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# Experiments in evaluation: lessons from randomisation in research funding

James Wilsdon, Director, RoRI  
[@jameswilsdon](#) [@RoRIInstitute](#)



# RoRI launches to enable more strategic, open, diverse, and inclusive research

## RoRI is a partnership initiative

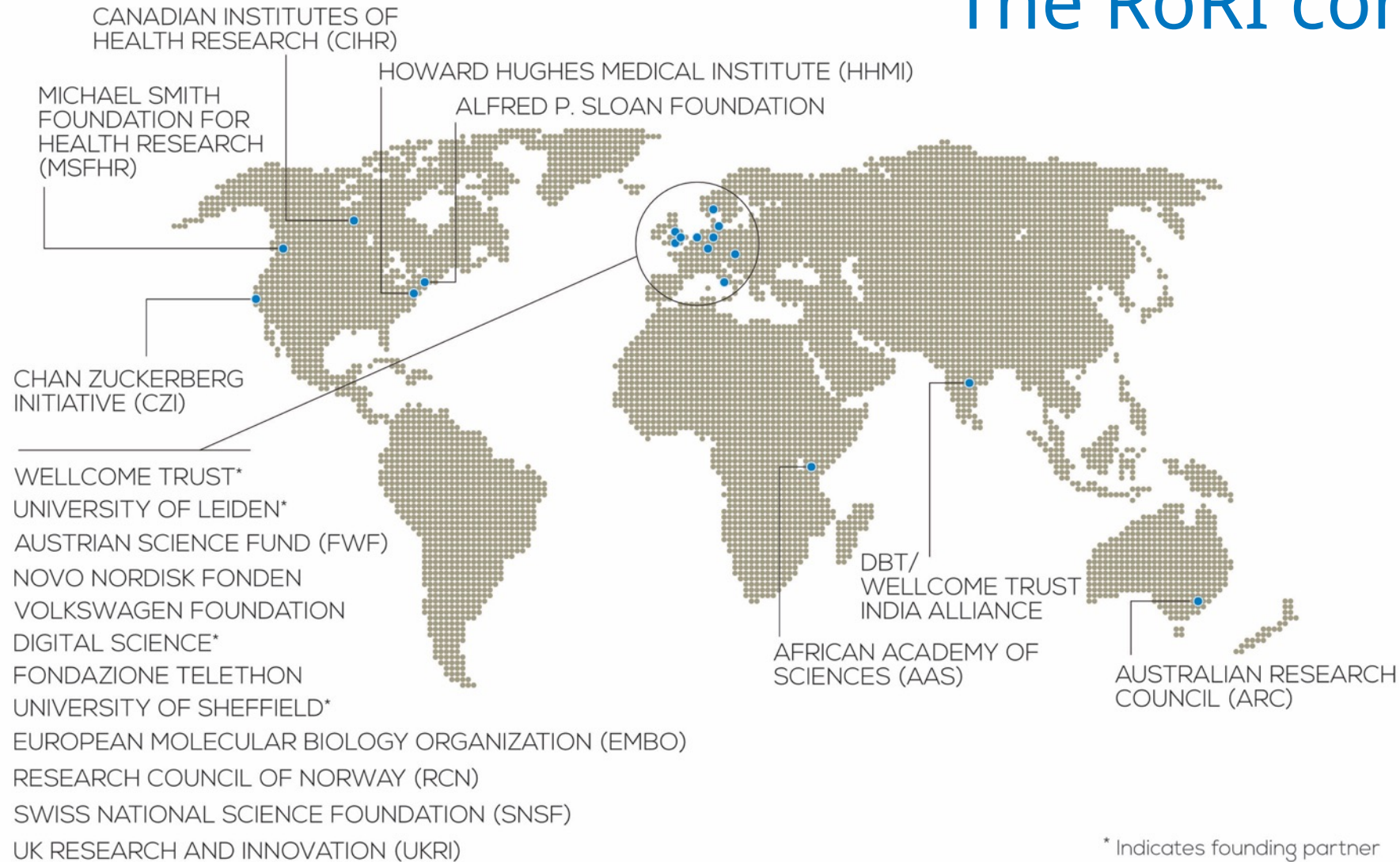
The Wellcome Trust, Digital Science and the Universities of Sheffield and Leiden have joined forces to create RoRI

We're thrilled to announce the launch of the Research on Research Institute (RoRI) – an international consortium of research funders, academic institutions, and technologists working to champion the latest approaches to research on research.

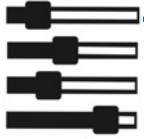
Co-founded by the Wellcome Trust, the universities of Sheffield and Leiden, and Digital Science, the RoRI consortium will undertake transformative and translational research on research (also known as meta-research, science of science or meta-science). By analysing research systems and experimenting with decision and evaluation data, tools



# The RoRI consortium



# RoRI first-wave projects (2020/21)



## CRITERIA

### Summary

Funders need their proposal selection processes to do one thing: select the proposals most likely to meet their objectives. Various inequalities in funding rates may exist, such as gender or field inequalities. The selection process a funder uses may mitigate or exacerbate these inequalities. The project will use data from many funders who each use different selection processes in different contexts. The outputs will help funders understand the potential drivers of inequalities in research funding and identify where mitigation is possible.

**Partners:** Australian Research Council; Canadian Institutes of Health Research; Chan Zuckerberg Initiative; EMBO; Austrian Science Fund (FWF); Michael Smith Foundation for Health Research; Novo Nordisk Fonden; Research Council Norway; W/DBT India Alliance; UKRI; Wellcome Trust



## EXCELLENCE

### Summary

Initiatives like the UK's Research Excellence Framework, Germany's Exzellenzinitiative and Switzerland's Eccellenza grants have put excellence at the centre of research policy and evaluation. This project will assess the ways in which the idea of excellence is currently used by key actors in the research ecosystem and the functions it serves in specific practices and processes in order to explore its possible futures. It will include detailed case studies of 10 funders.

**Partners:** African Academy of Sciences; Australian Research Council; Canadian Institutes of Health Research; Austrian Science Fund (FWF); Michael Smith Foundation for Health Research; National Institute for Health Research (UK); Swiss National Science Foundation; Wellcome Trust.



## FAIRware

### Summary

This project aims to build open source software tool(s) to allow researchers, institutions and funders to assess and improve the 'FAIRness' of the research outputs they produce. Over recent years, the FAIR principles (Findability, Accessibility, Interoperability, Reusability) have gained considerable traction as a basis for describing how research data, and potentially other research outputs, should be documented and shared to ensure that they can be discovered, accessed and used effectively, such that their value is maximised.

**Partners:** Canadian Institutes of Health Research; National Institute for Health Research (UK); Swiss National Science Foundation; Wellcome Trust.

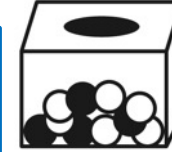


## PATHWAYS

### Summary

The scope of this work is careers in research, broadly defined, with an empirical and policy focus on six countries: Austria, Canada, Denmark, Germany, UK and USA. The project will be designed and delivered by a team drawn from RoRI strategic partners in these countries, and a wider network of data, research and policy partners.

**Partners:** Canadian Institutes of Health Research; Chan Zuckerberg Initiative; Austrian Science Fund (FWF); Howard Hughes Medical Institute; Michael Smith Foundation for Health Research; National Institute of Health Research (UK); Novo Nordisk Fonden; Sloan; UKRI; Volkswagen Foundation; Wellcome.



## RANDOMISATION

### Summary

There is growing interest in the use of randomisation and lottery-type mechanisms in grant funding. By linking and supporting a series of linked and phased experiments with uses of focal, or targeted randomisation in funding processes (our preferred term to the sometimes misleading "lotteries"), and facilitating closer alignment and learning between these, the RoRI consortium could effectively undertake the largest multi-funder, cross-country trial and analysis of these techniques.

**Partners:** Australian Research Council; Canadian Institutes of Health Research; Chan Zuckerberg Initiative; EMBO; Austrian Science Fund (FWF); Michael Smith Foundation for Health Research; National Institute of Health Research (UK); Novo Nordisk Fonden; Sloan; Swiss National Science Foundation; UKRI; Volkswagen Foundation; Wellcome.



# Randomized grant allocation

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- Three phase programme of work (Nov 2020 – Dec 2021)
- Collaboration between 15 strategic partners, RoRI core team, EMBO, SNSF and Nesta's Innovation & Growth Lab.
- Aiming to learn from and build directly upon existing or planned trials by several of our partners.
- From 2022, this strand of work will expand from a focus on partial randomisation into a wider series of funder experiments with novel approaches to grant allocation and decision-making.





## RoRI Working Paper No. 6

# The experimental research funder's handbook

Sandra Bendiscioli, Teo Firpo, Albert Bravo-Biosca,  
Eszter Czibor, Michele Garfinkel, Tom Stafford,  
James Wilsdon and Helen Buckley Woods

December 2021



Produced in partnership with the European Molecular Biology Organisation (EMBO), the Innovation Growth Lab at Nesta and the Swiss National Science Foundation (SNSF).



## RoRI Working Paper No 7

# Why draw lots? Funder motivations for using partial randomisation to allocate research grants

Helen Buckley Woods and James Wilsdon

December 2021

# Who is this work for?

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- **Funding professionals** willing or interested in trialling changes (e.g. strategists, grant & programme managers)
- **Decision makers** overseeing funding processes (e.g. council or board members, senior managers)
- **Broader research communities** participating in funding processes (e.g. peer reviewers, panellists)

## SCIENCE FUNDERS GAMBLE ON GRANT LOTTERIES

A growing number of research agencies are assigning money randomly.

