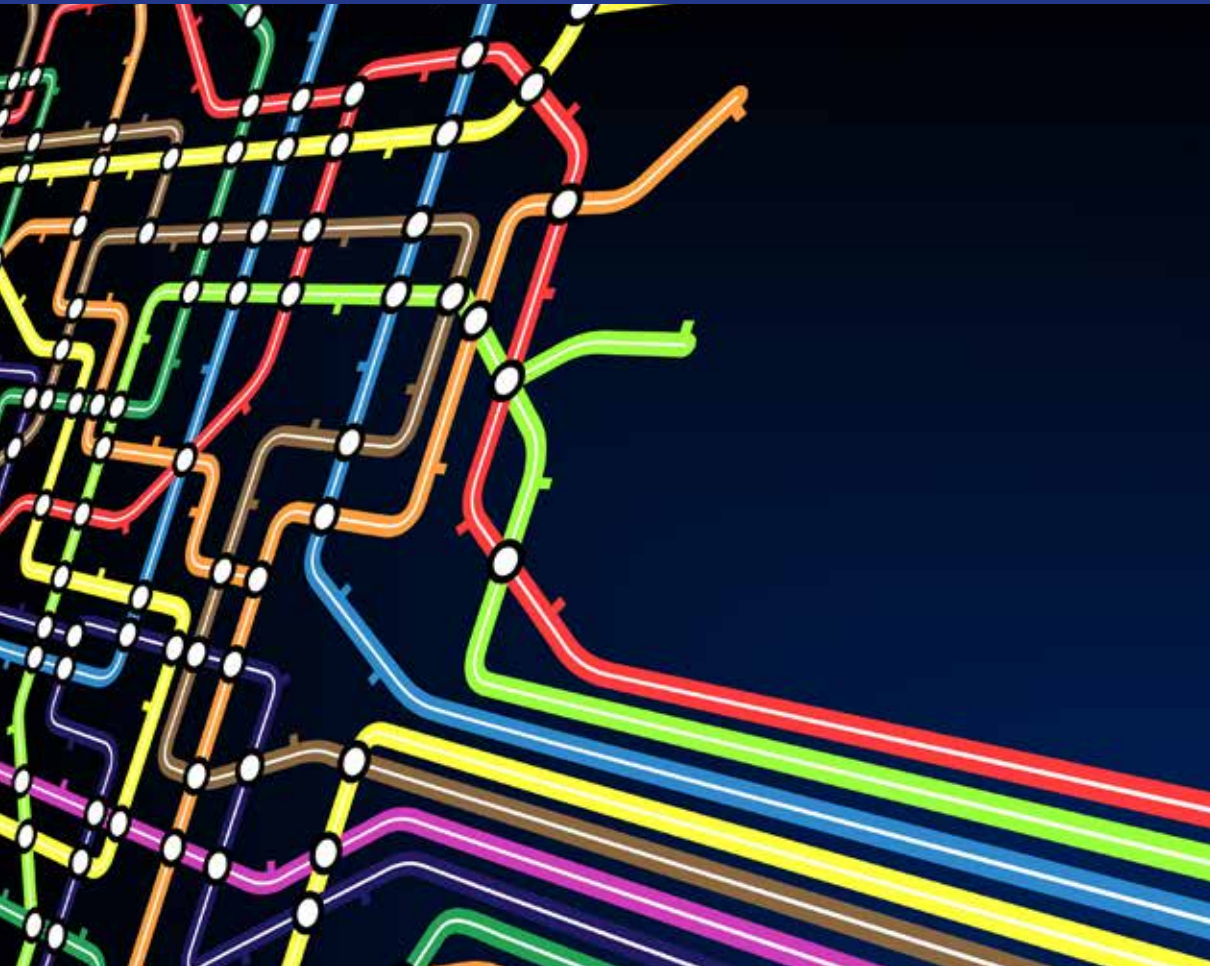


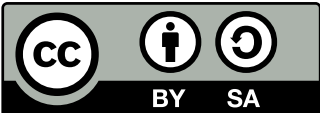
THE YOUNG ACADEMY



# INFORMED CHOICES

## INVOLVING RESEARCHERS IN SCIENCE POLICY DECISIONS





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**INVOLVING RESEARCHERS IN**  
**SCIENCE POLICY DECISIONS**

The Young Academy  
November 2024



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# SUMMARY

The aim of this report is twofold: 1) to advocate using methods to collect input for broad consultation processes in policymaking such as the participatory value evaluation (PVE), in particular in academia and 2) to present the outcomes of an experiment with PVE carried out in the Netherlands' academic community that examined the funding preferences of academics in the Netherlands.

## **PVE method in practice**

In May and June 2022, The Young Academy used the PVE method to consult 1,173 academics in the Netherlands about their views on the Dutch research funding system. The PVE method was chosen because it offered two advantages over surveys and focus groups in this particular case. First, it asked the respondents to allocate budget themselves to different research funding instruments, allowing them to see the consequences of their choices for relevant parameters, including grant proposal success rate, number of positions for early-career researchers, or the ratio of team to individual grants. Respondents hence faced the same dilemmas as policymakers. Second, because it allowed the researchers to consult a large sample, the PVE method made it possible to evaluate the extent to which different groups of academics had different research funding preferences. This revealed 'blind spots' in current focus group representation and demonstrated which groups of academics and which viewpoints can be overlooked when collecting input.

The respondents were also asked to provide written motivations for their allocation choices and answer some general questions regarding their views on the current

funding system. Ultimately, a total of 862 participants completed the PVE survey, including most of the open-ended questions.

## Lessons learned from the PVE experiment

The Young Academy succeeded in designing and launching a research funding consultation and in attracting a large group of respondents. Its results can be carried forward to other PVE consultations. These concerned such topics as proper time management during the planning and execution stages, ensuring a representative sample, building safeguards into the design and drawing up an analysis plan, and taking steps to reach a broader pool of representatives.

## PVE research funding outcomes

The outcomes show strong support in all disciplines for continuous, non-competitive funding. On average, allocation choices did not differ significantly between respondents in the humanities, natural sciences, medicine, and social sciences. The PVE shows that career stage is an especially important consideration when seeking a balanced representation of researchers to provide input on research funding policies. A large majority of the respondents do not find the review process for competitive grants “fair”, including those who play a significant role in grant review committees, and even those with high success rates for their own grant applications. Moreover, the current system appears to steer research in certain directions; a large majority of respondents said they chose research topics that they perceived as being likely to attract funding, posing a threat to academic freedom.

The respondents’ choices reveal a misalignment between the needs and preferences of researchers and the policies of funding bodies. The variation found in respondents’ preferences suggests that the funding needs of academics in the Netherlands can only be met by a sufficiently diverse range of funding instruments. It also illustrates that to ensure a fair and inclusive representation of these preferences, more diverse groups of academics must be consulted than is currently the case, in particular with regard to career stage.

# 1. INTRODUCTION: PARTICIPATORY VALUE EVALUATION

In many domains of public and private governance, policymakers take decisions after evidence has been collected using scientific methods. Two common methods used to collect such input are surveys and focus groups (e.g., committees or groups of community representatives). Surveys make it possible to collect input from a large community but rely on the participants' understanding – which is often incomplete – of the dilemmas that decision-makers face, such as budget limitations and trade-offs between different options. Focus groups, on the other hand, can pave the way for deeper discussions and two-way interaction between the participants and policymakers. In stratified and heterogenous communities, however, it is a major challenge to assemble focus groups that are truly representative, and so other strategies are needed. One such strategy is participatory value evaluation (PVE)<sup>1</sup>, an innovative and broad consultation method that offers various advantages over both surveys and focus groups. In this method, those providing input for policy decisions are asked to articulate their views on complex issues as if they were themselves the decision-makers. They therefore face the same choices, dilemmas, limitations, and consequences.

The PVE method has previously been used successfully in large-scale citizen consultations on topics that spark fierce public debate, such as the relaxation of COVID-19 restrictions and actions addressing climate change. A similarly controversial topic of debate among policymakers, funding bodies, and academics in the Netherlands is how the limited national budget for scientific research can best be allocated. Decisions on funding allocation impact all academics. In theory, all these different actors have the power to influence the direction of research funding. In practice, however, it is not always clear who is involved in the decision-making, nor

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1 <https://www.tudelft.nl/en/tpm/pve>



do we know whether the voices heard in these discussions reflect the views of the entire academic community.

