INNOVATION & RESEARCH CAUCUS

TAKING ROOT: FOCUSED RESEARCH ORGANISATIONS IN THE UK

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Executive Summary

A Focused Research Organisation (FRO) is a novel organisational form designed to fill a gap in mission-driven, product-based technology development. FROs are non-profit research organisations that pursue prespecified, quantifiable technical milestones within a finite time (usually around five to seven years) and actively deploy public goods (e.g. open-source datasets, toolkits, discovery platforms and models). They are purpose-built around research 'bottlenecks' in frontier research that are arguably too big for a single academic lab, require more coordination than a consortium effort, and are not directly profitable enough for a venture-backed startup or industrial R&D lab. Ten FROs have been launched in the US by Convergent Research. Three are now live in the UK: Bind Research, funded through DSIT's Research Ventures Catalyst, and Meridial and Echo Labs, funded by ARIA through Convergent Research UK's Founders in Residence programme.

This report examines if and how FROs can contribute to a more resilient UK research and innovation ecosystem. It looks at the early development of the first UK FROs, including how UKRI and Innovate UK organisational eligibility policies bear on them. Drawing on 30 semi-structured interviews, a stakeholder workshop, private programme documentation from Convergent Research UK, conference discussions and public documents, the report first sets out how the FRO model developed and how government interest crystallised. It then describes how each UK FRO came to be, and draws the two accounts together into cross-cutting findings. The report offers early insight into the journeys of UK FROs, and provides a worked example of how new research institutions can be created both in tension - and in partnership with - existing ones. As the UK FROs are still at an early stage, the report focuses on what their development shows so far.

Key findings are as follows:

- **Creating new research institutions takes strong networks and sustained 'wrangling'.** The UK FROs had to fit themselves into existing funding, legal and organisational systems, drawing on dedicated venture creation programmes and networks across government, industry, philanthropy and academia.
- **Crafting a different mode of research work is a key motivator.** People creating or joining FROs described being drawn by the opportunity to solve a defined bottleneck outside the traditional academic and startup routes, which may point to shifting incentives in the UK research workforce.
- **There is more than one way to create an FRO.** Two routes have emerged so far: DSIT's Research Ventures Catalyst and the ARIA-Convergent partnership. The form has not yet settled around a single template or incubator.
- **The UK government already has tools to fund and support institutional diversity**. These include the endowment mechanism; various forms of seed, follow-on and matched funding; and the activation partnership model. Eligibility rules, however, were a recurring point of friction between the UK FROs and UKRI support.

- **Universities are widely valued as partners for FROs, but engaging them is a challenge.** Material, cultural and bureaucratic barriers make collaboration difficult. These include limited access to facilities and slow procurement processes. Close integration with universities also risks diluting the FRO model.
- **FROs are prompting a wider debate** about long-unresolved tensions in UK research and innovation, from university reform to the governance of public science funding.

The report makes five recommendations. They are aimed first at UKRI and Innovate UK, and are relevant to other funders, universities and institutions that want to support new organisational forms.

1. **Run further programmes dedicated to creating FROs and other new institutional forms.** Develop and deliver additional programmes specific to FRO creation and launch (and/or other 'alternative forms'). In the first few instances these should be flexible, well-networked, open to being experimental for internal and external stakeholders, and diverse in participant recruitment. Each programme should be independently evaluated, with lessons captured and shared.
2. **Document and share how FROs are launched and run.** Document, socialise and iteratively develop FRO-specific toolkits, programme designs, training curricula, launch processes, transition plan options, and other 'how to' resources for launching, running and engaging with FROs in the UK.
3. **Open up national resources to publicly funded FROs.** Create pathways for FROs with substantial public investment to access national resources such as compute, experimental equipment, follow-on funding and research talent. A first step is to expand and reform UKRI eligibility rules.
4. **Build adaptive processes so new institutions can work with existing ones early.** Develop adaptive processes that allow for experiments in institutional diversity to interface quickly with existing organisations and enable mutually beneficial co-development and early-stage piloting.
5. **Broaden what it means to be an 'entrepreneurial researcher'.** Expand the definition of the contemporary 'entrepreneurial researcher' and support its realisation, so that it means seeking out and building the best organisational pathway for creating impact from frontier research.

1. Introduction

A Focused Research Organisation (FRO) is a novel organisational form designed to fill a gap in mission-driven, product-based technology development that large university research labs, corporate R&D teams and deep tech startups are not well placed to undertake. FROs are non-profit research organisations which pursue prespecified, quantifiable technical milestones within a finite time (usually around five to seven years) and actively deploy public goods (e.g. open-source datasets, toolkits, discovery platforms and models). They are purpose-built around research 'bottlenecks' in frontier research which are arguably too big for a single academic lab, require more coordination than a consortium effort, and are not directly profitable enough for a venture-backed startup or industrial R&D lab.

With calls for 'institutional diversity' in UK research and innovation growing louder[1], the FRO is a useful example of a model (among others in this space) that has been piloted in the US and is gaining traction with both public and private investors. Over the past five years, FROs have moved from concept to reality: ten have been launched in the US by Convergent Research, a charitable organisation which creates, incubates and provides 'mission control' for its subsidiary FROs, anchor-funded by philanthropists. The US government has also announced that it will fund and launch FRO-like structures through its $1.5B X-Labs initiative from 2026/7. The concept has recently moved beyond the US, with three FROs now live in the UK: Bind Research, formally launched in 2025 (funded by DSIT); and Meridial and Echo Labs, launched at the beginning of 2026 (funded by ARIA).

This report traces the development of FROs in the UK, and asks what the journey of the concept and its realisations so far can tell us about: a) the opportunities and challenges that come with the novel FRO form in the UK; and b) more broadly, what it looks like to implement institutional diversity in practice in the UK's research and innovation landscape today. UK FROs are still very new: the three organisations are still nascent. Their experience reveals possibilities with only a preliminary appreciation of the outcomes. This report therefore traces their development and examines how they came to be, what building new research institutions looks like in practice, the roles of the various support organisations within the ecosystem, the structures of the development schemes they were part of, and the opportunities and hurdles that have arisen in these early months and years, at a fractious time for UK research and innovation.

This report is the output of a project funded by the Innovation and Research Caucus and conducted in partnership with Convergent Research UK. The project set out to investigate if and how FROs can contribute to a more resilient UK research and innovation ecosystem. It draws on 30 semi-structured interviews, a stakeholder workshop, discussions at two

[1] Paul Nurse, *Independent Review of the UK's Research, Development and Innovation Organisational Landscape: final report and recommendations* (Department for Science, Innovation and Technology, 2023).

metascience conferences in 2026, private programme documentation shared by Convergent Research UK, and public documents.

The report first gives an account of how the FRO concept developed, how Convergent Research operates, and the genesis of UK government engagement with the model – findings pieced together from interviews, programme documents and the public record. It then gives accounts of how the UK FROs came to be – stories reconstructed with the people who built the institutions. The report is best read as a connected whole, with the model's broader development read in tandem with its UK implementation, in order that that the cross-cutting findings and implications can inform future UK research and innovation policy and practice.

The report is structured as follows. Section 2 sets out the context: the current culture and developments in institutional innovation in UK research and innovation, and why this is the moment to study UK FROs at an early stage. Section 3 sets out the approach taken in compiling this report: the research methodology, the boundaries of what the report examines, and my own orientation and positionality with respect to FROs. Section 4 gives the broader developmental account of the FRO model: its features, the history of its conceptual development, the organisation Convergent Research, and the emergence of government interest in FROs. Section 5 provides the UK account, sharing the origins of the UK FROs and the two pathways taken in their development. Section 6 presents the cross-cutting findings and implications – *the morals of the story*, as it were – for both the impact of the FRO model on the UK and the broader project of increasing institutional diversity in the UK research and innovation ecosystem. Section 7 concludes with a set of recommendations for actors and stakeholders in the UK research and innovation ecosystem who are keen to advance bold, impactful and mission-driven technological development in all manner of research environments.

2. Report context: A changing conversation about UK institutions of research and innovation

The idea of 'institutional diversity' is increasingly reified as 1) a requirement for the advancement and modernisation of the UK's approach to research and innovation, 2) the solution to a sense of stagnation in research innovativeness and 3) a response to what comes next as the crisis in universities in the UK and beyond continues to deepen. A succession of reviews has diagnosed why research fails to reach its potential and what the UK research and innovation landscape should look like in response[2], identifying resource gaps, incentive misalignments, institutional inertia, organisational misfit, and historically embedded structural and cultural barriers.

Over the last decade there have been various initiatives, new organisations and institutional experiments addressing the problem of UK research and innovation not operating as efficiently or having the impact that its potential suggests. These include venture studios like Deep Science Ventures and Zinc VC; policy innovation organisations such as UK Day One Project, the Centre for British Progress and Science Works; alternative philanthropic approaches to science investment, including that of Renaissance Philanthropy[3]; and of course, the formation of ARIA, with both its programme director approach to research funding and its activation partner approach to ecosystem building and technology transfer. The creation of the Metascience Unit inside the Department for Science, Innovation and Technology[4] formalised the UK government's commitment to exploring the science of science – including the institutions by which it functions. Recently proposed alternatives which contribute to the 'unbundling' of the university[5] include the TBI's alternative research laboratory, the Lovelace Disruptive Invention Lab[6], and Zinc Innovation Partner's alternative Tech Transfer Office, Demand Bridge[7]. In the US, the 2026 'Science: A New Golden Age' report by Michael Kratsios[8], Director of the White House Office of Science and Technology, asserts that new institutions are required to "renew [the] foundations" of America's research and innovation ecosystem on the country's 250th anniversary, placing the questions of where research should

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[2] Richard Jones, *Science and innovation policy for hard times: an overview of the UK's Research and Development landscape*, Productivity Insights Paper No. 014 (The Productivity Institute, 2022); Nurse, *Independent Review*; Irene Tracey and Andrew Williamson, *Independent Review of University Spin-out Companies* (Department for Science, Innovation and Technology, 2023); Tony Hickson, *Deepening University-Investor Links* (UKRI, 2026).

[3] Including development of their Frontier Research Contractor organisational accelerator, FRC Launchpad (see https://www.renaissancephilanthropy.org/uk-horizons-frc), and their Programme Director development programme, Big If True Science Accelerator (see https://www.renaissancephilanthropy.org/bits)

[4] Now merged with the Department of Business and Trade under the Andy Burnham government.

[5] https://www.unbundle-the-university.com/

[6] https://institute.global/insights/tech-and-digitalisation/a-new-national-purpose-reimagining-uk-science-and-technology-through-lovelace-disruptive-invention-laboratories

[7] https://www.linkedin.com/posts/zinc-innovation-partners_innovation-without-walls-activity-7441754917347803136-anR7/

[8] https://www.whitehouse.gov/science/

happen, in what manner, and measured in what way, at the core of today's American science policy[9].

Funding R&D has long been a mainstay of philanthropy, however, there has been a renaissance of interest in exploring the frontier of approaches to R&D, against a backdrop of fast-moving technological change. This includes initiatives by Schmidt Futures and Coefficient Giving[10]; the Packard and Kavli Foundations' 'Reimagining Science's Social Compact' call[11]; fast grants programmes focused on accelerating progress (including scientific progress) from organisations including the UK Dynamism Fund[12] and the Centre for British Progress[13]; a popular essay competition from the Astera Institute on identifying systemic bottlenecks in frontier science[14]; and various proposals for new philanthropic approaches to backing frontier research, particularly as large numbers of Silicon Valley donors come online after the AI boom[15]. Increasing numbers of taxonomies and 'maps' of this expanding landscape of institutional diversity and its funding mechanisms, both contemporary and historical, are being published to share examples, inspire new designs, and remind institutions that there are many historical configurations beyond the current list of research settings[16]. The categories of university lab, public research institute, corporate R&D team and venture-backed startup as 'places where research and innovation is done' are rapidly expanding – and so being challenged, both conceptually and in practice, as the best and only places for all varieties of excellent research work in 2026 and beyond.

Whilst new initiatives and concepts have been proposed for some time and there have long been critiques of the current system and practices of undertaking science and research in historical institutions, the present moment is a particular time of flux for research and innovation funding, support and culture in the UK. New strategies launched across UKRI and its research

[9] In the chapter 'Revitalizing America's Science and Technology Enterprise', two of the five key recommendations are to "create new institutional models" (namechecking the National Science Foundation (NSF)'s FRO-like X-Labs programme, as discussed further in the next section of this report) and "Stand up an empowered metascience unit in federal science agencies". See https://www.whitehouse.gov/science/

[10] Including, indeed, co-funding metascience grants *with* DSIT.