By David Adam

**A**lbert Einstein famously insisted that God does not play dice. But the Health Research Council of New Zealand does. The agency is one of a growing number of funders that award grants

partly through random selection. Earlier this year, for example, David Ackerley, a biologist at Victoria University of Wellington, received NZ\$150,000 (US\$96,000) to develop new ways to eliminate cells – after his number came up in the council's annual lottery. "We didn't think the traditional process was

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# The experimental research funder's handbook

Highlights and insights

**Sandra Bendiscioli**, Senior Programme Officer, EMBO  
and

**Teo Firpo**, Nesta Innovation Growth Lab



# The Experimental Research Funders' Handbook

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## Structure

### **Part 1: The case for experimental research funding** (Teo Firpo)

- Why experiment
- Tools and methods to diagnose, design and evaluate experiments
- Case studies and lessons
- Resources

### **Part 2: Funder experiments with partial randomisation** (Sandra Bendiscioli)

- Background information from literature
- Funder experiments – Four case studies
- Funders' contributions
- Checklist of essential steps
- Resources

# Why experiment?

*“Does it make sense to be scientific about everything in our universe except for the future course of science?”*

*Floyd Bloom, Science (former)  
Editor-in-Chief, 1998*

- Experimentation is a cornerstone of the scientific method – and can be applied to the funding process itself
- An experiment requires learning systematically
- Experiments can help funding organisations:
  - Explore alternatives to current approaches
  - Test the impact of new activities
  - Improve processes

# The Experimental Research Funders' Handbook

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## How to experiment

Three key steps:

1. Diagnose the issue
2. Design a solution(s)
3. Test the solution(s)

## Experiments in practice

Case studies and ideas across the funding process:

1. Attracting the right kind of applicants
2. Selecting the reviewers
3. Assessing proposals
4. Making funding decisions

# The Experimental Research Funders' Handbook

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## Structure

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- Tools and methods to diagnose, design and evaluate experiments
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### Part 2: Funder experiments with partial randomisation (Sandra Bendiscioli)

- Background information from literature
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- Checklist of essential steps
- Resources

# Partial randomisation. What is it?

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- A mechanism ***complementing* peer review** for allocating research funding.
- Also called **focal** or **targeted randomisation**, or a **modified lottery**.
- Only applied to a **subset** of peer reviewed applications
- **It relies on peer reviewers' expertise** to first recommend applications for funding - those that meet the quality and criteria. Randomisation is applied to select among the recommended applications.
- **Variations:** One or more peer review rounds
- **Different tools:** Manual lottery drum, plastic capsules in a bowl, software



# Funder experiments with partial randomisation

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## **What's in Part 2 of the Handbook?**

- Background information from literature: definition, pros and cons, what limits of peer review addressed
- Funders' experiments – Four case studies
- Funders' contribution
- Checklist of essential steps
- Resources

# Funder experiments with partial randomisation



## RoRI partners' and collaborators' experiments with partial randomisation

### Case studies

- The funding scheme
- Motivation to trial randomisation in the scheme
- Decision making process
- Description of the randomisation procedure
- Stakeholders' reactions
- Results of evaluation, when applicable
- Effects
- Lessons learned



*Experiment! In search of bold research ideas*



*Postdoc.Mobility Fellowships*



*1000 Ideas Programme*



*Explorer Grants*

# Funder experiments with partial randomisation



## Observations on funders' evaluations and experience

- ✓ Well accepted by applicants, reviewers, scientific community and media
- ✓ Acceptance is conditional to an initial peer reviewed selection
- ✓ No negative effects
- ✓ PR extended to other schemes
- ✓ More data is needed to draw meaningful conclusions
- ✓ To be able to make comparisons, it is important to evaluate the same aspects or effects



*Experiment! In search of bold research ideas*



*Postdoc.Mobility Fellowships*



*1000 Ideas Programme*



*Explorer Grants*

# Funder experiments with partial randomisation



## Evaluations

Further evaluation is needed, e.g.,

- on the effects on the quality of applications: Does the random component decrease applicants' efforts?
- on the quality of the projects funded: Does the random component decrease the quality?
- on the diversity of the projects funded: Does partial randomisation reduce bias?
- on the administrative burden: Is it reduced?
- on the costs: Are they reduced?
- on the efficiency: Does partial randomisation speed up the selection process?



*Experiment! In search of bold research ideas*



*Postdoc.Mobility Fellowships*



*1000 Ideas Programme*



*Explorer Grants*

# Funders' experiments with partial randomisation



## Lessons learned

- Terminology used is important - Avoid “lottery”
- Clear explanation of the aims and the process
- One experiment can lead to more changes
- Stakeholders are open to experimenting in small schemes

Thanks for your attention.  
For questions or comments:

[hello@researchonresearch.org](mailto:hello@researchonresearch.org) and [policy@embo.org](mailto:policy@embo.org)



*Experiment! In search of bold research ideas*



*Postdoc.Mobility Fellowships*



*1000 Ideas Programme*



*Explorer Grants*



## Why draw lots? Funder motivations for the use of partial randomisation

Dr Helen Buckley Woods, Research Associate, RoRI & University of Sheffield

[h.b.woods@sheffield.ac.uk](mailto:h.b.woods@sheffield.ac.uk)  @HelenBWoods

<http://www.researchonresearch.org/>

*When we introduced...partial randomisation...there was...literally an outcry in this discussion...that we had. Immediately one...[panel member] said.. ‘hey, this is tax money, we are wasting tax money, throwing tax money out of the window’...there was really strong concern against ... randomisation.*

(Leader: Organisation Two: Implementers)

# Significance

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Organisational motivations previously unexplored

Comparative approach

To understand what organisations are trying to achieve to inform future research

For others to consider our findings in their own organisational context

# Methodology

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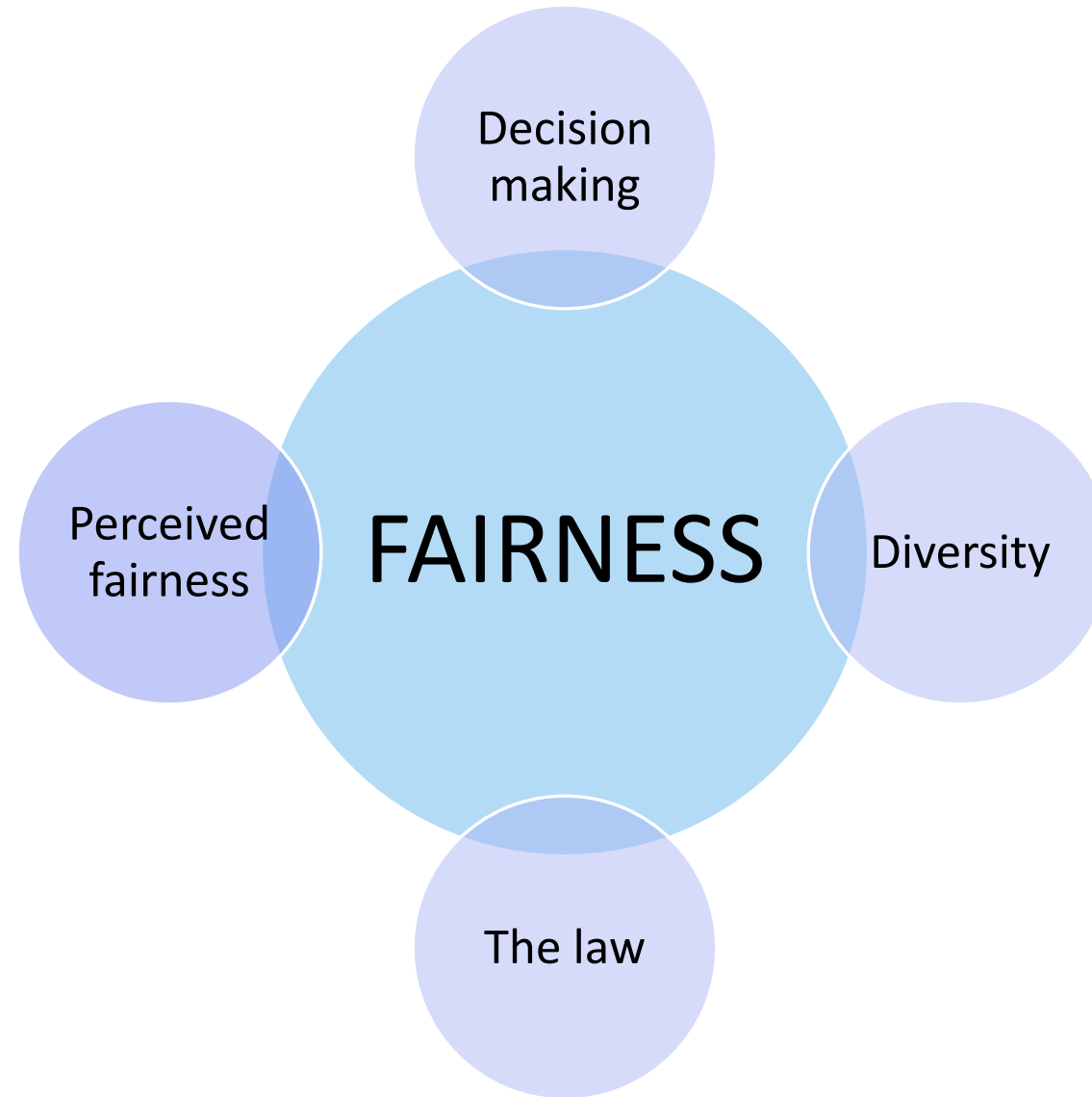
Eleven participants: practitioners and people in leadership positions, individual interviews

Six funding organisations either planning or implementing partial randomisation

Five RoRI partners and one additional organisation

Using qualitative analysis software (NVivo), a thematic analysis was conducted, using categories generated from a free listing exercise as a starting point and building inductively from the data

Conducted in accordance with the University of Sheffield's policy on Good Research and Innovation Practices <https://www.sheffield.ac.uk/rs/ethicsandintegrity/index>





# Fairness

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**Decision making:** end of usefulness, avoid the use of ad-hoc criteria, minimise bias and difficult to defend decisions

**Diversity:** all proposals treated equally no matter who wrote them, their institution or field

*...if you have a small set that remains...then it's based on chance, who will be picked?...So if you have...five applications left, four women and one man, and you can select one at draw one, and it could be the guy.*  
(Practitioner: Organisation Two: Implementers)

# Fairness

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**Perceived fairness:** consist approach, parity for applicants, defensible decisions based on transparent process.