The Young Academy argues that evidence-based insights collected from the broader academic community can enrich this debate, especially if they are based on a comprehensive consideration of the funding dilemmas (e.g., competitive or rolling grants) that arise when deciding how to distribute the limited resources available. That is why it has experimented with a PVE. In May and June 2022, it consulted more than 1,000 academics in the Netherlands about their views on research funding. This report presents the findings of that consultation and aims to contribute to the ongoing discussion on research funding in the Netherlands and how it is distributed. By involving a large group of stakeholders in the decision-making process, The Young Academy hopes to present a more inclusive and nuanced view of the opinions of the end-users of research funding, i.e., the academics themselves.

In the following sections, we discuss the procedure we followed, the outcomes, lessons learned and take-aways, and future directions for research.

## 2. RESEARCH FUNDING PVE

### Procedure

The PVE on research funding was set up by The Young Academy members in collaboration with Populytics<sup>2</sup>. Over the course of three workshops, the project group identified the dilemmas and limitations of the current funding system and used these to construct a PVE (see Methods in the Appendix).

After filling in demographic data, the respondents in this PVE were asked to confront the same dilemmas and limitations as those faced by policymakers. Should funding be distributed through the universities or through competitive grants? How much money should be distributed to independent versus thematic research via consortia? What portion of total funding should go to consortia (team science), and what portion to individual researchers? Should funding go primarily to early-career academics or to senior researchers?

In all these decisions, the key constraint was money: the respondents had a maximum amount that could be distributed. In the main part of the PVE, they were randomly assigned a budget of EUR 400 million (low), EUR 500 million (medium), or EUR 900 million (high), which they redistributed over different funding instruments. Respondents immediately saw the implications of their decisions, for example in grant proposal success rates, average time invested in writing grant proposals, or number of PhDs/postdocs that could be hired. Respondents could choose from among 11 different funding instruments, ranging from individual to team grants,

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<sup>2</sup> <https://www.tudelft.nl/en/tpm/pve>

from competitive grants to direct funding, and from independent research to thematic research via consortia.

In addition to the funding distribution exercise, respondents were asked to fill in several survey questions, the aim being to gauge the perceived fairness of the current system and whether respondents were inclined to change their grant-writing strategy and direction of their research to increase the likelihood of obtaining funding. Finally, the PVE included several open-ended questions related to changes the respondents wished to see in the funding landscape.

We asked all Dutch university executive boards and local young academies to distribute the PVE within their institutions and encourage academics to participate. The Delft University of Technology ethics committee approved the PVE, and only fully anonymised data were collected.

Data and documentation, including the model used to determine the cost-benefit and consequences of each option, are available on [osf.io](https://osf.io).<sup>3</sup>

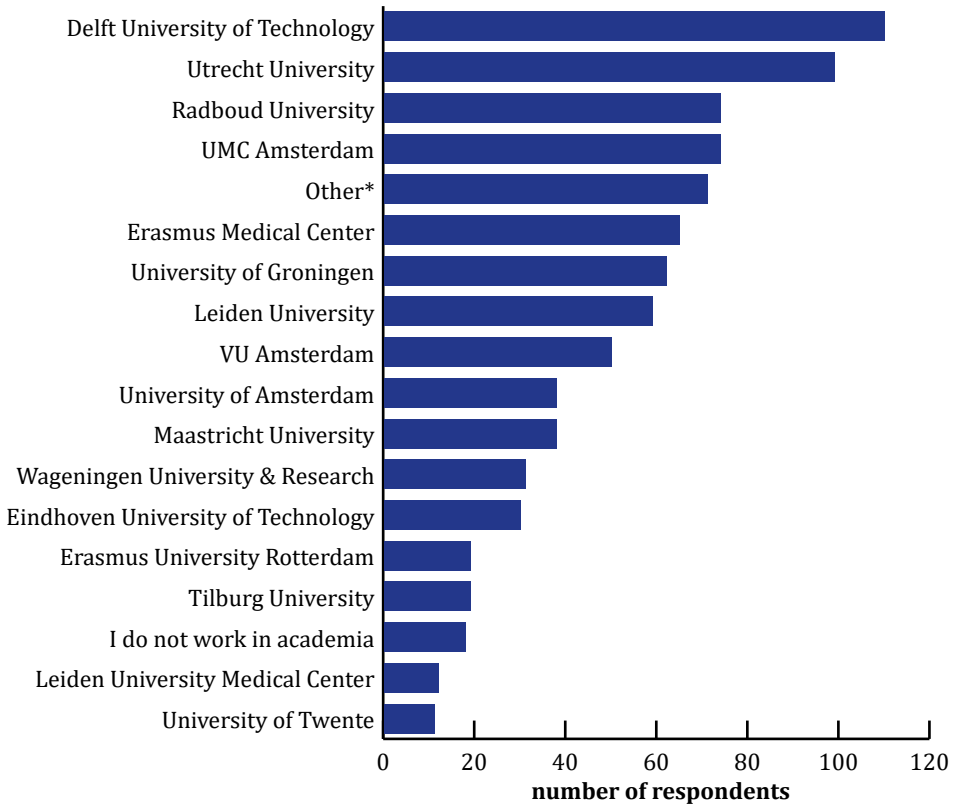
## Sample

The PVE ran in May and June 2022. During that time, 1,173 academics responded and indicated their preferences for distributing research funding. Of that group, 862 completed the entire consultation survey, including most of the open-ended questions.

While academics at all Dutch universities participated, the response rates differed sharply between these institutions. Delft University of Technology, Utrecht University, and Radboud University had the largest numbers of respondents (Figure 1). In terms of academic disciplines, the majority of respondents had a background in the natural sciences or medicine, but a substantial response was also recorded from those with a background in the humanities and social sciences (Figure 2).

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<sup>3</sup> <https://doi.org/10.17605/OSF.IO/UCQ8E>.



\* Other institutions where scientific research is carried out, such as NWO or Academy institutes.

Figure 1 – Distribution of respondents by universities and medical centres

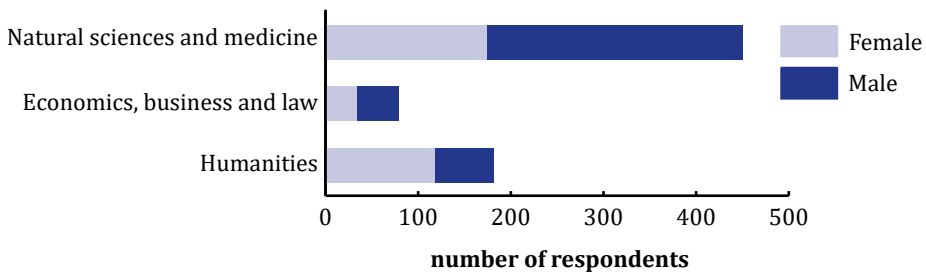
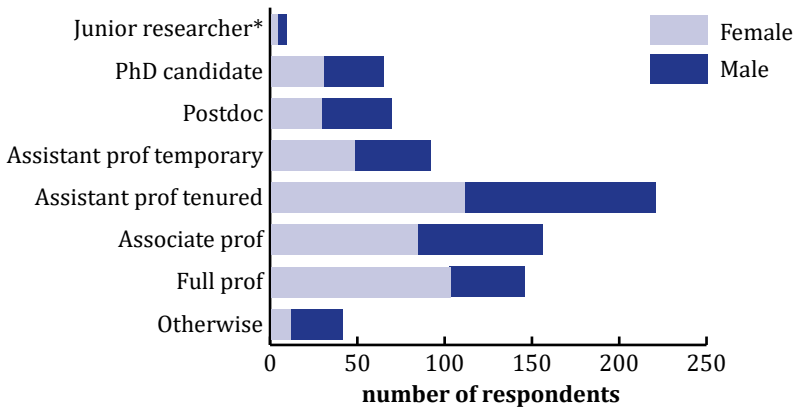


Figure 2 – Distribution of respondents by academic discipline

Respondents were fairly evenly distributed over different career stages, ranging from junior to senior academics (Figure 3). They were also well balanced in terms of gender (with 50% being male, 45% female, <1% non-binary and 5% not indicating their gender) and age (with 8% under 30, 44% between 31 and 40, 31% between 41 and 50, 13% between 51 and 60, and 4% older than 60).



\* Including students and research assistants

*Figure 3 – Distribution of respondents by career stage*

Respondents were also asked whether they themselves had applied for research funding, whether or not their applications had been successful, and whether or not they had sat on Dutch Research Council (NWO) review committees or similar.

About 90% of respondents have submitted research grant proposals. Approximately 50% have applied for a personal grant in the Netherlands, and about 33% for a personal grant in Europe or elsewhere abroad. Some 30% have applied as a lead applicant for a team or consortium. About 20% have applied to their faculty or university or a foundation for research funding, and about 15% to a company or government body. About 10% have not applied for any research grants.<sup>4</sup> Overall, there was considerable variation in respondents’ experience in applying for different types of research funding.

