National Audit Office

REPORT

UK Research and Innovation: providing support through grants

Department for Science, Innovation and Technology

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Key facts

open to bold

UK Research and Innovation's (UKRI's) risk appetite when deciding what to fund with its research and innovation grants, meaning it intends to take high risks where there is a potential for high rewards

28,866

number of applications for competitive grant funding UKRI assessed in 2023-24

£0.5mn

mean value of a UKRI grant awarded in a competitive process in 2022-23

£9.6 billion	UKRI's total budget in 2023-24
£6.0 billion	UKRI's spending on research and innovation grants in 2023-24, excluding block grants to higher education institutions in England
£20 million	threshold for the value projects or programmes, above which UKRI systematically commissions evaluations; UKRI also does so if the grant is especially novel or contentious
Seven years	time elapsed since the Department for Science, Innovation and Technology (DSIT) last updated the framework document which formally set out UKRI's role and objectives
2026	year during which UKRI expects its new grant management system, which it anticipates will improve its ability to monitor and strategically manage its grant spending, to reach full functionality

Summary

1 The government considers research and innovation (R&I) and the diffusion of new technologies to be vital to the UK's future and to achieving its major long-term and complex policy goals, including its mission to grow the UK economy and achieve net zero. R&I can be defined as the creation and application of new knowledge to improve the world. Often, R&I does not follow a neat stage-by-stage process but instead can be understood as taking place in a system. The UK R&I system is a complex network of organisations involved in the creation, diffusion and use of scientific knowledge as well as the coordination and support of these activities.

2 The government has a long history of investing in R&I, and in 2024 committed 'to promote innovation and harness the full potential of the UK's science base ... [through] protecting record funding for research and development'[1] Many government departments and public bodies invest in R&I, with 24 government departments and public bodies publishing the main research questions they are facing. In the 2024 Autumn Budget, the government committed to invest £20.4 billion in R&I in 2025-26.

3 UK Research and Innovation (UKRI) is the UK's largest single public funder of R&I, with a budget of £9.6 billion in 2023-24. Established in 2018, UKRI is a non-departmental public body formed of seven disciplinary research councils, Research England (which supports research and knowledge exchange at higher education institutions in England), and the UK's innovation agency, Innovate UK. Its purpose, as set out in its strategy, is to invest in R&I on behalf of the government to push the boundaries of discovery, support innovative businesses to grow and scale, and target solutions to national and global priorities, driving economic, social, environmental and cultural benefits. UKRI also supports wider government R&I across the UK and invests internationally. Examples of approved projects include funding for very early-stage research in microbial fuel cells and hydrogen purification; and the development of bone stem cell and biomaterial technology to reduce infection rates and the cost of hip repairs. In 2023-24, it made decisions on 28,866 applications for R&I grant funding. The mean value of a UKRI grant awarded in a competitive process in 2022-23 was £0.5 million.

4 The Department for Science, Innovation and Technology (DSIT) has overall responsibility for the government's spending on science, research and innovation. It is the sponsoring department for UKRI and sets UKRI's budget and objectives. The Secretary of State for Science, Innovation and Technology approves UKRI's strategy.

1 HM Government, *Plan for Change: Milestones for a mission-led government*, December 2024, CP 1210.

5 Government investment in R&I generally aims to support creating, applying and delivering value from new knowledge and ideas. However, there are many unique elements that make assessing and achieving value for money challenging. New ideas will not have any track record of achievement or delivery, outcomes of innovation carry a higher degree of uncertainty, and many projects will potentially lead to different discoveries or may fail altogether.

6 UKRI's support for R&I must follow certain principles. Under the dual support system, in addition to project-specific grants, R&I is also funded through block grants to higher education institutions for research and knowledge exchange which are allocated according to a formula. The statutory Haldane principle states that project research funding decisions are best taken following an evaluation based on the quality and likely impact of the project research. In practice, the evaluation is done through a process of independent, expert-led assessment, such as peer review.[2]

7 Given the level of ambition that the government has for R&I, the committed resources, and the uncertainty around outcomes, this report examines the extent to which good practice has been considered and applied. We focus on UKRI, given its size and experience, but with the intention of drawing out good practice and wider learning for government more broadly. We examine the extent to which UKRI has considered the principles and conditions for effective support for R&I and applied those principles in practice. In 2023-24 UKRI spent £6.0 billion on R&I grants, excluding block grants issued to higher education institutions in England. The report focuses on competitive grant funding, it covers:

- how well the government understands public sector requirements for R&I including UKRI's role in supporting and funding it (Part One);
- UKRI's effectiveness in using grant funding to harness innovation and opportunity (Part Two); and
- the extent to which UKRI is learning and developing its understanding of how best to support innovation and influencing government's overall approach (Part Three).

