New knowledge and realisation benefits society
– through excellence and originality
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Introduction

New knowledge and realisation benefits society - through excellence and originality

Our global society faces a lot of pressing challenges, affecting the environment, coexistence, production machinery and working conditions – in short, our living conditions. When we are placed among the best research nations in the world, Danish research has a duty to provide new knowledge and promote excellent research at the highest international level. Independent Research Fund Denmark (IRFD) makes it possible to pursue crucial new research ideas and create fundamental research breakthroughs with the potential to improve our lives, including in the form of better prosperity, welfare and competitiveness.

New scientific realisations resulting from original research ideas with the potential to improve our lives is the aim of the Independent Research Fund Denmark 2018-2020 strategy. The strategy will ensure that new knowledge, of the highest scientific quality, will be created and disseminated throughout society and have an impact both nationally and internationally.

In the next three years, Independent Research Fund Denmark is focused on maintaining a high level of excellence and originality, optimising the potential for risk in research financing, and focus attention on the societal impact of research. Furthermore, IRFD is focused on supporting interdisciplinary research.

Independent Research Fund Denmark in the research landscape

Independent Research Fund Denmark, with its key role in the research financing landscape, helps support new ideas of a high scientific quality. Many of the researchers behind these ideas later achieve further financing through other public or private foundations in Denmark or through securing international financing. Both the good idea and the qualifications of researchers are significant factor’s in IRFD’s assessment of research projects, together with requirements for internationalisation, originality and excellence.

Independent Research Fund Denmark contributes to the development of quality of Danish research, and does so in collaboration with the Danish National Research Foundation and Innovation Fund Denmark, as well as private foundations. IRFD actively participates in coordinating work that can make it even easier for research environments to apply for, and administer, a research grant from public foundations.

Vision

Independent Research Fund Denmark enables the most talented researchers to pursue original research ideas of the highest international quality with the potential for new scientific realisation and opportunity to improve our lives.

Mission

Independent Research Fund Denmark strengthens the quality of Danish research:

- IRFD funds research of the highest international quality and strengthens excellent research in Denmark. With research funding through open calls, IRFD provides risk investment in fundamental research based on the ideas of researchers within, and across, different scientific fields, independent of political and strategic efforts.

- IRFD promotes the internationalisation of research and supports young talents as well as experienced researchers.

- IRFD provides advice in all scientific areas to the Minister, Parliament and other stakeholders in the Danish and international research landscape. This is based on the expertise and scientific diversity of IRFD’s 84 board and council members, all of whom are established and active researchers.
1. Excellence and originality in research

Excellent research combined with curiosity, talent and a burning engagement to obtain new awareness. Independent Research Fund Denmark supports excellent and original research by giving researchers the freedom to pursue research questions – also when they change during the project. IRFD provides research grants within and across all the main fields of science and includes all academic career levels. Diversity in IRFD’s funding profile is a significant component for ensuring excellence and originality in Danish research.

Independent Research Fund Denmark helps increase the Danish researchers’ impact internationally and supports their research in the quest to solve important societal challenges. Independent Research Fund Denmark is an important springboard for research and career development. Grant recipients often become centre research leaders at the Danish National Research Foundation and regularly receive grants from the European Research Council.

Internationalisation as a source of originality and excellence

A central element in supporting excellent and original research is the internationalisation of research. IRFD invests in research of an international level, and prioritises an international perspective and collaboration in all projects submitted. International evaluation panels and individual international peer review is used in evaluating applications.

IRFD participates in international collaboration primarily on a Nordic and European level, but also under the auspices of the Global Research Council. In the coming years, IRFD will evaluate the potential for new collaborative opportunities and prioritise funding for international research programmes.

Via the funding instrument DFF-International Postdoc, Independent Research Fund Denmark promotes outward mobility and hereby gives young research talents the opportunity to explore original ideas in those research environments that provide them with the optimal conditions to develop independent professional profiles.