When asked whether their grant proposals had been successful, about 80% of our respondents indicate they were (10% were unsuccessful, and the other 10% have never applied). The variation in success rates is marked, however: 10% of respondents cited a success rate of 10%; 18% a success rate of 10 to 20%; 22% a success rate of 20 to 30%; and 29% a rate of more than 30%. Of the 669 participants who provided information on their grant review experience, 437 had such experience, 232 did not.

<sup>4</sup> Of the respondents who have not applied for grants, almost two thirds indicate this is because they consider it too early in their career to do so. Other common responses (a quarter of those who had not applied for grants) were: not having enough time to apply or being afraid applying would be a waste of time.

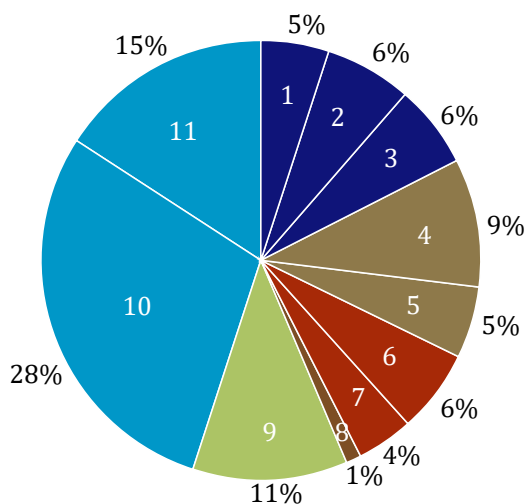
# 3. RESULTS: FUNDING PREFERENCES IN DETAIL

## General overview of correlations observed

Figure 4 below shows the percentage of the research budget that respondents allocated to the different funding instruments. Interestingly, support for rolling grants<sup>5</sup> is very strong: respondents allocated an average of 28% of the budget to direct funding of independent research for assistant and associate professors, and an average of 15% to direct funding of research for full professors. Another sizeable percentage (11%) was allocated to universities for extra early-career positions with long-term prospects, and a somewhat smaller percentage (9%) to thematic research by a consortium with no in-cash co-funding. Even so, variation across all funding categories was considerable, indicating that respondents differ quite sharply in their preferences for funding instruments or combinations thereof. Our analysis did not suggest that the respondents' choices had been influenced by the size of the budget they had to spend (EUR 400, 500 or 900 million).

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5 Funding allocated directly through the university, without competition, on the basis of a rotating system. This funding goes directly to staff members who are appointed or promoted to a permanent position, and they are free to spend it on research-related matters (e.g., material, equipment, staffing). The term 'rolling grant' is taken from the Academy's advisory report on the topic, part of which was later adopted by the Ministry of Education, Culture and Science as the *Starters- en Stimuleringsbeurzen*. (<https://www.knaw.nl/nieuws/knaw-pleit-voor-doorlopend-eigen-werkkapitaal-rolling-grants-voor-wetenschappers>)



- 1 = Competitive grants for an individual (senior) principal investigator (PI)
- 2 = Competitive grants for teams of two+ or more principal investigators (PI)
- 3 = Competitive individual grants for recently graduated PhD students
- 4 = Thematic research by a consortium without in-cash co-funding
- 5 = Thematic research by a consortium with in-cash co-funding
- 6 = Smaller grants (50k-100k) distributed through the universities
- 7 = Smaller grants (50k-100k) distributed through NWO
- 8 = Major awards for achievements in science, education, or societal impact
- 9 = Money to universities for extra positions with long-term perspective for starting researchers
- 10 = Direct funding of independent research for assistant and associate professors (rolling grant)
- 11 = Direct funding of independent research for full professors (rolling grant)

Dark blue: Competitive grants; Brown: Thematic research; Red: Small grants; Dark brown: Major awards; Green: Long-term perspective for starters; Light blue: rolling grants.

*Figure 4 – Research budget allocation by funding instrument (%)*

When we examine how respondents allocated the budget across the 11 funding instruments, a few patterns emerge. Table 1 shows the correlations between the levels of support for different funding instruments: positive and significant correlations mean that stronger support for one instrument is paired with stronger support for others, while negative and significant correlations indicate that stronger support for one instrument is paired with weaker support for others. If we consider the positive correlations, we see that support for competitive grants tends to be paired with support for major awards (instruments 1, 2, 3, and 8); support for

*Table 1 – Correlation matrix for preferred funding instruments*

	1	2	3	4	5	6	7	8	9	10
2	0,358***	1								
3	0,159***	0,073*	1							
4	0,033	0,165***	-0,014	1						
5	-0,013	0,077*	0,055	0,126***	1					
6	-0,176***	-0,128***	0,079*	-0,117***	-0,015	1				
7	0,089**	0,063	0,119***	0,005	0,045	0,106**	1			
8	0,141***	0,031	0,053	-0,021	0,031	-0,010	0,096**	1		
9	-0,153***	-0,122***	0,056	-0,155***	-0,088**	0,007	-0,032	0,016	1	
10	-0,321***	-0,329***	-0,276***	-0,299***	-0,315***	0,008	-0,238***	-0,128***	-0,075*	1
11	-0,106**	-0,162***	-0,174***	-0,197***	-0,238***	-0,184***	-0,223***	-0,087*	-0,229***	0,236***

Pairwise Pearson’s correlation coefficients. P-values: \*\*\* 0.001, \*\* 0.01, \* 0.05.

- 1 = Competitive grants for an individual (senior) principal investigator (PI)
- 2 = Competitive grants for teams of two+ or more principal investigators (PI)
- 3 = Competitive individual grants for recent PhD recipients
- 4 = Thematic research by a consortium without in-cash co-funding
- 5 = Thematic research by a consortium with in-cash co-funding
- 6 = Smaller grants (50k-100k) distributed through the universities
- 7 = Smaller grants (50k-100k) distributed through NWO
- 8 = Major awards for achievements in science, education, or societal impact
- 9 = Money to universities for extra positions with long-term prospects for early-career researchers
- 10 = Direct funding of independent research for assistant and associate professors (rolling grant)
- 11 = Direct funding of independent research for full professors (rolling grant)

the different types of consortium grants (instruments 4 and 5) tends to be paired; and support for the different types of smaller grants (instruments 6 and 7) is often paired; the same is true of support for the different types of rolling grants (instruments 10 and 11). However, we also see differences between respondents who support teamwork and those who support individual funding (instruments 2 and 4), and between respondents who support grants for junior scholars versus those who support grants for senior scholars (instruments 3 and 7). The negative correlations suggest that respondents who favour smaller grants (instrument 6) and



making money available to universities for extra positions (instrument 9) tend to be less supportive of competitive grants and consortia grants. Respondents who support rolling grants (instruments 10 and 11) tend to be less supportive of the other funding instruments.

It is important to note, however, that the correlation sizes are quite moderate, generally between 0.10 and 0.35, indicating sizeable variation in the combinations of funding preferences selected by respondents. This suggests not only that multiple, varied funding instruments would better match the respondents' diverse preferences but also that it is important to map these preferences regularly across the various groups in academia.

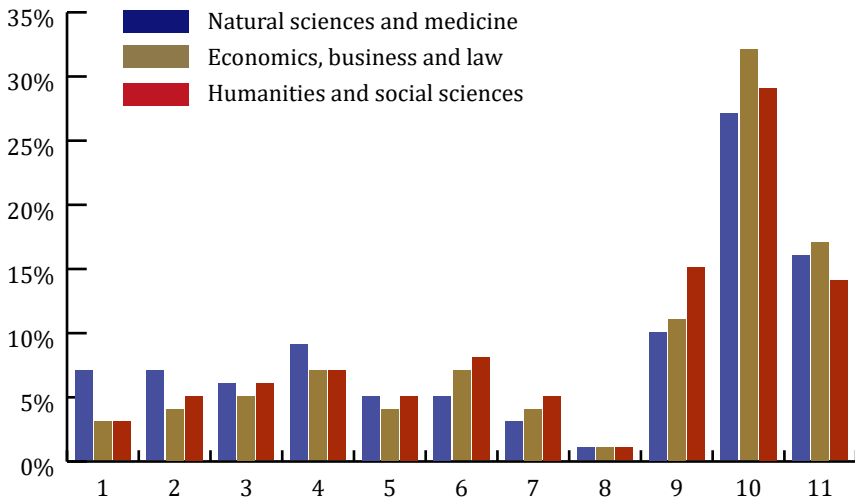
## **Differences in preferences, grouped by discipline, seniority, success rate and review experience**

For this report, we analysed respondents' answers by their academic discipline, seniority level, grant proposal success rate, and whether or not they had been members of grant review committees. See the Appendix for a descriptives table listing these key variables.

