THE THINK TANK
DEA
ADVANCING KNOWLEDGE

Perspectives on risk-taking in science and science funding

A survey among research funders

This background report was developed by the Think Tank DEA in collaboration with and with co-funding from The Independent Research Council Denmark in preparation for the development of their joint report “Risikovillig forskningsfinansiering” (“Risk-taking in science funding”).

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About the survey

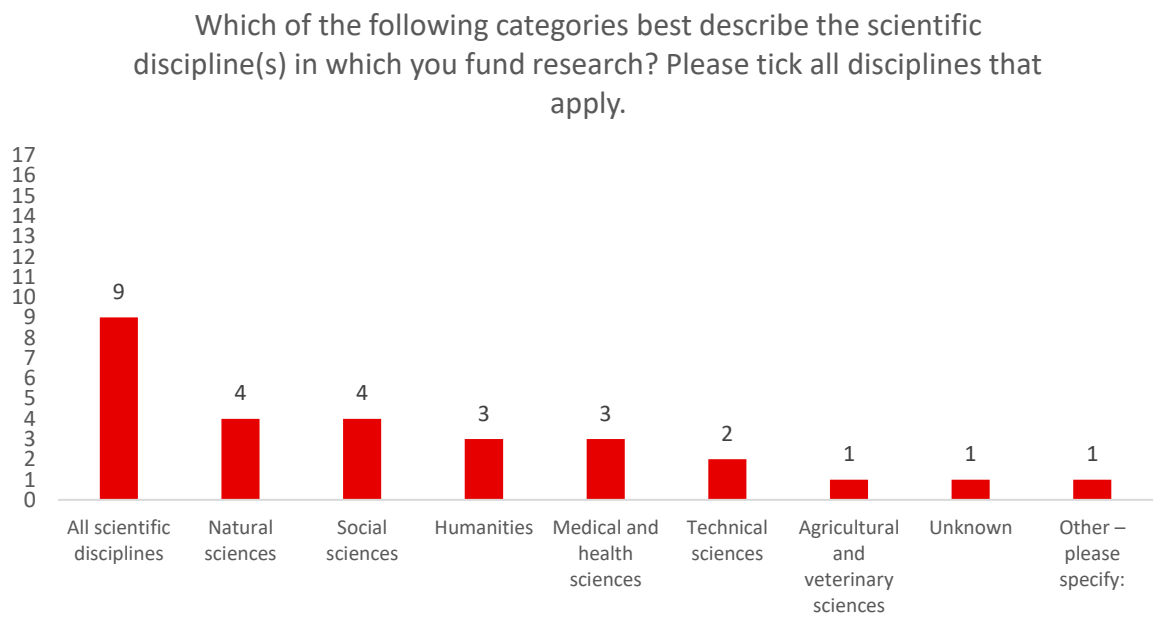
The Think Tank DEA conducted a survey on risk-taking among research funding organizations by e-mail invitations and telephone follow-up in the period July to September 2019. The aim of the survey was to gather information on how a wide range of funding organizations experience the conditions for risk-taking in science, how they believe risk-taking can be effectively supported, and what actions they themselves take (if any) to promote greater risk-taking in science.

The survey was distributed to 113 research funding organizations identified via online searches and primarily based in Europe and the U.S. 17 research funding organizations completed the survey. This report presents their responses. The results of the survey are not representative, since 1) the total population is unknown and 2) the response rate is low. Moreover, it is likely that the funding organizations that chose to respond to the survey have a particular interest in, or focus on, risk-taking. Nonetheless, the results do open a window onto 17 research funding organizations' perspectives on and experiences with risk-taking in science.

Because of the low response date, results are reported in absolute numbers. Selected qualitative responses from open-ended questions are presented after each graph.

The characteristics of the respondents are described in the following:

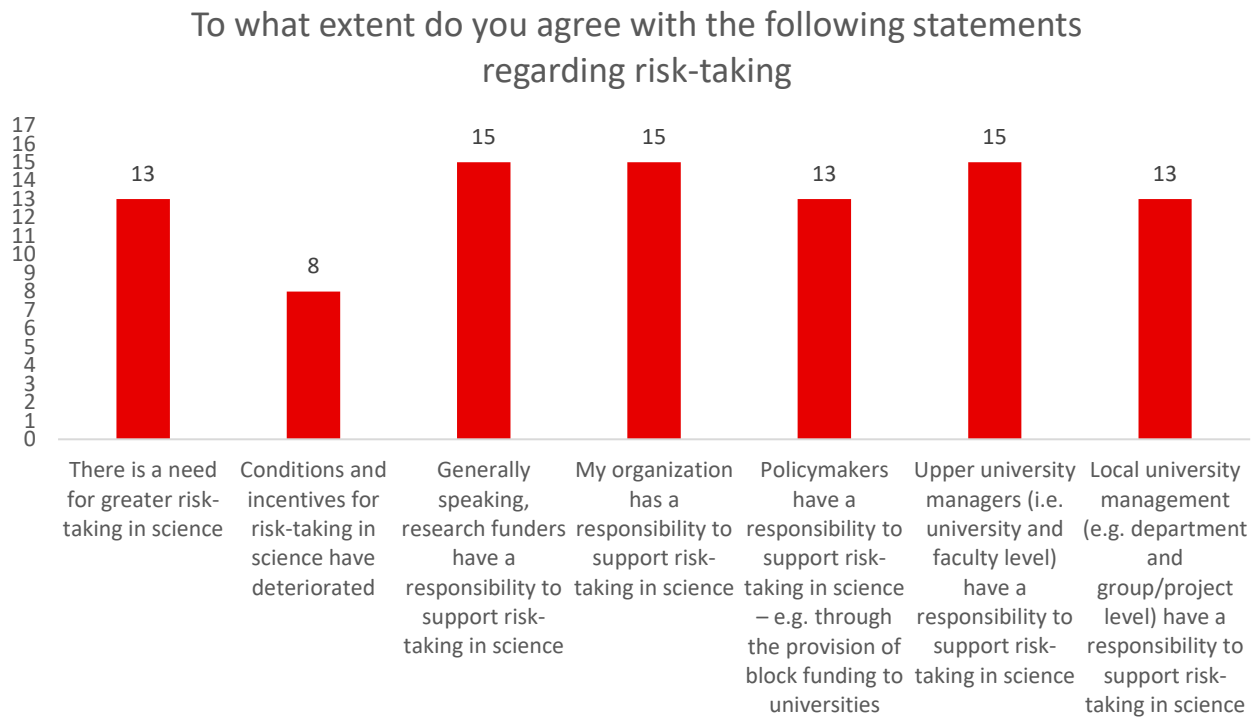
- 11 out of 17 research funding organizations in the survey are public research funding organizations, while six are private/non-profit research funding organizations.
- The research funding organizations in the survey are all European-based organizations (16), except for one organization which is based in North America.
- 16 out of 17 funding organizations indicated which disciplines they fund. Nine fund all scientific disciplines, while five fund multiple disciplines, and two fund a single scientific discipline.



