts (appointed by the Minister for Higher Education and Science, see section 3 below) will select a small group of candidates (up to ten) who are particularly eligible for a grant. A so-called short list (stage 4).

The co-funding foundations will consider the nominated candidates at a joint meeting and select the candidates who can be co-funded within the financial framework and the foundations' charters and strategies (stage 5). The foundations are free to invite other funding organisations to join the co-funding group.

The selected candidates will then be invited for an introductory interview/meeting with the foundations (stage 6).

After the introductory meetings (stage 6), the foundations will invite (stage 7) the interested candidates to prepare a project description (phase 1) accounting for their ties to a university among the nominating institutions and a budget according to specified guidelines issued by the Danish National Research Foundation. In that

connection, the candidate(s) will draw up a budget in cooperation with the requested host university (stage 8).

The phase 1 project descriptions will be submitted to the panel of international experts for evaluation (stage 9).

The foundations whose charter requires applications to go through several stages of review will have a first consideration of the phase 1 project description, including an evaluation (a statement) from the panel of international experts as well as a report on the introductory meeting (mentioned in stage 6).

The foundations will then invite the candidate(s) for an interview and a presentation of the proposed project (stage 10).

If the outcome is positive, the candidate(s) will be asked to submit a complete project description (stage 11) as described in phase 2 (Attachment 6).

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The foundations whose charter requires applications to go through several stages of review will have a second consideration on the basis of the phase 2 project description and the submitted expert evaluations from the phase 1 project description.

It is a condition for the final grant that a contract is concluded between the candidate (the future research director), the participating foundations and the (host) university (stage 13).

The search process can be outlined in the following 13 stages:

<b>Stage</b>	<b>Process</b>	<b>Party</b>	<b>Number of candidates</b>
1	Identify strategic priority areas /themes for the Pioneer Centres	The participating foundations	-
2	Preparation of an inspirational list of potential candidates	DFP and international experts	10
3	Suggestions for relevant candidates (grantees)	Universities	Up to 40
4	Shortlisting of candidates according to fixed criteria	International panel	Up to 10
5	Discussion of candidates	Foundations	Up to 10
6	Invitation for introductory meeting with the foundations	Chairman of the Danish National Research Foundation/Principal/Minister	2-3
7	Invitation to submit a project de-	Foundations	2-3

	scription + budget forecast		
8	Submission of a project description and budget forecast (phase 1)	Invited candidates	2-3
9	Statement/evaluation of phase 1 project descriptions	International panel	2-3
10	Interview	Foundations, the university and invited candidates	2-3
11	Preliminary grant offer and invitation to submit a final project description and budget	Foundations	2-3
12	Submission of a project description and final budget (phase 2)	Invited candidates and universities	2-3
13	Approval and grant (contract)	Foundation, candidates and universities	2-3

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The number of candidates from stages 6-13 will be aligned with the number of candidates whom it is agreed to co-fund. Only the number of candidates whom it is agreed to fund will be invited, but all invited candidates are not guaranteed a grant before the evaluation of interviews and phase 2 project descriptions and the conclusion of a final contract. A prioritised list of candidates may be drawn up for purposes of inviting additional candidates if any candidates already invited decline the invitation or if the described research project is deemed not to meet the objectives of the initiative.

Research directors will be employed in a permanent position at the host institution. The position at the Danish host institution must be the primary position of the research director.

### **3 Setting up a panel of international experts**

For the evaluation and shortlisting of candidates for Pioneer Centre grants, a panel of international experts will be appointed. The members of the panel must be at least at the same research standard as the candidates to be attracted to the Pioneer Centres, and their research record should match the aim of the Pioneer Centres. The panel members must thus be well-established researchers with international recognition and a top-level career. The members must have wide research management experience and generally have made actual transformative research contributions.

The panel must cover all five primary disciplines: natural science, health science, technical science, social science and the humanities. The representation of primary disciplines in the panel must reflect the distribution in the public research investments. The panel will consist of one chairman and six ordinary members, of

whom 2-3 represent the humanities/social science and 4-5 represent the natural, health and technical sciences. Ad-hoc members may be invited to the panel if specific expertise is required.

The panel aims to have an equal gender representation and, as far as possible, representation from inside and outside Europe.

Criteria to be met by panel members:

- Recognised researchers at top international level
- Wide experience in research management
- Recognised and significant basic research findings
- Experience in research evaluation
- Strong international experience

The panel members must be suggested and nominated by the participating foundations. The Minister will appoint the panel members on the basis of a joint nomination from the foundations and in accordance with the applicable rules.

The panel members will be offered a fee of EUR 4,000 for ordinary members and EUR 5,000 for the chairman. In addition, all expenses incurred in connection with meetings and transport will be reimbursed. These expenses are payable by the Danish National Research Foundation from its administrative commitment.