[11] https://www.kavlifoundation.org/reimagining-sciences-social-compact-a-call-for-letters-of-interest

[12] https://ukdynamism.fund/

[13] https://britishprogress.org/news/fast-grants-for-british-progress-call-for-proposal

[14] https://astera.org/essay-competition/

[15] https://nanransohoff.substack.com/p/the-third-wave-of-american-philanthropy and https://www.palladiummag.com/2025/08/22/the-case-for-crazy-philanthropy/

[16] Examples include Analogue Group's 'living archive' Second Renaissance (https://www.secondrenaissance.now/) and Analogue Press' "A Taxonomy of R&D Orgs" (https://analogue.press/p/a-taxonomy-of-r-and-d-orgs); Sam Arbesman's Overedge Catalog (https://arbesman.net/overedge/); Davild Hilmer Rex's metascience organisations directory (https://davidhilmerrex.nu/metascience/organizations); Eric Gillam's "operational histories on history's best R&D orgs" publication Freaktakes (https://www.freaktakes.com/); the Institute for Progress' interactive Atlas of Innovation, focused on innovation funding mechanisms (https://atlasofinnovation.org/); and Bianca Le's Structures for Research (https://structuresforresearch.com/).

councils shift the UK more explicitly towards outcome-based science funding[17]. There has also been a recent change of Prime Minister, which has already resulted in departments restructuring and merging[18] coupled with U-turns on announced decisions relating to research and innovation infrastructure[19]. There is a renewed focus on regionality, which has not yet – at the time of writing – diffused at scale in research policy, though change is anticipated[20]. Universities are facing fiscal crises which challenge many institutions' ability to continue operating, with drastic staff cuts, budget reductions and savings-induced mergers proposed throughout the UK[21].

All of this raises the question of what these pressures mean for *how science and research are supported in the UK* and whether they will prompt institutions to rethink that support – or, put another way, what a resilient research and innovation ecosystem needs to sustain and increase its ambition. FROs are a live experiment that responds to this question.

[17] In contrast to the UK's long history of prioritising funding excellent science and trusting the economic and societal payoffs will follow, underpinned by the Haldane Principle (expert researchers make decisions on funding as opposed to ministers). The recent tonal shifts and 'bucket' approach of UKRI is more familiar to science policies and approaches of the likes of Germany and South Korea, where there is more directionality in funding towards specific defined outcomes. For more, see Ian Chapman's open letter to the research community from February 2026 (https://www.ukri.org/news/open-letter-from-ian-chapman-to-research-and-innovation-community/) and a report commissioned by the Russel Group, undertaken by PWC, which compared research funding systems internationally (https://www.pwc.co.uk/industries/government-public-sector/education/international-research-funding-systems-comparative-analysis.html).

[18] Burnam's government instituted a redistribution of the responsibilities of the Department of Science, Innovation and Technology, including the Cabinet taking the lead on AI; the Government Digital Service moving under the Department of Digital, Culture, Media, and Sport; and much of the rest of DSIT being merged with the Department of Business and Trade to become the Department for Business, Innovation, Science and Trade (https://www.gov.uk/government/news/machinery-of-government-changes-fact-sheet).

[19] For example, Burnam's recent vow to save the Jodrell Bank Observatory, despite UKRI's decision to not prioritise further funding following its current agreement-end in March 2028. See: https://www.bbc.co.uk/news/articles/cm2qj7jzl7no

[20] See, for example, this Research Professional News piece considering whether Burnam will deploy R&D 'Manchesterism' across the UK: https://www.gov.uk/government/news/machinery-of-government-changes-fact-sheet.

[21] See, for example, this House of Commons committee report from May 2026, detailing the mounting financial pressures, the threats of insolvency, and the impacts on both domestic and international staff and students: https://publications.parliament.uk/pa/cm5901/cmselect/cmeduc/807/report.html.

3. Report approach: Researching UK FROs as they emerge

3.1 Report aims

This report examines the state-of-play with FROs in the UK. To do this, a focus is placed both on the story so far (what the early development experiences have entailed, who has had a role in shaping FROs, what challenges and needs have arisen for the teams and their supporting networks, and how has the surrounding ecosystem responded) and considers what stakeholders believe are the next steps – for funders, universities, individual researchers, policymakers – for FROs to develop productively in the UK.

The report responds to four research questions:

1. What conditions enable or constrain the early development of FROs in the UK?
2. What role might FROs play in building a more innovative and resilient UK research and innovation ecosystem?
3. What are the specific opportunities and challenges for FROs in accessing UKRI and Innovate UK resources, such as funding, infrastructure and skills support?
4. What changes could UKRI and Innovate UK make to better support FROs and similar mission-driven organisational models, while advancing their own strategic aims?

3.2 Research methodology

Because FROs are embryonic in the UK, there is insufficient comparable data on the efficacy of the organisational form compared with R&D undertaken in university or industrial settings.

The data that informs this report includes:

- 30 semi-structured research interviews with those directly involved with UK FROs, those in surrounding or supporting organisations, those in the broader UK research and innovation ecosystem affected by the emergence of FROs, and some representatives of US FROs and associated organisations.
- Discussions from a two-hour stakeholder workshop held at the ARIA offices in summer 2026 with 18 people engaged with FROs in a professional capacity (some interviewed, some not), who responded to a presentation of early findings and unresolved tensions in the data[22].
- Background discussions at two conferences which took place in the UK this summer: the DSIT Metascience Unit cohort event (where Anastasia Gamick presented the FRO concept and so prompted much discussion in the coffee breaks), and the Reorganising

[22] The key unresolved tensions discussed – which were drawn from an initial rounds of thematic analysis of the interviews conducted before the workshop (only a few happened after) – were: whether or not FROs could exist within or alongside existing UK research institutions; how UK public funds and structures could support (or not) imported US models built with private funding; what the role of Convergent Research was in the UK context; and what the FRO model is 'good for'.

Research retreat convened by Science Works and the Wellcome Trust (where institutional innovators, ecosystem actors, academics and funders – including Convergent and FRO representatives – gathered to discuss the future of the UK research and innovation landscape).

- Private documentation from Convergent Research UK's FROST programme, generously shared through a formal research partnership and data sharing agreement between the University of Glasgow and Convergent Research UK.
- Public documents (reports, articles, videos, social media posts etc.) which capture the FRO concept over time, and how it has evolved and been received in the UK context. These are cited in the notes.

I have compiled the information presented in this report by analysing insights across these data sources, through several stages of interpretation, presentation, peer and stakeholder feedback and subsequent revision.

Interviews were semi-structured around the project's four research questions, depending on whether the interviewee was an active FRO founder or employee, or a member of the broader research and innovation ecosystem. Interview topics for those directly involved with FROs included: e.g. how each person came to the FRO form, how the organisation was set up and funded, their interactions with UKRI, Innovate UK and other public bodies, and what they saw as next steps. Interview topics for those in the wider research and innovation ecosystem included: e.g. what their interaction with FROs had looked like, if and how they were planning to engage with existing/future FROs (whether through Convergent or otherwise), what challenges exist in the ecosystem which FROs do or do not address, and what they saw as the role of FROs in the UK ecosystem more broadly.

Notes from the interviews, documents, and the workshop were mapped by theme. For the account of the FRO model (Section 4), public documents such as articles and reports were read in tandem with interviews with people involved in developing and creating FROs, so that the rationale and practice behind the model were examined rather than taken from the published record alone. For the UK accounts (Section 5), interviews with those involved directly in the UK FROs as well as the supporting organisations and functions were analysed, and in the case of the Convergent Research UK FROs, were combined with private FROST and Founder in Residence programme documentation. Themes that recurred across accounts, and points on which accounts differed, formed the basis of the cross-cutting findings in Section 6.

Early findings, including tensions that remained unresolved, were presented at the stakeholder workshop, and the report was revised in light of participants' feedback and that of academic peers. Any errors are entirely my own.

3.3 Author orientation and positionality

I came to this research as neither a neutral outsider nor a participant in the FRO movement.

My research places me within this field: my research is focussed on how science is translated into impact through organisational models, intellectual property arrangements and financing mechanisms. I have a particular positive orientation towards alternatives to the dominant 'lab to market' pathway. FROs, then, sit within a wider set of organisational forms I have been tracking. I know and work with some of the people in this report, and I work inside the type of institution that FROs are positioned as an alternative to. This project gave me privileged access to Convergent Research UK, which was a named partner on the grant and was paid for its staff time. And, based on the findings of this research, I signed the open letter asking UKRI to reform its eligibility rules (see note 53).

As an academic sociologist, I am also an observer. Before academia I worked in science journalism, focused on deep tech startups in Europe, and I wrote a book on the role of hype in science and technology[23]. That background makes me particularly wary of promissory narratives, and the FRO, which is being talked about with real enthusiasm, is the kind of idea that can attract hopeful and idealistic rhetoric.

I have therefore treated the model as something to be examined as well as something that might be useful. Early findings and tensions were presented to stakeholders at a workshop (see note 22 above), and the report was revised in light of their feedback. I interviewed respondents and analysed documents from within and outwith the FRO community. I also incorporated academic peer feedback from presenting and discussing the work in developmental settings (academic conferences, workshops, personal communications etc.).

My own conclusion from undertaking this work is that FROs are a welcome alternative to existing research institutions in the UK, in that:

a) they 'exist', and have emerging support infrastructure which allows some forms of research and technology to materialise today that might not otherwise have existed; and
b) they are prompting and a catalyst of a much-needed debate in that they are forcing existing research and innovation organisations, institutions and funders to reconsider what is needed, what is right, and what is possible.

FROs are much like a new species of plant which has entered the ecology of UK research and innovation. So far the broader systemic impact remains slight, but the model is turning over the soil and inviting new and stimulating microbes and catalysts into the system – which we should celebrate in this moment of institutional diversification in UK research.

Whether the FRO model is 'right or wrong' for the UK is a matter of opinion in the absence of efficacy and output data. My conclusion in compiling this report is, however, that stakeholders should pay greater attention to this emergent model, and get involved in shaping and co-

[23] Milne, G. (2020) *Smoke & Mirrors: How Hype Obscures the Future and How to See Past It.* Hachette UK.

creating it as it continues to develop in the UK. FROs have already taken root, both as real organisations in the UK and as new possibilities in the minds of ambitious researchers young and old. Stakeholders should now consider what this new ecological actor means for the strategies, investments and visions of the UK's existing research institutions.

4. The development of the Focused Research Organisation model

This section introduces the FRO model as it was conceived and has since developed: what an FRO is, where the idea came from, how Convergent Research turned it into a working model, and how governments have begun to take notice[24]. The analysis is pieced together from interviews and programme materials and provides the conceptual basis of the *idea* of the FRO. In the sections that follow, I trace how the model has developed in the UK and what this journey from concept to local materialisation implies, leading to concrete recommendations for UK research and innovation policymakers and stakeholders.

4.1 The FRO concept*

FROs are designed to tackle scientific and technological problems that promise substantial advancement of a field yet remain poorly addressed because their likely results do not fit the incentive structures and operating models of existing institutions.

In practice, this means addressing a so-called 'bottleneck' that holds back a whole field and that no single actor has the incentive or capacity to remove. For example:

> **Cultivarium** works on the difficulty of studying and engineering the world's diverse microbes: many are hard to grow in the laboratory, engineering them is slow, and information about them is scattered across databases. The FRO is thus building a high-throughput platform for culturing difficult microbes, a cross-species genetic toolkit, and a portal that gathers experimentally actionable information on more than 170,000 microorganisms[25].
>
> **EvE Bio** addresses the fact that no drug acts only at its intended target, yet developers screen for only a small set of known problem targets. The FRO aims to establish a discipline they call 'pharmome mapping', systematically identifying drugs' off-target interactions, and release a public dataset of its drug-target results[26].

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[24] It has been suggested that previous research initiatives could be considered 'the original' FROs (For example, see: https://www.macroscience.org/p/metascience-is-ignoring-the-national. Indeed, Rodrigues and Marblestone, as discussed later in this section, attribute inspiration to many of these such research efforts). This report focuses on organisations built on the concept set out below, proposed by Sam Rodriques and Adam Marblestone, and subsequently developed by Marblestone, Anastasia Gamick and the team at Convergent Research. See: https://www.nature.com/articles/d41586-022-00018-5; https://fas.org/publication/focused-research-organizations-a-new-model-for-scientific-research/; and https://issues.org/focused-research-organizations-fro-marblestone-gamick-wang-fridman/.

[*] I am grateful to my colleague Felix Honecker for his assistance in initially drafting this section.

[25] https://www.convergentresearch.org/ecosystem/cultivarium

[26] https://www.convergentresearch.org/ecosystem/eve-bio

In each case the missing resource (a platform, a dataset, a method, a set of tools, etc) is a public good that would let many others make progress. Building it takes a dedicated, multidisciplinary team over several years, which suits the incentives of neither the academic grant cycle, corporate R&D budget terms, nor a venture-backed business model.

For this class of research problem, FROs offer a vehicle intended to fill this institutional gap (see Figure 1). As the diagram illustrates, the gap sits where three attributes overlap – a large-scale effort, a tightly coordinated and focused team, and the production of public goods rather than private returns – of which individual academics, academic consortia, startups, industrial R&D labs and corporations each combine at most two. Instead of pursuing a distributed portfolio of projects, an FRO creates a dedicated organisation around a particular research bottleneck, with the people, funding, infrastructure, management model and incentives needed to remove it.

