

Response to [Investment in research infrastructure inquiry](#)

Executive Summary

This submission argues that the UK's current approach to research infrastructure investment presents a material value-for-money risk. While substantial public funding is directed toward physical and digital assets, insufficient attention is paid to the people, skills, organisational systems, and systematic coordination mechanisms required to ensure those assets are effectively used. [International evidence](#), alongside associated work on '[open infrastructure](#)', indicates that without appropriate incentives, coordination, and workforce capability, research infrastructures remain underutilised and fail to realise their full value.

We highlight the role and value of '[soft infrastructure](#)', which comprises the skilled individuals, cultural conditions, and associated systems that underpin a range of research enabling activities, including *inter alia*, research facilitation and management, capacity building and career support, and relationship brokerage between the academy and research users. We also note the importance of soft infrastructure in leveraging investment and maximising social and economic impacts, not least by ensuring that knowledge generated from research investments is connected to wider society to support business, cultural organisations, public services, public policy, and civil society.

The UK research system is fundamentally workforce driven. A 2023 [JISC report](#) outlining that across the economy, approximately 652,000 full-time equivalent staff are engaged in R&D, with over £27.7 billion, representing 56% of business R&D expenditure, allocated to salaries. This demonstrates that the effectiveness of infrastructure is inseparable from workforce capability. However, current infrastructure planning, funding, and evaluation frameworks do not systematically incorporate workforce factors, skills availability, or organisational capability.

There is [substantial evidence](#), including work by [CoARA](#) (Coalition for Advancing Research Assessment), that current research evaluation systems such as the Research Excellence Framework (REF) whilst encouraging investment in infrastructure, can also create perverse incentives, and do not adequately reward activities such as data sharing and collaborative infrastructure use, limiting uptake and reducing the realised benefits of investment. Evidence indicates that skills shortages, workforce precarity, and weak system coordination are limiting utilisation and reducing returns on investment. This creates a risk that infrastructure will be:

- Underutilised
- Inefficiently operated
- Unable to deliver expected economic and societal benefits

We therefore recommend that HM Treasury, DSIT, and UKRI adopt a whole-system approach, integrating workforce capability, lifecycle costs, and system readiness into decision-making and appraisal processes, and in accordance with this observation work with HE sector bodies to work through the implications of UKRI's 'buckets' approach to funding allocation.

1. Introduction

- 1.1. This submission is made by a coalition of executive leaders of UK-wide sector bodies who work to provide critical, system-level infrastructure to the research community. Together we support research capability, workforce development, engagement with research, and system coordination across higher education.
- 1.2. The UK has made significant public investments in research infrastructure, with UKRI alone spending £1.2 billion on infrastructure in 2024–25 (as cited in the inquiry framing). However, this investment has been predominantly conceptualised in terms of capital assets rather than collective infrastructure and system performance.
- 1.3. The bodies we represent meet regularly to discuss shared challenges. Whilst our business models differ, our organisations are largely funded through short-to-medium term grant funding, alongside direct payment for services and institutional subscriptions. Given the current funding squeeze in UK higher education, we believe there is a danger that the ability or organisations like ours to support the system-level changes proposed by UKRI will be hindered.
- 1.4. [Evidence from DSIT](#) demonstrates that the UK's research system is people intensive. Over half of R&D expenditure is directed toward workforce costs, indicating that human capability is central to infrastructure delivery.
- 1.5. Despite this, workforce capability is not consistently incorporated into infrastructure prioritisation or investment appraisal, with a subsequent devaluing of the 'soft' and yet critical infrastructure – the people, skills, networks and representative bodies – that help the research system to function. This creates a structural risk that capital investments will fail to achieve their intended value.