n = 17

Perspectives on risk-taking in science

Several funding organizations experience a need for greater risk-taking in science (13/17) and that conditions and incentives for risk-taking in science have deteriorated (8/17). Respondents indicated that a wide range of actors are seen to carry responsibility for supporting risk-taking in science, including research funders (15/17), their own organization (15/17), policymakers (13/17), upper university managers (15/17) and local university managers (13/17).



n = 17 ('strongly agree' and 'agree' responses only)

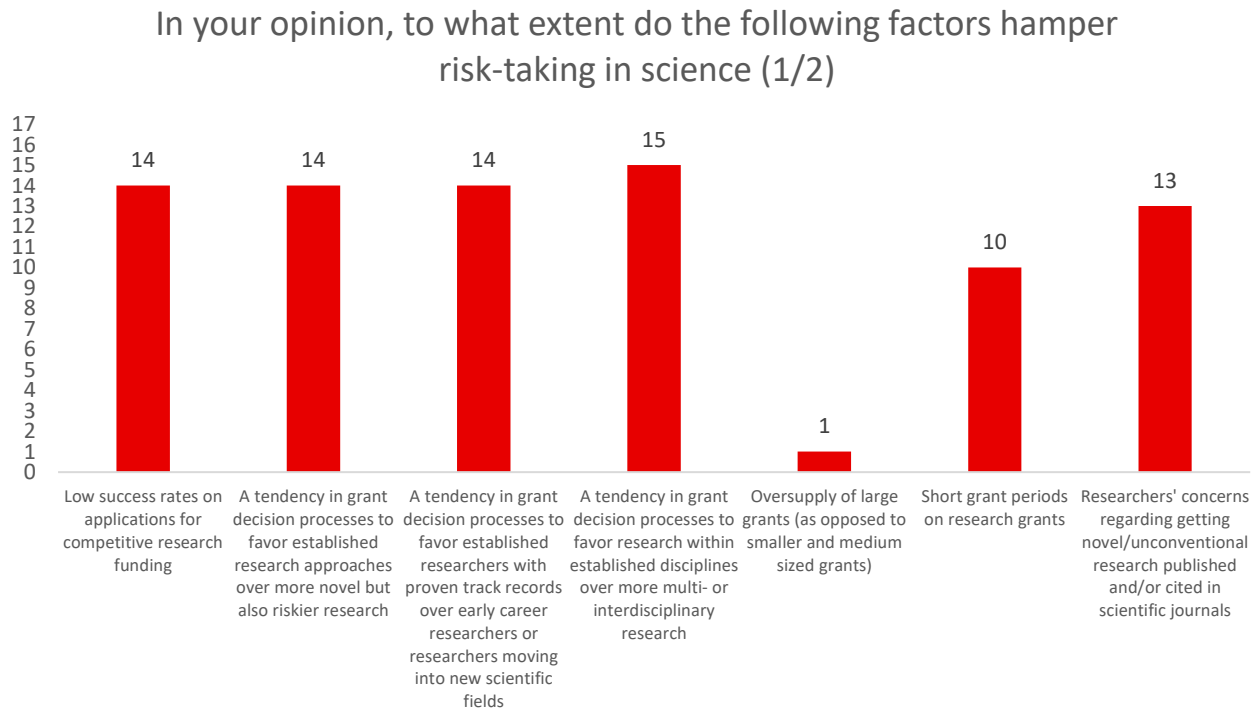
In the open answers related to conditions for risk-taking in science, several respondents reflect on the role of public funding organizations. Some point out that public money has a duty to lower risk as opposed to private money: "*Private money (…) should be interested in "high-risk/high reward". Public money is taxpayer's money and, therefore, has a duty to the public to take greater care and lower risk".* Another open response argues that "*the needs for accountability, regulatory compliance and strong governance predicate against the funding of risk-taking in science"*.