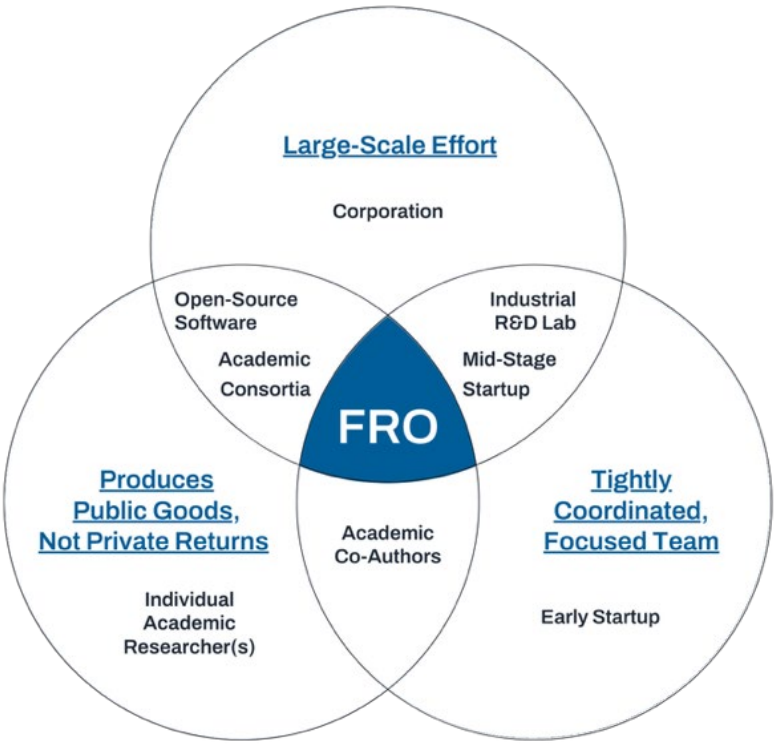


Figure 1: The institutional gap filled by FROs (source: Convergent Research)

Five features are particularly characteristic of the FRO model:

1. **Pursuing an enabling research or engineering-based goal (a 'bottleneck')**

An FRO is created in response to a specific research or engineering-based constraint that is holding back progress across a wider field. This can take many forms, such as the absence of a critical dataset, measurement capability, experimental platform, technical standard, research infrastructure or enabling technology. The objective is to remove a bottleneck whose resolution

would enable a cascade of follow-on activity, allowing the larger community of researchers, companies or public institutions to make substantial progress in the field – Convergent articulates this as a "scaled revolution". The bottlenecks represent deep technical challenges (as opposed to a straight buildout); they are engineering- and coordination-intensive, and cross-disciplinary. Engineering such solutions means building to a standard that is robust enough for the wider field to depend on, rather than stopping at a working proof of concept. It also means resisting market pressure towards a reduced but more polished version: staying focused on what needs to be built for the research field to advance (not a single industrial application), regardless of what other incentives might pull the organisation away from its mission.

2. **Mission-focused, milestone-driven and time-bound**

FROs are organised around a clearly defined technical mission (a "north star") rather than an open-ended field of inquiry (as is often the case with traditional academic research projects). They typically operate over a set period (often five to seven years), with specific, quantifiable intermediate milestones and a defined endpoint with a transition plan (Convergent sometimes terms these "impact exits"). While the FRO's mission should be ambitious enough to justify a dedicated organisation, it should also be concrete enough that progress can be measured, and the organisation can determine whether it is on track and whether it has succeeded in resolving the core problem it was founded to address.

3. **Producing public good 'products'**

The principal outputs of an FRO are intended to generate value across a wider research or innovation ecosystem. These outputs may include datasets, open tools, protocols, platforms, infrastructure, standards or other foundational capabilities that many downstream actors can use to accelerate scientific progress. FROs are thus creating 'products' (rather than 'research' alone), because their outputs must be accessible and usable, satisfy a research or discovery need and create impact through their use and deployment. The focus on public goods does not necessarily preclude commercialisation: technologies developed by an FRO can subsequently be licensed, spun out into separate ventures, or otherwise developed commercially, where this provides an effective route to large-scale adoption while maintaining the broader enabling purpose of the original programme.

4. **A dedicated non-profit organisation with startup-like execution**

An FRO brings a full-time multidisciplinary team into one organisation. This allows its team members to focus on resolving a key bottleneck without having to attend to other institutional obligations (such as publishing in journals, teaching or supervising PhD students or other performance metrics in academia). Although typically non-profit, FROs borrow elements of start-up and agile operating models – for example, tight coordination, rapid decision-making, strong operational autonomy, clear ownership of technical milestones, and the ability to recruit around the needs of the mission. They are led by a full-time CEO and build up to teams of 10–

30 people, predominantly including research scientists and software and hardware engineers, but also including crucial operations leads, administrative and finance professionals, and partnership directors. By registering as private organisations, FROs have the added advantage of being able to set pay at levels that pull together competitive teams (in comparison to the standardised pay grades applied in UK academia), which can help incentivise career moves away from both industrial research jobs and the traditional prestige and job security of academia (as has already happened in some instances in the existing FROs to date).

5. **Large scale, flexible funding**

FROs are designed as ambitious, coordinated research projects. This requires competitive hiring (i.e. pay good enough to tempt world-leading personnel from across industry and academia); flexible budgeting (i.e. funding justified by detailed technical plans which clearly lead to progress towards solving the defined bottleneck, but which allows for the pivots required to stay on track); access to (or purchase of) advanced science and engineering infrastructure and lab space; and a focused runway of five to seven years, without the distraction of additional funding rounds or of having to change direction to fit a new funder's remit 'just to get the money'. Being able to 'just' buy additional equipment which wasn't originally planned for, or 'just' hire an additional engineer or researcher to advance a newly unearthed but crucial strand of development mid-project, is central to the design of the FRO, and it is what differentiates both the concept and the type of funding appropriate to it from traditional academic and grant pathways. FROs thus often need a large anchor funder providing the bulk of the total, who can provide funds in a flexible, low-condition manner.

These five features are the working definition of the model used in this report. It is drawn from analysis of the founding documents, Convergent Research materials and interviews with those involved in the model's development. The UK journeys in Section 5 can be read as these features meeting UK institutions, funders and rules.

4.2 Origins and evolution of the FRO concept

The origins of the FRO concept can be traced to discussions in Ed Boyden's lab at MIT, where Adam Marblestone, Sam Rodriques, Andrew Payne and others were discussing the difficulty of organising large-scale, technology-intensive research projects (particularly in neuroscience) within conventional academic structures[27]. Drawing on these discussions, Rodriques wrote a section of his 2019 PhD thesis proposing a "new structure for scalable research", drawing inspiration from organisational precedents including Bell Labs, the US Defense Advanced

[27] https://news.mit.edu/2025/former-mit-researchers-advance-new-model-innovation-0606

Research Projects Agency (DARPA) and the Human Genome Project to describe and justify what became the idea of Focused Research Organisations[28].

Alongside this structural and organisational thinking, Marblestone and Boyden were working on a roadmapping model which linked the building of advanced engineering tools to the subsequent unlocking of (neuro)scientific discovery. Marblestone was appointed Director of Scientific Architecting at the MIT Media Lab, a position created by Boyden, and the two went on to co-author their 2019 Neuron article 'Architecting Discovery'[29], laying out their systematic process of mapping scientific problems and working backwards to the technology and tool design needed to solve them[30].

The combination of these ideas – a novel organisational structure and engineering-first, tool-design models for scientific discovery – travelled into science policy conversations. During a 2020 Federation of American Scientists fellowship, Marblestone worked with Tom Kalil (then Chief Innovation Officer at Schmidt Futures[31]) and interviewed researchers across disciplines. The interviews revealed similar demand for medium-sized, tightly coordinated teams given the opportunity to focus exclusively on solving an intricate research or engineering challenge whose resolution would enable field-level scientific advancement[32]. Rodriques and Marblestone codified the model as the concept of Focused Research Organisations in a September 2020 policy proposal for the Day One Project[33], turning their ideas into a proposition for an actionable organisational form addressing core bottlenecks[34].

4.3 Convergent Research

The proposal subsequently attracted substantial philanthropic backing from Eric and Wendy Schmidt through Kalil, among other philanthropic backers, and in 2021 Marblestone and Anastasia Gamick established Convergent Research as a non-profit incubator for and funder of FROs. Since then, Convergent Research has created ten US FROs as subsidiary non-profit organisations[35] and raised over $400m of philanthropic, industrial and government capital to

[28] https://dspace.mit.edu/entities/publication/0359ac48-54ec-4d90-8e01-a6d270d2dcfe
[29] https://www.sciencedirect.com/science/article/pii/S0896627319302867
[30] Convergent Research now maintain a live 'Gap Map' database which gathers what they call 'fundamental development projects' (R&D gaps) along with 'foundational capabilities' (tools, technologies and data which could address the related R&D gaps): https://www.gap-map.org/
[31] The philanthropic organisation of Eric and Wendy Schmidt, now transitioned to Schmidt Sciences.
[32] https://news.mit.edu/2025/former-mit-researchers-advance-new-model-innovation-0606
[33] This was a 2019 Federation of American Scientists initiative which called for ready-to-implement science policy proposals to present to new presidential administrations in the US. See: https://fas.org/day-one-project/
[34] https://web.archive.org/web/20210305213044/https:/www.dayoneproject.org/post/focused-research-organizations-to-accelerate-science-technology-and-medicine
[35] https://issues.org/focused-research-organizations-fro-marblestone-gamick-wang-fridman/

fund them[36]. One of the first to launch was E11 Bio, led by Andrew Payne, followed by Cultivarium[37], [C]Worthy, CHI-FRO, Parallel Squared Technology Institute (PTI), EvE Bio, Lean FRO, Forest Neurotech, Imprint and Dragonfly (see Table 1 below for details).

Convergent, as the parent organisation of the FROs, acts as what it terms their 'mission control'. It provides employment, payroll and benefits to FRO employees; HR services; finance services (tax, accounting, audit, reporting, federal grant management, budgeting etc.); legal services (review of documents and contracts, access to counsel etc.); purchasing services (e.g. vendor onboarding, purchase orders, bill payment); and fundraising strategy guidance. With this wrap-around service, the interdisciplinary teams are able to build their organisations quickly and focus on the research and technology development their bottleneck requires.

Convergent Research also plays a steering role, requiring each FRO to create a governance board (a formal three-person board which oversees progress, alignment to the mission, and compliance and fiscal management); an impact committee (a formal three- to seven-person board which discusses IP considerations and makes recommendations to Convergent's technology transfer office (TTO); and a scientific advisory board (an informal, non-governing board which provides technical expertise). Each board has at least one FRO board member and one Convergent board member. Under Convergent's technology transfer policy, the FROs own their IP but manage it according to the policy, which is designed to balance tensions such as enabling commercial spinouts while ensuring public benefit; moving quickly while maintaining oversight; and allowing funders to benefit while avoiding conflicts of interest. The impact committees discuss and decide how the tools and technologies developed will be deployed as public goods, and how mission-driven impact is designed into post-FRO transition planning (whether by creating a foundation to host and manage the goods, issuing licensing agreements for spinout development, sourcing a university partnership to continue the work, etc.). These committees make proposals to the Convergent TTO on how FRO discoveries should be disseminated for maximum public benefit, and the TTO makes the final decision on licensing.

The most recent FRO transition, at the time of writing, involved Forest Neurotech, which spun out a brain-computer interface startup called Merge Labs with $252m in funding from OpenAI and Bain Capital among others, co-led by Forest Neurotech's CEO Sumner Norman & CSO Tyson Aflalo, and Sam Altman[38]. The model Merge Labs will likely follow gives it access to the

[36] Funders include the Alfred P. Sloan Foundation, ARPA-E, Chan Zuckerberg Initiative, Foresight Institute, The Francis Crick Institute, Ken Griffin, Open Philanthropy, Simons Foundation International, Stripe, and the Wellcome Trust.

[37] Boston-based Cultivarium received a $10m (£7.3m) discretionary award from Wellcome in 2024, which is another example of early FRO activity linked to the UK. See: https://www.fiercebiotech.com/research/non-profit-cultivarium-nets-10m-build-tools-researchers-studying-fungi-and-archaea

[38] https://www.wired.com/story/sam-altman-brain-computer-interface-merge-labs-spin-out-nonprofit-forest-neurotech/; https://www.essentialtechnology.blog/p/announcing-merge-labs

technology developed by Forest Neurotech (as a public good) and then an exclusive licence for particular indications. Forest Neurotech plans to continue to operate as a non-profit to maintain and develop its public goods in line with its original mission.

4.4 The emergence of government-backed FRO-like structures

The UK government is the first to invest substantially in FROs through DSIT's Research Ventures Catalyst programme in 2023 (creating Bind Research), and through ARIA's partnership with Convergent Research UK (creating Echo Labs and Meridial). The details of these programmes and the resulting UK FROs are presented in the next section of this report.

Using public funds to back private non-profit research organisations raises many questions about the zero-sum 'game' of assigning science and innovation budgets. These include what the impact on universities would be; what role (or level of) public accountability and governance should play in the evaluation and ongoing operations of these heavily publicly backed new structures; and what kinds of risk government science funders and policymakers are willing to reassess with the advent of new approaches to research operations. US FROs have so far been predominantly philanthropically backed, with a level of freedom and autonomy built into the organisations and enabled by their funders. This raises the question of how similar publicly backed FROs can be, and how closely they can align with the conceptions and intentions expressed in the original 'pitch' for FROs.