8 We have not sought to examine the overall effectiveness of UKRI as an organisation. UKRI was recently independently reviewed by Sir David Grant (2022); the UK's R&I organisational landscape was reviewed by Sir Paul Nurse (2023); and research bureaucracy was independently reviewed by Professor Adam Tickell (2022).[3] These reviews inform our work where relevant.

2 For more information on UKRI's grant funding lifecycle and decision-making process, see Figure 7.
3 Department for Business, Energy & Industrial Strategy, UKRI Independent Review, Final Report and Recommendations, July 2022; Department for Business, Energy & Industrial Strategy, Independent Review of the UK's Research, Development and Innovation Organisational Landscape, Final Report and Recommendations, March 2023; Department for Business, Energy & Industrial Strategy, Independent Review of Research Bureaucracy, Final Report, July 2022.

Key findings

UKRI's role supporting innovation and its funding priorities

9 UKRI has played a vital role in shaping and supporting a successful UK R&I system. It funds all stages of R&I: in 2022-23, when excluding block grants to higher education institutions in England, 43% of its R&I spending was on basic research (driven by curiosity, with the aim of expanding human knowledge), 28% on applied research (that is with a specific, practical aim or objective) and 28% on experimental development (such as funding for a business to pilot an innovative new process). One of UKRI's main roles is widely acknowledged by DSIT staff and among senior academics as maintaining the health of the UK R&I system. This system has a strong international reputation, ranking fifth overall on the Global Innovation Index in 2024. The UK compares well with other countries in the top 10 on market sophistication and creative outputs, and less favourably on business sophistication and institutions (paragraphs 1.10 to 1.11 and Figure 3).

10 Government departments expect UKRI to support the delivery of an extensive range of objectives, alongside its own work, but these are not brought together coherently. We found 105 government policy papers across 13 ministerial departments between 2021 and 2024, the majority of which were published under the previous administration, where UKRI was expected to play a role, or its activities contribute to their delivery.[4,5] DSIT told us this reflects the broad span of UKRI's activity. Government departments use a wide variety of mechanisms to indicate their priorities to UKRI, including ad hoc and routine meetings; board meetings; formal letters; key UK government strategies and mission statements; and spending review budgets. These are not consolidated or ranked, meaning that the government does not currently have an overall picture of what it is asking UKRI to do. The government has recently set out its intention to define and justify more clearly the allocation of R&I funding under three categories: curiosity-driven basic research; targeted research aligned to government ambitions including economic growth; and investment to support innovative businesses including scale-up (paragraphs 1.12 to 1.15 and Figure 5).

4 A total of 13 ministerial departments published a policy paper with reference to UKRI and/or Innovate UK, with some of these papers also co-published with other bodies (including non-ministerial department, high-profile group, agencies and/or other public body, and devolved administrations).

5 To provide an approximation of the range and number of government commitments UKRI support, we undertook a desk-based review of policy papers hosted on gov.uk from 2021 to 2024 with reference to UKRI, and/or Innovate UK as a subset of UKRI. The number of policy papers found is unlikely to be an exhaustive list.

11 UKRI has developed a five-year strategy to set out its high-level priorities but it and DSIT have not yet set measurable objectives for UKRI's spending. Measuring the performance of R&I funding organisations can be difficult and governments internationally take a variety of approaches. In 2018, when UKRI was formed, DSIT set 10 strategic objectives for UKRI related to the health of the UK's R&I system.[6] It published them in a framework document which defines its relationship with UKRI. In 2022, UKRI published its first five-year strategy, with six strategic objectives covering similar ground to the 2018 objectives. None of the formal objectives are specific, measurable or time-bound, making it difficult to understand what outcome UKRI is seeking to achieve. DSIT is updating the framework document, for the first time in seven years, and told us it intends to include new specific, measurable, achievable, realistic and time-bound objectives for UKRI with corresponding key performance indicators. DSIT told us it intends to finalise and publish UKRI's new objectives in summer 2025. UKRI will therefore not have a finalised and measurable set of objectives to guide advice and decisions on its future direction in Spending Review 2025 Phase 2. DSIT and UKRI are working together on prioritisation for the spending review and DSIT has provided information to UKRI on ministerial priorities during this work (paragraphs 1.16 to 1.19 and 1.24).