According to the respondents, several factors hamper risk-taking in science. However, the respondents differ on which factors, they view as important in this respect. The factors identified by at least half the respondents as important are listed below:

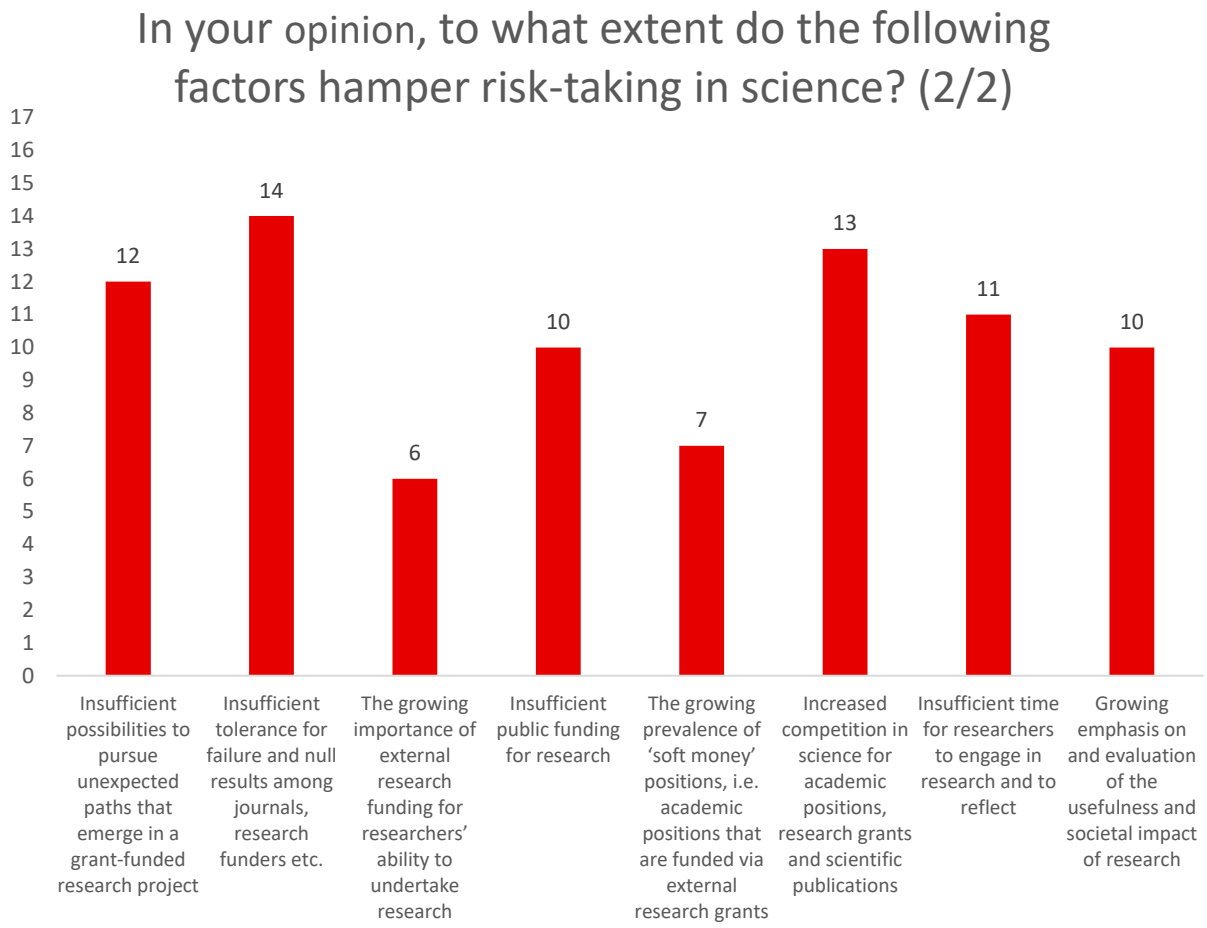
- A tendency in grant decision processes to favor research within established disciplines over more multi- or interdisciplinary research (15/17)
- Low success rates on application for competitive research funding (14/17)
- A tendency in grant decision processes to favor established research approaches over more novel but also riskier research (14/17)
- A tendency in grant decision processes to favor established researchers with proven track records over early career researchers or researchers moving into new scientific fields (14/17)
- Insufficient tolerance for failure and null results among journals, research funders etc. (14/17)

- Researchers' concerns regarding getting novel/unconventional research published and/or cited in scientific journals (13/17)
- Increased competition in science for academic positions, research grants and scientific publications (13/17)
- Insufficient possibilities to pursue unexpected paths that emerge in a grant-funded research project (12/17)
- Insufficient time for researchers to engage in research and to reflect (11/17)
- Insufficient public funding for research (10/17)
- Short grant periods on research grants (10/17)
- Growing emphasis on and evaluation of the usefulness and societal impact of research (10/17)

The average amount of hampering factors identified per respondent is 10. The number of hampering factors identified by the respondents ranges from 3 to 13.



n = 17 (‘to a high degree’ and ‘to some degree’ responses only)