Since 2010, IRFD has provided funding through the Sapere Aude programme, with the aim of developing future research leaders by financing the most talented young researchers and providing them with a boost for their future careers. The Sapere Aude programme gives Danish researchers the opportunity to travel and better themselves in international research environments and attract talented researchers to Denmark. Furthermore, in 2018, Independent Research Fund Denmark has a special funding instrument to help increase Danish researchers’ chances to successfully receive funding from the European Research Council.

Internationalisation boosts excellence and originality

Danish research among the absolute best globally. Independent Research Fund Denmark is a stepping stone for talented researchers’ international careers.

Independent Research Fund Denmark works with the internationalisation of research through various channels. On a Nordic level, IRFD cooperates with other Nordic research foundations in the areas of research policy and financing via cooperation with NordForsk and NOS.

On a European level, IRFD currently participates in the ERA-NET initiatives Norface and HERA. Furthermore, IRFD engages in the collaborative organisation Science Europe and is represented in the organisation’s research policy working groups for Horizon 2020/FP9 on Open Access and management of research data.

On a global level, IRFD is engaged in the work carried out under the auspices of the Global Research Council.
2. Risk in research financing

Independent Research Fund Denmark supports risk in Danish research. Bottom-up initiated research, which is the key area for IRFD, is characterised by its inquisitive nature and driven by the researchers’ curiosity to solve new research questions. Investing in independent research creates an incubator for diversity in research questions, fields and the applicant pool. Groundbreaking research needs diversity and a willingness to follow new paths with regards the constructs, methods and theories together with a combination of scientific fields.

The fundamental, experimental and explorative research, which Independent Research Fund Denmark finances with risk investments, does not place requirements for positive output and financial profit, but respects that the spread and realisation of research impact can take time. These basic terms allow for further development of research areas, testing applicable focus, and establishing new projects. Private investments in research and development to a large extent, build on the risk investment from IRFD.

Risk within the research itself, as well as research investments can face challenges along with an increased pressure being placed on research funding. Increased competition for funding can be demotivating for researchers regarding launching new ideas and can lead to the well-known and established ideas being prioritised. In Independent Research Fund Denmark, this is counteracted by ensuring the focus is on the project idea when processing the application. In a time when many foundations see a trend towards larger, but fewer grants, IRFD continues to focus on the smaller but innovative projects. In assessing IRFD’s overall offer of funding instruments, the need for an innovative instrument for projects in the very early idea stages will be covered.

IRFD strengthens cooperation with other research funding foundations in Denmark

Private foundations play an important role in the research financing landscape in Denmark and contribute to Denmark’s leading position in global research. However, the private foundations typically prioritise specific research areas. Independent Research Fund Denmark covers all scientific fields.

Independent Research Fund Denmark sees a clear advantage in building cooperation between foundations - private as well as public - to create greater visibility on the synergy effects and complementary types of grants between the foundations, and create greater transparency of the undesirable chasm in the research financing landscape.

Financing the growth layer and diversity in Danish research

IRFD offers funding instruments for all career levels and in a variety of grant amounts, which ensures the possibility of a wide breadth of applicants - both in terms of career level but also fields. Younger researchers, by virtue of innovation and willingness to take risks, are significant drivers in the formation of high level dynamic research environments. IRFD plays an active role in the discussions about challenges faced in the career ladder from the growth layer to top level researcher positions, and recognises the need for instruments that can support all levels in a career. This comes into focus when IRFD is evaluating the need to adjust the instrument portfolio.

Diversity is crucial to ensuring continued development of Danish research of the greatest international quality. Research breakthroughs are created through untraditional research ideas that challenge established paradigms or methods. Smaller or new research fields ensure a breadth and development in Danish research. It is vital for IRFD to support diversity in the Danish research landscape with regard to fields, gender, and career levels. IRFD strives to reflect to researcher society that it is charged with serving. It has a gender equality policy and also monitors the distribution of applications and grants between the genders, as well as the success rates for female and male researchers in Independent Research Fund Denmark.
3. Interdisciplinary research ideas

IRFD finances researchers’ work to find answers to research questions both within and across all the main fields of science. Interdisciplinary research across the classic fields can be a vital breeding ground for research breakthroughs and help solve complex research questions and socially relevant problems. IRFD therefore considers it an important focus area to support opportunities for cooperation and research that explores and utilises the boundary areas between scientific disciplines.