Beyond the data and early insights this report gathers on the development of UK FROs to date, much more evidence will be 'coming online' soon. The US NSF's $1.5B 'X-Labs' initiative[39] is, at the time of writing, at the proposal evaluation stage. The scheme has defined two topic areas in which it is inviting submissions, 'quantum interconnects and integrated quantum photonics' and 'scientific instrumentation for sensing and imaging' and has a development Phase 0 followed by an activation Phase 1; the go/no-go selection of funded teams is to take place in summer 2027. The initiative plans to use Other Transaction (OT) contract awards rather than grants to fund the awardees[40]. It will generate evidence not only on the organisational forms, the scientific outputs, and the role of US government funding and coordination, but also on public and ecosystem sentiment, given the recent NSF leak pointing to cuts in the maths and physical science budgets to fund the X-Labs programme[41]. There is also a C$27M regional initiative by Research Nova Scotia, launched in 2025, funding what it calls 'focused research investments', or FRIs, around defined issues such as 'aging well', 'indigenous health', 'youth mental health' and 'community safety'[42]. Governmental interest in investing in FROs and FRO-

[39] https://www.nsf.gov/funding/initiatives/nsf-x-labs
[40] For a thorough explanation, see: https://casrai.org/guides/nsf-x-labs-other-transactions-authority-milestone-funding
[41] https://www.science.org/content/article/exclusive-nsf-slashes-research-programs-support-new-tech-initiative-insiders-say
[42] https://issues.org/nova-scotia-focused-research-investments-leslie/

like structures (and in using innovative financing mechanisms to do so) is thus increasing, and the results of these initiatives over the next five years will provide crucial evidence for science and innovation policy worldwide.

Table 1: List of FROs created to date[43]

FRO	Formed	Country	Route / parent	Activity
E11 Bio	2021	US	Convergent Research Inc	Building scalable technologies for circuit mapping at the resolution of single cells in mammalian brains.
Cultivarium	2021	US	Convergent Research Inc	Developing genetic tools for previously unengineered microbes.
CHI-FRO	2023	US	Convergent Research Inc	Building field-wide standard machine-executable models of the human mind that explain the workings of the brain.
[C]Worthy	2023	US	Convergent Research Inc	Building open-source, science-backed tools to support the growth of trustworthy, scalable ocean-based carbon dioxide removal.
EvE Bio	2023	US	Convergent Research Inc	Actualizing a new biomedical discipline: mapping the pharmome. Pharmome mapping identifies all the unintended targets ("off-targets") of small-molecule pharmaceutical drugs, because no drug acts at only its single intended target in the human body.
Forest Neurotech	2023	US	Convergent Research Inc	Advancing neuroscience by developing ultrasound 'read/write' neurotechnology that is accessible, less invasive, and adaptable across many use cases.
Imprint	2023	US	Convergent Research Inc	Building experimental and machine learning tools in forensic immunology to identify the hidden causes of and cures for chronic diseases.

[43] At time of report finalisation, a further FRO has been launched by Convergent Research Inc (Melody). As this FRO was not considered as part of the dataset of existing FROs during the research period, I have not included it here.

FRO	Formed	Country	Route / parent	Activity
Lean FRO	2023	US	Convergent Research Inc	Making formal verification more accessible across mathematics research, software and hardware verification, and AI-assisted theorem proving.
Parallel Squared Technology Institute	2023	US	Convergent Research Inc	Scaling up mass spectrometry tools and workflows to accelerate single-cell proteomics to reveal how protein patterns shape health and disease.
Bind Research	2023	UK	Independent; DSIT RVC	Mapping drug-binding capacities for disordered proteins.
Dragonfly	2025	US	Convergent Research Inc	Building a telescope array capable of revealing hidden reservoirs of gas from which galaxies form, testing core ideas for how structure emerges in the Universe, and probing dark matter.
Echo Labs	2026	UK	Convergent Research UK; ARIA	Building new infrastructure to represent the natural world and make it legible enough to model, compare, and forecast.
Meridial	2026	UK	Convergent Research UK; ARIA	Building a platform for longitudinal, synapse-resolution mapping of functional neural circuitry in preclinical models.

5. The development of FROs in the UK

Three FROs currently operate in the UK (as of October 2026): Bind Research, Echo Labs and Meridial. This section begins with Bind Research and the Research Ventures Catalyst route, then turns to Meridial and Echo Labs and the ARIA and Convergent route (including the FROST UK programme and its Founder in Residence cohort). It closes with what is next for UK FRO support. Table 2 provides a timeline of the organisations and programmes involved, pairing the journey of the FRO concept and model with its realisation in the UK.

Table 2: Timeline of the FRO concept and UK FRO activity

When	What happened
2019	Sam Rodriques' PhD thesis proposes a 'new structure for scalable research'; Adam Marblestone and Ed Boyden publish 'Architecting Discovery' in Neuron.
2020	Marblestone's Federation of American Scientists fellowship; the FRO concept is codified in a September 2020 Day One Project policy proposal by Rodriques and Marblestone.
2021	Convergent Research established by Marblestone and Anastasia Gamick, with philanthropic backing including Eric and Wendy Schmidt.
2023	DSIT announces the Research Ventures Catalyst (RVC; £50m); Paul Nurse's independent review of the UK research and innovation organisational landscape is published.
2024	RVC scoping stage: up to £100k of seed corn for 12 teams, including Bind; investor event in July; Bind builds its proposal and match funding.
2025	Jan-Feb: Bind Research is formally incorporated, and £12.9m RVC investment and £12.9m co-funding announced. Jun-Dec: First FROST UK Founder in Residence cohort (90+ applications, 5 teams, £38k each).
2026	Meridial (£14m) and Echo Labs (£7m) launch as Convergent Research UK subsidiaries, funded by ARIA.
2026-7	US NSF X-Labs ($1.5B) in proposal evaluation, with go/no-go selections in summer 2027; decisions pending on a second FiR cohort and on the future of the RVC.

5.1 Bind Research

Bind Research focuses on making intrinsically disordered proteins druggable by "screening millions of disordered protein/drug molecule targets to learn the rules of drugging disordered proteins"[44] and creating open databases, computational tools and experimental protocols accessible to anyone. It was founded through the Research Ventures Catalyst programme, administered by DSIT, in 2023, receiving £12.9m of funding through a Treasury endowment (plus £12.9m of non-public co-investment, predominantly matched philanthropic funding).

5.1.1 The need for a different organisational form

As an academic in a university setting, Gabi Heller (now Bind Research's CEO/CSO) was working on the problem of discovering the rules of intrinsically disordered proteins (those that don't have a set structure which allows for a 'lock and key' approach to finding a suitable drug target), in order ultimately to make them 'druggable'. Her research showed that a small, drug-like molecule could interact with one of these 'spaghetti-like' proteins. However, the lack of experimental data made it unclear why. The next step towards making these proteins – which make up a third of human proteins – druggable was to create an industrial-scale database, open for other researchers to build their own discoveries on top of. She quickly realised that this kind of research work didn't fit the traditional 'publish papers and apply for grants' structure of postdocs and academic labs. There was some traction in the for-profit venture capital setting for targeting just one, or a few, disordered proteins towards drug candidates, but creating the general tools and datasets and giving them away was not a profitable prospect. She knew that creating these public goods would take five to seven years and an interdisciplinary team of hardware and software engineers and scientists, all focused on building the dataset rather than their academic CVs. It was clear this was not a standard academic research prospect: it was unlikely to attract the right grant or the right team in a university setting. Heller had come across the concept of the FRO through her networks and her affiliation with Schmidt Futures as one of its 2020 Schmidt Science Fellows and had discussed the potential of UK FROs with Sam Rodriques and Erika Alden DeBenedictis[45].

In the early days of ARIA's development, Heller was in touch with the team about whether her research programme could work in the hub-and-spoke, Programme Director-led model ARIA was building[46]. She knew it required one focused interdisciplinary team working towards a shared goal, so the prospect of an ARIA-backed FRO was discussed, given the ARIA team's existing knowledge and exploration of the model. The plan was to stay in touch and hope that a mechanism would be created that Heller could apply to.

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[44] https://bindresearch.org/

[45] Erika published in influential 'quick-start guide to research nonprofits' in 2023: https://erikaaldendeb.substack.com/p/erikas-quick-start-guide-to-research

[46] Taking inspiration from US DARPA and ARPA-based models.

5.1.2 The Research Ventures Catalyst journey

That mechanism was created, but before ARIA got going with Convergent Research, DSIT announced the Research Ventures Catalyst (RVC) programme in 2023, of which Heller and her team were ultimately one of three final awardees. The RVC fund was £50m in total and was designed to "stimulat[e] the creation of novel research ventures, via entrepreneurial team-based approaches in collaboration with partners drawn from the public sector, industry and the third sector"[47]. The programme was initiated alongside Paul Nurse's independent review of the UK's research and innovation organisational landscape[48], given its strong recommendations on the need for institutional diversity. The RVC was not specifically looking for FRO applications – only one of the three successful ventures is an FRO – but in its information sessions for prospective applicants it did give the FRO, inspired by the work of Convergent and Schmidt Futures, as an example of the kind of innovation in venture creation it was looking for.

The RVC had a two-stage process. The first was a scoping phase in which successful applicants were awarded up to £100k of 'seed corn' funding to build their venture and programme proposal over six months. The RVC's eligibility criteria stated that applicants had to be hosted at a research organisation or a small or medium enterprise (SME); Bind's application was financially sponsored by Deep Science Ventures[49] (a for-profit SME), so under UKRI rules it was eligible for only 70% of its claimed costs. The point of the seed corn investment was venture creation rather than the science itself, so Heller hired consultants, lawyers and financiers to help her work out what it meant to build an FRO in the UK. During the funded period in 2024, the team answered questions such as what kind of organisation (charity, company etc.) to register as, how to create a multi-million-pound budget, how to set salary bands without using public university scales, where a lab could be built, how big the team should be and how to recruit them, and what the collaboration model should look like.

As part of this scoping stage, Bind had to decide how much funding to request in stage two (up to £25 million) and find one-to-one match funding from non-government sources to commit by the upcoming funding deadline. Being one of the 12 teams selected at the scoping stage, with £100k to develop the proposal, supported Heller and her team's approach to philanthropists to secure match funding. The team at Renaissance Philanthropy helped them reach potential funders, and the RVC held an investor event in July 2024 for the 12 finalists to pitch their work to interested backers. Bind Research was officially incorporated as a private company limited by guarantee in January 2025, with three co-founders – Gabi Heller (CEO/CSO), Gogulan Karunanithy (Director of Magnetic Resonance) and Thomas Löhr (Director of Compute) – a founding CFO, Melissa Strange, and a founding COO, Marcus Harrison. In February 2025, the RVC investment of £12.9m was officially announced, along with £12.9m co-funding from Eric

[47] https://www.gov.uk/government/publications/research-ventures-catalyst
[48] Nurse, *Independent Review*.
[49] DSV is a deep tech venture creator based in London: https://www.deepscienceventures.com/

and Wendy Schmidt, NanoTemper, the Chordoma Foundation and the Klaff Family Foundation. Bind Research has received not only cash but in-kind support (e.g. free loans of equipment for the five-year lifetime of the FRO) and donated instruments (e.g. an NMR machine Imperial was no longer using, given to Bind for free on the condition that it paid to move it).

Unlike most UKRI research funding, which is distributed as grants, Bind's public funding was distributed as an endowment[50]. When the RVC was being designed, endowments were not the chosen vehicle – Bind is in fact the only RVC-funded organisation with an endowment; the other two are funded through traditional grant structures – so crafting the funding vehicle became a collaborative endeavour between Bind, the RVC team in DSIT[51] and the Government Actuary's Department (GAD)[52]. The RVC team awarded Bind around £30k to procure consultants to explore the funding pathway and map the repercussions responsibly ahead of the decision, and then to source RFPs from endowment managers, help with interviewing and selection, and structure the subsequent monitoring of the chosen endowment manager. By supporting Bind thoroughly in creating its investment strategy with a qualified finance professional, RVC and GAD were able to ensure that the risk around the endowment was managed responsibly, ensuring accountability to the Treasury (and, by extension, the public).

Having the upfront lump sum gave Bind enormous ability to pivot, and to avoid mission drift by staying focused on the goal rather than on how to move and acquire sums of money and resources for planned steps whose timing often changes. For example, getting the NMR machine involved many moving parts, including adapting the lab space (changing ceiling heights, putting in emergency exits etc.) and finding a means of moving such a specialist piece of equipment. By the time the second-stage proposal went in to the RVC, the NMR machine remained unconfirmed because the lab location had not been decided and so it wasn't clear what it would take to accept it. When the endowment came in, it allowed Bind to respond to the organisation's immediate needs as they arose, and to make and act on decisions without worrying about when the next tranche of money would arrive to pay for them – including acquiring the crucial NMR machine. The endowment has also allowed Bind to pivot towards more efficient methods discovered along the way, which were not in the original proposal.

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[50] Where grants are essentially a promise made for a total sum, which is then claimed back against over the course of the activity until the project is done (and thus paid in arrears), endowments are lump sums paid upfront. From a treasury perspective, grants – with their under- and over-spend dynamics across multiple financial years – are hard to predict in terms of when money will be spent, and thus when it impacts the treasury accounts. In contrast, endowments are very predictable – money leaves the government at the time the endowment is made, fully accountable within one financial year.

[51] The RVC pilot was managed by DSIT personnel, as opposed to the UKRI personnel who are usually tasked with delivering on research funding allocation and management.

[52] https://www.gov.uk/government/news/securing-the-future-research-funding-through-endowments

5.1.3 Building and operating Bind Research

Heller's original programme of work was scoped at £30m over seven years, so the £25.8m raised in 2024 is just over £4m short. Research opens up new lines of inquiry as it develops, and there have been instances when the ability to hire an additional scientist, change experimental approaches for efficiency gains, or develop a related line of work has not been there, because it fell outside the scope of the funded programme. Now that Bind operates as its own organisation, no longer incubated and fiscally sponsored by DSV, it is not eligible for UKRI support, whether through funding or access to facilities and resources. This is because it cannot apply for Independent Research Organisation (IRO) status until it has been operating for the requisite three years[53]. It could potentially access funding through Innovate UK, but as Bind's work is research-centric and low-TRL, it is arguably not very competitive in that route. Raising finance to run the organisation as efficiently, and with as much growth, as it potentially could has therefore been a challenge.