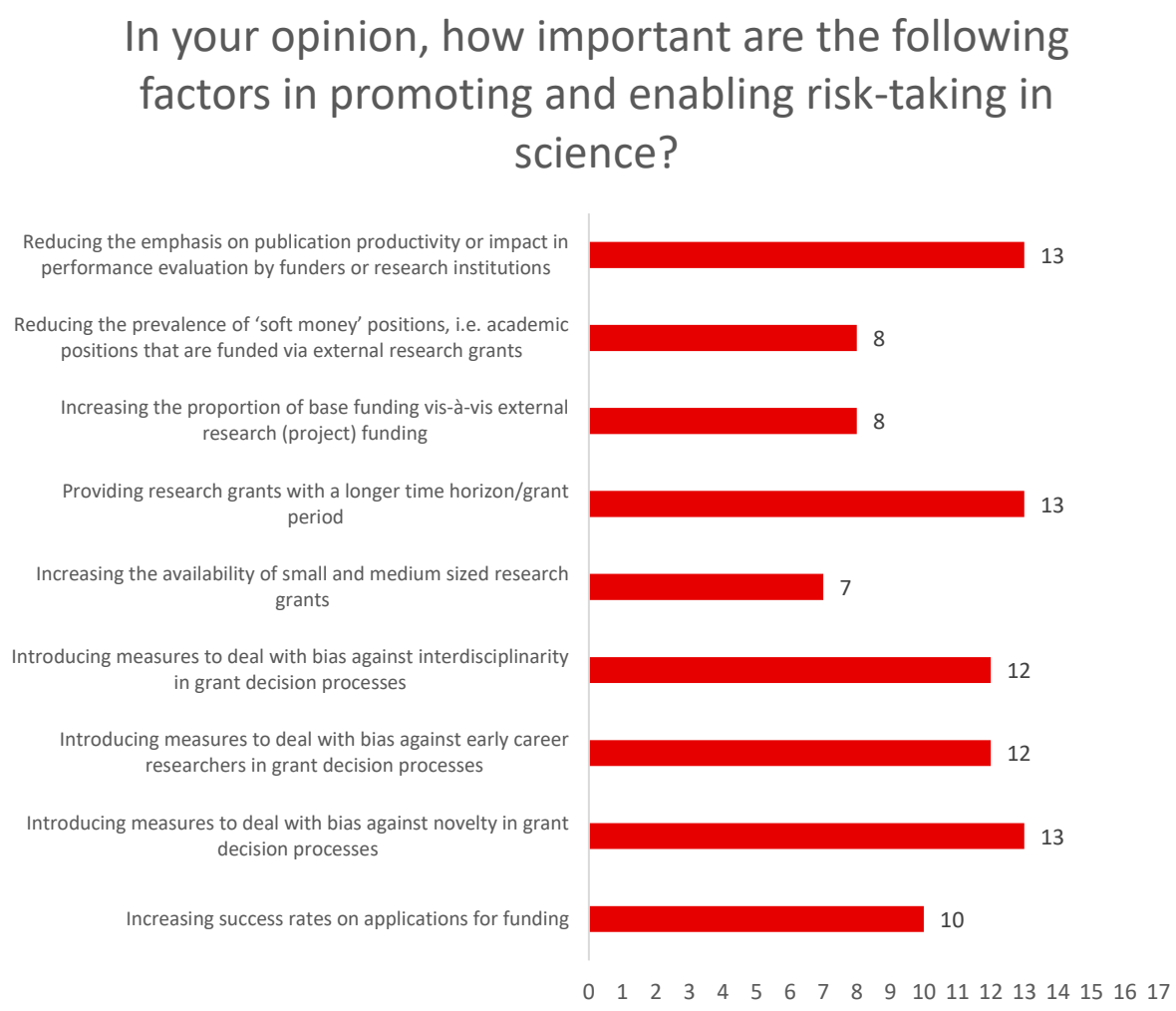
n = 17 ('to a high degree' and 'to some degree' responses only)

Some respondents write in the open answers that the insufficient tolerance for failure and null results is more relevant towards journals and less towards funders. Another reflection regarding hampering factors for risk-taking in science found in the open answers relates to the role of the researcher in risk-taking: "*A hallmark of good (and great) scientists is their willingness to place science above their own career interests. In other words, to attack hard problems and follow new leads without worrying about their own well-being. This is an individual characteristic, which can be selected for. Not a characteristic of large bureaucracies".*

Several factors are seen as important in supporting risk-taking in science. According to the funding organizations in the survey, the most important factors ('to a high degree' and 'to some degree') are:

- Introducing measures to deal with bias against novelty in grant decision processes (13/17)
- Providing research grants with a longer time horizon/grant period (13/17)
- Reducing the emphasis on publication productivity or impact in performance evaluation by funders or research institutions (13/17)
- Introducing measures to deal with bias against early career researchers in grant decision processes (12/17)
- Introducing measures to deal with bias against interdisciplinarity in grant decision processes (12/17)
- Increasing success rates on applications for funding (10/17)

The average number of important factors indicated is 6, and the number of important factors identified by individual respondents ranges from 2 to 9.



n = 17 ('to a high degree' and 'to some degree' responses only)

A respondent reflects on the importance of 'reducing the emphasis on publication productivity or impact in performance evaluation by funders or research institutions' in the open answers: "*Regarding the question on productivity and impact: it all depends on the level at which this is done (individual versus portfolio-level). Productivity per se is not an objective, but one of the missions of research funders can be to fund influential research that produces true advances in human knowledge. Such influence can be assessed in many different ways, but the basic fact remains that influence involves other researchers taking notice of the research outcomes and building on them. Monitoring the ability of funded research to produce breakthroughs and influence the course of science is important for funders that seek to fund high risk/high gain research, as such monitoring informs decisions on the grant's portfolios and grant schemes design".*