12 UKRI is investing its budget in order to build a responsive UK R&I system that can pivot to meet emerging government priorities. UKRI is seeking to cultivate skills and institutional capability that will build responsiveness in the UK R&I system, which can take time to establish. UKRI told us that, for the R&I system to be responsive and resilient, it requires a continual baseline level of multi-year investment from UKRI in a range of areas. There are recent examples of the system reacting quickly to support major government priorities, for example, UKRI's response to the COVID-19 pandemic – UKRI part-funded the trial which, in June 2020, discovered the first effective COVID-19 treatment. As a result of the multi-year nature of UKRI's investments, lead times for new funding schemes, and other factors, however, UKRI makes a high level of financial commitments into future financial years. This limits the budget available to respond to emerging government priorities through initiating new programmes. Instead, UKRI has stated that it adjusts the direction of its existing activities and incentivises applicants to put forward ideas that align with government objectives which can be quicker and more efficient than setting up new programmes (paragraphs 1.20 to 1.23).

6 On 7 February 2023 the government announced that the Department for Business, Energy & Industrial Strategy (BEIS) would close, and its responsibilities would transfer to new departments, including the Department for Science, Innovation and Technology (DSIT). References to DSIT that relate to events prior to this date therefore refer to BEIS.

13 UKRI is working to address significant limitations in its data systems, which currently restrict its ability to efficiently manage its grant spending in a strategic way. To effectively manage R&I funding, it is crucial to have good information on what is being funded across a portfolio, and against key objectives, so that informed decisions can be taken if particular projects need to be scaled up or stopped. Since its establishment, UKRI has faced challenges unifying the separate data systems of its predecessor organisations, including poor and disconnected data. It has broadly good data on individual grants for administrative purposes, but not at a portfolio level. For example, there is no routine central tracking of what strategic areas UKRI's research councils are planning to fund. While in 2024 it gained the ability to algorithmically analyse its spending on strategically important areas, data gaps restrict its strategic oversight of around 15% of its grants (mostly smaller, older grants). UKRI is currently overhauling its grants and finance systems to improve data quality and consistency, with the aim of better data to support decision making, for example through thematic analysis, and predictive insights (paragraphs 1.25 to 1.29).

UKRI's effectiveness in using grant funding to harness innovation and opportunity

14 UKRI has set out the level of risk it aims to operate with to support research and innovation and has designed a risk management strategy to underpin this. UKRI has developed a strategy which defines its approach to managing the different risks it faces and its risk appetite, meaning the level of risk it aims to operate with across its activities. To support the implementation of this approach, new employees are required to complete risk management training. UKRI monitors and manages its risks in a variety of ways, for example at its Audit and Risk Assurance Committee. UKRI told us it balances risk across its portfolio of funding by the type of funding mechanism and considers R&I grant funding to be of higher risk. Therefore, in its risk appetite statement, UKRI has indicated it seeks to operate with 'open/bold' risk when deciding what to fund for R&I grants, meaning it intends to take high risks where there is a potential for high rewards. This requires well-managed risk taking while accepting that outcomes of innovation carry a higher degree of uncertainty, and many projects will potentially lead to different discoveries or may fail altogether. We conducted focus groups (14 participants) and a follow-up survey (22 respondents) with staff identified by UKRI as having an influence on decision making in a number of stages of the funding lifecycle. Findings from focus groups and the follow-up survey indicates some did not have a clear understanding of UKRI's risk appetite for funding decisions (paragraphs 2.1 to 2.8 and Figure 6).