Managing and recruiting talent has been key to Bind's development. The broader team (19 strong at the time of writing) is diverse in career paths and future aspirations, but is united by a desire to work on the mission of targeting disordered proteins and to conduct meaningful research in a well-supported environment. Given the five-year organisational timeline, transition plans and career development have been key to ensuring that those who join Bind aren't closing future doors. Individual goals and ambitions are developed with line managers. The organisation has also been developing its own approach to personal development frameworks, attuned to the various paths a research-aligned career can take. This has been undertaken within the focus of the FRO, to ensure personnel development and organisational mission don't drift too far apart. For example, those who may go back to academia are motivated to publish a preprint or a paper, while those closer to industry or contract research organisations are motivated by high-quality data release; and as Bind releases its tools to the public, it has found that the user community wants preprints to read about those tools, aligning core FRO activity with the career aspirations of the tools' developers. As the database develops and the focus shifts to producing types of data, this co-development of career credit and public good is a key concern that Bind welcomes.

Bind Research is the only independent FRO (i.e. not a subsidiary of Convergent Research) operating at the time of writing. When Convergent expanded to the UK and registered as Convergent Research Ltd (a subsidiary of Convergent Research Inc in the US), Gabi Heller joined the board and was named as a British Director in the registration of the UK private company limited by guarantee. Heller has been an advocate of both FROs and the Convergent

[53] There has recently been an open letter published by Science Works, and signed by Bind, Convergent, and many other institutional innovators in the UK research and innovation ecosystem, asking UKRI to reform its eligibility rules to promote greater institutional diversity. Disclaimer: I have added my name as a signatory, based on my findings from this report. See: https://science.works/writing/open-letter-reforming-ukri-eligibility/.

path (in the UK and beyond), with plenty of shared learning between them. Whilst Bind is its own organisation, focused on its mission and personnel, there is a strong bond between those in the early stages of FRO development in the UK and the US, within and between Bind and Convergent.

5.2 Meridial and Echo Labs

Meridial is building a microscopy platform which can map and longitudinally track synaptic connections in living animals, enabling researchers to observe changes in brain connections during development, learning, disease progression and the course of therapeutic interventions. Echo Labs is building foundational infrastructure for ecological intelligence, making nature legible enough to model, compare and forecast, so that ecosystem conditions can be precisely observed over time, enabling new forms of governance, stewardship, climate finance and scientific discovery.

Echo Labs and Meridial launched in early 2026 as subsidiaries of Convergent Research UK after completing the FROST UK Founders in Residence programme (funded by ARIA's Activation Partners programme and delivered by Convergent UK). Both were funded from core ARIA funding, with Meridial receiving an initial award of £14m and Echo Labs an initial award of £7m. Meridial is aligned to ARIA's 'Scalable Neural Interfaces' opportunity space[54] and Echo Labs to ARIA's 'Scoping Our Planet' opportunity space[55]. Both receive milestone-based grant payments tied to KPIs jointly developed and agreed between the FROs, Convergent and ARIA. The tranches of the grant, released after evaluation of the relevant milestones at each checkpoint, are issued in six-month increments and paid in arrears, and are held by and administered through Convergent Research UK. Under their contracts with ARIA, the FROs have caps on both the level of commercial activity they can undertake and the level of operating activity that can take place outside the UK.

5.2.1 The FROST programme

ARIA, the UK's Advanced Research and Invention Agency (funded by the UK government), works with 'Activation Partners'[56] to create and accelerate the translation of frontier science and technology into social and economic impact. ARIA funds these external organisations to run programmes, events, training schemes and accelerators. Convergent Research UK is one of these activation partners. Convergent Research's expansion into the UK was prompted by the opportunity with ARIA and resulted in the creation of a UK-registered entity to deliver what became the FROST UK (FROs for science and technology in the UK) programme.

[54] https://aria.org.uk/opportunity-spaces/scalable-neural-interfaces
[55] https://aria.org.uk/opportunity-spaces/resilient-climate-and-ecosystems
[56] https://aria.org.uk/activation-partners

The core of the FROST UK programme is a six-month Founder in Residence (FiR) cohort programme run by Convergent UK[57] – the first iteration ran from June to December 2025 – in which teams interested in tackling what Convergent calls 'FRO-shaped challenges' could develop and refine their FRO concepts ahead of pitching their ideas and funding requests to ARIA Programme Directors (and other UK investment, philanthropy and R&D stakeholders) at the end of the residency. Over 90 applications were submitted for the first FiR, and five finalist teams were selected to join the inaugural residency. Each was provided with £38k to cover a roadmapping workshop (bringing together a suggested 15 key stakeholders for a day of discussions, which made up the bulk of the budget), discretionary travel expenses, external consultant support, and network-building dinners – all to contribute to the development of their FRO.

5.2.2 Paths to the residency

Kaja Wasik, Tosca Tindall and Molly Blank are the founding team behind Echo Labs. Wasik, a geneticist by background who gained her PhD at Cold Spring Harbor Laboratory, quickly realised that the decision-making needed to scale and test something nimbly wasn't possible within academia. She went on to co-found two startups over eight years, raising around $150m and developing the second, Variant Bio, towards clinical trials and 55 staff, at which point she moved to an advisory role to pursue something more focused on impact where no market exists. Blank, with a background in medical devices, worked with Wasik as a Senior Scientist at Variant. The pair met Tindall, who has a background in climate economics and finance, in Kenya, where they discussed the problem that many systems exist for climate risk working with financial institutions but none for nature risk, and that the core problem is the lack of underlying data and modelling. Building on the idea of building the 'bottom layer of the nature tech stack', they spoke to VCs in Kenya but quickly found there was not the market there for the kind of upfront capital they'd need to build their solution. After Wasik spoke to Tom Kalil (now CEO of Renaissance Philanthropy), he suggested applying to the ARIA FRO residency programme, just three weeks before it closed; ARIA paired the team with an ecologist advisor to help develop and finalise their application.

Mehmet Fisek, after eight years of postdoctoral research, published a paper that could have been the basis for starting his own lab. But he decided not to, because he believed the science he wanted to do couldn't be done with the budgets and structures that academia affords. He knew that the equipment needed would be too expensive for anything but the most generous grants or lab environments; that he wouldn't be able to hire the kinds of engineers he'd need (as they'd get better pay in industry); that he'd be institutionally pressured to pursue proofs of concept and novelty over technical maturity and production quality; and that, culturally, he wouldn't be able to overcome the 'individual contribution' structure inherent to academia

[57] https://www.essentialtechnology.blog/p/inside-the-uk-fro-founder-residency

(academics need their own personal projects and claim to knowledge generation; technical development needs teamwork and goal coordination). He also wanted to stay in London and start a family, which wasn't an exciting prospect on an academic salary. From both a scientific and a personal perspective, the university track wasn't worth pursuing for his work. Instead, he worked in finance for a few years, and saw high-performing teamwork in action. He kept talking about his research ideas to those whose interest was piqued, and was put in touch with Adam Marblestone, who thought it could be well suited to the FRO model – but at the time, Convergent wasn't operating in the UK. Fisek had stopped actively pursuing the idea until the ARIA programme was announced, when he figured that if he was ever going to pursue it, it would have to be now. He pulled together a concept note, received feedback, and scoped out potential collaborators to start forming the programme design; as time went on, he became more convinced it could be made real. By the time he and his team were selected as founders in residence, he was so convinced of the scientific opportunity that he resigned from his position in finance and undertook the residency full time.

5.2.3 The FiR programme

The residency was structured around a weekly curriculum of expert-led sessions, individual coaching, cohort 'lab meetings', focused sprints on particular topics (e.g. roadmapping, financial planning and building technical plans), and set readings and goals to complete. Speakers came from existing Convergent FROs or from aligned 'alternative institutions' in the deep tech and science entrepreneurship space[58], and shared 'worked examples' for the residents to learn from. Weekly themes ranged from 'networking', 'getting stuff done' and 'how to set milestones' to 'how to handle risk & uncertainty', 'how to use money to achieve your goals' and 'how to hire the best people'. Convergent also provided research and process documents, including a primer on UK entity types, information on Convergent Research's operating procedures, and an engagement and event planning playbook.

The residents were supported throughout the programme to develop a 30–50 page 'UK FRO proposal' (using a template, a checkpoint calendar for tracking progress, and rounds of developmental feedback from Convergent and ARIA stakeholders[59]), on which selection for ARIA funding would be based. It was made clear to the teams at the outset that the majority of the ARIA funding set aside for FROs (£14m over three years) would go to one team at the end of the residency, though the residents could use the developmental opportunity to scope and pursue complementary funding strategies. ARIA delegated to Convergent the role of recommending and stewarding the funding, but the final decision was made on ARIA's strategic

[58] For example, Erika Alden Debendictis' 'Quick-start guide to research nonprofits' (https://erikaaldendeb.substack.com/p/erikas-quick-start-guide-to-research) and Ben Reinhardt & Eileen Nakahata (of Speculative Technologies) 'Research leader's playbook' – which was also supported by ARIA (https://spec.tech/library/research-leaders-playbook).

[59] The proposals were also evaluated by 3-4 external experts, though this was a developmental step, they were not the assessors for funding decisions.

priorities. At a broad level, Convergent assessed whether each team could build an excellent FRO while ARIA considered strategic priorities. The teams also had to make a strong case for how they would benefit the UK economically (e.g. performing the majority of research in the UK; commitment to providing direct benefit to the UK economy, scientific innovation and invention, quality of life etc.; representing an essential part of the ARIA programme for which there is no comparable UK alternative).

Convergent evaluated the excellence of each FRO against criteria in three areas: the idea, the team and fit with the FRO model. For the idea, Convergent looked for 'counterfactual FRO fit' (would the project likely not succeed in academia, startup or industry settings?); a 'transformative theory of change' (with respect to the bottleneck and the impact that addressing it would achieve); a 'well-defined product and ecosystem'; 'a well-scoped, actionable, and specific plan' (including well-structured technical work as well as a strong operational approach); and a 'transition plan' (is the plan realistic and aligned with the goals, and does it ensure that the project's outcomes will be disseminated, used or sustained after the FRO ends?). For the team, Convergent looked for 'bias toward action' (focus on execution and delivering results, and evidenced ability to overcome obstacles and adapt to maintain momentum), 'good team dynamics' (e.g. strong cohesion, mutual respect, shared understanding of goals and roles, and complementary strengths across technical, operations and strategy), and 'ability to sell the vision'. For fit, Convergent looked for 'ability to build the organisation' (is there the expertise and skill to lead and execute the proposed FRO successfully, and can the team recruit the necessary calibre of people?) and 'external engagement ability' (can the team operate in the relevant challenging technical domain, and fluidly in the relevant transition landscape?).

Throughout the residency ARIA worked closely with Convergent Research. Its wider network helped accelerate the work of Convergent and the individual FROs. The FROs were also developed in close collaboration with the agency and its Programme Directors. For example, ARIA facilitated collaborations between Convergent and other ARIA Activation Partners (e.g. Venture Café hosted the end-of-residency pitch event and the official FRO launches in London and Edinburgh, giving access to existing audiences and communities); ARIA provided office space for Convergent's UK Launch Manager, Jasmine Balloch, in its Kings Cross offices (as it does for all its Activation Partners), facilitating networking and close collaboration between the partner cohort and ARIA staff and visitors; ARIA Programme Directors were encouraged to co-develop with the residents, to align with and feed into their Opportunity Space's plans and ambitions (their own "north stars", as it were); and an ARIA associate delivered one of the sessions in the weekly programme. ARIA, with its particular role, brand, network, and soft and hard power in the UK research and innovation ecosystem, was thus able to help socialise, make legible and legitimate the FRO concept beyond Convergent Research UK. The remit of the FROST programme was not just to set up and fund an FRO 'in isolation', as an experimental approach to building frontier research impact, but also to develop the FRO 'project' in the UK and sow the seeds for more to grow (and, eventually, flourish).

A strong element of the FiR programme – in its content and approach – was the influence of American entrepreneurial culture, particularly that of Silicon Valley. Assigned readings included much of the American entrepreneurship canon: Eric Ries' 'The Lean Startup'[60] , Astro Teller's '10x thinking'[61], Simon Sinek's 'Start with Why'[62], Rob Fitzpatrick's 'The Mom Test'[63], Peter Thiel's 'Zero to One' and Ben Horowitz's 'The Hard Thing About Hard Things'. The programme emphasised particular modes of thinking, including being 'unstoppably agentic'[64], 'thinking in bets'[65] and 'scaling people'[66]. Many of the speakers had backgrounds in Silicon Valley and/or Boston-based startups, programmes and initiatives modelled on DARPA[67], US venture capital, and US academia (before transitioning into deep tech entrepreneurship). This is not to suggest that these ideas and speakers are unfit for a UK programme focused on building FROs: some of the founders in residence found the injection of the American 'dream bigger' mentality, and a network of those already operating in high-growth spaces, to be critical components of the programme.