2. Definition of Infrastructure and Implications for Value for Money

- 2.1. The prevailing definition of research infrastructure is overly narrow, focusing on physical and digital assets while under-recognising people-centred and organisational capabilities – an issue addressed *inter alia* within a [recent OECD report](#). It is our belief that whilst physical infrastructure is essential, it alone does not determine the effectiveness, sustainability or value of public investment in research. In practice, infrastructure operates as an integrated system comprising physical assets (facilities, equipment), digital platforms, workforce capability and organisational and coordination systems.
- 2.2. A holistic view of research infrastructure should focus on people-centred and system enabling capabilities, including but not limited to skilled researchers, experienced technicians, capable knowledge brokers, and engaged research impact professionals. Crucially, it must do this with respect to the organisational and systemic context in which they work. Support for these roles is required to maintain robust research cultures, ensure research integrity, and seed effective collaboration beyond the academy. These research professionals are also the key to unlocking and scaling considerable wells of experience, often untapped, present within the sector.
- 2.3. At the same time, structural weaknesses persist, with [failures at the organisational level](#) directly impacting on the quality of research. Additionally [national analysis](#), including work

by the UK Institute for Technical Skills & Strategy (UK ITSS), highlights [significant shortages in technician roles](#), with more than one-third of positions affected in key sectors, and [limited visibility](#) of the technical workforce due to fragmented data collection. These factors directly affect infrastructure performance by constraining a range of factors, from maintenance and operation to technical support and compliance.

- 2.4. The UK ITSS and preceding TALENT Programme provide examples. Supported by Research England their research on the role of technicians in [health and safety](#), and [environmental sustainability](#) illustrates the scale of people-centred infrastructure currently sitting alongside physical assets. It found that 91% of technical staff in UK higher education hold health and safety responsibilities, spending on average 22% of their working time on activities including equipment maintenance, calibration, infrastructure inspection and risk assessment.
- 2.5. Knowledge mobilisation roles also present comparable examples, with the National Co-ordinating Centre for Public Engagement (NCCPE) 'State of the Sector' report (*forthcoming*) noting that we have made considerable strides over the last eighteen years in embedding engagement within 'business as usual'. However, this relational infrastructure that connects people across domains and is also vital for key UKRI priorities such as research commercialisation, is currently under significant threat.
- 2.6. Moreover, [evidence from CAPE](#) (Capabilities in Academic Policy Engagement) shows that knowledge brokers are essential to translating research into policy and practice, acting as intermediaries between researchers and users. However, these roles lack formal career pathways, are poorly understood across the sector, and therefore remain largely invisible in workforce planning. A similar argument can be made in relation to independent researchers, including artists and community researchers, where lack of access to infrastructure and funding opportunities impedes abilities to engage with universities.
- 2.7. 'Soft infrastructure' bodies can operate as an important source of training, guidance, support and community. The absence of structured investment in these enabling functions creates a delivery risk, whereby infrastructure exists but cannot be fully utilised. Our submission to this inquiry builds upon this broader understanding of research infrastructure, considering the conditions required for public investment to achieve maximum value for the UK and how such investment might fit within UKRI's bucket framework.
- 2.8. Based on our collective experience, we recommend that future approaches to research infrastructure investment:
 - Adopt a broader and more relational definition of infrastructure that explicitly includes people-centred and system-level capabilities, alongside formal mechanisms for partner involvement.
 - Take a lifecycle approach, ensuring funding for skills, support, maintenance and effective use, married with capital investment in the organisations and places where it is most required.
 - Provide longer-term, stable investment in enabling infrastructure, that includes various forms of technical, professional or methodological expertise, alongside partnership management and knowledge brokerage. This is vital in order to reduce risk, address skills and capability gaps, and improve value for money.
 - Strengthen structured collaboration with sector bodies that operate across institutional and disciplinary boundaries, noting their role as interlocutors and translators between the research base and a wide range of research users.

- Understand the role of place, and that research infrastructure is often embedded within regional configurations and partnerships and tied to specific local and/or civic goals. Soft infrastructure is therefore vital for connecting knowledge and investment across place(s), to maximise overall benefit for the UK.
- Recognise that new physical or digital infrastructures often enable novel kinds of research, in which the best ways to ensure research integrity and rigour are initially unclear and require time, skills and investment to establish.