**The law:** a prerequisite for its use, and a driver to change practice:

*We have a lot of heterogeneity which actually our legal service said was potentially a reputational and legal risk, if someone...realises that actually depending on in which panel, he or she is evaluated, the process is quite different and it's not transparent. So increase transparency, develop and deploy best practices are certainly values that the organisation has...[and] were paramount...in our decision to introduce... it. (Leader: Organisation Five: Implementers)*

# Summary: organisational motivations

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Fairness: decision making, diversity, perceived fairness, the law

The Grey Zone: eliminating deadlock and overcoming unhelpful group dynamics

Disciplinary spread: overcoming bias to creative research, overlooked fields and 'cold' topics

Innovation: allied to values, a 'nice to have' by-product, is it really innovative?

Efficiency: money saving or more costly? Time saving: desirable, but gains may be negligible

# Organisational restraints

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## **Reputational risk:**

*Yes...in general, I'm very positive about this...I think it will...work...but what I'm mostly worried about or concerned about is this perception of the thing...we don't want...the newspapers to...say.... the [organisation] is now gambling with the research funding and so on. I think that will be ... the nightmare somehow... (Practitioner: Organisation Three: Planners)*

## **Communicating to applicants:** many unrealised fears

*What wasn't anticipated was actually the positive response from the applicants... how it was perceived... from the applicants ... that was really positive and not expected. (Leader: Organisation Two: Implementers)*

**Panel members:** with use greater acceptance, but not completely accepted by all panel members in any organisation

# Take courage

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*I think one of the values was to be brave... it's a question of braveness. It's a question also that we have as funding organisation... to be more experimental. So it's a learning process on how to fund projects, how we make the best decisions, how we support innovation. (Leader: Organisation Four: Implementers)*



# Randomising in pursuit of equity & impact: experiences from NZ

Experiments in evaluation workshop: 1/2 December 2021

**Lucy Pomeroy**

Head of Research Investments and Contracts

# Overview of presentation

- ❖ Update on the acceptability of randomisation (Explorer Grants)
- ❖ The strengthened policy context in New Zealand (Equity and Māori Health Advancement)
- ❖ Adapting randomisation to enhance impact (Health Delivery Activation Grants)

# Explorer Grants

- ❖ First offered in 2013: NZ\$150k / up to 24 months
- ❖ Target potentially transformative research
- ❖ Threshold assessment (transformative and viable) and randomised funding allocation
- ❖ x88 Explorer Grants awarded (2013-21)

# Survey

Liu et al. *Research Integrity and Peer Review*  
<https://doi.org/10.1186/s41073-019-0089-z>

(2020) 5:3

Research Integrity and  
Peer Review

RESEARCH

Open Access

## The acceptability of using a lottery to allocate research funding: a survey of applicants



Mengyao Liu<sup>1</sup>, Vernon Choy<sup>1</sup>, Philip Clarke<sup>2</sup>, Adrian Barnett<sup>3</sup> , Tony Blakely<sup>4</sup> and Lucy Pomeroy<sup>1\*</sup>

## Do you think the randomisation process is an acceptable method of allocating Explorer Grant funds?

	<i>Applicants</i>						<i>Assessors</i>			
	2013-19		2020		2021		2020		2021	
answer	n	percent	n	percent	n	percent	n	percent	n	percent
Yes	79	63	26	59	22	63	9	82	11	100
No	32	25	7	16	5	14	1	9	0	0
Unsure	15	12	11	25	8	23	1	9	0	0

## Do you think a randomisation process would be an acceptable method for the allocation of funding for other grant types?

	<i>Applicants</i>					
	2013-19		2020		2021	
answer	n	percent	n	percent	n	percent
Yes	50	40	20	45	18	51
No	46	37	15	34	9	26
Unsure	30	24	9	20	8	23

HRC currently allocates 2% of its funding through a randomisation process. What percent of the HRC budget do you think should be allocated using a randomisation process with the remainder awarded using traditional peer review?

	<i>Applicants</i>		<i>Assessors</i>	
	2020	2021	2020	2021
q1	4	2	2	2
Median	10	10	10	4
q3	20	25	20	7.5

# Where to next?

- ❖ Expand the use of randomisation
- ❖ Wider conversation about enhancing the alignment of investment processes to strategy and policy...



# Strengthened policy context

- ❖ The HRC has a critical responsibility to support the government's strategic health equity objectives
- ❖ As a Government agency, our plans to champion equity must centre the rights guaranteed to Māori in Te Tiriti o Waitangi
- ❖ As funders of health research, the HRC has an opportunity to make a significant contribution to health equity

# HRC – prioritising equity in action

## MĀORI HEALTH ADVANCEMENT GUIDELINES

September 2019

**hrc** nz  
Health Research Council  
of New Zealand  
Te Kaunihera Rangahau Hauora o Aotearoa

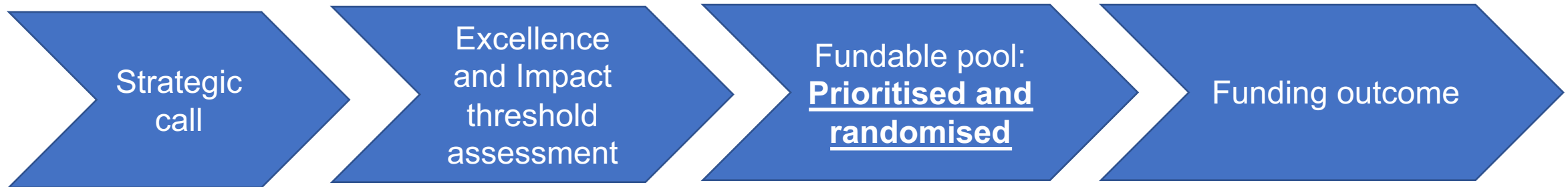


# Randomisation next step: Activation Grants



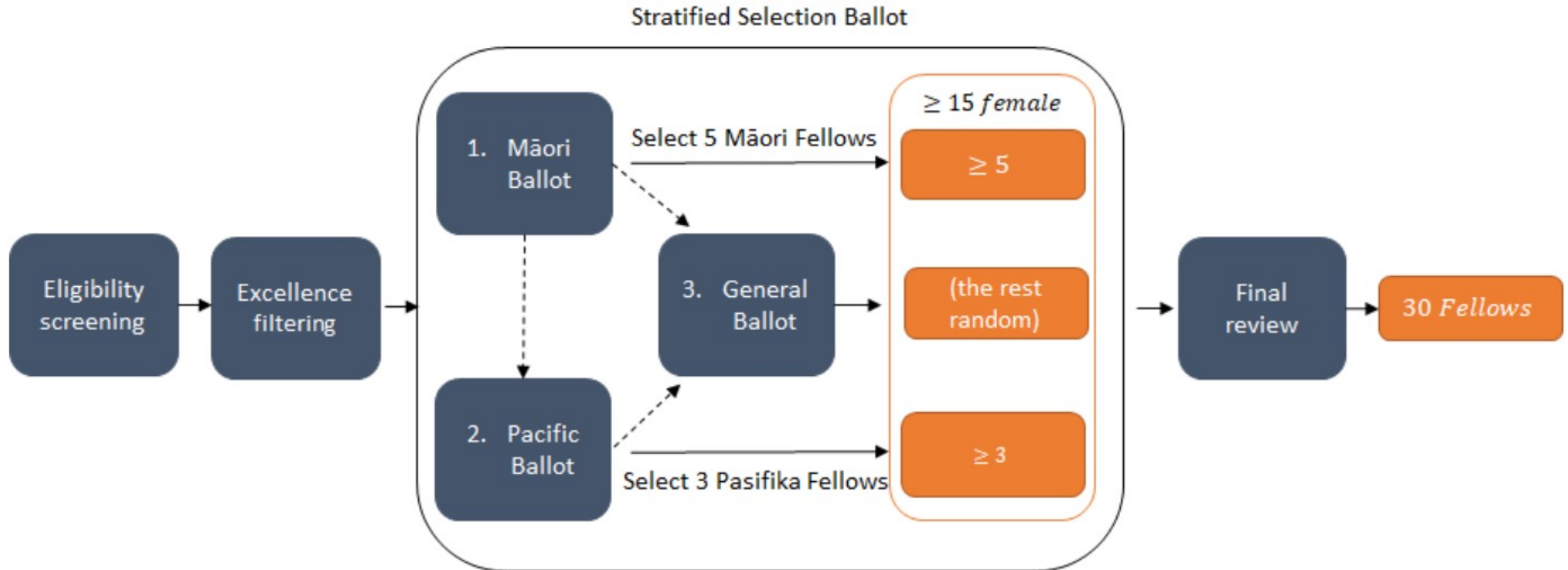
\*Not available in 2021

# Activation Grants: shaping process around equity



- **Centring health equity** in the signal, e.g. advance the health and wellbeing of Māori and Pacific peoples, led by Māori & Pacific researchers
- Majority agreement for Scope, Methods and Outcome criteria
- **Full agreement for Māori Health and Equity criterion or requires additional assessment**
- **All Māori and Pacific grants prioritised for funding**
- General grants with randomised funding allocation up to the available budget
- 2020 Health Delivery Activation Grants:
  - 107 received
  - 66 assessed as fundable (x41 assessed as not fundable)
  - 18/18 fundable Māori and Pacific grants (focus and leadership) approved for funding
  - 48/48 fundable General grants (all with strong potential for MHA) approved for funding

# Another NZ example: MBIE Science Whitinga Fellowships





# Ngā mihi nui ki a koutou!



[What we do](#)

[Grants & Funding](#)

[Māori health](#)

[Pacific health](#)