However, some of the mindsets, work practices and assumptions about entrepreneurial culture embedded in these ideas were criticised as a poor fit for the reality of operating in the UK (e.g. 'fire fast' aligns with neither UK employment law nor UK working culture), and as potentially too narrow regarding ideologies of progress and technological impact. This has been a lesson from the programme which Convergent Research UK plans to address in future iterations: finding the balance between inspiration and permission (especially for those with no prior entrepreneurship experience) and adaptation to, and respect for, the cultural and legal context, with consideration of both the benefits and the critiques of high-growth entrepreneurship ideologies.

Another element of the programme was its dual role in legitimating the FRO model and in widening the residents' imagination and evidence base for how science can be materialised. Convergent Research already had ten FROs under its US outfit at the programme's start, so the leader in the space was delivering the programme, which legitimised the participation of the residents and the very idea of the FRO with those less familiar with it. With many of the talks delivered by existing US FRO founders, the programme facilitated a large amount of knowledge transfer and direct network-building across alternative science institutions. This was

[60] https://theleanstartup.com/book
[61] https://www.astroteller.net/talks/10x-thinking
[62] https://simonsinek.com/books/start-with-why
[63] https://inkubator.si/wp-content/uploads/2020/05/The-Mom-Test-by-@robfitz.pdf
[64] https://www.lesswrong.com/posts/Tnpp3cyEHMGthjGAf/seven-ways-to-become-unstoppably-agentic; readings from writer Sasha Chapin, co-author of 'You can just do things: How high agency people get what they want out of life', were also assigned.
[65] Referring to the 2018 book by Annie Duke on reframing risk and making decisions under uncertainty.
[66] Referring to the 2023 book by Claire Hughes Johnson, ex-Stripe and Google executive, on management and company building.
[67] The US' Defense Advanced Research Projects Agency.

not a programme trying to develop a concept of an organisation, but one showing how it was done, backed by existing experience and worked examples.

Those undertaking the programme, whether more familiar with academic or industry settings, were very quickly challenged to reconsider what it means to have impact in science beyond the publication of papers, the execution of research grants, the size of the customer base, or the market fit of a product. With many of the US FROs now close to, or in the process of, transitioning beyond their five-to-seven-year term[68], there are live discussions about creating impact as an FRO and what comes next: non-profit foundations, for-profit startups, donations to universities for infrastructure maintenance – or, indeed, dissolving the FRO entirely. Given the strength of cultural and internalised narratives in science around 'where research gets done' and 'lab to market' being 'the only way', this is not to be overlooked when considering the broader impact of the FiR programme: the framing of 'what's possible' did shift for those who took part, as well as for many of those following along.

5.2.4 Expanding Convergent Research into the UK

Expanding Convergent into the UK and founding Meridial and Echo Labs required new research organisations, with the administrative and legal processes that come with it. Convergent UK, Meridial and Echo Labs are all registered in the UK as companies limited by guarantee[69]: they don't issue shares, so there is no equity ownership. Whilst it is relatively easy to register a company in the UK, getting operations off the ground can be slow, especially in getting organisations to a position where they are ready to receive and spend funds and hire (and onboard) personnel. Processes which delayed the planned dates by which the UK FROs would be legally operating as entities included: collecting director identification documents (passport, driver's licence, bank statement, five-year address history etc.) for various steps of entity creation (with more steps for non-British residents and citizens); deciding on board directors before registration with Companies House (and aligning those decisions with Convergent's governance board steering mechanism); establishing HMRC tax and PAYE accounts in order to set up payroll and pensions (which took over a month); and setting up business bank accounts (given Convergent's subsidiary structure, banks' 'Know Your Customer' identity verification took extra time, meaning it took around six weeks to make accounts operational). On top of this, hiring someone in the UK usually means waiting three months for their notice period to end, so teams could not always begin operations immediately with the planned personnel in place.

Establishing Convergent Research Ltd (UK) as a subsidiary of Convergent Research Inc (US) so that the UK subsidiary FROs could connect with the operational infrastructure already

[68] Forest Neurotech and Merge Labs, as elaborated above, for example.
[69] This was chosen over registering as charities due to the administrative requirements of charity law being deemed as not as aligned with the required flexibility, focus and speed of FROs.

optimised in the US, and enabling the US and UK entities to work smoothly together has proven not to be an insignificant task. For example, Convergent Research Inc uses a Professional Employer Organization (PEO) co-employment model. It deploys PEO software so that both the parent organisation and the subsidiary FROs can work from the same employment records for FRO employees[70]. The PEO model is uncommon in the UK, and getting the UK FRO employees onboarded to Convergent's software systems was both a technical and an organisational puzzle, worked out 'on the go' while the FROs developed at pace[71].

Despite the difference in entity-creation timelines between the US and the UK, Convergent ensured the UK FROs could retain their momentum from the FiR programme. Between the end of the FiR (and ARIA's selection of which FROs to fund) and Convergent's receipt of grant funding from ARIA for Echo Labs and Meridial, Convergent advanced the funds that would become salary payments to the FRO founding teams (who were registered as contractors to Convergent during the residency, allowing them to receive payments), so that the FROs could keep moving rather than wait for the grant funding agreements to be finalised between the ARIA and Convergent legal teams[72]. Convergent also ensures the FROs always have two months' worth of payroll in their accounts, so that the teams can stay on track with their milestones and mission regardless of funder timelines. This is one example of how Convergent 'oils the wheels' to keep projects progressing and providing the FROs operational agility.

Where current research and funding infrastructures cannot provide this kind of flexibility, nimbleness and autonomy, they can fail research teams, slowing momentum and progress – and it is the potential accumulation of many such frictions across the life of a project that explains why there is such strength of feeling for creating independent organisations, rather than FROs constrained by university bureaucracy.

With Echo Labs and Meridial operating as Convergent Research UK subsidiaries and the latter setting up its UK operations alongside running the residency, there were expected and unexpected issues in creating a new organisation while founding and onboarding subsidiaries along the way. ARIA, also a relatively new organisation, was itself working out how to structure the FROST programme with Convergent, what the contracts for FRO funding might look like,

[70] Convergent Research Inc is essentially 'employer of record' (EOR) of those working in the FROs, for e.g. tax purposes, whereas the FROs themselves retain day-to-day control over the employees. (Convergent Research UK does use EOR systems for foreign hires, though).

[71] In fact, Convergent UK had to set up systems with new vendors with a UK presence (e.g. Rippling in the UK instead of Trinet in the US). This added a delay as the FRO staff could only be officially hired once the new accounts were fully set up for Convergent UK itself.

[72] Anyone who has received a grant through a UK university for a research project will know that projects rarely start on time due to the delays in contract agreements and 'money hitting the account' of the university. This means that for permanent salaried researchers, they often can't receive their teaching buy out, hire the research team they requested the funds for, or pay their suppliers until well into their research grant timelines (the endpoint of which is a hard deadline with respect to ensuring money is spent). For those who are not permanent salaried researchers (e.g. postdocs) and have their employment 'written into' the grants, they may have gaps between different grants they've been hired onto where they are not employed by a university, and are thus not paid.

and its assessment frameworks for selecting and monitoring the FROs it wanted to back. The biggest delay came from ARIA having to work out the mechanism for providing the FROs with grants from its core funding – at £14m, the largest single grant at the time of writing. Where Convergent's US operations could supply knowledge of what kinds of systems were needed to get FROs off the ground, a new country and context required the discovery of legal and operational specifics which can arguably only come from doing it in practice.

This is all to say that the first iteration of the FiR programme was perhaps unique in its 'guinea pig' nature, and the real-time negotiation of venture creation which created uncertainties, delays and roadblocks arguably should not be an issue in future (or, at the least, the team will be able to account for it more clear-eyed in the next iteration). That said, FROs are by no means cemented as an organisational form – in the UK or the US – so the co-development and co-discovery that happens between Convergent, its subsidiaries and ARIA remains part of creating these new institutional forms and will persist for some time.

5.2.5 Building and operating Echo Labs

The product Echo Labs is working to build – the foundational dataset and 'nature tech stack' – is tied to translation more directly than many other FROs. The Echo Labs team came from industry and VC-backed startups rather than directly from university science labs, and their journey towards the FRO form came from a belief that translation is core to the impact of the underlying nature tech stack. The team recognised the need for a different form of development support to build robustly from the ground up, without having to pivot to market needs before the core infrastructure is complete. It is more than a matter of personal experience and temperament, though. Because of the environmental focus of the project, creating the nature data stack is not enough to unlock a scientific field (as it arguably is for some of the more neuro-focused FROs associated with Convergent). Political will, changing modes of governance, and market creation and uptake also need to fall into place for a particular dataset and tech stack to be cemented as foundational. In short, people need to accept it and use it; it is not a case of 'build it and they will come'. Defining this translation plan was therefore key for Echo Labs during the residency, and so was ensuring they could make a strong case not only that their research programme and vision were valid, but that they had the conviction and ability to realise the programme in the real world.

There is also the fact that Echo Labs is initially funded with only £7m, which does not allow it to execute its full research programme unless it receives the second £7m tranche from ARIA (conditional on milestones) and additional funding from elsewhere. Its initial pitch to ARIA was for £22m. It thus has secured around two years' runway, as opposed to the five to seven years common to other FROs, so the 'transition' point may come at a different stage, depending on future income sources. It is thus potentially a more urgent question for Echo Labs what kinds of spinouts (and thus commercial traction) it might be able to create (it is exploring financial models of climate and nature risk); what kinds of philanthropists may be interested in backing the work (it has been considering both the 'science' philanthropists, à la Wellcome or

Renaissance Philanthropy, and the 'climate' philanthropists, à la Grantham); and what kinds of data structures are most likely to secure the impact of the foundational work (it has been exploring the structures of, for example, UK Biobank, and cooperative data utility models in genomics more generally). The team has also been exploring government sources of additional funds and schemes it might be eligible for. One possibility was the industry track of the UKRI Future Leaders Fellows scheme for Tindall, although it was unclear whether the organisation would count as an eligible host[73]. Being part of Convergent, and thus closer to the US philanthropy in which its other FROs exist, highlights the difference with philanthropy in the UK – a much smaller base, traditionally not writing such big cheques (with the exception of a handful of trusts, e.g. Wellcome), and less interested in funding scientific research, particularly in university or related settings.

5.2.6 Building and operating Meridial

In developing the residency proposal, Fisek had grown more convinced of the project's scientific value. At the start of the FiR the commercial or translation potential of the work was more of an open question. The dedicated time and support to develop the FRO proposal – not only in scientific terms, through milestone development and technical plans, but also by exploring how impact could play out – meant Fisek worked hard at stress-testing exactly how the work could move towards drug development and R&D in biopharmaceutical settings. During the residency, Meridial spoke to dozens of stakeholders in the biopharma industry, resulting in around half a dozen letters of support from people who run preclinical research departments in pharmaceutical firms or biotech scale-ups: they had the ears and the keen interest of those who allocate budgets. The dedicated time to develop the FRO proposal, then, was not only time for Fisek to return to the conviction of the ambitious scientific project he had left behind in academia, but time to create a sustainable approach to its development and translation. It is not clear that this would have happened otherwise, given Fisek's full-time role and without the intensive programme pushing the residents to develop FRO proposals that would meet the standards of both Convergent and ARIA.

Meridial, unlike Echo Labs, is operating in a space with relatively mature pathways towards translation (i.e. towards drug development), and arguably more options for what kinds of impact the organisation may want to optimise for as the FRO develops. In neuroscience there is a lot of frontier research happening in both academia and industry, so Meridial is conscious of building a non-profit platform organisation that can contribute to academic progress – through its data, lab collaborations and expertise sharing – as well as one that can sustain the broad and flexible (and not market-shoehorned) suite of applications that could potentially be built on

[73] As discussed above, Bind Research have also come up against UKRI eligibility policies in seeking additional governmental support.

the platform it is creating[74]. It is therefore exploring how to subsidise the academic and non-profit elements through a mix of proprietary research for biopharma companies, collaborative academic research grants (perhaps joining as a partner), and philanthropy. The options will depend on the FRO's traction after its term: whether there is interest from biopharma in creating this mixed model as a non-profit; whether there is more risk tolerance in venture capital for having more impact as a for-profit startup; or whether neither would result in the most impact, and a donation to a university or research institute would allow for data and software maintenance. There are multiple exit pathways which Meridial can use, based on what already exists and the pathways previous biopharma projects have taken. The suite of options doesn't assume the for-profit path, though; Meridial received a lot of encouragement from those in the biopharma industry for its non-profit plans and its 'FRO shape'. It seems that where existing 'cemented' pathways are familiar to many (and frustrate them), there is an opportunity to explain, and convince people of, something else that may in fact be better.

5.3 What's next for UK FRO support?

At the time of writing (October 2026), the Research Ventures Catalyst programme remains underway and is supporting Bind Research and the other two non-FRO ventures funded under its remit. The administration of the programme will sit more directly under UKRI (as opposed to DSIT's new home in the merged Department of Business, Innovation, Science & Trade), and it has not yet been confirmed whether the RVC pilot will remain a one-off or be relaunched for new applications in future.