Figure 5 shows that the overall patterns identified in Figure 4 still hold: respondents in all three disciplines allocate the largest budget percentages to rolling grants and to direct funding to universities for long-term early-career positions. Respondents in natural sciences and medicine, however, allocate slightly more funding to competitive grants (senior scholar and team) and to consortium grants with no in-cash co-funding. Respondents in humanities and social sciences and in economics, business and law have slightly stronger preferences for rolling grants for more junior scholars and funding for early-career positions, and for smaller grants distributed through the universities.

Turning to seniority level, it is clear that in general – perhaps unsurprisingly – respondents prefer measures that support their own career level. Figure 6 shows that support for rolling grants for full professors is stronger among full professors, while support for rolling grants for assistant and associate professors is stronger among respondents in these positions. Support for more money to universities for long-term early-career positions is stronger among PhDs and postdocs, and support for smaller grants distributed through universities is also stronger among PhDs, postdocs and assistant professors.

There are, however, also some surprising findings. Support for competitive individual grants (instruments 1 and 3) is much stronger among PhDs, postdocs and non-tenured assistant professors, perhaps indicating that they view such grants as a



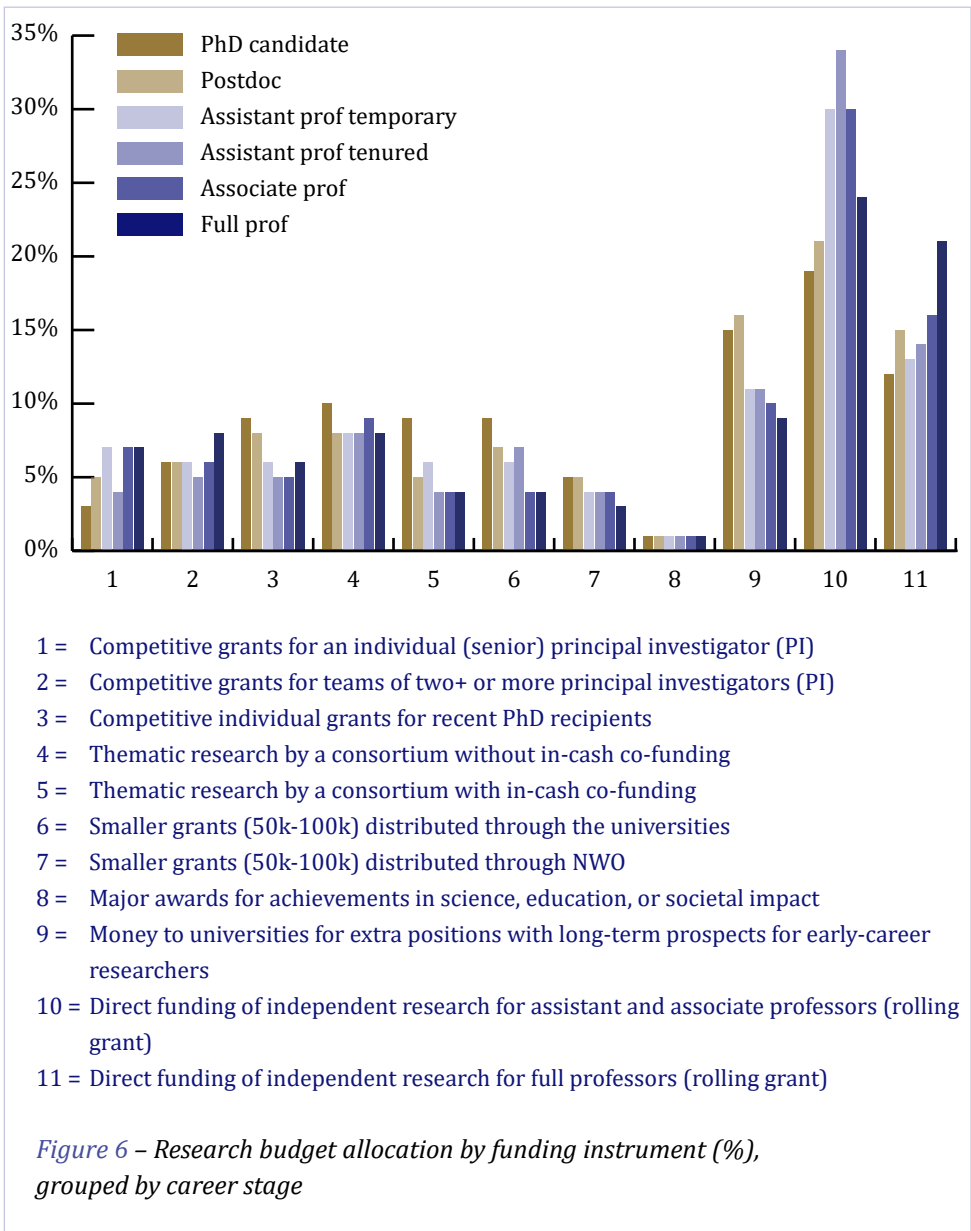
Note on standard deviations: Natural sciences and medicine: largest SDs on 9, 10 and 11, and 4. Economics, business and law: largest SDs on 9, 10 and 11, and 5. Humanities and social sciences: largest SDs again on 9, 10 and 11.

- 1 = Competitive grants for an individual (senior) principal investigator (PI)
- 2 = Competitive grants for teams of two+ or more principal investigators (PI)
- 3 = Competitive individual grants for recent PhD recipients
- 4 = Thematic research by a consortium without in-cash co-funding
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- 11 = Direct funding of independent research for full professors (rolling grant)

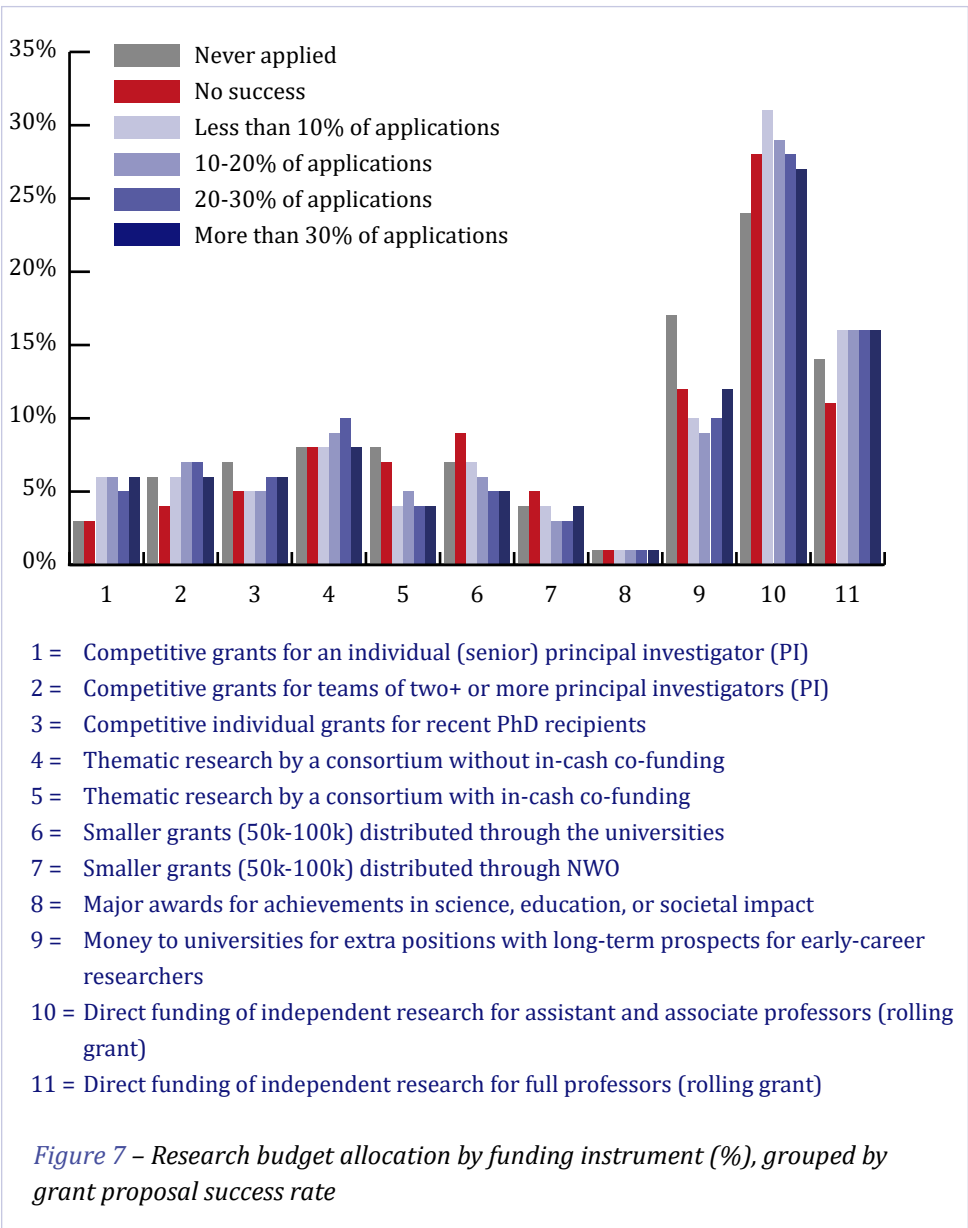
*Figure 5 – Research budget allocation by funding instrument (%), grouped by discipline*

route to a permanent position in academia. Support for such grants among tenured assistant professors is much weaker, confirming this interpretation.