15 There are a number of factors across the grant funding lifecycle that influence how bold UKRI's funding decisions are, which could be better understood. UKRI's grant funding lifecycle includes several stages, although the intricacies differ between funding type. Senior UKRI officials authorise funding decisions, and decisions taken at various stages of the grant funding lifecycle, such as the development of the funding opportunity, will influence the eventual level of risk taken. An important component of the grant funding lifecycle is the assessment process, where applications are reviewed and ranked by external experts. UKRI considers this assessment process to be an important part of taking appropriate risk in its grant funding decisions. To make decisions in line with UKRI's stated risk appetite, those participating in the grant funding lifecycle need to understand the expectations and scope for decision making, that is, how and at what stages in the grant funding lifecycle decisions are taken. UKRI has produced policy and process documents on roles and responsibilities and the grant funding lifecycle. Through focus group discussions and a follow-up survey with staff identified by UKRI as having an influence on decision making, we found that not all staff within that group clearly understood their role in decision making and where in the funding lifecycle they could have influence over grant funding decisions (paragraphs 2.9 to 2.12 and Figure 7).

16 UKRI is addressing deficiencies in its approach to funding assurance, and the risk of fraud and error. A condition for taking bold risks with R&I funding decisions while protecting public money is that the risk of fraud and error is well-managed. For several years running, our financial audits of UKRI have found deficiencies in funding assurance. The controls on the individual grants we audited are adequate. However, UKRI cannot yet link together all the controls and assurance checks it has implemented in its different divisions into a reliable picture of whether, across the organisation, error and fraud are under control. For its grant fraud risk, UKRI's appetite is 'minimalist' to 'averse', but it is not currently in full compliance with the government's standards for counter-fraud. The counter-fraud team has been under-staffed, with a backlog of cases and limited capacity for preventative work. In 2023-24, it investigated suspected fraud on £42.6 million of grants, identified £4.6 million of fraud, prevented £13.5 million, and recovered £80,000. UKRI recognises there are issues with its approach and is in the process of reorganising its risk, assurance, counter-fraud and corporate governance team. It is working on a new counter-fraud strategy and a new approach to funding assurance. Its actions to date include recruiting new staff, efforts to improve team culture, and updates to fraud risk assessments. It told us it expects to see improvements by September 2025 (paragraphs 2.13 to 2.16).

17 UKRI seeking to ensure it has a positive organisational culture. A positive organisational culture is important for enabling open discussions about risk and performance, as well as supporting an organisation to deliver its objectives. UKRI recognises the importance of having a positive organisational culture and monitors a number of factors that underpin this. UKRI has identified a number of areas where it would like to improve, for example psychological safety (which means feeling safe to speak up, to disagree openly and to surface concerns without fear of negative repercussions) and has devised action plans to address this. Our focus groups with UKRI also identified some potential barriers that need to be overcome to operate with well-managed risk (paragraphs 2.17 to 2.21).

Monitoring, evaluation and influencing across government

18 UKRI is trialling new funding approaches to define best practice and improving consistency across its grant funding scheme.

- In 2024, DSIT and UKRI set up a joint 'Metascience unit' to develop and share evidence on the best ways to practise, fund and support science, including through experiments to test potential improvements to UKRI's processes.
- UKRI is also introducing a new grants management system and standardising its funding schemes, policy and process. It is developing the new system iteratively, with a first version already in use and full functionality expected in 2026. The system is not yet capable of responding quickly to changes in user needs or new approaches to funding, and therefore UKRI is investing in further development to achieve its strategic intent of a flexible service (paragraphs 3.3 to 3.5 and Figure 8).

19 UKRI's lack of measurable objectives makes it difficult to effectively understand progress at the portfolio level. UKRI's board tracks progress across four themes: its impact, stakeholders' experience of UKRI, the health of the UK's R&I system, and the extent to which UKRI is learning and improving as an organisation. UKRI told us it measures progress against some targets but mostly instead tracks trends against its strategy. In the board's January 2025 performance report, UKRI was making progress against some of its measures, but, without specific, measurable, achievable, relevant and time-bound objectives and KPIs, it is difficult to discern whether UKRI is making sufficient progress against its overall objectives (paragraphs 3.7 to 3.10 and Figure 9).