At the time of writing, Convergent Research UK has another year of activity in its two-year Activation Partnership with ARIA, and – drawing on the lessons of the inaugural FiR programme – it will soon be decided whether another iteration of the FiR will be run under the broader FROST programme banner. Convergent Research UK will continue operations in the UK regardless, especially as it has now appointed an Executive Director to lead on and continue building its UK presence and activity. Michael Dunn has been selected for the role, after 26 years at the Wellcome Trust, latterly as its Director of Discovery Research. Dunn's role will include seeking out philanthropic funding for UK FROs; building relationships with the relevant UK government bodies (UKRI, ARIA, science and research policy units etc.); helping craft the training and support infrastructure and ecosystem for FROs to thrive in the UK (including future residency programmes, with and beyond ARIA); and, of course, building a portfolio of FROs that fits both the UK landscape and Convergent's priority areas.

[74] For more on platform biotech, and how venture capital and market incentives reduce impact through strategies of consecutive candidate development over platform potential, see Milne & Møllebæk (2026) 'The work digital does in pharmaceutical markets, accessed at: https://www.elgaronline.com/edcollchap/book/9781035338450/chapter19.xml

6. Cross-cutting findings and implications

This section draws together the principal lessons from the preceding accounts. These findings emerged from analysing the interviews, workshop discussion and documents together, and are the themes that recurred across the accounts in Sections 4 and 5. Early versions were discussed and refined with participants at the stakeholder workshop, and through feedback from other ecosystem actors and academic peers at conferences and in personal communications (see Section 3.2).

The six findings respond to the project's aims: what creating new research institutions in the UK involves in practice (6.1 to 6.3); what UKRI, Innovate UK and other public bodies already have in place, and where their policies, including eligibility rules, help or hinder (6.4); and what the arrival of FROs means for universities and for the wider ecosystem's capacity to diversify and be resilient (6.5 and 6.6). Each finding closes with a short statement of what it implies for policy and practice, which the recommendations in Section 7 build on.

6.1 Creating new research institutions requires strong networks, and patient and persistent wrangling

Bind used £100k of stage 1 funding from the RVC to create the organisation, design the way it would operate, set up its ability to receive funds, manage overheads, recruit staff, and comply with UK organisational regulations and law. Meridial and Echo Labs used the £38k of FiR programme funds and the structured training and cohort events; benefitted from the lessons of Convergent Research US's organisational 'mission control' and its experience of having already set up ten subsidiary FROs; and became subsidiaries of Convergent Research UK as it set up its own UK operations. The UK FROs built so far have had to make themselves fit into existing funding, organisational, cultural and legal systems, and have done so with financial and structural support provided through dedicated venture-creation initiatives. Within these programmes, the FROs and those around them have had to find novel workarounds, build new knowledge, rely on extensive networks across government, industry, philanthropy and academia, and generally be ready to wrangle their FROs into existence. For hiring beyond immediate science networks, finding the right financial backers, peer support in building ambitious programmes from scratch, serendipitous connections and idea generation (operational and scientific), and more, strong networks have been key to the successful creation and operation of FROs so far.

This is not necessarily unique to building FROs: many startup entrepreneurs will tell a similar story. But FRO research programmes are large and ambitious, and this new route to materialising them must assert itself among existing traditional institutions. It is worth acknowledging this reality of creating brand new structures for innovative R&D in the UK. If FROs, or any new research vehicle, are to be created in the UK, this need for wrangling (not just of the individual organisations but of the general form, created 'as they go') must be properly accounted for – in programme design, in seed funding mechanisms, in the support

structures built around them, in personnel, in predicted timelines, and in the amount of flexibility that existing associated institutions will have to take on if they want to take part.

Implication: *If new research institutions are to be created in the UK, programme design, seed funding, support structures, timelines and personnel should budget for the wrangling involved and treat network-building as a core activity rather than an extra. Funders designing any future FRO or venture-creation programme should plan for this from the start.*

6.2 A different mode of research work is a key motivator, and could prompt impactful shifts in the UK research workforce

Those creating or joining FROs tend to be motivated by the capacity to achieve the scale and impact of solving their chosen bottleneck, more than by any entrepreneurial, wealth-seeking or academic incentive. That is not to say that those who build FROs are not entrepreneurial (they are, by necessity), nor that they don't care about earning a good wage (this is a key argument for enhancing innovation through private research organisations that can hire competitively), nor that broad exploration towards knowledge generation doesn't matter (FROs are still research operations as well as product builders). But there is a particular combination of pragmatism, ambition and conviction apparent in FRO founders and their teams which suggests a different kind of incentive at play, not currently 'offered' in other innovation environments. Three things in particular stand out. First, the organisations are structured to give key individuals enough financial backing and research agency to opt in, without detracting from the core 'north star' or the creation of public goods. Second, no one reported any dogmatism about their choice of organisational form; people see the FRO as the pragmatic (and, to a degree, only) choice for realising the work, often having already tried and failed elsewhere. Third, people reported a sense of high-growth research and personal opportunity, rather than career or ambition constraint, which the time-limited, non-university design affords those working on these bottlenecks. Together, these mean the FRO model offers a particular kind of research worker something they cannot get anywhere else. The fit between the organisational model and this strand of 'solving bottlenecks' research ambition is very strong – not only from the perspective of 'what kind of problem is right for an FRO', but also, and perhaps more pertinently, 'what kind of environment is right for researchers who are motivated by defined, programmatic research work to realise their own and the work's potential'. A thriving research ecosystem needs a plurality of environments for a diversity of research workers, and the FRO model offers this tranche of research professionals something they simply cannot get anywhere else.

The very existence of the FRO – with its independent and autonomous status, its lack of a 'publish or perish' incentive, its generous (but more importantly open and flexible) pay scales, its milestone-based focus on its north star, and its non-profit status combined with startup-like speed and culture – highlights long-standing critiques of academic research systems. These issues have been widely discussed, particularly about the claimed inability to fix them given the cultures and currencies of academia. But FROs present live case studies, and evidence

that there is another way – and the news has already spread. Academic researchers have moved in and out of FROs, showing that 'gaps in the CV' with respect to publishing do not rule out pursuing academic pathways in the long term. Plenty of world-leading researchers, from academia and industry alike, have happily opted (and competed) for field-shifting research opportunities which are, by definition, short-term and high-risk. The pull of this 'different mode of research work', which will only strengthen as more opportunities arise through increasing institutional diversity in the UK, is something the UK research and innovation community as a whole would do well to consider no longer an idealistic desire of frustrated academics, but an option which may bring impactful shifts to the UK's research workforce.

Implication: *If the FRO offers something that a particular strand of research talent cannot get elsewhere, then the UK's offer to that talent – time-limited roles, competitive pay, and a route back into academia without penalty – is part of how resilient and attractive the research workforce is. Universities and funders should consider how these pathways connect.*

6.3 There is more than one way to create an FRO

Convergent Research, created off the back of the original formulation by some of the key people who laid its conceptual foundations, is the dominant player in FRO creation today. ARIA has clearly been keen to support alternative institutional forms through its programmes (one example being Asterisk Labs, a worker cooperative), but it is not clear it would have invested in the FRO form without first investing in (and thus de-risking through) the development programme that Convergent was uniquely placed to deliver[75]. That said, the fact that there are two routes to FRO creation in the UK, the second via the RVC, proves that there is room for the model to exist beyond Convergent – not to undermine or challenge the Convergent approach, but to provide more capacity and more options for particular forms of research and particular kinds of researchers. The scaffolding Convergent provides – operationally, financially, and in network-building and associated legitimacy – is clearly hugely beneficial and desirable for those who have not created an organisation before (e.g. those coming from full careers in academia). Convergent's access to capital, particularly in US philanthropy, is very strong, and could be a vehicle for bringing additional external capital into the UK research and innovation ecosystem. However, there are some valid concerns about intellectual property management and decision-making structures with respect to research outputs and impacts. There is also a concern that being structurally embedded in a parent organisation can create misaligned incentives, and barriers to certain kinds of collaboration (due, for example, to

[75] It's also worth mentioning that Jacqueline Campbell of Asterisk Labs, whilst not an FRO, was one of the founders in resident on the Convergent programme, and engaged with ARIA both via the FiR as well as via a previous £500k ARIA-funded 'opportunity seed' projects awarded to Asterisk (which was an already-formed worker cooperative lab before the FiR began). More detail on the evolution of the project, and its organisational form, here: https://aria.org.uk/insights/doubling-down-on-earth-scale-data.

particular geographic regulations or cultural mismatches). Ultimately, the risk is an FRO form which doesn't fully satisfy the original mission.

As the UK context for FROs, and for the financing of alternative research vehicles, develops (in both the philanthropic and the public funding arenas), the role of Convergent will inevitably shift, and other players may enter the FRO incubation, shaping and financing space. There are features specific to the US context in which the FRO model first took shape: most pertinently, the broad range of US philanthropic funders willing to provide large-scale, relatively flexible, risk-tolerant capital to FROs; and the acceptance (and perhaps expectation) that FROs will borrow heavily from the organisational culture of Silicon Valley-style technology startups, given that many of the funders came from – and built – this world. This is a different philanthropic context from the UK's. The UK scene is not homogeneous: there are local philanthropists who are typically self-made rather than holders of generational wealth and who orient their giving by drawing on patient capital, venture philanthropy and their own entrepreneurial 'north star' and its associated culture and experience. Even so, given that the UK FRO precedent is public funding[76], this inevitably creates a different context for their cultural development, through inherited norms and operating landscape, and thus different needs which can be met by different kinds of development expertise.

The current network and community of the thirteen live FROs is also relatively limited – geographically (heavily London-based in the UK's case), culturally, and in network access and lineage – as one might expect for something so emergent. If more talent and more bottlenecks are to discover and adopt the FRO model (and if it is to develop and thrive in the UK), more approaches will need to be explored, and more people will need to become part of the small but mighty FRO community. In the UK context, and especially given current political winds, this means going beyond London and broadening the network beyond the current 'institutional innovation in science' players[77].

What 'counts' as a worthy bottleneck, what the 'right shape' of an FRO is, and by what measures success is defined and judged will differ depending on funders, regional needs, the philosophies of individuals and support organisations[78], trends and opportunities in particular fields[79], and so on. The FRO as an idea represents different things to different people: a bright light in the future of institutional innovation *and/or* a trendy thing for those who follow the hype; 'another way' than VC funding *and/or* a de-risking move ahead of VC funding; freedom from

[76] Which means it's also worth paying close attention to the X-Labs initiative as it develops in the US too.
[77] Again, this is not to discount or move away from these circles, but rather to acknowledge that not everyone hears about or has access to what is 'common knowledge' within the quite tight-knit community of those associated with organisations such as ARIA, Convergent, Schmidt, Coefficient Giving, Renaissance Philanthropy, Institute for Progress, etc.
[78] For example, it has been suggested that FROs need not have to focus on a frontier science bottleneck (which is core to the Convergent FRO model), and could instead be a model for shepherding resources and developing technical capability to solve an applied local problem (potentially closer to the Canadian FRI model, for example).
[79] There are many neuroscience and AI FROs supported by Convergent, for example.

the constraints of universities *and/or* an opportunity for universities in distress; an engine of economic growth through science-to-engineering pathways *and/or a way of* addressing 'bottlenecks' away from market-centric science resourcing; aligned with 'purer' (i.e. less capitalist) scientific intentions which benefit the many *and/or* a pragmatic (or the only) model for simply getting to do work deemed valuable by a particular small in-group's measure. The list goes on.

There is more than one way to create an FRO in practice. The opportunity to shape the role FROs play in the UK is particularly ripe at this moment. There is no need to 'collapse' onto a single way; it is crucial to allow new designs and needs to arise as lessons are shared and outputs begin to materialise, all cognisant of context. The opportunity is live for more funders, research organisations and policymakers to engage with the existing FROs and with the concept itself, and to explore if and how their own needs, desires and strategies can align with – or be aligned with, define, or be defined by – the FRO form as it continues to take root in the UK.

Implication: *The UK should avoid settling early on a single template or a single incubator. Supporting more than one route, more places beyond London, and more kinds of support organisation would give funders more options and the FRO form more room to adapt to UK conditions.*

6.4 The UK government already has the tools to fund and support – directly and in partnership – institutional diversity in research and innovation

The distribution of Bind Research's funding as an endowment proves that government has the structures and means to publicly fund private (and thus autonomous) non-profit research entities. If FROs are to keep what are claimed to be central facets of their design – for example, the ability to recruit and pay outside public-sector pay scales, and to make fast decisions without public procurement processes – they need to be private rather than public organisations[80]. The time-limited nature of an FRO before it transitions is a compelling feature

[80] This is based on how the Office for National Statistics classifies public sector organisations, with a key concern being an organisation's reliance on government funding, and thus how much control the government exerts over said organisation. If an organisation is reliant on grants and government assistance to operate over time, it could be argued that the government exerts control given the conditions that may be set on organisations to access said support (government-specified topics that grants fund; changing budgets or governments changing the terms of already committed grants etc). However, in the case of the endowment, there is a high-level stipulation made on how the endowment is to be spent, made at the point of the upfront funding, but this is made at a distance and does not lead to long-term government control – the money is already with the organisation so their mission is thus theirs alone to manage moving forward. It could be argued then that if a policy objective was made to 'set up a private non-profit research entity that's small, autonomous, and publicly-funded', the only way to do this is via endowment. For more details on ONS classification, see: https://www.ons.gov.uk/methodology/classificationsandstandards/economicstatisticsclassifications

of the organisational model when it comes to Treasury reporting, R&D budget planning, and managing the politics of maintaining long-term national research resources.