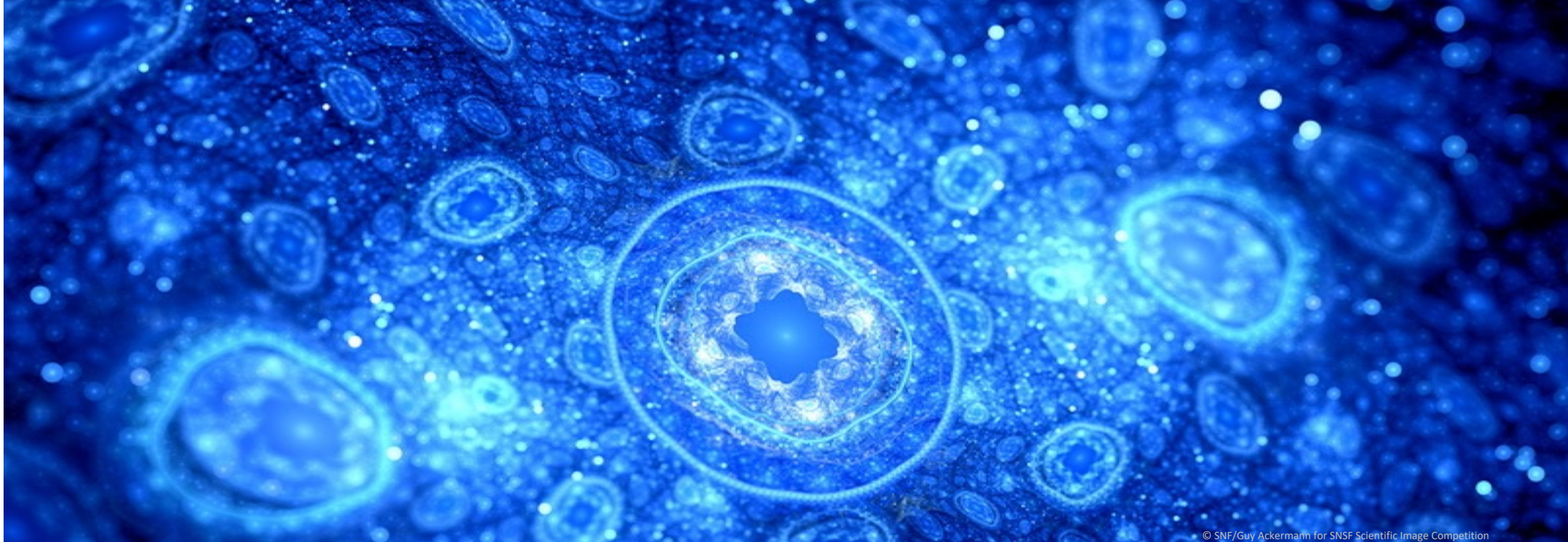
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**Health  
research  
saves lives**





# Rethinking the funding line: random selection at the Swiss National Science Foundation

Marco Bieri and Rachel Heyard

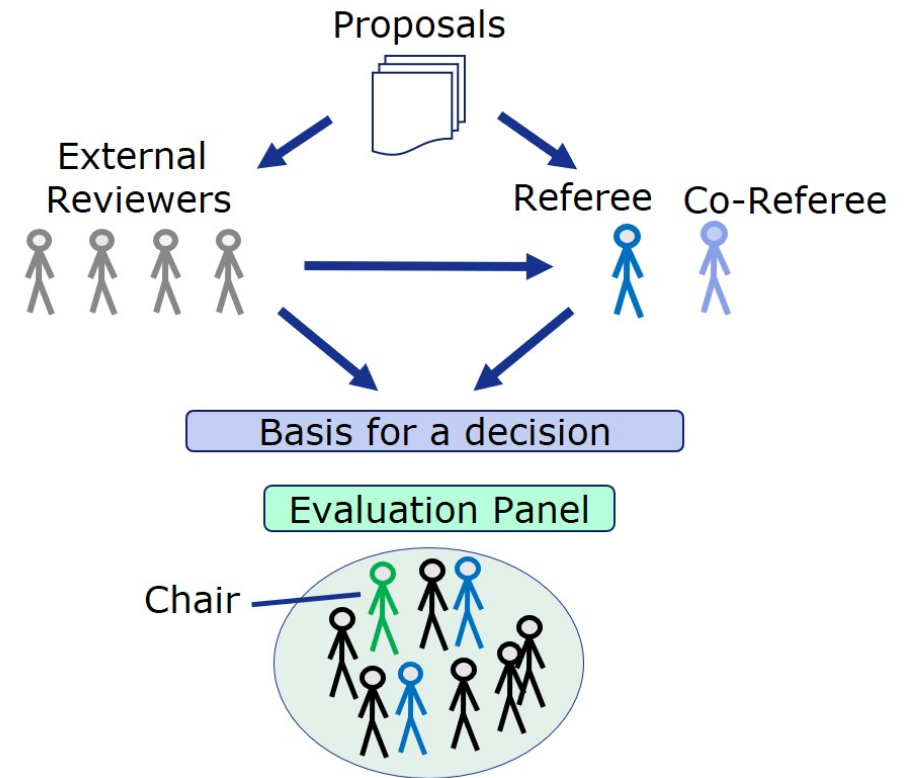
# Randomness in evaluation?

- expert reviews, expert judgment, expert panel

→ randomness? yes

- Elements to consider
  - “Luck of the draw” (referees, reviewers, sequence, ...)
  - Social dynamics

→ All lost? no

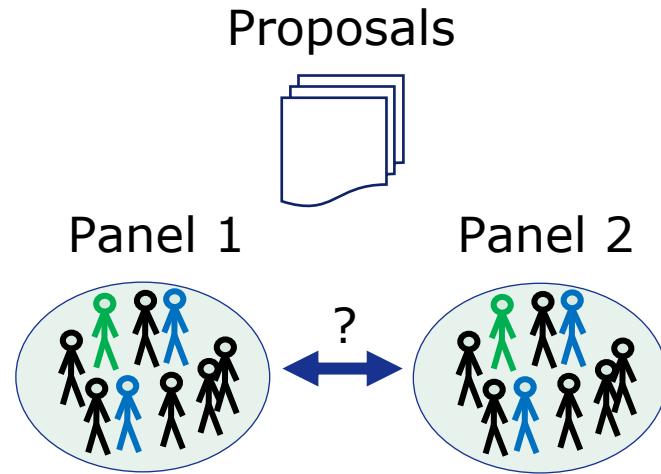


Heyard, R., Hottenrott, H. The value of research funding for knowledge creation and dissemination: A study of SNSF Research Grants. *Humanit Soc Sci Commun* **8**, 217 (2021). <https://doi.org/10.1057/s41599-021-00891-x>

<https://careertrackercohorts.ch/>



# Randomness in evaluation?



PANEL		Panel 2	
		fund	reject
Panel 1	fund	a	b
	reject	c	d

$$\text{Agreement} = (a+d)/(a+b+c+d)$$

Study	Setting	Type	Agreement
Cole, 1981	National Science Foundation	Grant proposals	70-76%
Hodgson, 1997	Canadian funding agencies	Grant proposals	73%
Fogelholm, 2012	Finnish Academy	Grant proposals	69%
Cortes, 2014	Machine learning conference	Abstracts	74%

# The elements of the Postdoc.Mobility pilot 2019

- Fellowship for a stay abroad for postdocs, many applications
- Need for a fair, transparent, efficient, state-of-the art procedure
- **Draw lots to break ties** → prevent arbitrariness and bias
- **Triage**; discuss only proposals in «middle group» → increase efficiency
- **Learn** how a **remote evaluation agrees** with **panel meetings**\*

\*Bieri M, Roser K, Heyard R, Egger, M. Face-to-face panel meetings versus remote evaluation of fellowship applications: simulation study at the Swiss National Science Foundation. BMJ Open 2021;11:e047386. doi:10.1136/ bmjopen-2020-047386

# Random selection procedure during pilot phase

- Evaluation panels visually inspected proposals' scores and decided on the use of random selection
- Lots were drawn manually (no software)
- Applicants (funded and rejected) are transparently informed about random selection → **procedure complies with DORA\***

nature > career news > article

CAREER NEWS | 06 May 2021

## Swiss funder draws lots to make grant decisions

Agency hopes to eliminate bias when choosing between applications of similar quality.

Dalmeet Singh Chawla



\*San Francisco Declaration on Research Assessment (DORA). <https://sfdora.org/>

# Random selection: Learnings from pilot

- Communication is key to prevent misunderstandings
- Random selection was applied on a **small set of applications** (~4%)
- Mixed reception by panel members, acceptance growing
- Few reactions by applicants
- Need of procedure for consistent allocation of proposals to random selection

