Researchers propose restructuring of grant allocation process

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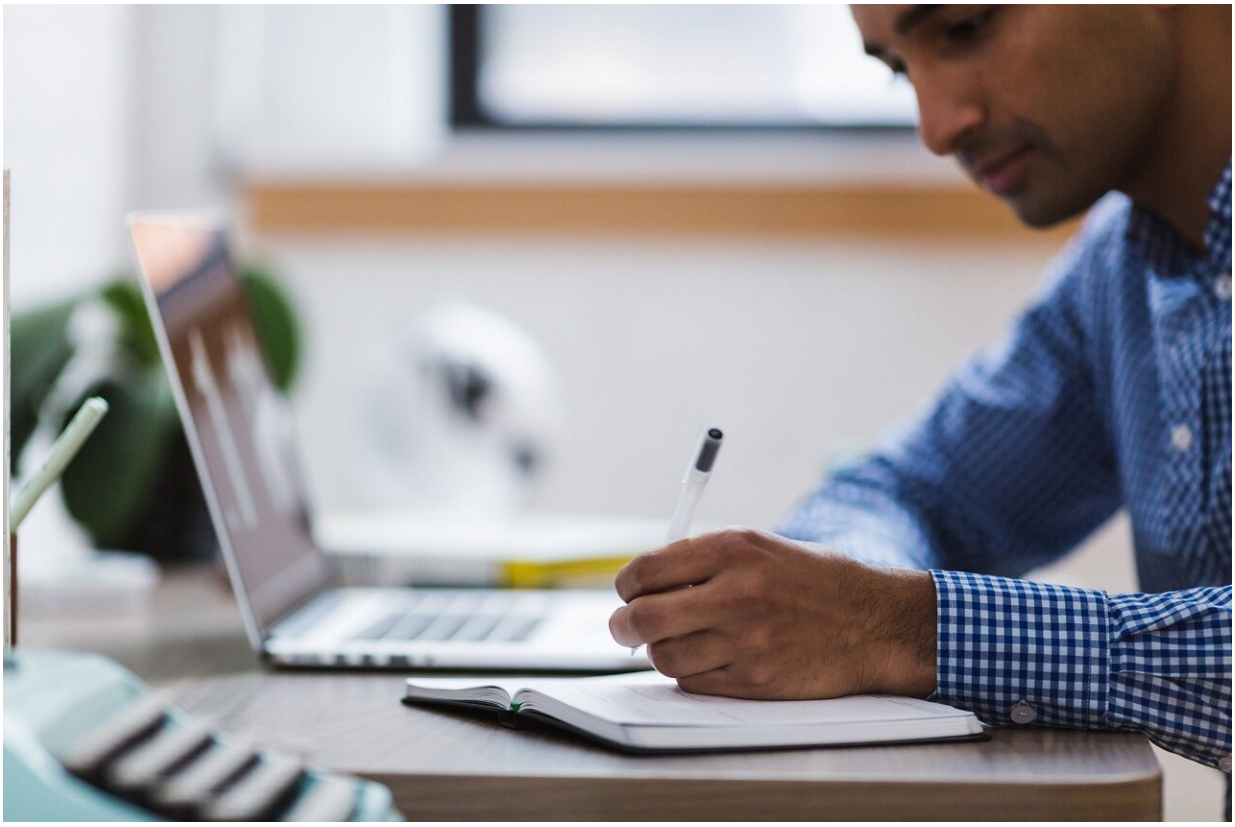

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Research funding determines the course of science and thus shapes future knowledge. However, funding allocation is inherently biased, non-optimal, and costly. Researchers from the University of Lübeck in

Germany and other German research institutions propose a new way to restructure grant allocation processes that include an initial lottery for researchers to submit funding applications, followed by a second phase of evaluation and funding with a higher acceptance rate.

Their simulation shows that this approach fosters inclusivity, reduces costs, and maintains project quality. The research team has developed an app, which allows users to simulate and compare different funding allocation programs, aiming to encourage discussions and improvements in the academic funding process.

Sören Krach, professor at the Social Neuroscience Lab at the Department of Psychiatry at Lübeck University and corresponding author of the study, explains, "Instead of wasting resources on applying for funding over and over, researchers can focus on making the most of their golden lottery ticket when their time comes and convince reviewers with their proposal. This opens the door for better proposals and reduces barriers for applying."

Over the past decades, research has gradually shifted from unconditional core funding to per-project funding, requiring researchers to apply for each individual project. However, concerns have arisen that this funding system may hamper rather than help research quality due to disagreement between reviewers about which projects to fund and the presence of various biases (e.g., cronyism, affinity bias, topic choice, novelty bias, racism, sexism, or geographic bias).

On top of that, the current system incurs substantial costs for society as time and thoughts spent on writing and reviewing the many unsuccessful grant applications could be spent on doing actual research. This is especially problematic when acceptance rates are as low as 7%, resulting in a disproportionate amount of wasted labor.

The new proposal, published in *Nature Human Behaviour*, features the app GrantInq. This tool enables researchers, policymakers, and funding agencies to simulate and to compare different research funding allocation programs, e.g., NIH R01, DFG, ERC, and SNFS among others.

By manipulating parameters such as the number of applications, the time researchers spend writing and reviewing them, and the quality of the review process, users can gain first-hand insights into outcomes of different funding allocation programs in terms of research quality, bias against applicants from minority groups, and cost of the process.

"Discussions about academic processes often lack specificity, with concepts like quality and bias remaining only ill defined. We believe that an app accessible to everyone can give substance to the debate and focus it on finding productive solutions," says Finn Lübber, lead author of the study and researcher at Lübeck University.

Using the GrantInq app, the interprofessional research team simulated several currently used processes for allocating funding, and explored new avenues for improving funding allocation. The simulations demonstrated that implementing a lottery as the first stage of the funding allocation process, followed by a second stage of peer review, significantly reduces the workload on all application levels. Crucially, this system can help to mitigate biases in proposal submissions, while increasing innovation and ensuring proposal quality.

"We noticed that systems that implement a lottery at the last stage of the process to alleviate biases may only do so to a limited extent. That happens because biases are accumulated during the earlier competitive stages of review. A lottery can be much more effectively placed at the initial stage of the process, followed by a second stage where applications are screened and selected for quality," explains Sören

Krach.

The GrantInq app stands out because it is highly interactive and open to use, empowering users to improve the current funding allocation systems. By hands-on exploring different parameter settings, individuals, funders and policy makers can identify ways to improve outcomes while keeping costs at a reasonable level. The app also encourages users to critically evaluate how the system set-up affects bias in the funding process, and the proportion of proposals funded.

"We want people to use the app and come up with their own ideas on how biases affect the process and how funding allocation could be improved. And this goes beyond the model we have implemented. We want to stir discussions about which facets of the process need to be considered, how to define and ultimately to measure and improve them," explains Finn Lübber.

To judge the quality of researchers' work—and their "deservingness" of funding—academic systems use a variety of metrics like citation counts and publication numbers. However, the validity and effectiveness of these metrics is questionable, as they may not perform well in capturing research excellence. Sören Krach says, "To reform research evaluation and funding, it is not enough to criticize the current state. We also need to consider possible structural changes to the academic system itself. Constructively rethinking research funding processes is an important part of that because the money flow determines the direction of future research."

More information: Rethink funding by putting the lottery first, *Nature Human Behaviour* (2023). DOI: 10.1038/s41562-023-01649-y

GrantInq app: https://osi-luebeck.shinyapps.io/GrantInq/

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