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#### **4 Evaluation criteria**

The Pioneer Centre grants will be awarded to a research director who is to lead a group of researchers with an innovative basic research project having clear transformative ambitions for society. The candidates must therefore be able to demonstrate their abilities to drive projects with the ambition to fundamentally push the frontiers of research within their discipline. The candidates must be able to demonstrate that they have made significant contributions to the development of their field of research.

The candidate's professional profile and exceptionally high professional standard must be able to deliver on special societal challenges and further develop an already existing environment at a Danish university or build up a new professional environment at a relevant institution and thus establish an entirely new field of research in a Danish context.

At the same time, the candidate must have significant international experience as a research director and be internationally recognised as a top scientist within his or her field of research. Hence, the candidate must also be able to attract the strongest international partners.

Criteria to be met by the research director:

- The research director must have an exceptionally high research standard in an international class of its own

- The research director must have demonstrated a special ability to produce visionary research ideas with a demonstrated transformative potential and aiming at changing specific perceptions/paradigms within a given field of research
- The research director must have demonstrated a special ability to successfully maintain focus on strategic and continuous prioritisation of selected risky projects in his or her research portfolio
- The research director and the core group of the research centre must be well qualified to establish – at a Danish university – a creative and dynamic international environment for training the next generation of top researchers.
- The research director must be driven by a strong desire to involve and share his or her research with students and young researchers at all levels.
- The research director must have international experience as a research director

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Criteria to be met by the research project:

- The overall research idea must be distinctively original and ambitious.
- The overall research idea must show a potential to meet the expectation for fundamental, scientific breakthroughs and contribute to the solution of major societal challenges.
- The overall portfolio of the research project must include risky projects. It will weigh positively in favour of the project if it shows a particular potential of these risky projects to promote the research portfolio's chances of scientific breakthroughs.
- The project idea must demonstrate the commitment of the research director to the specific project and ties to a Danish institution.

## 5 Budget and co-funding

On the basis of a general discussion of the panel's shortlist, an overview will be made of the candidates who can be co-funded on the basis of alignment between the centres' field of research and the charters of the foundations. The individual projects are funded according to a flexible model and by all or some of the foundations, depending of the wishes of the foundations. The Danish National Research Foundation must participate in the funding of all grants.

Examples of the flexibility of the implementation model:

The first candidate can be co-funded by Foundation 1, Foundation 2 and the Danish National Research Foundation.

The second candidate can be co-funded by Foundation 1, Foundation 3, Foundation 4 and the National Research Foundation Denmark.

The third candidate can be co-funded by Foundation 2 and the Danish National Research Foundation.

The grants are awarded on the basis of a full cost budget for marginal costs prepared by the host institution together with the research director. The budget is to be prepared according to the agreed model with nine cost types.

*See Attachment 1 for cost types.*

With the grant, the co-funding foundations cover all project costs, less the agreed explicit co-funding from the universities, which is subject to a maximum of ten per cent of the total budget.

The grant may cover payroll, travel, conference, operating, equipment, material and other expenses.

The universities will pay their own employees who are attached to the Pioneer Centre when the persons are already employees of the host institution(s) at the beginning of the grant period, and make existing apparatus available. Co-funding in the form of own employees and apparatus reflects the fact that the Pioneer Centre plays an important part in the overall research and education strategy of the institution (see section 7 below) and is not part of the new co-funding of the universities of max. 10 per cent.

The funding is broken down into cost types according to the different priorities given by the individual funding parties. The below distribution of the funding of net costs is agreed as a model example, and in practice, it will be adjusted to reflect the specific budgets.

	DNRF	Foundations	Uni.	Total
Cost types 1-5, % of total	28%	52%		80%
Cost types 6-8, % of total	10%	2%	6%	18%
Cost type 9, % of total			2%	2%
% of total	38%	54%	8%	100%

It is, however, a condition that there is a cap on the amount of costs under cost types 6-8 that will be covered. The implementation model thus implies that up to DKK 123 million of the Danish National Research Foundation's contribution of DKK 400 million may be used to cover cost types 6-8. Out of the DKK 600 million contributed by the private commercial foundations, no more than five per cent may be used to cover cost types 6-8.



## 6 Model contract

A contract will be concluded between the research director, the Danish university/ies and the co-funding foundations. The contract will be based on the standard model contract which is used in connection with the establishment of Centers of Excellence within the auspices of the Danish National Research Foundation and which is familiar to the universities.

*See Attachment 2 Standard agreement Pioneer Centres.*

In addition, various matters will be specified in appendices to the contract. These matters include research plan, commitment of the members of the research centre in the form of participation in specific work packages and share of full-time equivalent, budget, premises and international cooperation.