nature > career news > article

CAREER NEWS | 06 May 2021

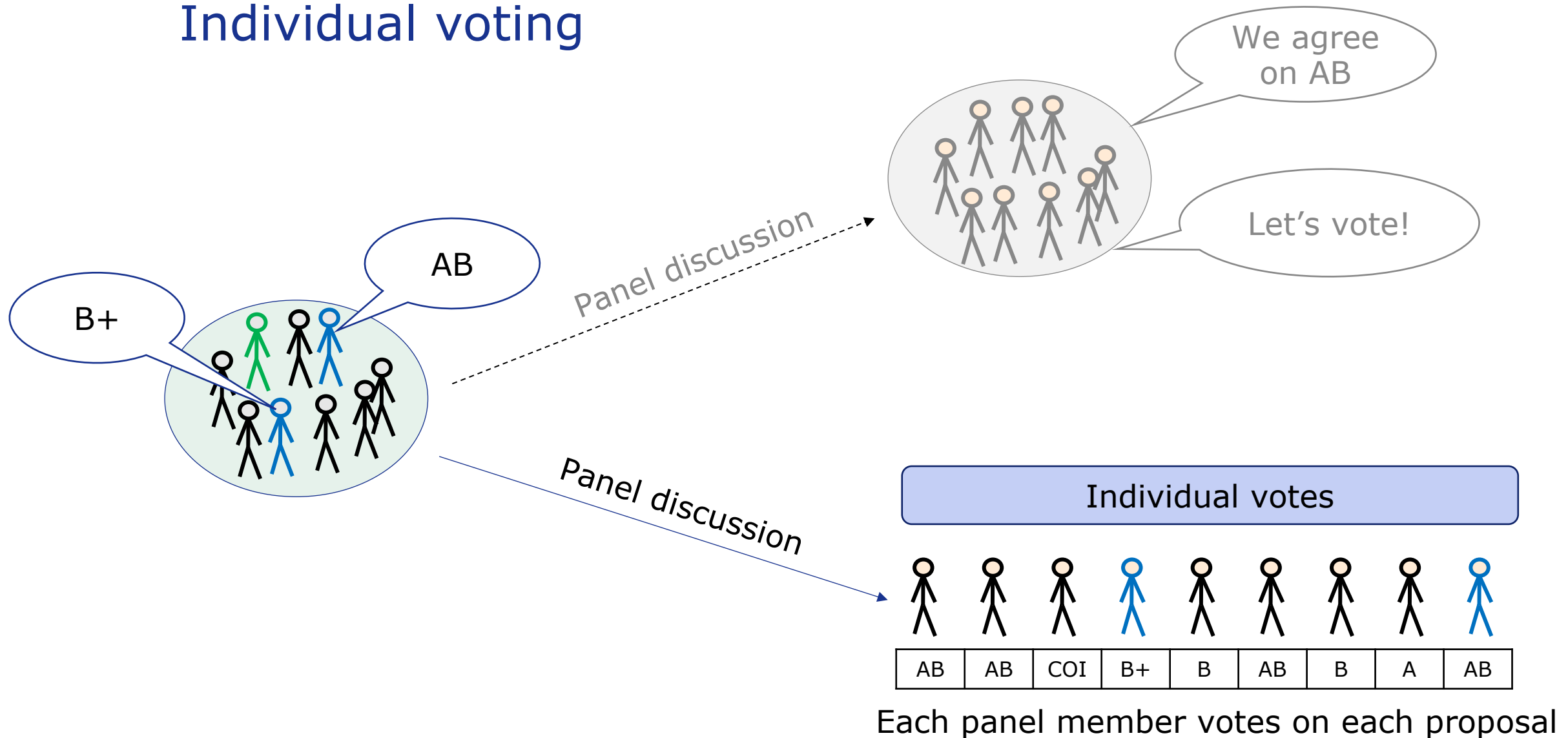
## Swiss funder draws lots to make grant decisions

Agency hopes to eliminate bias when choosing between applications of similar quality.

Dalmeet Singh Chawla









# Individual voting



# How do we summarise the votes into a ranking?

## Scientific Evaluation

						
Proposal A	AB	COI	B+	B	AB	AB
Proposal B	A	B+	A	B+	AB	A
Proposal C	D	COI	COI	B+	C	B
...	...	...	...	...	...	...

?

## Funding Decision

Rank	
1	Proposal B
2	Proposal A
3	Proposal C
...	...

# Acknowledging “chance” in the ranking process

Standard statistical models can do that.

\*averaging = a very simplistic model relying on unrealistic assumption.

We chose a *Bayesian* Hierarchical Model:

- incorporate element of chance of a proposal being graded by panel member X but not by panel member Y.
- incorporate element of chance of panel member X having a conflict of interest with respect to proposal A.
- incorporate social dynamics when proposals are discussed in different panels.

→ Model evaluation process and attempt to predict the quality of the proposals based on the individual votes.

Heyard, R., Ott, M., Salanti, G. Egger, M. Rethinking the Funding Line at the Swiss National Science Foundation: Bayesian Ranking and Lottery. (2021). <https://arxiv.org/abs/2102.09958>

# Acknowledging “chance” in the ranking process

- The ranking should additionally acknowledge the uncertainty in the modelling process.

→ Bayesian Ranking!

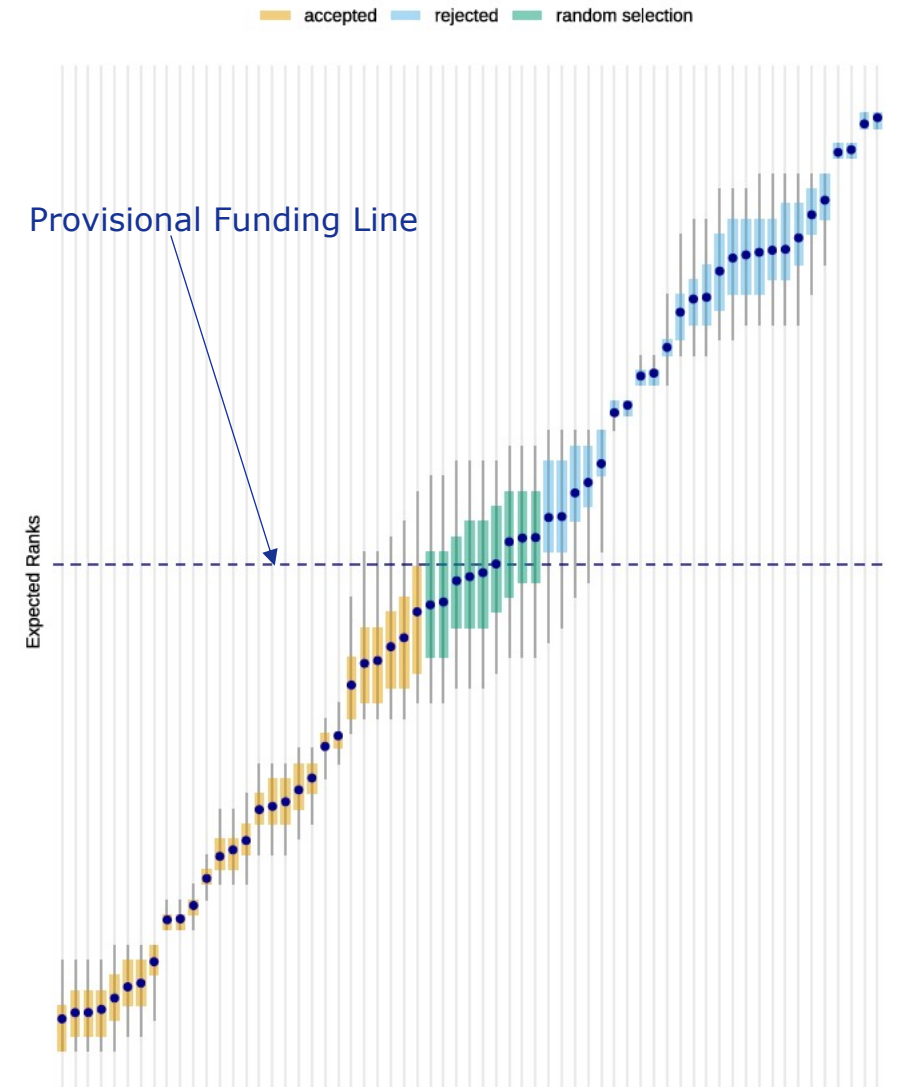
\* close to treatment ranking in network meta-analyses

Heyard, R., Ott, M., Salanti, G. Egger, M. Rethinking the Funding Line at the Swiss National Science Foundation: Bayesian Ranking and Lottery. (2021). <https://arxiv.org/abs/2102.09958>



# Defining a random selection group

- What is a **meaningful difference** in (averaged) estimated quality?
- The funding recommendations are based on *credible intervals*.
  - Acknowledging all uncertainty that can be modelled with the data at hand.

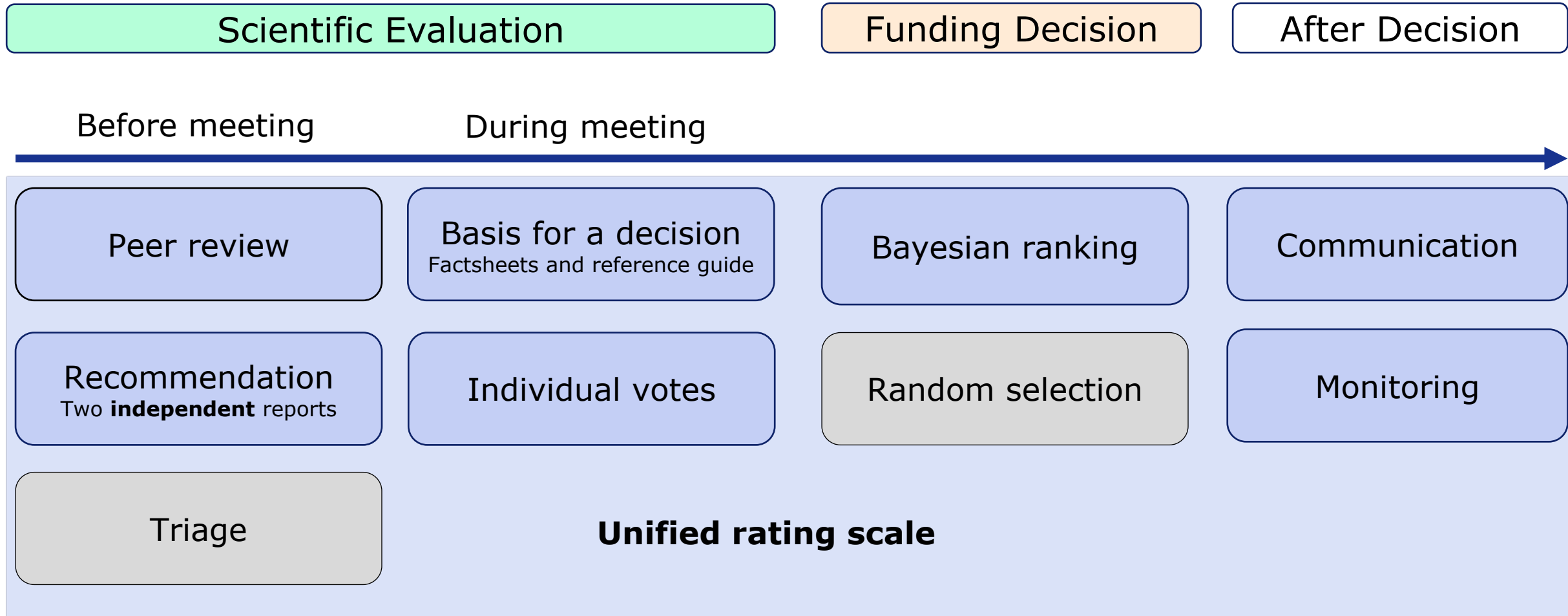


Heyard, R., Ott, M., Salanti, G. Egger, M. Rethinking the Funding Line at the Swiss National Science Foundation: Bayesian Ranking and Lottery. (2021). <https://arxiv.org/abs/2102.09958>

# Summary

- The Bayesian Ranking offers **a** systematic solution to
  - Incorporate uncertainty in the evaluation process.
  - Define a random selection group.
- Methodology transparently implemented in an R-package available from github ([ERforResearch](#)).