Approaches to risk-taking

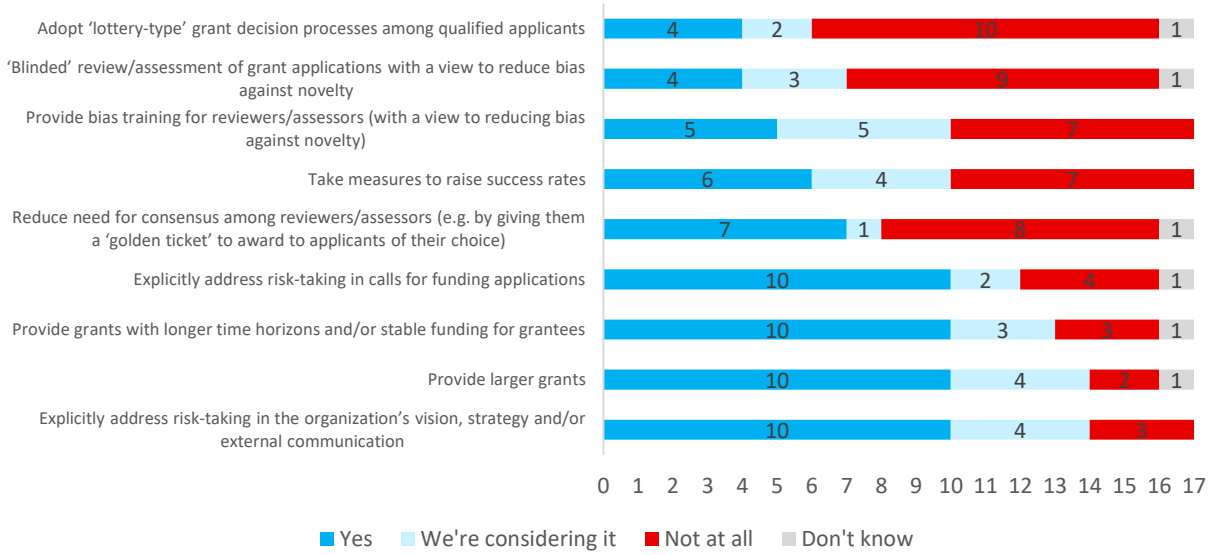
A wide range of approaches ('yes'-responses in the figures below) are pursued by the funding organizations in the survey to support and promote risk-taking in science. Among these are:

- Allow/encourage flexibility in granted projects (e.g. to deviate from the original aims to pursue new ideas) (14/17)
- Earmark funding for early career researchers (11/17)
- Explicitly address risk-taking in the organization's vision, strategy and/or external communication (10/17)
- Explicitly address risk-taking in calls for funding applications (10/17)
- Provide grants with longer time horizons and/or stable funding for grantees (10/17)
- Provide larger grants (10/17)
- Provide seed funding to develop and pursue novel research paths and approaches (10/17)
- Provide opportunities for follow-up grants (8/17)
- Earmark funding for novel interdisciplinary research (8/17)
- Curb ex post evaluation of the outcomes of funded research, e.g. based on number of publications (7/17)
- Reduce need for consensus among reviewers/assessors (e.g. by giving them a 'golden ticket' to award to applicants of their choice) (7/17)
- Provide smaller grants (7/17)
- Fund 'people' rather than 'projects' (6/17)
- Earmark funding for 'high-risk, high-gain' research (6/17)
- Take measures to raise success rates (6/17)
- Provide bias training for reviewers/assessors (with a view to reducing bias against novelty) (5/17)
- Adopt 'lottery-type' grant decision processes among qualified applicants (4/17)
- 'Blinded' review/assessment of grant applications with a view to reduce bias against novelty (4/17)

Two funding organizations do not pursue any of the mentioned approaches. Among the remaining 15 respondents, the average number of approaches pursued with a view to promote and/or enable risk-taking is approximately 8. The specific number of approaches identified ranges from 1 to 16.

Several approaches are not yet pursued but considered by the research funding organizations in the survey e.g. earmarking funding for novel interdisciplinary research (5) and providing bias training for reviewers/assessors (with a view to reducing bias against novelty) (5).

Which if any of the following approaches does your organization pursue with a view to promoting and/or enabling risk-taking? (1/2)



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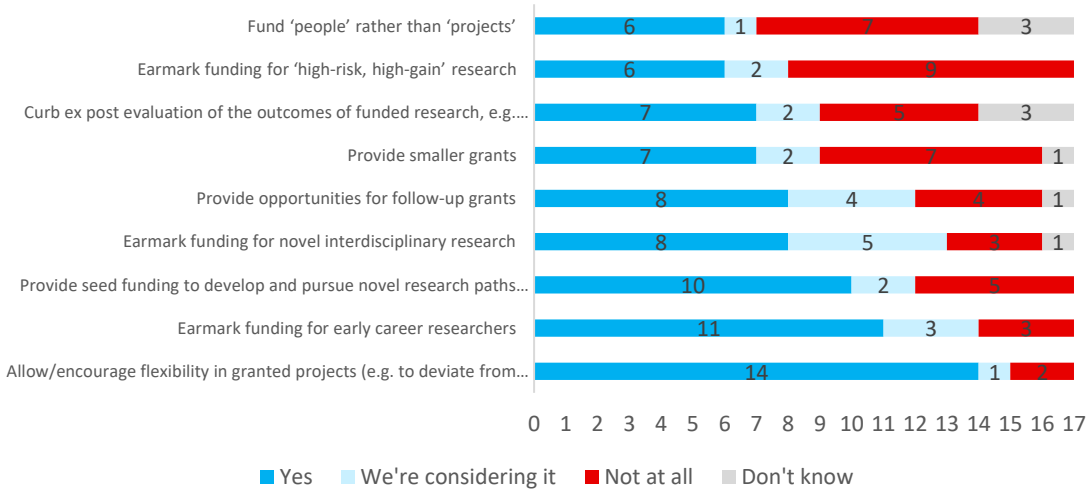
Which if any of the following approaches does your organization pursue with a view to promoting and/or enabling risk-taking? (2/2)



