

Funding by Algorithm? Responsible use of AI in research funding and assessment

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Abstract

Research funding organisations globally are exploring the use of AI technologies to inform data-driven funding decisions and research assessment. However, AI expertise in the funding sector varies widely, and there is little best practice on responsible use of AI that is sensitive to the research funding context. We present key findings and outcomes from the Research on Research Institute’s GRAIL project, which developed an international community of practice on responsible AI in research funding and assessment. We show that responsible AI implementation and management is an organisational and interprofessional challenge as much as a technical and data one, and that while AI presents significant potential benefit for funders, its impacts on science systems must be carefully managed. We present *Funding by Algorithm*, a new responsible AI handbook, to guide these discussions.

Keywords: Responsible AI; research funding; research assessment; human-computer interaction

1 Introduction

Beyond scientific discovery and communication, advances in AI technologies are reshaping the wider research systems that enable scientific advancement. Research funding organisations around the world, including public research councils and charitable organisations, are turning to AI to help leverage their deep expertise and rich data to enhance funding processes and research assessment. However, many funders have limited experience with AI, and best practice for implementing, managing, and evaluating AI technologies within complex organisations that support large-scale research systems remains unclear. Developing responsible practice for the use of AI in research funding organisations therefore requires targeted approaches and insights that reflect the specific scientific and policy contexts in which funders operate.

In this paper, we present key outcomes from the Research on Research Institute’s (RoRI) two-year project, Getting responsible about AI and machine learning in research funding and assessment (GRAIL). Through RoRI’s global consortium, GRAIL convened a community of practice from thirteen public and

private research funding organisations around the world, to share knowledge, build expertise, and interrogate shared questions about responsible AI use in research funding organisations. Through this collaboration, we published *Funding by Algorithm* [Newman-Griffis et al., 2025], a handbook of responsible AI practice for research funders. Our work in GRAIL illustrates the need to approach future growth of AI in Science with a community of practice approach, and with enabling practices and policies that reflect the interdisciplinary and interprofessional complexity of AI in practice in contemporary research systems.

2 Gaps in Knowledge and Practice

Prior research has investigated several distinct impacts of the growth of AI on research systems. Chubb et al. [2022] identified new opportunities and pressures in research culture from AI use, and Han and Liu [2025] argue for the need to rethink the contours of scientific culture in AI-enabled research. AI is an area of active innovation to address challenges in peer review [Kousha and Thelwall, 2024, Checco et al., 2021]. Reports from The Royal Society 2024 and the European Research Council 2023 provide high-level overviews of ongoing changes and challenges as AI transforms research and innovation practice. At a systems level, Rahkovsky et al. [2021] illustrate the role of changing funding portfolios in reshaping AI research.

However, the use of AI by funding organisations themselves remains understudied. Blatch-Jones et al. [2025] identify a variety of potential applications of AI for research funders. Research at the Swiss National Science Foundation has explored machine learning applications in funding review [Okasa and Jorstad, 2024, Okasa et al., 2025], and the “la Caixa” Foundation has developed AI-based prescreening approaches for funding applications [Cortés et al., 2024]. The Research Council of Norway has also explored data science methods, including use of AI models, for assessing the societal impact of research [Technopolis Group]. At a sector level, the Research Council of Norway and RoRI convened a series of workshops in 2021 that established the first discussion space for research funders exploring AI, and highlighted the need for a community of practice to explore AI use across organisations and national contexts [Holm et al., 2022], which provided the impetus for the GRAIL project.

3 Methods

GRAIL investigated two primary questions: where funders are using AI in funding or assessment processes, and how these applications and other discussions of AI are realised in organisational practice. We considered AI through a broad lens, including generative AI, bespoke machine learning, expert systems, and hybrid approaches. Our research was co-designed with our funder partners and overseen by a partner steering group.

To assess current applications of AI, we used a two-prong approach: in col-

laboration with RoRI’s AGORRA project and the Global Research Council, we conducted a survey of research funders around the world regarding application of AI in research assessment [Rushforth et al., 2025]. We paired this with collection of real-world use cases from our project partners, and analysed these according to the aspect of funding and assessment workflows they informed.