# Part of a *Unified Evaluation Procedure* at the SNSF



# VOLKSWAGEN FOUNDATION'S "EXPERIMENT!": RISKY RESEARCH BY LOTTERY

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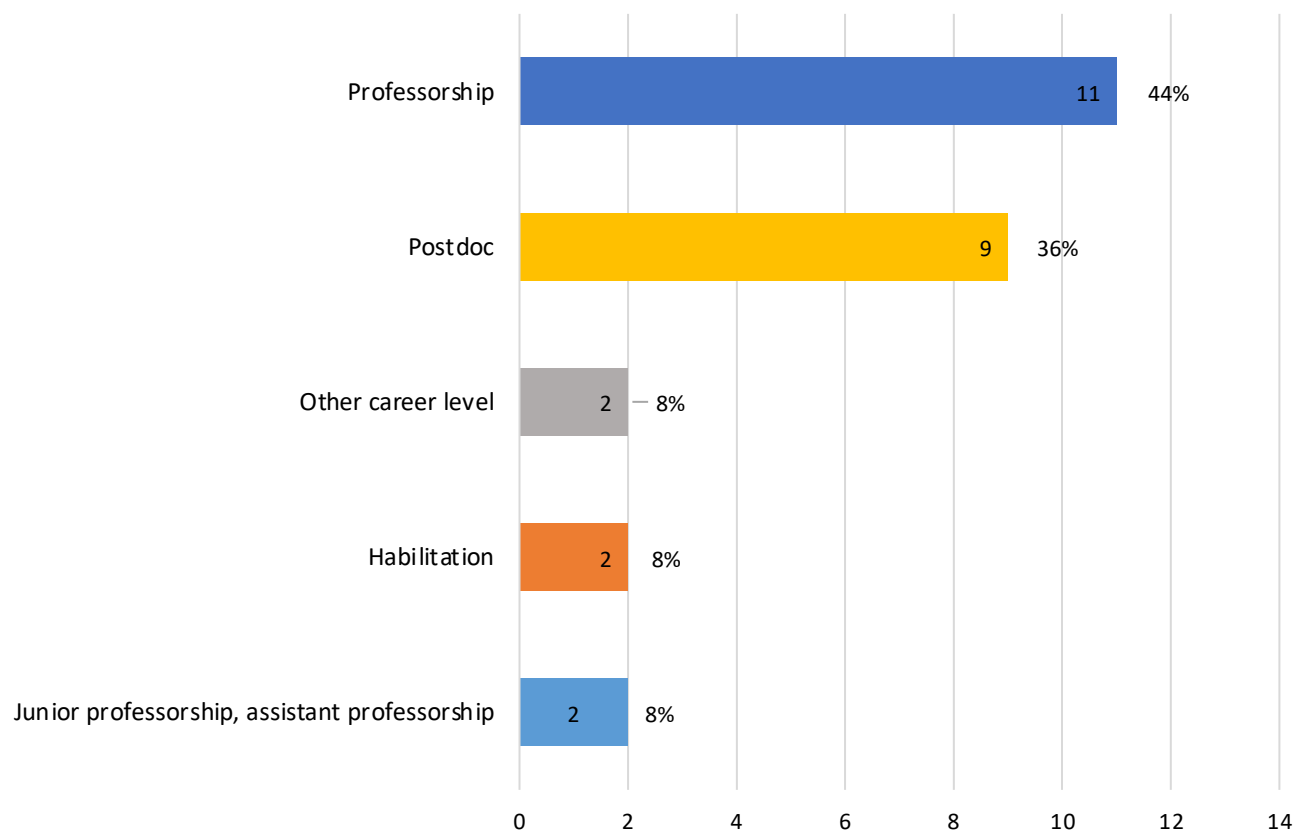
Dr. Dagmar Simon  
**EVA CONSULT**

SNSF, EMBO & RoRI Workshop, 1 & 2 December 2021

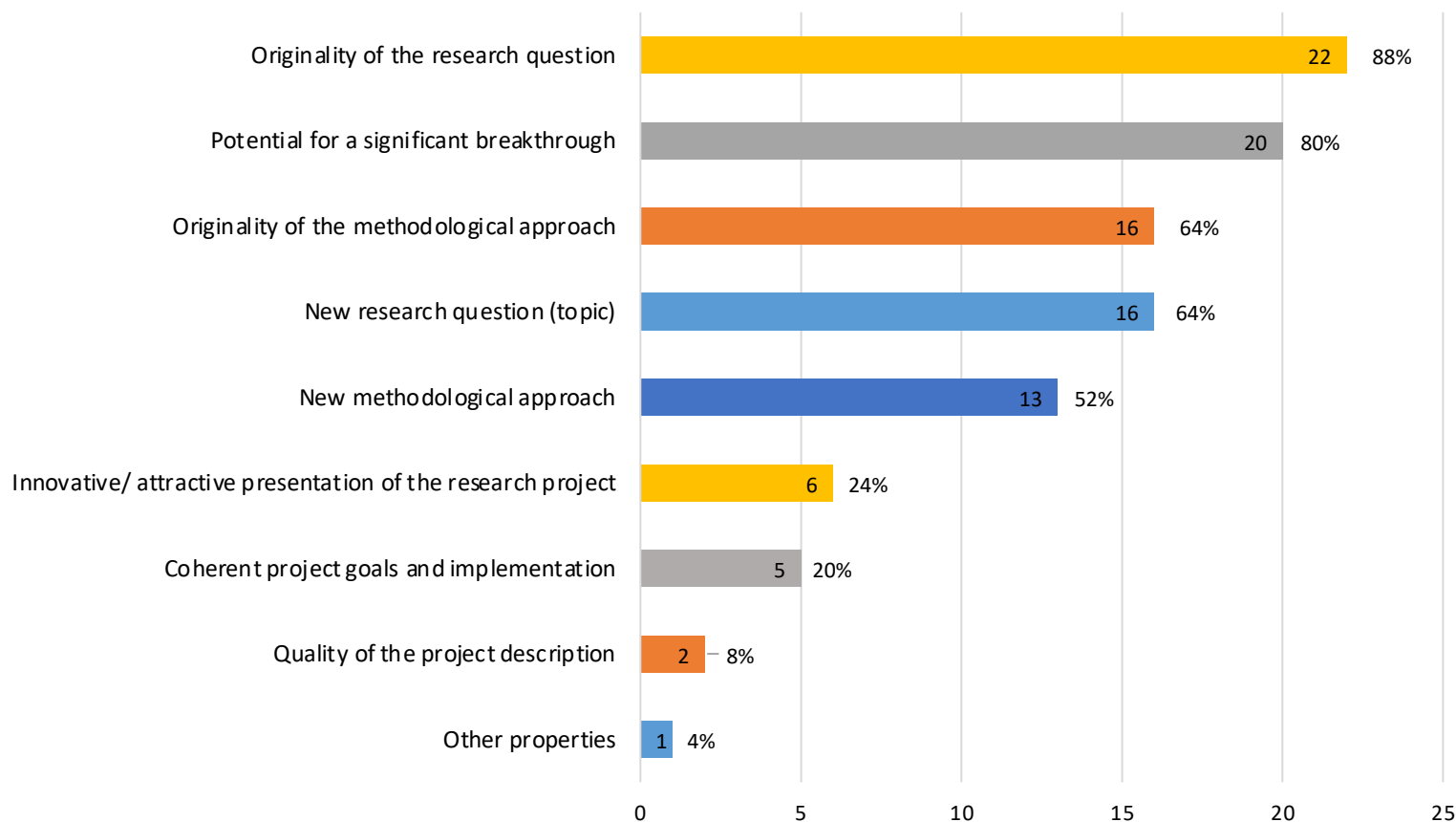
## RESEARCH QUESTIONS

- Importance of the evaluation and selection process (jury, lottery):
  - In which ways do the procedures contribute to the aim of the funding initiative (i.e. to identify ground-breaking research ideas)?
- Effects of the funding initiative:
  - What are the effects on the research project/idea ?
  - What changes have taken place in individual careers during the project?
  - What are the expected effects on the science and innovation system?
- Framework conditions and achievements:
  - To what extent was the selection mechanism recognised in terms of adequacy, fairness and also visible reputation?
  - Has the programme been successful in stimulating and promoting really promising high-risk research projects that would otherwise have a low probability of realization?