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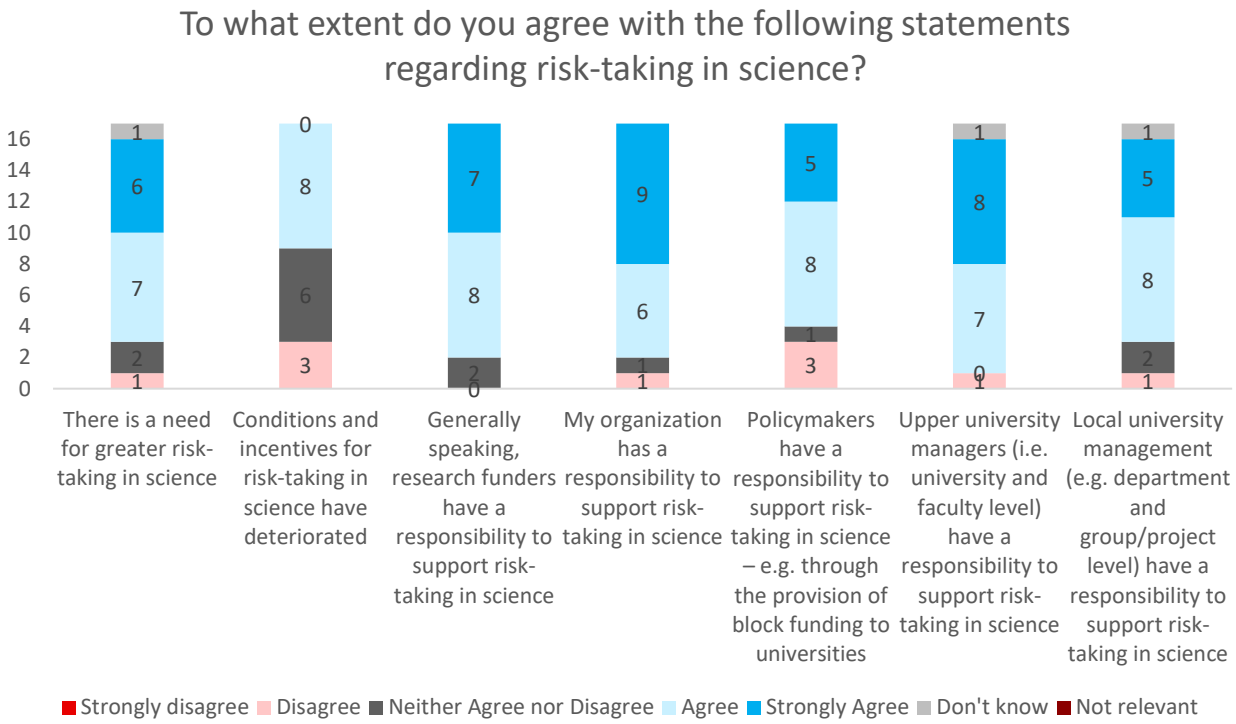
Appendix

This background report presented only selected results from some of the questions included in the survey. Full responses for these questions are included in the following.