Independent Research Fund Denmark covers all scientific fields. Research competences within IRFD’s five councils support a qualified assessment of field-specific, as well as interdisciplinary projects in each of the councils’ domains.

Internationally - including under the auspices of Horizon 2020 - interdisciplinarity is given greater and greater priority. There is widespread recognition that risk involves being willing to create a good framework for interdisciplinary projects, which challenge traditional field-specific methodologies and context, and paves the way for new insights.

Consolidation of Interdisciplinary research

By revising the assessment process across the research councils, IRFD will increase the use of supplemental external reviewers with particular interdisciplinary competences. This will ensure a review with a focus on scientific breakthroughs and scientific added value in combining the classic fields.

Independent Research Fund Denmark prioritises that equal funding opportunities are available to interdisciplinary applications across the five research councils as well as applications to individual research councils. IRFD will therefore earmark a funding pool for applications that are relevant to several research councils, to better support opportunities for interdisciplinary research.

In recognition of the added value resulting from international research cooperation and under the auspices of NordForsk’s new bottom-up mechanism for co-financing, IRFD will its Nordic sister organisations to establish a Nordic program for interdisciplinary research projects.

(National Academy of Sciences et al. 2005)
4. Research impact

New scientific realisation is the highest priority for Independent Research Fund Denmark. Bibliometric analysis shows that published articles resulting from research funded by IRFD grants have a high international citation rate. This indicates that IRFD grants generate a high level of research output and have a great academic effect on international research.

In recent years, interest has also turned towards knowledge dissemination and cooperation, of which the value and societal impact is difficult to measure. The focus in the private and public sectors for documenting and estimating the effect of research has increased, also with regard to being able to provide an actual basis for determining future priorities and investments in research.

Documentation for the spread and effect of research
Independent Research Fund Denmark points to five key pathways for research impact on society via 1) companies, 2) the public sector, 3) research-based education, 4) legislation and regulation and 5) the cultural dynamic in society. In 2017, IRFD published a report measuring the research impact in several countries in relation to choice of methods and policy trends in the area. The report emphasizes an international trend to combine multiple evaluation methods.

IRFD publications and analyses must also contribute to a nuanced view of the description and measurement of the impact of independent research.

Considering the increasing interest in documenting the dissemination channels and effects of research, IRFD wants to boost its communication of the impact of research financed by the fund. Independent Research Fund Denmark will systematise the collection of data from its research projects and thereby gather inspiration on how the effect of independent research on society can be documented.

Independent research benefits the development of society
It is crucial for Independent Research Fund Denmark, that its finding of independent research has a beneficial effect for society’s development.

Independent Research Fund Denmark supports endeavours to measure the effect of research, but maintains that certain parts of the long-term effects cannot be isolated and therefore are difficult, if not impossible, to measure. Nevertheless, IRFD highlights the societal impact of its investments. This includes the long-term effects of independent research on a high academic level of education on higher education programmes. Studies show that the majority of IRFD grant recipients transform their new knowledge for teaching purposes in the wake of the funded project.

Academic impact
Created through research-based teaching at university, teaching material, citations and research production in the form of peer-reviewed scientific articles published in field-specific or general journals, monographs, reference works and scientific conferences.

Royal Danish Academy of Sciences and Letters, White Paper, 2016)

Societal impact
Is every effect on, change in or boon for the economy, society, culture, public politicians or services, health, the environment or quality of life, outside of the walls of academia. (Research Excellence Framework UK)
5 ways to research impact

The results of Independent Research Fund Denmark’s risk investments in excellent research are key to a number of significant stakeholders in society:

1 Independent research provides results for the **business sector** and central to research-based and global market leaders, because it generates basic scientific breakthroughs and paves the way for new competitive advantages.