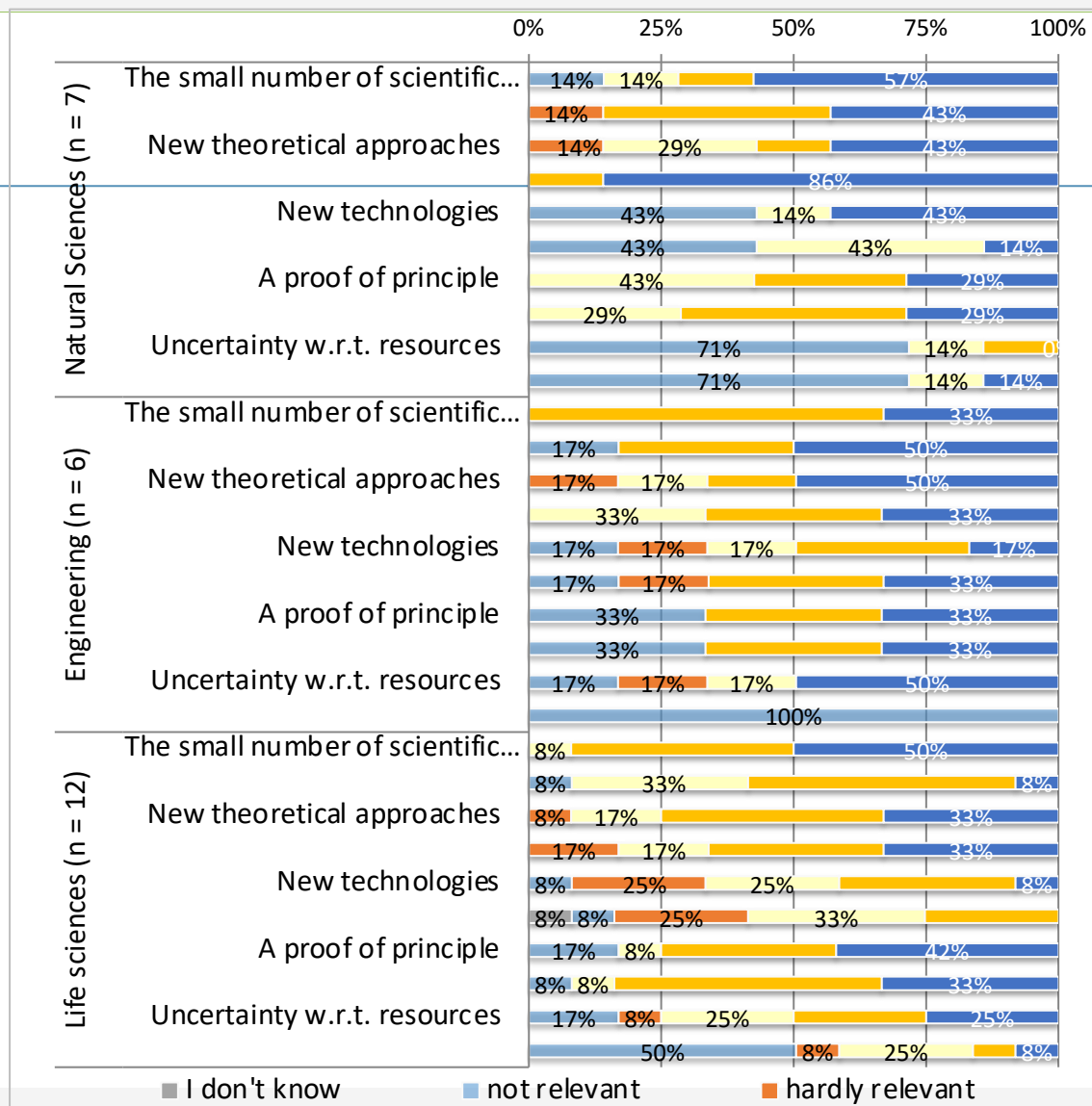
## FIG. 1: CAREER LEVEL AT THE TIME OF THE APPLICATION



## FIG. 2: PROJECT CHARACTERISTICS TO MAKE IT PARTICULARLY ELIGIBLE FOR FUNDING

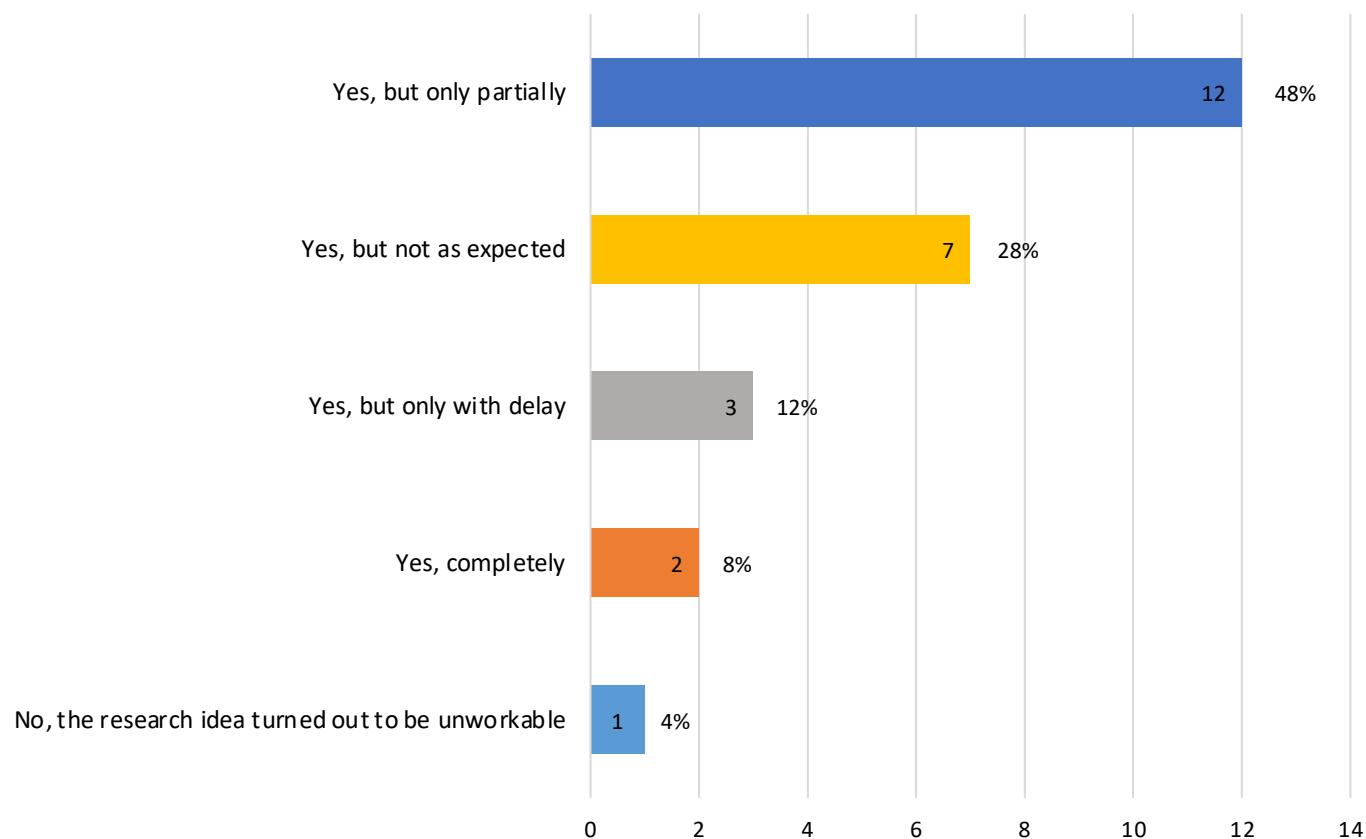


**FIG. 3:**  
Characteristics of  
risky research  
that apply to own  
project





## FIG. 4: REACHING GOALS



## OLD UND NEW KNOWLEDGE PRODUCTION

- The scientific communities as guardians of the body of knowledge, performance and quality standards (Gläser 2012)
- De-differentiation and differentiation of disciplines (Stichweh 2020)
- Interdisciplinarity as a response to the "Grand Challenges" (German Science Council 2015, 2020)

## SELF-IMAGES OF THE FUNDED RESEARCHER

- Interdisciplinarity as an opportunity to develop new, risky research questions
- High affinity with "interface sciences" (e.g. materials sciences)
- Understanding as a "link" between the sciences
- Reference to already existing interdisciplinary communities (e.g. business informatics / neurosciences)
- Career in science ???

## COPING STRATEGIES

- Disaggregation strategy": orientation towards sub-projects, publication of initial (partial) results, also of "negative results".
- "Connection strategy": reference to existing disciplines, research fields and specialist communities (Philipps / Weißenborn 2019)
- "Excursion strategy": New things are tried out, but a return to the discipline is also calculated
- "Openness strategy": science and business