3. How well does DSIT understand the research infrastructure landscape?

- 3.1. We recognise that DSIT and UKRI have improved their understanding of the UK's physical and digital research infrastructure landscape, including future needs in areas such as advanced computing and major facilities. However, our experience suggests that DSIT's current approach to research infrastructure does not fully reflect the broader system, capabilities, and workforce upon which that structure relies.
- 3.2. It is notable that new forms of software infrastructure, such as AI platforms, are increasingly costed on a pay-as-you-go basis. In such cases, these costs cannot readily be treated as capital assets on institutional balance sheets, which leaves institutions without a viable mechanism to provide generalised access to such platforms at scale.
- 3.3. In our view there are several key areas that require additional consideration:
 - The limited visibility of the skills, capability and workforce requirements associated with research infrastructure investments, highlighted in recent reports from [UK ITSS](#) and the [Software Sustainability Institute](#).
 - The sustainability of 'soft infrastructure', currently supported on a cross-sector basis, that maintains the integrity, relevance and effectiveness of the research system.
 - The current insufficient consideration of research environment and culture, integrity, collaboration, and engagement as essential components of infrastructure effectiveness.
 - Fragmented oversight of how different forms of infrastructure; physical, digital and organisational, interact to support research quality and productivity.
- 3.4. If infrastructure is treated as a discrete capital asset, rather than as part of an interdependent system, it makes it harder to assess readiness, manage risk, and ensure that investments are quality assured and deliver intended outcomes over time. Some sector-level evidence on the research workforce does exist, including since 2018 Vitae's [Culture, Employment and Development of Academic Researchers Survey](#) (CEDARS) survey (with the 2025 wave covering 13,334 respondents across 53 institutions). For context, this longitudinal, sector-wide data on workforce conditions, professional development and research culture is currently produced by a sector body rather than commissioned as part of UKRI's infrastructure intelligence. As an initial step, it would be good to see support for stronger data integration, to address the visibility gap noted above.

4. How do DSIT and UKRI determine what research infrastructure to fund?

- 4.1. Current funding approaches place strong emphasis on capital build and initial deployment. While necessary, this can undervalue the long-term capabilities required for infrastructure to be adopted, sustained and fully exploited.
- 4.2. Recent developments around government [areas of research interest](#) (ARIs) at a variety of spatial scales, alongside Research England administered Local Innovation Partnership Fund (LPIF), signal moves towards aligning policy demand with the research base. However, once again it remains to be seen how the research intelligence and brokerage required to underpin a more responsible and better aligned system will be supported.
- 4.3. On the wider question of funding, from our perspective decisions would be strengthened by:
 - A focus on system level drivers and constraints that recognises that investment in tangible infrastructure is an intervention in a complex socio-technical system, not an isolated transaction.
 - Greater attention to lifecycle costs, including training, skills development, maintenance, upgrade pathways and user support.
 - Longer-term, more predictable investment horizons for enabling soft infrastructure such as researcher development, knowledge brokerage, technical skills, and associated professional support roles.
 - An updating of UKRI's [people and teams action plan](#) (2023) at the earliest opportunity.
 - Assessment criteria and coordination (which requires leadership and investment) that explicitly considers who will use the infrastructure, how access will be enabled, and what capabilities are required to maximise benefit across the system.
- 4.4. Short-term or stop/start investment in people-centred infrastructure, coupled with the HE system's overreliance on precarious employment arrangements, undermines return on investment, potentially leading to under-use, inequitable access, and increased risk to quality and integrity. The latter is shaped by a lack of support for ongoing professional development which ultimately de-skills the sector, leaving researchers lacking key research competencies, and often without the capacity to (re)train themselves.