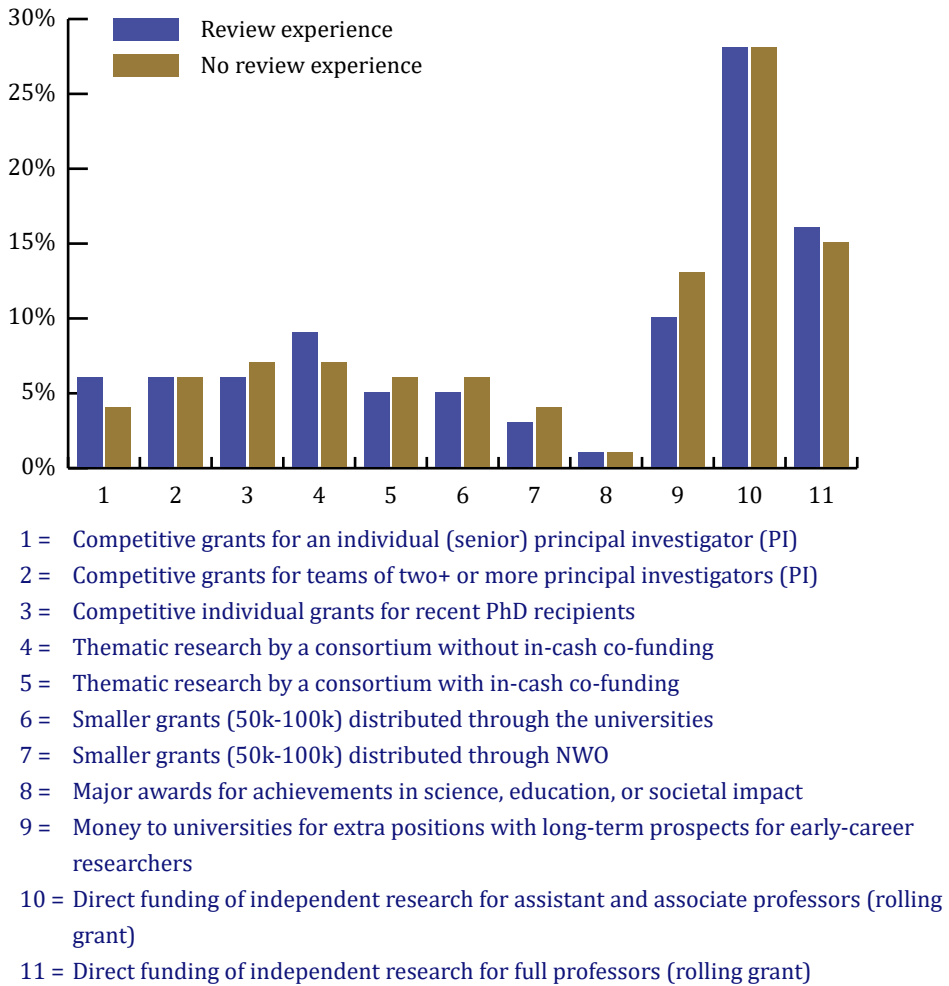
Regarding grant proposal success rates, Figure 7 demonstrates that most respondents still prefer rolling grants and directing money to universities to fund long-term positions for early-career researchers. Support for these instruments is strong regardless of the respondents' grant proposal success rate, especially when it comes to rolling grants for assistant and associate professors. Support for



rolling grants for full professors is weaker among respondents who have not been successful in obtaining research grants. Direct funding to universities for early-career positions has more support among respondents who have never applied for grants. Respondents who have not been successful in obtaining research grants are also more supportive of smaller grants. Respondents with less experience or success in obtaining grants are also less supportive of competitive research grants for senior principal investigators.



Finally, Figure 8 shows funding preferences for respondents with and without review experience. By and large, we see the same overall patterns in funding preferences as reported in previous figures. However, respondents with review experience tend to allocate slightly less of the total budget to smaller grants and direct funding to universities for early-career positions than respondents with no review experience.

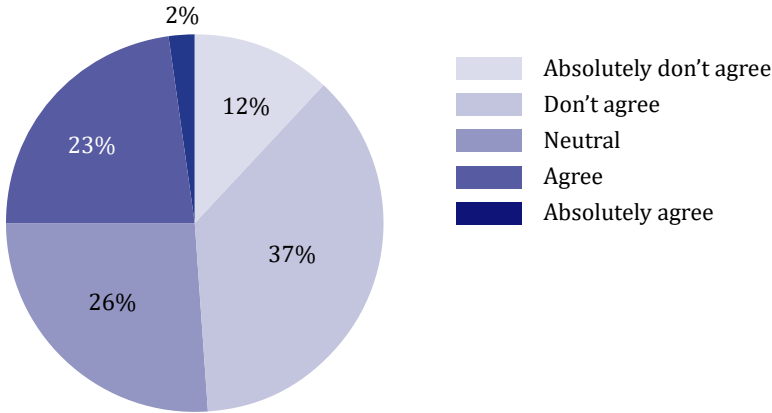


*Figure 8 – Research budget allocation (%) by funding instrument, grouped by review experience*

The PVE makes clear that career stage is an especially important consideration when seeking a well-balanced representation of researchers to provide input on research funding policies. Early career academics (i.e. PhDs, postdocs and assistant professors) make different choices with regard to research funding than established scholars with advanced careers. This difference should be taken into account when assembling committees or policy groups; those made up solely of senior scholars may not fully represent the funding needs and preferences of academics across all career stages.

## Perceived fairness of the funding allocation system

Only 25% of participants regard the grant proposal review process fair, 26% are neutral, and the remaining 49% consider it unfair (Figure 9).



*Figure 9 – Percentage who agree that the grant proposal review process is fair*

Respondents with lower grant proposal success rates are more likely to regard the review process as unfair: only about 15% of respondents whose success rates are below 10%, and 14% who have been unsuccessful, consider the process fair. This percentage is higher for respondents whose grant proposal success rate exceeds 30%, although even here, only 34% consider the process fair (Figure 10). Among respondents with review experience, 31% think the review process is fair, compared to 22% of those without review experience. A separate question elicited a similarly distributed response: almost three quarters of respondents (73%) feel grant proposals are like a lottery. Notably, even in the group with the highest success rate, 62% agree that the grant proposal process resembles a lottery.

Qualitative analysis of the responses to the open-ended questions is necessary to interpret these percentages in all their nuance, as fairness can mean something different to each person (e.g., ‘it’s unfair because there is simply not enough funding to fund every good proposal’ or ‘it’s unfair because the process does not select the best proposals’). Overall, however, our respondents are quite critical of the current funding system. Noteworthy in this context is the large number of academics who, although thriving in the current system, have nevertheless taken the time to participate in our survey (20-30% of proposals successful: 187 participants, >30% proposals successful: 253 participants; review experience: 437 participants).