The very existence of the RVC programme proves that the UK government already has the internal capacity to seed and support the development of FROs, and institutional diversity more broadly. The RVC (and the teams who designed and delivered it) made this happen by explicitly pursuing innovation in institutional design (as opposed to 'letting it in' to existing funding pots); by being structured with seed corn, follow-on and matched funding mechanisms to support organisations at different development phases and at scales governments can justify[81]; and by working closely with the funded teams to ensure their success (not just assigning funding, but realising the potential of the investment through collaboration, networking, signposting and, in some cases, additional support for new needs as they arose). This is not to assert or assume that the RVC as it stands is a universal success (independent monitoring and evaluation was built into the scheme), but there are demonstrable elements of the RVC journey that did 'make an FRO happen' – something that should be neither under-appreciated nor under-analysed if and when a new programme, or a new RVC iteration, comes online.

The ARIA activation partnership with Convergent Research illustrates that government can engage successfully with external development partners to build new institutional forms. UKRI, and particularly Innovate UK, already works with organisations such as startup accelerators and incubators, catapults, business parks and regional innovation districts in shepherding organisations into existence through its funding. As FROs mature and more 'Convergents' are created with different curricula, modes of support and philosophies of success, more of these kinds of organisations could be contracted to deliver UKRI-funded programmes. As an initial proof point, the ARIA Activation Partner scheme has shown success in two key ways. First, in providing the financial support and the motivational impetus for a successful 'institutional diversity' organisation already active overseas to make a home in the UK (and to create new organisations explicitly tied to UK innovation growth and impact). And second, in materialising organisational innovation in frontier science directly alongside, and in tandem with, ARIA's existing strategic priorities for UK science and innovation (as opposed to, say, contracting an accelerator to deliver a generic entrepreneurship programme not aligned to a specific theme or priority). The relationship built and maintained between ARIA and Convergent shows that external partnerships can be mutually beneficial strategically, not just financially or operationally.

However, the eligibility rules that sit within UKRI's remit repeatedly stood between the UK FROs and the existing system of support. The RVC required applicants to be hosted at a research organisation or SME, so Bind's application, fiscally sponsored by Deep Science Ventures (a

[81] Justify in the sense of RVC being a vehicle to bring private (industrial, and/or philanthropic) money into the ecosystem, thus enlarging the pot available for research funding – regardless of the specifics of the programme or organisations it funds; as well as in terms of managing public investment risk with initial smaller pots.

for-profit SME), was eligible for only 70% of its claimed costs under UKRI rules. Bind is not eligible for UKRI funding or access to facilities and resources, because it cannot apply for Independent Research Organisation (IRO) status until it has been operating for three years; Innovate UK routes are open in principle, but Bind's research-centric, low-TRL work is arguably not competitive there. While exploring the industry track of the UKRI Future Leaders Fellows scheme, Echo Labs found it unclear whether the organisation would count as an eligible host. An FRO is neither a university, a research institute nor a conventional company, and the categories used to decide who can apply for UK public research and innovation funding are not open to the diversity of research settings now emerging. An open letter published by Science Works, signed by Bind, Convergent and many other institutional innovators, asks UKRI to reform its eligibility rules to promote greater institutional diversity.

Implication: *The endowment mechanism, the seed-plus-follow-on-plus-matched funding structure and the activation partnership model are all existing tools that can be reused. The main policy lever for UKRI and Innovate UK is eligibility: reviewing who counts as an eligible applicant or host, and whether new organisational forms such as FROs can access national resources, would address the most concrete barrier the UK FROs reported.*

6.5 UK universities (and other existing institutions such as institutes, trusts and societies) can share in the development of FROs, if they are willing to be more flexible, faster and open to new modes of engagement

Throughout my conversations, with those within FROs and those in the surrounding research and innovation ecosystem alike, the value of UK universities was universally acknowledged. However, there is deep frustration at not being able to engage with them effectively, for many material, cultural and bureaucratic reasons. Issues cited included not being able to access facilities, the sheer slowness of procurement processes, and an inability to find 'the right' person to talk to (scientifically, institutionally, in openness to new structures etc.). There is also a concern that too much engagement with universities could lead to constraints on the autonomy of the FRO.

Participants wanted universities to join the FRO movement by using their talent, equipment and reach, as well as their status. It was also suggested that the momentum of the FRO movement (and the associated funds and political interest, especially given the recommendations and rhetoric of the US 'Golden Age of Science' report) could be used to bring universities along, and to aid their own reform and innovation through partnership and co-development. Universities are arguably amorphous enough to host substructures, and have had to adapt as institutions over the centuries of their existence, but there is valid concern about the FRO model being diluted, or 'regressing to the mean', if it were to be overly integrated and governed.

There is potential to develop university involvement through the built-in transition 'feature' of FROs. For example, there could be pre-arranged transition plans in which universities provide

some lab space or access to under-used university assets and spare capacity (e.g. if an FRO's microscope goes down, it can quickly gain access to those available across larger university structures), in exchange for a right of first refusal on the donation of the FRO's public goods at its end[82], or close collaborative knowledge-sharing and training with PhD students and related researchers through its life.

Beyond transition planning, in the same way that science parks, public-private institutes and spun-out fabrication centres can be mutually beneficial extensions of university activity throughout their life (and indeed function as distinctive strategic assets for the university[83]), there is arguably much opportunity to explore how FROs and universities can feed directly into one another at all stages.

Given the open call for X-Labs proposals in the US, and the large budgets associated with them, American universities are working out how they might spin up an X-Lab within their own administration. This is worth paying attention to – what structures are created, what mechanisms are employed, what kinds of people within the university are involved, what kinds of compromises (if any) are made – if UK universities are to explore innovative ways of being part of this form of institutional diversity, as opposed to being affected by it 'after the fact'. It will also be worth noting how much uptake and interest there ultimately is from US universities in the scheme, to understand how powerful available, but organisationally 'constrained', government funding can be as an incentive for universities to adapt quickly.

There is also much that universities, in their various current forms, could learn from FROs (where they are not already doing so), given the ways of working that the model requires. Examples of what could be implemented include actively designing interdisciplinary research groups, following milestone-based project management approaches, clearly defining "north stars" to guide research programme and centre activity, and building in (and budgeting for) 'wrangling' time and personnel. Adopting some of these principles could play a role in shifting academic incentives, promotion criteria and the availability of 'other' research pathways – something universities and their researchers already know is deeply required for effective university reform.

Implication: *This returns to a question raised at the start of the report: where research should happen. Universities have much to offer FROs and much to learn from them, but only if they can be faster and more flexible on facilities, procurement and partnership. Pre-arranged*

[82] Assuming that the cost of maintenance of said goods is within the university's remit, budget etc.

[83] For example, in justifying grant applications, being competitive in attracting key talent, promoting student recruitment, building advanced industry partnerships, creating unique exchange of tacit knowledge, playing key roles in regional labour markets, providing unique developmental support for university spinouts, and providing specific advanced training for early-career researchers – to name but a few.

transition plans, shared access to under-used equipment and collaborative training are practical starting points that funders could encourage.

6.6 FROs are prompting a wider debate

There is an audaciousness to UK FROs that is prompting practical and wider debate across the research and innovation ecosystem. There is an earnest and expert effort by various influential actors to grow the form and extend its reach and impact beyond the current cohort, so that it flourishes and takes root specifically in this geography. All this is pushing and prodding at long-unresolved tensions in the UK research and innovation scene, and is fostering a ripe atmosphere for change and reform. The tensions FROs enter into include: how to reform (or 'unbundle') universities; the zero-sum game of government science funding (and the incentives it structurally encourages, which diminish the quality of research); the politics of who gets funded to do research in the UK; what counts as economic growth from research investment; how to balance different kinds of risk (operational, scientific, delivery etc.) across science funding portfolios; how to balance autonomy in the service of unpredicted discovery with the governance and accountability of public funds; how the various (often unspoken) ideologies of 'progress' play out in UK science and innovation culture; whether 'taste' should be the deciding factor in public investments, or whether more democratic and 'visible' approaches are better (and in what way); what science in the UK is actually for (jobs, knowledge advancement, geopolitical status, other); and – simply – what we even mean by 'good' research.

This is not to say that these tensions are only now playing out because of the FROs, but they are a key contemporary example of what effervesces through the ecosystem when institutional diversity is acted upon rather than merely theorised. If now is not the right moment to think deeply and deliberately about these tensions, to experiment with new models and approaches in the public realm, to take calculated risks and place bets on portfolios of different kinds of expertise, and to go beyond incremental, descriptive and backward-looking modes of metascience towards inventive, imaginative and critically active interventionist forms – I'm not sure when is.

Implication: *The tensions FROs enter into are policy questions for the whole UK research and innovation system, not questions about FROs alone. FROs offer a live, small-scale setting in which to test possible answers. This supports deliberate and evaluated experimentation rather than ad-hoc initiatives.*

7. Recommendations

The recommendations below are based on the stories and findings set out in the sections above, specific to the development of FROs in the UK. They can be read, however, as relevant both to the future development of the FRO model and to any other 'institutional innovation' which the UK may explore and invest in.

The stakeholder at which these recommendations are most centrally aimed, given the remit of this report, is UKRI. But the UK research and innovation system is far more than its national funding agency, so the recommendations also apply to trusts, private funders, national societies, universities, industrial research partners, public and private research institutes and any other organisation that considers itself an active member of the UK research and innovation ecosystem.

7.1 Run further programmes dedicated to creating FROs and other new institutional forms

Develop and deliver additional programmes specific to FRO creation and launch (and/or other 'alternative forms'). Initial programmes should be flexible, well-networked, open to experimentation and inclusive in how they recruit participants. Each programme should be independently evaluated, with lessons captured and shared.

This recommendation is based on the reality of having to 'wrangle' new institutional forms into being, and the many unknown unknowns that arise when building new structures within the complex, disparate and (at times) traditional research and innovation ecosystem in the UK. Accepting a degree of uncertainty at the design stage lets budget, timing and personnel be set at levels that give participants the best chance of succeeding. Independent evaluation and open sharing of what is learned mean that public investment can be accounted for and the knowledge gained is available to others.

7.2 Document and share how FROs are launched and run

Document, socialise, storytell and iteratively develop FRO-specific toolkits, programme designs, training curricula, launch processes, transition plan options, and other 'how to' resources for launching, running and engaging with FROs in the UK.

This recommendation is based on the need to legitimise and make legible not only the FRO concept and form, but the processes by which FROs are brought into being – what this work involves in practice. Impact also builds legitimacy, so alongside practical guidance there is a need to understand, articulate and evidence the value FROs generate. The startup ecosystem and its various players were built on libraries' worth of openly accessible information on how entrepreneurs create startups, how VCs work with them, how governments invest, how accelerators are designed, and so on. Bringing the FRO ecosystem to fruition has so far been

underpinned by formal and informal white papers, concept notes and blogs; now is the time to share more of the 'nuts and bolts' as the form proliferates, and to open up opportunities for more players to get involved and grow the community of practice without having to start from scratch each time.

7.3 Open up national resources to publicly funded FROs

Open up pathways for FROs with substantial public investment to access national resources such as compute, experimental equipment, follow-on funding and research talent. A first step is to expand and reform UKRI eligibility rules[84].

This recommendation is based on the reasoning that if the public purse has already been opened to these new experimental forms, there is little reason to limit their capacity for efficiency, growth and public benefit. This is not to say that national resources should be given for free, or that FROs should have automatic entitlement. However, if the government recognises these forms as valid public research investments, they should be able to apply for the same resources as other institutions which have been invested in for the same reasons. One way of doing this is to expand and reform UKRI eligibility rules in the first instance.

7.4 Build adaptive processes so new institutions can work with existing ones early

Develop adaptive processes that allow experiments in institutional diversity to interface quickly with existing organisations, allowing for mutually beneficial co-development and piloting at early stages. Examples include edge-case procurement processes, short-term pilot access to experimental resources, frameworks for faster decisions and, more broadly, lean approaches to gathering insight and acting on whichever interface challenge emerges.

This recommendation is based on the clear desire and will of both institutional innovators and many within large, existing research and innovation organisations to work together to develop better modes of frontier research in the UK. Institutional diversity is currently supported in principle by all key actors, but it is facilitated in ad-hoc, behind-the-scenes and arguably quite unfair ways. Rules and regulations exist for reasons. However, much like adaptive licensing in drug regulation, where provisional approval for a small patient group widens as real-world evidence is produced and verified, there have to be ways for new ideas and approaches to interface with the institutions that hold resources and power, if change is to happen.

[84] https://science.works/writing/open-letter-reforming-ukri-eligibility/

7.5 Broaden what it means to be an 'entrepreneurial researcher'

Expand the definition of the contemporary 'entrepreneurial researcher' and support its realisation, so that it means seeking out and building the best organisational pathway for creating impact from frontier research.

This recommendation is based on the reasoning that standard entrepreneurship and spinout pathways and training, which are heavily prioritised (rhetorically, if not also substantively) in research and innovation settings, do not encourage the researcher to innovate with the organisational design itself. Instead, they steer researchers along the well-trodden 'lab to market' pathway, which is a poor fit for many research applications, and thus fail to set researchers up for success in creating impact from their frontier research. We are seeing hints of more 'universal' approaches which promote many routes to impact, including the open UKRI call for Venture Doctorate proposals and the BiTs scheme run by Renaissance Philanthropy. Actively developing the right vehicle for a positioning of impact first, rather than forcing research into a narrow spinout path, is arguably far more useful 'entrepreneurship training' for ambitious researchers as the landscape of institutional diversity continues to grow.

Appendix A – list of contributors

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