2 In society, new knowledge gained from research into new technologies, methods or processes can provide the foundation for new collaborations or lead directly to measures that improve the efficiency in the **public sector**.

3 The impact of research is also channelled through our **educational system**, which is one of the cornerstones of our society. Research-based education ensures that the latest knowledge is disseminated via graduates leaving our institutions of higher education and being activated in all sectors of society.

4 The channelling of new knowledge into society is supported by providing targeted information to the public and may influence **legislation and regulation**.

5 Research helps to enlighten us about our own society and has an impact on our **cultural development**. In a globalised world, research provides analyses of the processes of change and brings clarity and relevance to the public debate.

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**Research-based education**

It is important that the entire academic breadth is balanced - from health sciences, to natural sciences and technical research, to social sciences and the humanities.

The link between research and education continues to increase in focus, also with regard to research funded by Horizon 2020. A great effect can be seen from education system breeding the best Bachelor’s and Master’s graduates with a solid foundation of research-based education. Through research-based teaching and education, we ensure that the newest knowledge creates value for the private, public and voluntary sectors.
New knowledge and realisation benefits society
- through excellence and originality

The strategy has 4 pillars:

1. Excellence and originality
   - Initiatives
     - IRFD will continue to offer a number of instruments with the aim of investing in researcher-initiated research of the highest international quality. Additionally, IRFD will implement initiatives that support the three-year strategy’s four pillars. During the three-year period, the initiatives will be regularly revised.
     - publish a study of researcher opinions on e.g. the optimal size of grants
     - offer an instrument that boosts talented Danish researchers’ chances to successfully receive funding from the European Research Council
     - evaluate the potential for new international collaborative opportunities and prioritise funding for international research programmes based on bottom/up and excellence
     - evaluate the instrument portfolio and also identify the need for establishing a new instrument for projects at the very early concept stage
     - build cooperation between public and private foundations by increasing awareness and synergy effects, and undesirable gaps in the research financing system
     - earmark a funding pool for interdisciplinary research
   
2. Risk in research financing
   - Initiatives
     - initiate the establishment of a Nordic program for interdisciplinary research projects
     - increase the use of supplemental external reviewers with particular interdisciplinary competences
     - boost the communication of the impact of IRFD-financed research

3. Interdisciplinary research ideas
   - Initiatives
     - systematise the collection of data from IRFD research projects and thereby gather inspiration on how the effect of independent research on society can be documented

4. Research impact
   - Initiatives
     - publish a study of researcher opinions on e.g. the optimal size of grants
     - offer an instrument that boosts talented Danish researchers’ chances to successfully receive funding from the European Research Council
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     - initiate the establishment of a Nordic program for interdisciplinary research projects
     - increase the use of supplemental external reviewers with particular interdisciplinary competences
     - boost the communication of the impact of IRFD-financed research
     - systematise the collection of data from IRFD research projects and thereby gather inspiration on how the effect of independent research on society can be documented
1. Excellence and originality in research

84 established researchers and international reviewers qualified the annual applications sent to IRFD.

In 2017, IRFD utilised external reviewers for 672 applications. Of which, 131 international panel participants assessed a total of 533 applications.

2. Risk in research financing

Average grant amount in 2017

DKK 2.7 m

Smaller grants ensure diversity in research projects and provide the opportunity for new ideas to flourish.

3. Interdisciplinary research ideas

Board
The Cross-Council Committee
IRFD | Medical Sciences
IRFD | Humanities
IRFD | Natural Sciences
IRFD | Technical and Production Sciences
IRFD | Social Sciences

In 2018, IRFD set up a new committee - the Cross-Council Committee to strengthen interdisciplinary research.

4. Research impact

79 universities and companies at home and abroad entered into research collaborations with 29 excellent Sapere Aude Research Leaders in 2017.