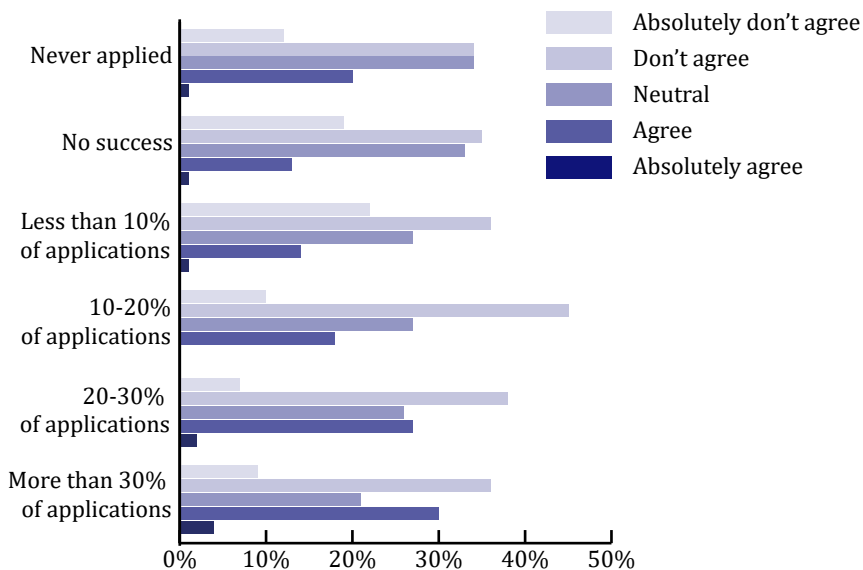


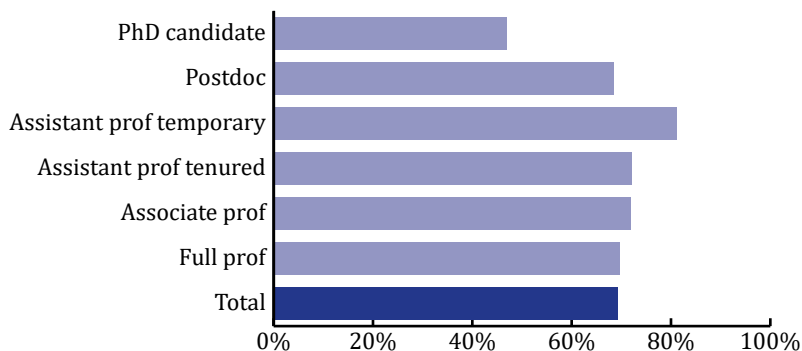
Figure 10 – Percentage who agree that the grant proposal review process is fair, grouped by grant proposal success rate

## Grant dependency and academic freedom

The participants were asked to what extent they agree with the statement ‘I write grant proposals about research that has a higher chance of being awarded. A large majority of respondents (70%) indicate that they do write proposals about topics they estimate have a better chance of being funded, with only 13% saying they do not.

If we consider the responses to this question by academic position, we see that 69% of the full professors in our sample claim to write research proposals about topics they believe have a better chance of being funded. Among early career researchers on temporary contract, as many as 81% indicate that they tailor their proposals to what they perceive is more appealing to funding bodies. This large percentage is worrisome; as the Academy’s report on academic freedom<sup>6</sup> has shown, being dependent on grants may limit the freedom of researchers to choose their research topics. Such dependency could lead to narrow and potentially homogeneous research, undermining diversity and innovation in academic enquiry.

6 <https://www.knaw.nl/publicaties/academische-vrijheid-nederland>



*Figure 11 – Percentage who agree that they write research proposals about topics they believe have a better chance of being funded*

## Demanding change, with suggestions

In addition to their choices on research funding, we also asked respondents a few general, open-ended questions. The first was: ‘If you had a say in it, would you make small, big or no changes to the Dutch Science system?’ A large majority, 78%, of the respondents said they would make major changes; that figure includes those whose grant proposal success rate exceeds 30% (Figure 12). About 20% of respondents would like to see minor changes, leaving hardly anyone who do not wish to see any changes. The changes respondents envisage go beyond funding, as shown below in our preliminary analysis of responses to some of the open-ended questions.

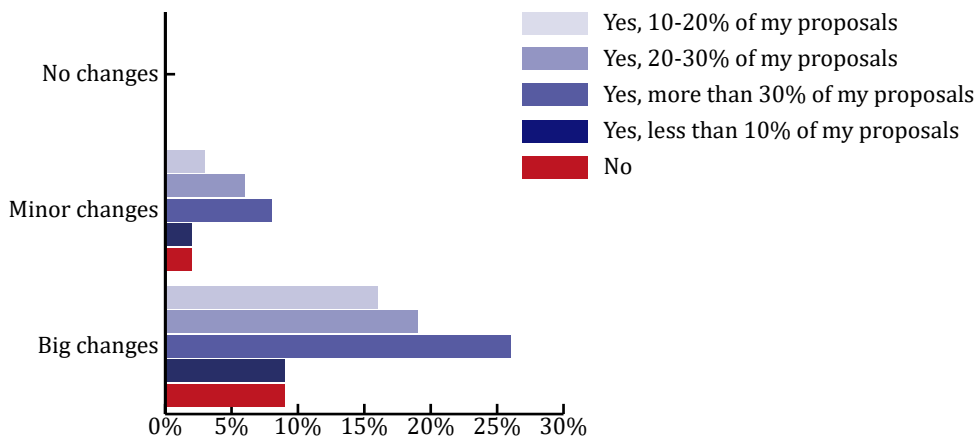
Although we cannot provide a full qualitative analysis of respondents’ answers to open-ended questions<sup>7</sup> in this report, we conducted a preliminary analysis of the changes they proposed. The most frequent suggestions were<sup>8</sup>:

1. **More structural funding** (159 respondents). Statements supporting this change included: ‘There should be a basic science budget for all’, ‘There should be permanent basic funding to cover a minimum research programme’, ‘Make sure there is enough funding to permit all assistant and associate professors to hire 1 PhD for research’, and ‘More budget allocated to stable funding instruments without overheads’.

<sup>7</sup> The responses to open-ended questions cannot be shared publicly out of respect for respondents’ privacy. We are gradually classifying and anonymising these responses so that we can add them to our open data repository. Please contact us if you would like early access to these specific survey results.

<sup>8</sup> We are quoting here from the open-ended responses, which have been lightly edited for spelling, grammar and clarification purposes only.





*Figure 12 – See the need for changes in the Dutch Science system, grouped by grant proposal success rate*

2. **Diversity in recognition** (81 respondents). Examples of statements supporting this change were: ‘Make the human and the mission central, not the metrics’, ‘Focus more on the implementation of Recognition and Rewards’, ‘Don’t judge the research by the number of citations and publications’ and ‘Also focus on quality of teaching and other tasks besides research’.
3. **Equal distribution of funds** (61 respondents). Examples of supporting statements were: ‘Let’s abolish competitive grants and share the money among all the researchers, taking into account the needs of certain disciplinary fields (e.g. a laboratory is more expensive than doctrinal legal research)’, ‘Lottery for grants (perhaps after initial screening)’, ‘Make sure new research groups also get research money, now it often goes to established groups with a track record, just because they have a track record’.
4. **Less hierarchy** (56 respondents) ‘Everybody should have the Professor Dr title as soon as they become an assistant professor, and should be able to deliver an inaugural address and wear a ‘toga’, ‘I would change how the system has the power and decisions being made by a small group of seniors and how younger faculty are treated as inferior’, ‘Make it easier for PhD students to change supervisors’, ‘Less hierarchy, as team science only has a future once everyone can collaborate as an equal’, ‘Fewer special privileges for full professors’.
5. **More permanent positions** (47 respondents) ‘Support for young scientists by offering stability’, ‘End minimum contracts and job insecurity’, ‘Create more permanent research positions like in France (CNRS), Spain (CSIC), Italy (CNR), and the Walloon region of Belgium (FNRS), these are the backbone of research’, ‘Stop the tenure track, give all researchers a permanent position’, ‘More permanent core personnel: it can take years to acquire certain skills and you

shouldn't lose these people'; the latter went hand-in-hand with the following:

6. **Support for young talent** (35 respondents), for example: 'More support for young mothers at an early career stage, as they need more flexibility, stretched deadlines and ability to work in a team', 'More child support options', 'More career opportunities for young researchers by allocating money', 'More job security & job prospects for young researchers by ending casualisation, ensuring a safe working environment and ending structural overtime work', and 'Give young researchers more independence and discourage overly hierarchical structures'.

# 4. LESSONS LEARNED AND TAKE-AWAYS

The aim of this report was twofold: 1) to advocate using methods to collect input for broad consultation processes in policymaking such as the participatory value evaluation (PVE), in particular in academia, and 2) to present the outcomes of a PVE carried out in the Netherlands' academic community that examined the funding preferences of academics.

Below, we first consider the lessons learned from our experiment with the PVE method, and then review the outcomes of our PVE on research funding and what they tell us about the method itself and academics' attitudes towards research funding in the Netherlands and the Dutch Science system in general.

## **1. Lessons learned from experimenting with the PVE method in academia**

In this project, The Young Academy experimented with the PVE method, first of all to determine its practical feasibility and secondly to see whether it would promote a fairer representation of different voices in the academic community in consultation processes. We consider the experiment successful. We succeeded in designing and launching our funding consultation and attracted a large group of respondents, and the outcomes do indeed provide valuable information for policymakers and research funding bodies. Below, we describe some of the lessons learned working with PVE method.