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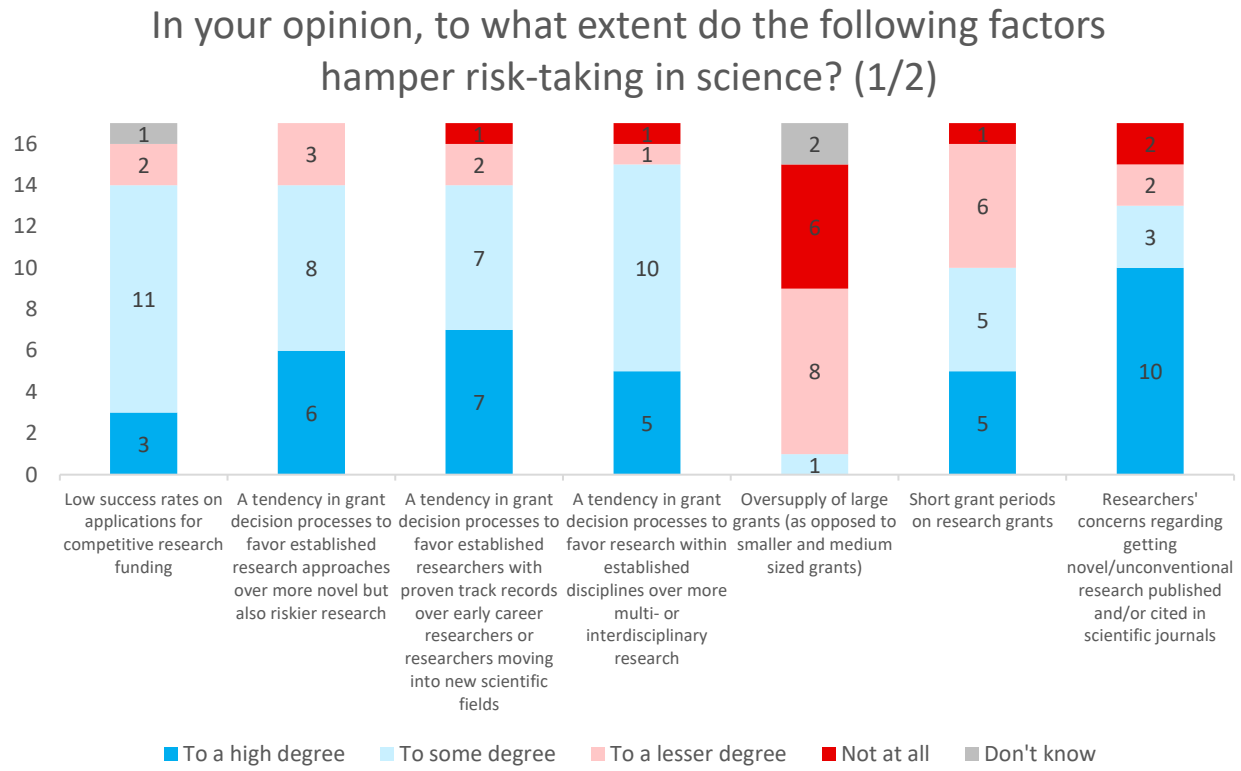
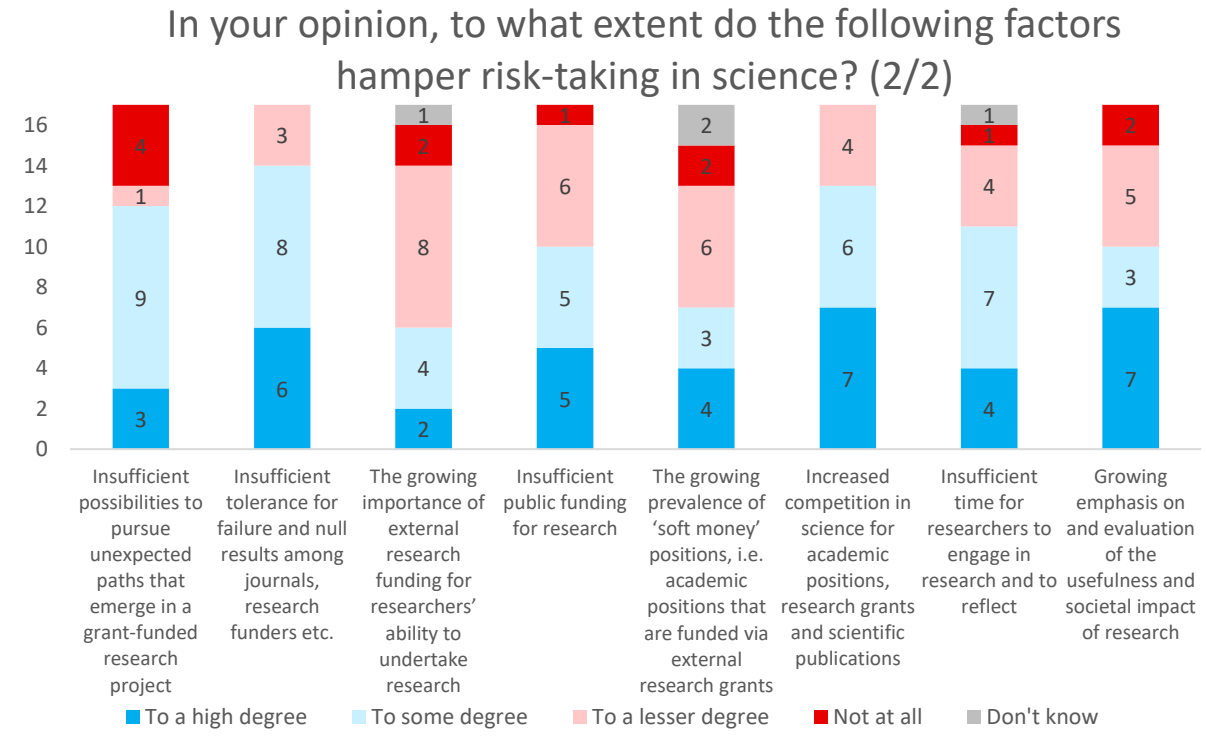
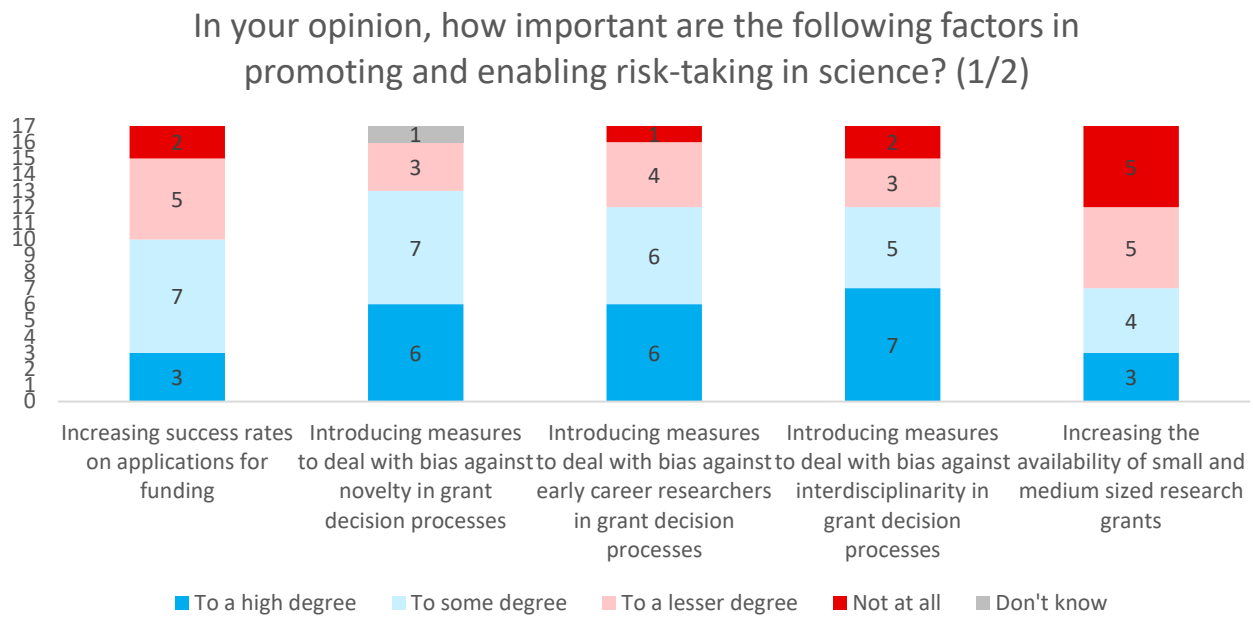