To understand organisational practice with AI, we conducted a series of twelve discursive workshops, co-hosted with partner funders and targeting specific aspects of AI use, ranging from use cases such as AI in peer review to organisational challenges such as impact assessment and evaluation of AI use. Workshops were minuted by the project team and thematically analysed to identify key opportunities, challenges, and strategies for responsible AI.

4 Key Findings

Use of AI in funding and assessment. Of 47 funding councils responding to the AI questions in our global survey (reported in Rushforth et al, 2025), 23% were already using AI to support recruiting and assigning peer reviewers, and a further 9% had done so previously. Areas of reported AI application ranged from topical classification of proposals to portfolio analysis and strategic investment, and over 50% of respondents indicated current or potential future use of AI for all applications except portfolio management. Our survey of GRAIL partners reflected many of the AI applications highlighted in the global survey, but surfaced intriguing additions that indicate evolving scope for leveraging AI within funding organisations. Additional applications in handling funding portfolios included summarisation of projects for non-expert publics and clustering analysis to find similar and related historical proposals; in peer review, assessing the quality of reviewer feedback; and pre-application, supporting applicants with AI assistance for proposal writing and formative pre-review.

From an AI management perspective, funders in the global survey reported both high perceived benefit and non-negligible risk from the use of AI in conducting research assessment processes, as well as for higher-level governance and strategic planning of research assessment. Notably, survey data clearly indicated that AI planning and implementation was an interdisciplinary and interprofessional process, consistently requiring input from data, financial, legal, human resources, operational, strategic and technical expertise (Rushforth et al, 2025). This cross-cutting nature of AI in practice reflects the complex organisational praxis surfaced through our workshop series.

Responsible AI practice in funding organisations. Our collaborative workshops surfaced a wide range of aspects of responsible AI use in practice, which we organised into three key themes.

Under *AI impacts*, we saw that most AI problems are old problems in new clothing. Descriptions of AI implementation and management emphasised integration with existing policy and the value of leveraging pre-existing organisational culture to navigate changes from AI. AI use was driven by benefits beyond efficiency, including opportunities for insight, learning and discovery about or-

organisational processes. Research funders were noted to hold a unique position with respect to AI in science, as conveners of expertise and sources of knowledge that bridge between governments, research communities, and publics.

Under *people and process*, the key challenge raised for AI implementation is navigating diverse understandings of AI, perceptions of benefits and risks, and readiness for AI use within an organisation. In addition, AI use crossed organisational boundaries, with each implementation requiring operational, strategic, data, and policy input and affecting multiple professions. Active engagement of internal stakeholders, such as through collaborative workshops and roadshows, was highlighted as a key enabler for beneficial application of AI.

Finally, under *organisational implementation*, the multidimensional nature of AI evaluation was a key challenge, bridging task performance, process impact, benefits and validity for users, and reliability. The external role of funders in setting AI guidance for research communities was also multidimensional, requiring adaptability to diverse contexts and uses, and a focus on behaviour and culture as much as specific technical practice.

5 Conclusions

Our work in the GRAIL project and network has charted new territory for understanding and developing responsible AI practices in research funding and assessment, as key pillars of science systems. Through our findings, we have developed an interdisciplinary competency framework for *AI Thinking* [Newman-Griffis, 2025], which reflects the interprofessional dimensions of process, formulation, data, technology, and implementation context that underpin AI implementation in practice.

GRAIL illustrates the need for a community of practice approach to responsible AI in complex, multi-stakeholder research systems. The value of collaborative approaches taken to responsible research assessment, such as CoARA and DORA, was raised in our work as a potential model for developing international best practice on use of AI in research systems, and may prove a valuable inspiration for subsequent work bridging science policy and research practice.

Our findings of good practice for research funders have key lessons to carry over for the growing community of researchers using AI across areas of science. An emphasis on evolution, not revolution is key: our research showed that effective use of AI was based on a clear understanding of specific goals to achieve (rather than a drive for AI innovation alone), and a strong focus on integration with existing values and ways of working. The need for clear oversight structures for managing AI use within organisations and national research systems also emerged clearly from our work, as did the need for these structures to be iterative and evolving along with the changing nature of AI in science practice. Our responsible AI handbook [Newman-Griffis et al., 2025] offers an invaluable starting point not only for research funders, but for researchers and science policy makers exploring implementation and management of AI innovations in research systems.

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