20 UKRI follows good practice in programme evaluation but does not consistently apply thematic evaluations across the organisation. The research councils routinely collect data on the research outputs and outcomes their grants achieve, and Innovate UK collects impact data on grants to businesses. UKRI has demonstrated good practice by conducting and publishing evaluations for a range of programmes. UKRI undertakes evaluations on projects or programmes that meet specific criteria – those that are over £20 million or considered politically or strategically important, novel, complex or contentious, or have potential to aid UKRI's understanding of what works. There are also some examples of research councils undertaking thematic evaluations that explore the impact of funding over a variety of investment mechanisms for a specific research area (Figure 11). These thematic evaluations can help to capture learning, and evidence impacts, from a range of research projects which may not normally be part of a bespoke evaluation as they do not meet the evaluation criteria. However, thematic evaluations are not consistently applied across the organisation and as a result the cumulative learnings and impacts of these grants may not be effectively captured (paragraphs 3.11 to 3.15 and Figures 10 and 11).

21 UKRI has mechanisms in place to share lessons and showcase the impact of its investments, but recognises improvements are required. In 2023, UKRI produced a communications and engagement strategic framework to inspire interest in R&I, build support for investment and showcase its impact to wider society. UKRI monitors the effectiveness of this strategy and recognises further work is required for example to improve MPs' awareness of UKRI's impact and early-career researchers' and students' understanding of UKRI's role (paragraphs 3.16 to 3.18).

Conclusion

22 The government considers that investing in the UK's R&I system is vital for achieving its long-term policy goals, including its mission to grow the UK economy, and achieve net zero. UKRI is the largest single public funder of R&I in the UK, spending around £9 billion annually. Providing effective support for R&I that secures value from public sector investment is a complex challenge: new ideas will not have a track record of achievement or delivery, outcomes of innovation carry a higher degree of uncertainty, and many projects will potentially lead to different discoveries or may fail altogether.

23 UKRI and its predecessor bodies have helped support a globally respected R&I system, which has demonstrated that it can respond effectively to emerging challenges such as to the COVID-19 pandemic. UKRI, together with DSIT, is seeking to continually improve by researching the best way to fund R&I. However, there is still more that UKRI could do to maximise the value for money it secures from supporting R&I. In particular, DSIT and UKRI need to define more clearly the overarching desired outcomes from its R&I spending, and UKRI needs better data to be able to identify where its resources are being spent and support decision making. UKRI must also be clearer on how decisions taken in the grant funding lifecycle influence how ambitious it is in its grant funding decisions and continue to work to ensure its culture supports well-managed risk taking.

Recommendations

a To help improve visibility of the government's R&I needs and ensure they are communicated effectively, by December 2025, DSIT with UKRI should streamline the mechanisms through which the government communicates its priorities to UKRI. By the same date, they should map out government priorities and objectives whose delivery UKRI is expected to support.

b It is vital that UKRI uses all available levers to ensure it is taking as much risk as it would like to in its funding decisions to achieve strategic objectives and to prevent missing out on high-reward opportunities. By April 2026, UKRI should consider ways it can improve the support it provides to those with responsibility for funding decisions. This should include:

- providing and communicating a more detailed description of its risk appetite for funding decisions;
- providing more practical guidance on how the risk appetite should be applied across the stages of designing and awarding grants; and
- identifying the barriers and incentives to take bolder decisions in designing and awarding grants.

c To enable UKRI to confidently take well-managed risks while effectively protecting public money, it needs a strong approach to funding assurance, fraud and error. By September 2026, it should ensure that the improvements it is implementing for 2025-26 have gone far enough to enable it to meet functional standards and fully address the findings raised by our financial audits.

d While investing in ambitious and pioneering research, it is important for UKRI to understand how its work is providing a return on investment for taxpayers. To better understand the impact of its investments, inform future portfolio planning and position itself to most effectively harness opportunities, after the outcome of the next spending review, UKRI should develop a plan to build upon its existing programme evaluations by increasing its use of portfolio, thematic and longer-term evaluations.

e By January 2026, UKRI should take stock of whether its systems are providing it with the data necessary for good portfolio management, and if not, develop a plan to improve its portfolio monitoring and strategic oversight. It should particularly consider collecting more information on activity and performance by research theme, and information to support a well-rounded understanding of how its risk appetite has played out in practice through its grant funding decisions. It should also consider whether the new systems provide enough flexibility and encourage new approaches.