## **Lesson 1: Time management**

The design, execution and analysis of a PVE takes time, so it is advisable to consider upfront whether a PVE is necessary in a large-scale consultation, or whether a smaller committee or focus group would be sufficient. Potential topics for PVEs should be identified and communicated early in the decision-making process. We also set aside time in our PVE to come up with relevant questions that would not be too time-consuming for respondents and that were tailored precisely to the target population. To prevent 'PVE fatigue', this method should primarily be used for broader questions and decision-making.

## **Lesson 2: Representative sample**

Large-scale consultations such as PVEs can reveal hitherto unheard voices. However, even broad consultations cannot guarantee a representative sample. It is important to gather sufficient background information on the participants and offer them the opportunity to explain and motivate their choices. Analysing these data and linking qualitative responses to the choices respondents make provides more nuance and a better understanding of the dilemmas and implications. One way to correct for self-selection bias would be to select a relatively large, stratified random sample of academics and invite them to participate in the consultation. At the same time, the questions could be made openly available so that the results of the representative group can be compared to those of the voluntary respondents.

## **Lesson 3: Design and analysis**

Although respondents' own experiences will influence their choices in a PVE, the PVE's design should prevent them from reflecting solely on or complaining about ongoing processes based on personal experience. The PVE should therefore promote forward-thinking, with the dilemmas and consequences associated with the options being explicitly stated. Unbiased and well-balanced data analysis is also of the utmost importance. To prevent misinterpretation of results, a data analysis plan must be drawn up before analysing (or even collecting) the results, as small changes in data analysis can significantly influence outcomes. Analysis should therefore be performed by experienced data analysts.

## **Lesson 4: Stakeholder involvement**

Our experience shows that to reach a broader pool of academics, the researchers must, before embarking on a PVE, ensure that policymakers/senior management within and outside universities and local young academics are actively involved and agree to promote it, with their views being considered and discussed upfront. Ideally, an organisation that can more easily reach the broader academic community, such as UNL, would run and promote similar PVEs. To motivate academics to participate in a PVE, it is important to share its goal, results and ultimate implications more broadly. It is in part the quality of this communication that determines whether or not participants are happy with the outcome.

## 2. Take-aways from our PVE on research funding

Based on the findings presented in earlier sections, we have formulated five take-aways from our PVE on research funding. The first two concern the usefulness of PVE as a consultation method for the Dutch academic community. The final three address the analysis of the input collected in this particular PVE on research funding.

### **Take-away 1. PVE is a useful tool to identify blind spots in current consultation routes for policy-setting in Dutch academia.**

Permanent, fixed-term, or ad-hoc advisory committees are currently the prevalent consultation route for policy-setting and budget allocation for research funding in the Netherlands. To the best of our knowledge, there is no publicly available protocol for forming these committees, although the general perception is that gender and disciplinary diversity are given careful consideration. We also cannot reconstruct how committee members are informed about the wishes of broader research communities. Our results show that covering a variety of disciplinary backgrounds does not necessarily guarantee a fair representation of preferences and needs. The preferences of established senior academics – who comprise a majority group in advisory committees – are not aligned with those of early-career researchers, for example. One noteworthy outcome of our consultation is that even those academics who have themselves sat on grant proposal review committees question the current research funding distribution system.

### **Take-away 2. Fair representation requires more than disciplinary diversity; broad participation by academics in all career stages is more important.**

It is generally acknowledged that funding needs and habits differ along the disciplinary divides of the humanities, the natural sciences, medicine and the social sciences. When policymakers seek input about research funding, they consequently ask a well-balanced representation of the different disciplines for input. Our PVE shows, however, that discipline is not the only – or even the main – factor dividing opinions on research funding. Other aspects play a role, the most important being career stage. Early-career researchers (PhDs, postdocs, and non-tenured assistant professors) make very different choices for the distribution of research funding than established, tenured scholars. Clearly, too many voices are being left unheard.

### **Take-away 3. There is a strong preference for stable funding instruments, such as rolling grants.**

Across all categories of respondents, regardless of career stage, grant proposal success rate, or review experience, there is a preference for rolling grants over competition. The group that most prefers competitive funding consists of early-career researchers. It is possible that they do because they view it as a route to an academic appointment or tenured position. Another possibility is that they have

had fewer grant proposals rejected and might overestimate their own chances of obtaining research funding (the ‘Pollyanna principle’ or positivity bias).<sup>9</sup>

#### **Take-away 4. Even successful applicants and committee veterans do not consider the grant proposal review process fair.**

Across all categories of respondents, there is clear scepticism regarding the fairness of the grant proposal review process. Nearly half of respondents (49%) think the review process is unfair. Similarly, almost three quarters (73%) feel grant proposals are like a lottery. Change is clearly desired by the great majority of respondents. While this could be attributed to our sample being self-selected, the relatively large number of respondents expressing dissatisfaction with the current system – even among those who thrive in it – sends a clear message.

#### **Take-away 5. Grant dependency is perceived as a threat to academic freedom.**

Besides questioning the way funds are allocated at present, respondents have another overarching concern: the way in which the current system steers research in certain directions. A large majority (70%) furthermore choose research topics that they estimate have a better chance of being funded. This impinges on academic freedom, a pillar of academic integrity.<sup>10</sup>

## **Conclusion**

Regular consultation of a diverse group of academics in the Netherlands on their research funding preferences can deliver important insights and expose ‘blind spots’ in research funding policy. Overall, the variation found in respondents’ funding preferences not only suggests that having multiple, varied funding instruments would better match the varied preferences of respondents, but it also illustrates the importance of regularly mapping these preferences across diverse groups in academia, and of involving diverse groups in developing new research funding policies. The fact that 80% of respondents either agree or strongly agree that ‘these kinds of consultations among academics should be done more often’ further underscores this point.

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9 The PVE was conducted before the *Starters- en stimuleringsbeurzen* came into effect, so we do not know how these grants would have influenced the responses. Another survey would be needed to evaluate this.

10 See the report by The Young Academy: *Space to think. An analysis of structural threats to academic freedom and integrity*.

# 5. WHAT NEXT? DATA SHARING AND FURTHER RESEARCH

This PVE survey was conducted by The Young Academy in collaboration with Populytics. As we had more than 1000 respondents, we believe that our data can serve as a useful and – to some extent – representative resource for investigating the concerns and preferences of academics in the Netherlands. We therefore decided to make the dataset open source after anonymisation and we will continue to share our analysis results and code. Please check the project repository for the latest results and ongoing investigations.<sup>11</sup>

The data suggest several avenues of research worthy of further exploration. For example, a majority of respondents agree that grant-writing takes too much time (67%), but to determine whether time was a factor in their preferring certain funding instruments will require us to analyse the qualitative answers. Are we blind to the overheads and hidden costs of different funding instruments, or do we consider them acceptable sacrifices?

We are aware that our PVE has certain limitations. One is the uneven (self-selected) sampling of the target population and self-reporting bias. Self-selection raises the possibility that respondents took the survey because they were already dissatisfied with current funding practices. Ideally, an enquiry of this kind should mitigate this shortcoming by drawing a random sample from the population of academics.

Second, although academics are affected by policymaking decisions, not all of them will understand the consequences of distributing funding in a different manner or consider every important variable when taking decisions involving high levels

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11 <https://github.com/DeJongeAkademie/FundingConsultation2022>

of complexity, especially those at the start of their career. Indeed, even those who sit on committees and have more experience may also have 'blind spots'. While we acknowledge this as a limitation, the PVE overcame this in part by forcing the respondents to face the consequences of their choices (e.g., more structural funding means less funding for competitive grants).

Third, while our sample is quite evenly balanced in terms of age, gender, and career stage, it is less balanced when it comes to the distribution of respondents over universities and disciplines. Our sample is also tilted towards academics who have been successful in applying for research funding. Future consultations should therefore aim to increase participation across all universities and disciplines less well represented in our consultation, and to include more respondents who have *not* been successful in applying for research funding.

Finally, we would have liked to compare the preferences expressed by our respondents in our PVE consultation to the outcomes of the current system of research funding distribution. Unfortunately, we were unable to find or access granular data, for example the distribution of funds between collaborative vs competitive schemes, or between programmes for academics in different career stages. To our knowledge, there is no overview giving a breakdown of the professional profiles of advisory committee members, or explaining the rationale for choosing specific committee membership compositions. This in itself suggests that transparency in the distribution of research funding, whether through the universities or through NWO, can be improved.