## FIG. 5: CHARACTERISTICS OF LOTTERY SELECTION

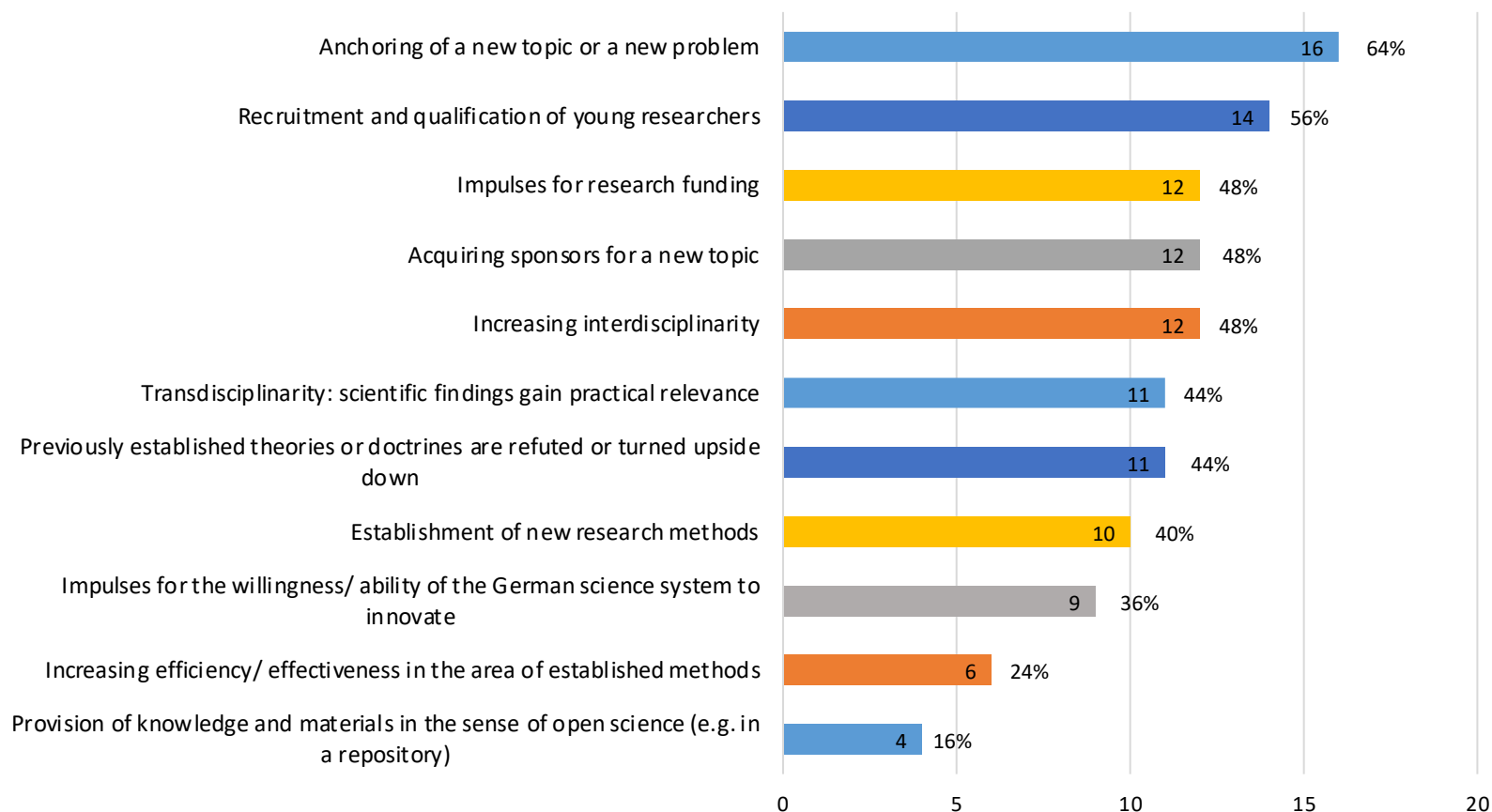
	<i>not true</i>	<i>rather not true</i>	<i>rather true</i>	<i>true</i>	<i>I don't know</i>
<i>Individual equal opportunities</i>	2 (8%)	1 (4%)	6 (24%)	16 (64%)	0 (0%)
<i>Encouraging applications with risky research</i>	2 (8%)	2 (8%)	8 (32%)	13 (52%)	0 (0%)
<i>Better chances for risky research</i>	2 (8%)	2 (8%)	8 (32%)	12 (48%)	1 (4%)
<i>Avoidance of conflicts of interest and unconscious bias</i>	0 (0%)	1 (4%)	6 (24%)	17 (68%)	1 (4%)
<i>Opportunities for more thematic and methodical diversity</i>	0 (0%)	2 (8%)	5 (20%)	17 (68%)	1 (4%)
<i>Opportunities for subjects that are weakly represented in the jury</i>	1 (4%)	0 (0%)	8 (32%)	16 (64%)	0 (0%)
<i>Low cost/ low effort of application (from the applicant's perspective)</i>	4 (16%)	4 (16%)	7 (28%)	5 (20%)	5 (20%)
<i>Low cost/ low effort of application (from the perspective of the funding authority)</i>	2 (8%)	1 (4%)	10 (40%)	6 (24%)	6 (24%)
<i>Lower reputation gain if funding is granted compared to conventional selection procedures</i>	5 (20%)	8 (32%)	8 (32%)	2 (8%)	2 (8%)
<i>Risk of selecting research projects of lower quality</i>	2 (8%)	6 (24%)	7 (28%)	8 (32%)	2 (8%)
<i>Confidentiality of the decision is highly relevant</i>	3 (12%)	5 (20%)	7 (28%)	7 (28%)	3 (12%)

## „BETWEEN THE DISCIPLINES: LOTTERY AS CHANCE?

- Yes, but also the special "jury constellation": small, interdisciplinary, international



## FIG. 6: EFFECTS FOR THE FOR THE SCIENCE AND INNOVATION SYSTEM



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# Back-up



## TAB. 1: CHARACTERISTICS OF PEER REVIEW

	<i>not true</i>	<i>rather not true</i>	<i>rather true</i>	<i>true</i>	<i>I don't know</i>
<i>Enforcement of professional standards</i>	0 (0%)	2 (8%)	12 (48%)	9 (36%)	2 (8%)
<i>Reputation gain of the author/applicant</i>	3 (12%)	4 (16%)	7 (28%)	8 (32%)	3 (12%)
<i>Legitimation of the research idea in front of colleagues</i>	0 (0%)	2 (8%)	16 (64%)	6 (24%)	1 (4%)
<i>Lack of agreement between experts</i>	0 (0%)	8 (32%)	6 (24%)	4 (16%)	7 (28%)
<i>Insufficient expert quality</i>	3 (12%)	11 (44%)	6 (24%)	0 (0%)	5 (20%)
<i>Expert bias (distortion)</i>	1 (4%)	6 (24%)	9 (36%)	6 (24%)	3 (12%)
<i>Tendency towards more conservative selection (risk-averse experts)</i>	0 (0%)	4 (16%)	8 (32%)	10 (40%)	3 (12%)
<i>High costs or high effort of the application</i>	4 (16%)	10 (40%)	3 (12%)	7 (28%)	1 (4%)
<i>High costs or high effort of the selection procedure</i>	2 (8%)	6 (24%)	8 (32%)	6 (24%)	3 (12%)
<i>Overload of the expert system</i>	1 (4%)	3 (12%)	12 (48%)	6 (24%)	3 (12%)

# 1000 Ideas Programme

Elisabeth Nindl, PhD

Evaluation Officer, Department for Strategy, Policy, Analysis  
and Evaluation

RoRI Randomisation Workshop, December 1, 2021

# Agenda

- Why randomization?
- Description of the programme
- Decision making process/funding decisions
- Perception and Feedback

# Motivation for a Randomised Element in the Selection Process

## Insights from the regular FWF decision-making process

- Very good, fundable projects that are not excellent are discussed in an interdisciplinary setting, limited budget
- At a certain point, **differentiation** of the projects on the basis of the scientific quality is very hard and potentially biased
  - Potential **biases**: Personal communication skills, persuasion, disciplinary perspective, time, need for a coffee break etc.
- Randomization comes in at a **very late stage** of the decision-making process, when “arguments” become less convincing

→ ...randomization might be more fair!  
(so let's give it a try)

# 1,000 Ideas Programme

## Objectives

- Promotion of **radically new** and **risky** as well as particularly original research ideas that are **beyond the current scientific understanding**.
  - Potentially: Risking failure
- Seed funding for research ideas not yet supported by existing programmes.
- The exploratory phase is expected to provide initial evidence of the feasibility of the idea and the underlying research hypothesis.

## Requirement

- Research ideas/hypothesis should have a high potential to transform a field of research and/or to fundamentally question established paradigms.

## Funding

- €50,000 to €150,000
- Duration: six to 24 months

# Selection for funding: two stages

## 1. Call (2019/2020)

### Double-blind review process

#### Preparation: Proposal assessment by external reviewers

- Select the fundable projects from all applications
  - From 401 application, 306 went in the evaluation process
  - 122 reached the threshold for the jury

#### Selection Part 1: Jury (ranking incl. wildcard)

- Selection of the (max.) 12 best applications (from 43 projects that were discussed)
- Each member has a wildcard to enforce one selected application against the opinion of the jury.
  - Total number remains max. 12 projects

#### Selection Part 2: FWF Board (random draw from pre-selected pool)

- From the remaining pool, another (max.) 12 applications are drawn randomly.
  - Pool size: 21 projects

# Selection for funding: two stages

## 2. Call (2020/2021)

### Double-blind review process

#### Preparation: Proposal assessment by external reviewers

- Select the fundable projects from all applications
  - From 270 application, 237 went in the evaluation process
  - 76 reached the threshold for the jury

#### Selection Part 1: Jury (ranking incl. wildcard)

- Selection of the (max.) 11 best applications (from 49 projects that were discussed)
- Each member has a wildcard to enforce one selected application against the opinion of the jury but this was not used
  - Total number remains max. 10 projects

#### Selection Part 2: FWF Board (random draw from pre-selected pool)

- From the remaining pool, another (max.) 10 applications are drawn randomly.
  - Pool size: 21 projects

# Procedure at the Board Meeting (virtual due to Covid-19)

## Process Design to ensure trustworthiness

- Randomization Code (Software: R) was presented and discussed
- The FWF board was asked to agree to this selection procedure
  - Plan B with paper sheets was set up, just in case
- Presentation of the 10 projects proposed for funding by the jury: applicants were revealed after funding was approved
- List of projects for the lottery was presented
  - Only project ID and title
- Possibility for a screenshot was given
- List was saved to an excel file (process was visible on screen)
- Randomized selection via R took place
  - Positive list and negative list (again ID and title were presented)
  - Positive list was approved and names of the applicants were revealed
- Applicants are **not** informed whether their project was selected by a jury decision or by the lottery



## Feedback / Opinions

- The most critical notion we have heard from the FWF board:

“I am still against randomization,  
but if we want to do it, then this procedure is really excellent”

- No complaints from applicants, some successful PI asked out of curiosity whether they were drawn in the lottery or directedly awarded by the jury
- Criticism from applicants: missing reviews/statements on the projects so they cannot improve application based on feedback
- Criticism from the FWF board and the jury was rather on the objectives of the programme itself and on the quality of the applications (too conservative, too “safe”)



Der Wissenschaftsfonds.

**NEUES ENTDECKEN**  
**TALENTE FÖRDERN**  
**IDEEN UMSETZEN**

**WIR. FÖRDERN. ZUKUNFT.**