5. Are DSIT and UKRI working effectively together to deliver the infrastructure the UK needs?

- 5.1. Coordination between DSIT and UKRI can be strengthened by embedding system-level considerations earlier in infrastructure planning.
- 5.2. Sector bodies and intermediaries play a critical role in supporting collaboration, enabling knowledge exchange, and facilitating adoption and use of infrastructure. However, despite their importance, these organisations are often funded on short-term, project-based cycles, creating instability in key system functions. This leads to weak coordination mechanisms, reduced system resilience, and lower utilisation. More structured, long-term engagement with these actors would improve delivery and reduce risk.
- 5.3. We see a clear opportunity to strengthen joint working between DSIT and UKRI by embedding system-level perspectives earlier in infrastructure planning and decision-making, providing a greater understanding of the various moving parts. We see opportunities to inform:

- Strategic alignment between capital investment, workforce development, and overall system development, which is not always sufficiently explicit.
- The ongoing role of sector bodies and intermediaries. These entities often have systemwide reach but are often engaged late in the process of system change despite holding valuable insight into readiness, adoption, and operational challenges.
- Co-design approaches, working alongside, experts and representatives of research, technical and professional communities, particularly where infrastructure requires behaviour change, skills transfer or cultural shift. These modes of working are not yet routine, with progress difficult to measure.
- Strengthened system-wide insight and evaluation capabilities, building on existing DSIT and UKRI collaboration such as the [UK Metascience unit](#).

5.4. Our organisations have come together informally over time to share insight on pressures facing the research system and on practical solutions. We would welcome more structured, ongoing collaboration with DSIT and UKRI to support implementation, mitigate risk and improve outcomes.

6. Are existing research infrastructure assets being used in a way that achieves the best possible outcomes?

- 6.1. Infrastructure assets that exist are often not fully exploited, representing inefficiency in public spending. In our view, improving utilisation requires investment not only in fixed assets, but in the people, practices and partnerships that enable those assets to be used effectively and responsibly.
- 6.2. However, at the same time underutilisation of research infrastructure is often not simply due to lack of demand. Instead, it reflects system constraints, with [evidence from the policy engagement ecosystem](#) highlighting the importance of skills development, collaboration mechanisms, and data and coordination systems
- 6.3. The [UK's innovation system](#) is affected by skills mismatches and capability gaps, dampening productivity gains. The current financial crisis in higher education has limited individual access to training, reinforced precarity within the research community – with knock-on effects around lack of time or permission to engage with shared infrastructure, weakened some incentives for cross-institutional collaboration, and lessened opportunities for open research engagement with research users beyond academia.
- 6.4. Vitae's 2025 CEDARS survey provides direct evidence of these constraints. 77% of research-only staff, the workforce most likely to operate major research infrastructure, are on insecure contracts, with half on contracts of two years or less. Only 13% engage in the 10+ days of professional development recommended in the Concordat to Support the Career Development of Researchers, despite the largest unmet demand for leadership training (57% want, 29% have done) and managing others training (61% vs 25%). Among technical staff, only 36% agree promotion pathways are clear and 33% that career advancement is fair and inclusive. These conditions limit the workforce's capacity to adopt, sustain and fully exploit infrastructure investments, and represent an increasingly well-evidenced risk to value for money that is not currently captured in capital appraisal.

6.5. The TALENT programme (noted earlier) and [further evidence](#) from UK ITSS, also points to gaps in how this workforce is supported. Its 2023 report found that 78% of technicians write risk assessments and 78% carry out general and preventative maintenance, yet only 36% sit on a relevant health and safety committee, and 31% report that most of their health and safety work is assumed rather than openly discussed or delegated. Where the people who operate infrastructure are not formally involved in the decisions that shape its use, the conditions for effective and sustained operation are weakened.

7. Conclusions

- 7.1. The current approach to research infrastructure investment presents a clear value-for-money risk, and it is therefore vital that infrastructure should be understood and funded as a whole system.
- 7.2. Without addressing the gaps identified, there is a significant risk that infrastructure investments will be underutilised, deliver suboptimal outcomes, and fail to achieve expected economic and societal benefits
- 7.3. Research culture, careers and capability should be seen as rate-limiting factors: without sustained attention to these areas, the value of infrastructure investment is being diminished.
- 7.4. A shift to a system-level approach, which appreciates the role of intangible or ‘soft’ infrastructure, is therefore required to ensure that public investment delivers full value.

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