We have shown that participatory value evaluation is feasible and that it reveals gaps in the current representation of academics who weigh in on funding policy. We encourage policymakers in the Netherlands to scale up their evidence base by adopting research methods such as the PVE and by collecting new evidence regularly and broadly-

We further recommend that NWO or UNL organise similar surveys on a regular basis. It would be helpful for the universities to endorse these surveys, which enables a more representative sample and therefore produces a more accurate reflection of academics' preferences.



# APPENDIX

## 1. Methods: weights and limits for the choice model

In the main part of the PVE on research funding, we asked the respondents to articulate their research funding preferences by distributing the research budget among a series of funding instruments. For example, we asked them: Do you prefer distributing funds through proposal review and competition, or directly funding PIs that pass a certain threshold of qualifications? How many new staff positions should be created each year? What is the right balance between funding thematic research, performed by consortia, and single-PI projects with curiosity-driven research plans?

This is a simplified model that uses a minimum number of quantifiable options to capture the basic values behind funding allocation. The unit costs, number of PIs, and success rates are based on realistic estimates. Uncertainty regarding the precise values is handled by presenting respondents with a bandwidth of values. These numbers, however, do not follow a system-dynamic self-consistent model that considers the impact of choices when changing the inputs. Our goal is to gain an overview of the values of the respondents and their communities, not to produce a live dashboard for grant allocation.

### Simplifications

- **Unit cost:** each type of grant has a different unit cost (per year). This cost is allocated to the hiring of researchers and pays for small bench fees.
- The model does not include the extra cost of large-scale facilities and investment in equipment beyond the fixed bench fee for created positions.
- **Research position:** Positions are reduced to only two major categories: 1. temporary researchers (PhD or postdoc), 2. new university positions (assistant professor/associate professor).

- Cost of each type of position
  - Type 1: EUR 100,000/year
  - Type 2: EUR 200,000/year
- **Success rate:** For each type of grant, the estimated success rate indicates the number of grant proposals approved for funding divided by the number of proposals submitted in different stages. The assumed fraction is based on a recent average of success rates for grants with similar conditions to each option.

NOTE: In this model we assume that the success rate is not determined by the amount of funding available, but by the constraints imposed on applicants by the funding bodies (career stage, number of attempts, employer preselection). The success rate will therefore not change if or when the amount of funding changes.

- **Total preparation time:** For each option, the total time spent by the community preparing proposals is based on the number of successful grants *divided by* the success rate *multiplied by* the anticipated preparation time for a single proposal under that type of grant.

The table below gives an overview of the characteristics of the different options used in the model. The values of two of the characteristics vary across three levels, resulting in nine versions of the model that are randomly assigned to respondents.

The following characteristics are included in the model:

- RP1: research position type 1 created per million euros of public funding, temporary researchers (PhD or postdoc)
- RP2: research position type 2 created per million euros, new university positions (assistant/associate prof.)
- € trust: euros allocated based on trust (rolling grants)
- € comp: euros allocated based on competition
- SR (3 levels): success rate of proposals submitted
- PT (3 levels): preparation time for each proposal submitted, in weeks
- FTE: total FTE-year spent preparing proposals per million euros (=  $\text{Winners} \cdot (\text{PT}/40) / \text{SR}$ ). We assume that there are 40 productive weeks in 1 year. Because both SR and PT vary across versions, FTE will also vary.
- Winners: total # of people who receive a grant, can differ from the number of positions created because PhD positions are for multiple years.

Choice*	RP 1	RP 2	€ trust	€ comp	SR			PT			FTE	Winners	Max budget to spend
					1	2	3	1	2	3			
1	10	0	0	1	0.10	0.15	0.25	3	4	6	**	2	150 200 350
2	10	0	0	1	0.30	0.35	0.40	2	2	2	**	40	150 200 350
3	0	5	0	1	0.10	0.15	0.25	3	4	6	**	5	150 200 350
4	6	2	0	1	0.15	0.20	0.25	4	4	8	**	14	400 550 900
5	9	3	0	1	0.25	0.30	0.35	4	5	10	**	21	400 550 900
6	10	0	0	1	0.01	0.01	0.01	1	1	1	**	20	50 50 50
7	10	0	0	1	0.40	0.50	0.60	1	1	1	**	20	150 200 350
8	0	5	0	1	0.02	0.05	0.08	3	4	5	**	5	150 200 350
9	10	0	1	0	1.00	1.00	1.00	0	1	1	**	5	400 550 900
10	10	0	1	0	1.00	1.00	1.00	0	1	1	**	10	400 550 900
11	10	0	0	1	0.25	0.30	0.35	3	4	6	**	10	150 200 350

\*Choice:

- 1 = Competitive grants for an individual (senior) principal investigator (PI)
- 2 = Competitive grants for teams of two+ or more principal investigators (PI)
- 3 = Competitive individual grants for recent PhD recipients
- 4 = Thematic research by a consortium without in-cash co-funding
- 5 = Thematic research by a consortium with in-cash co-funding
- 6 = Smaller grants (50k-100k) distributed through the universities
- 7 = Smaller grants (50k-100k) distributed through NWO
- 8 = Major awards for achievements in science, education, or societal impact
- 9 = Money to universities for extra positions with long-term prospects for early-career researchers
- 10 = Direct funding of independent research for assistant and associate professors (rolling grant)
- 11 = Direct funding of independent research for full professors (rolling grant)

\*\* FTE is based on the formula described above the table. FTE has 9 different possible values for each option.

### **Three consultations**

In addition to the variation described above, variation was added in the total budget that can be allocated to different options. Respondents were randomly assigned one of three different consultations, which varied with regard to total budget to spend:

- Consultation 1: € 400 million total budget
- Consultation 2: € 550 million total budget
- Consultation 3: € 900 million total budget

The complete questionnaire in English and Dutch can be found at: <https://github.com/DeJongeAkademie/FundingConsultation2022/tree/master/material>

## 2. Descriptives table of key variables

Variables	N	Mean	Standard deviation	Min	Max
Institution	862	23,0	11,7	1	41
Discipline	716	1,9	0,6	1	3
Career stage	800	6,1	1,7	1	9
Gender	862	1,5	0,6	1	3
Age	862	2,6	1,0	1	6
<i>Have you ever submitted a research proposal as lead applicant?</i>					
No				0	
Yes, a personal grant in The Netherlands	862	0,1	0,3	0	1
Yes, a personal grant, either abroad or a European grant	862	0,5	0,5	0	1
Yes, as a lead applicant of a team or consortium	862	0,3	0,5	0	1
Yes, a proposal to the faculty	862	0,2	0,4	0	1
Yes, a proposal to the university	862	0,2	0,4	0	1
Yes, a proposal to a foundation	862	0,2	0,4	0	1
Yes, a proposal to a private company or government	862	0,1	0,4	0	1
<i>Was (were) your proposal(s) successful?</i>	850	3,4	1,4	1	6
<i>Have you ever been part of a review committee?</i>					
NWO	862	0,3	0,5	0	1
Within my university/faculty	862	0,2	0,4	0	1
European or foreign funding system	862	0,3	0,4	0	1
Award	862	0,2	0,4	0	1
No	862	0,3	0,4	0	1
<i>Spending preferences</i>					
1. Competitive grants for an individual (senior) principal investigator (PI)	862	0,1	0,1	0	0,4
2. Competitive grants for teams of 2 or more principal investigators (PI)	862	0,1	0,1	0	0,4
3. Competitive individual grants for recent PhD recipients	862	0,1	0,1	0	0,4
4. Thematic research by a consortium without in-cash co-funding	862	0,1	0,1	0	0,7
5. Thematic research by a consortium with in-cash co-funding	862	0,0	0,1	0	0,7
6. Smaller grants (50k-100k) distributed through the universities	862	0,1	0,1	0	0,4
7. Smaller grants (50k-100k) distributed through NWO	862	0,0	0,1	0	0,4
8. Major awards for achievements in science, education, or societal impact	862	0,0	0,0	0	0,3
9. Money to universities for extra positions with long-term prospects for early-career researchers	862	0,1	0,1	0	1
10. Direct funding of independent research for assistant and associate professors (rolling grant)	862	0,3	0,2	0	1
11. Direct funding of independent research for full professors (rolling grant)	862	0,2	0,1	0	1
<i>Process fair?</i>					
I think that the review process of research proposals is fair	861	2,7	1,0	1	5
Obtaining grants is mostly a lottery	861	3,9	1,0	1	5
I spend too much time writing grant proposals	861	3,9	1,0	1	5
I write grant proposals about research that has a higher chance of being awarded	861	3,8	1,1	1	5
<i>Changes needed in the current system?</i>	854	1,9	0,6	1	4