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## 7 Host institution framework

A Pioneer Centre may be attached to one or more universities, but there will always be one administrative institution. When a Pioneer Centre is attached to a university, it is important that the Centre is strongly aligned with the university's overall research and education strategy.

From the outset, there must be an aim to develop close synergies between the Centre and the universities in terms of research, education, infrastructure and management. The Centre is expected to be an environment fostering outstanding research and to contribute to the overall vision and wider strategy of the university. Likewise, the Centre's close integration into the framework of the institution must act as an accelerator for the development of the Centre.

As part of phase 2 of the project description, it is described in specific terms how the Centre will be integrated into the work and strategy of the university. At the same time, it will be explained how the Centre's research will be integrated in the training and education of researchers at the university.

## 8 Governance/current management

The co-funding foundations will monitor the development of the Centre on the basis of an annual report from the Centre and by participating in an annual follow-up meeting.

The Pioneer Centres will generally be evaluated in year 4 and 8 by an international advisory board consisting of three top researchers within the Pioneer Centre's field of research. The advisory board is appointed by the co-funding foundations on the recommendation of the grantee. The evaluation frequency will be adapted to the time horizon of the individual project in connection with the conclusion of the contract. Not until the stop/go evaluation in year 10 will it be possible to decide to close the project early if the project process and development are not satisfactory. More detailed provisions in this regard will be laid down in the contract.

The Centres will be established at one or more universities, with one university being the grant administrator. The research director will generally report to the principal or a faculty head, depending on the specific project and the governance structure of the host institution. It must be possible to integrate the Centre's work at institute level.

*See Attachment 3 model for length of grant, evaluation and phase-out of Pioneer Centres and Attachment 4 on governance/current management*

## 9 Conflicts of interest

To avoid inherent conflicts of interest in the implementation model, it is structured with a specifically tailored division of roles with respect to the below seven key tasks:

- Determination of strategic priority areas (the participating foundations)
- Preparation of an inspirational list for research director candidates (DFP and 2-3 international experts for each priority area)
- Nomination of potential research director candidates (the universities)
- Nominations for the panel of international experts (the participating foundations)
- Appointment of the panel of international experts (the Minister for Higher Education and Science)
- Evaluation and shortlisting of research director candidates (the panel of international experts)
- Evaluation and selection of research director candidates/projects (the participating foundations assisted by a statement from the panel of international experts)

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The universities will nominate potential research directors for the panel. The panel will be nominated by the foundations and appointed by the Minister, who, on the other hand, cannot nominate research director candidates.

It is thus important to ensure that those who nominate potential research directors do not also participate in the final decisions on search processes and grant awards.

Binding guidelines for conflicts of interest will apply to the panel of international experts and the representatives of the foundations who participate in the search and evaluation process (Attachment 5).

## 10 Project description guidelines

As the projects are strategic basic research projects with a transformative aim, the study findings cannot and should not be described in detail. The project description must describe the necessary framework and methods that will be used and the ambitious objectives of the project, including the societal challenge(s) addressed. The project description must include a work schedule and a project plan that meet the described management and current evaluation framework as well as

an overall budget for the entire grant period. The project description must, in particular, explain how the Centre will benefit Danish research.

The preparation of the project description and the budget will be divided into two phases.

#### Phase 1

The initial general and framesetting project description and budget are prepared in connection with the nomination itself. The description and budget form the basis for the interview. At the same time, the project description forms the basis for a first consideration by the foundations whose charter so requires.

#### Phase 2

The second phase consists of a full description of the project with planned sub-projects and a detailed budget for the entire planned period. This forms the basis for the interview and (together with the expert evaluations of the phase 1 description) the final decision as to who will be offered a grant. For the foundations whose charter requires applications to go through several stages of review, this consideration corresponds to the second consideration. The project description and the budget from the second phase are prepared in close cooperation with the institutions and are included as appendices to the contract between the participating parties. Considering the anticipated long grant period among other things, there will be ample opportunity to change the order of priorities and carry out academic reorganisations in the process, subject to coordination between all parties.

The project development is monitored by the granting foundations and the administrative university.

See Attachment 6 Project description guidelines – Pioneer Centres.

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### **Attachments to implementation model**

1. Cost types
2. Standard agreement for Pioneer Centres.
3. Model for length of grant, evaluation and phase-out of Pioneer Centres
4. Governance/current management
  - 4.1: Draft agenda for follow-up meetings for Pioneer Centres
  - 4.2: Draft agenda/programme for site visits by scientific advisory boards – Pioneer Centres
5. Binding guidelines for conflicts of interests
6. Guidelines for project description – Pioneer Centres.