In your opinion, to what extent do the following factors hamper risk-taking in science? (1/2)
16
14
12
10
8
6
4
2
0
3 11 2 1
6 8 3
7 7 2 1
5 10 1 1
1 8 6 2
5 5 6 1
10 3 2 2
Low success rates on applications for competitive research funding
A tendency in grant decision processes to favor established research approaches over more novel but also riskier research
A tendency in grant decision processes to favor established researchers with proven track records over early career researchers or researchers moving into new scientific fields
A tendency in grant decision processes to favor research within established disciplines over more multi- or interdisciplinary research
Oversupply of large grants (as opposed to smaller and medium sized grants)
Short grant periods on research grants
Researchers' concerns regarding getting novel/unconventional research published and/or cited in scientific journals
To a high degree
To some degree
To a lesser degree
Not at all
Don't know

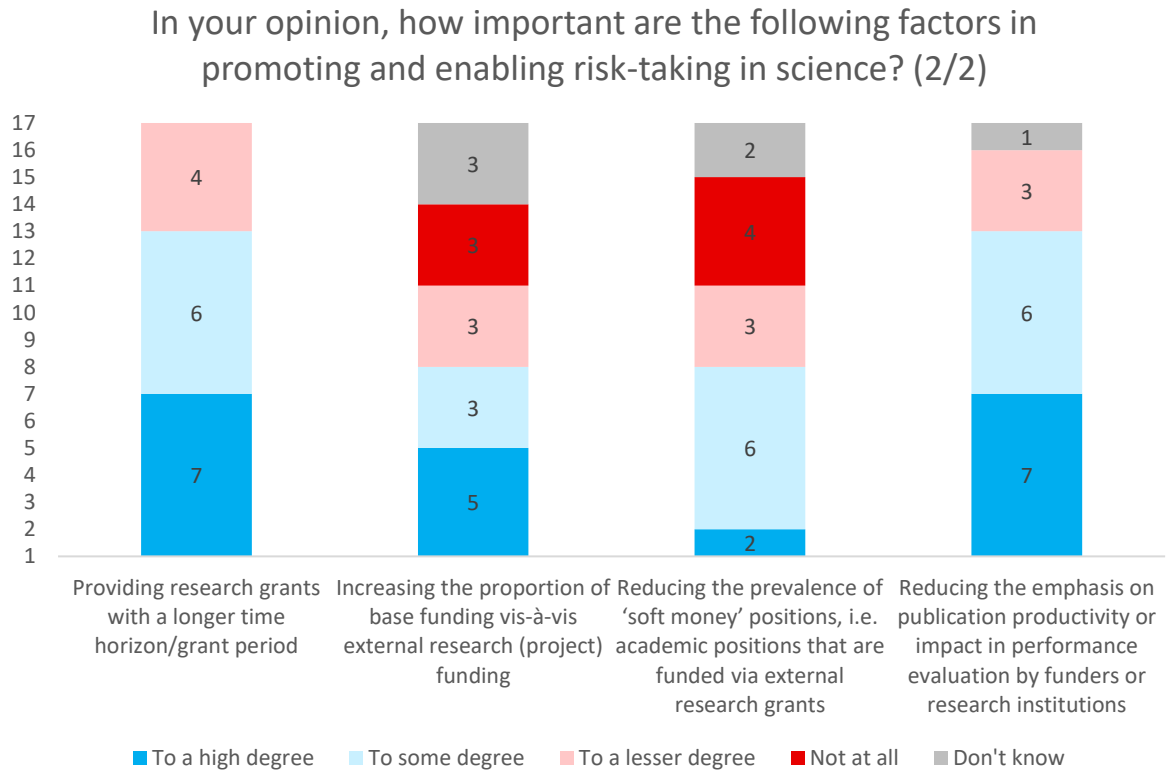
n = 17


In your opinion, to what extent do the following factors hamper risk-taking in science? (2/2)
16
14
12
10
8
6
4
2
0
3 9 1 4
6 8 3
2 4 8 2 1
5 5 6 1
4 3 6 2 2
7 6 4
4 7 4 1 1
7 3 5 2
Insufficient possibilities to pursue unexpected paths that emerge in a grant-funded research project
Insufficient tolerance for failure and null results among journals, research funders etc.
The growing importance of external research funding for researchers' ability to undertake research
Insufficient public funding for research
The growing prevalence of 'soft money' positions, i.e. academic positions that are funded via external research grants
Increased competition in science for academic positions, research grants and scientific publications
Insufficient time for researchers to engage in research and to reflect
Growing emphasis on and evaluation of the usefulness and societal impact of research
To a high degree
To some degree
To a lesser degree
Not at all
Don't know

n = 17


In your opinion, how important are the following factors in promoting and enabling risk-taking in science? (1/2)
Increasing success rates on applications for funding
Introducing measures to deal with bias against novelty in grant decision processes
Introducing measures to deal with bias against early career researchers in grant decision processes
Introducing measures to deal with bias against interdisciplinarity in grant decision processes
Increasing the availability of small and medium sized research grants
To a high degree
To some degree
To a lesser degree
Not at all
Don't know

n = 17


In your opinion, how important are the following factors in promoting and enabling risk-taking in science? (2/2)
Providing research grants with a longer time horizon/grant period
Increasing the proportion of base funding vis-à-vis external research (project) funding
Reducing the prevalence of 'soft money' positions, i.e. academic positions that are funded via external research grants
Reducing the emphasis on publication productivity or impact in performance evaluation by funders or research institutions
To a high degree
To some degree
To a lesser degree
Not at all
Don't know

n = 17