

Research Leadership Matters: Agility, Alignment, Ambition

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Higher Education Policy Institute

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About the author

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A former special advisor in both the House of Lords and House of Commons, Professor Flinders specialises in theoretically-informed policy-relevant research and is a former ESRC National Impact Champion. A former winner of the Harrison Prize (2002), the Richard Rose Prize (2004), W.J.M. Mackenzie Prize (2009) and the Sam Aaronovitch Memorial Prize (2012), Professor Flinders is the author or editor of fourteen books and more than 200 peer-reviewed research articles and book chapters. He has also written and presented a number of documentaries for BBC Radio 4, and is a regular contributor to a number of newspapers and magazines including *The Times Higher Education Supplement*.

Contents

A Note from the HEPI Director	5
Executive Summary	9
Why innovate now?	
1. What is research leadership?	19
2. What is the research leadership challenge?	23
3. What are the root issues underlying the challenge?	33
4. How to seize the research leadership opportunity?	43
5. Progress, policy and where next?	51
Afterword from James Brook, Worktribe	73
Endnotes	75

A Note from the HEPI Director

In late 2018, the Economic and Social Research Council commissioned Professor Matthew Flinders to lead a national review into the topic of research leadership. This review recognised not only the existence of a rapidly changing social context and funding landscape, but also the need to ensure that researchers were equipped with the skills, knowledge and opportunities to reach their full academic potential for the public's benefit. In short, the review sought to ensure that higher education was 'fit for the future' in terms of being able to span boundaries and work at the intersection of disciplines, rather than being 'fit for the past' in a way that reinforced outdated and unhelpful modes of behaviour or perverse incentives.

What made this review particularly significant and original was its focus on research leadership. That is, 'the activity of supporting and facilitating the production of research in an inclusive manner that maximises the scientific quality and societal impact(s) of that publicly-funded endeavour'. As Professor Flinders quickly found, thinking about leadership as it relates to research was almost completely under-developed within higher education, while also being the focus of huge cultural suspicion. As a result, leadership development courses, training and opportunities had been widely developed in relation to teaching leadership (notably through the Higher Education Academy) and in relation to managerial leadership (to prepare people for various administrative roles within universities). But research leadership remained almost completely under-acknowledged, misunderstood and underdeveloped.

And yet, as this HEPI report by Professor Flinders very clearly demonstrates, the nature of scientific exploration and particularly the size and complexity of investments in major projects is likely to make this situation unsustainable. Research leadership matters because without thinking seriously about the cultures and contexts in which researchers and research-users can thrive, the massive investment in research and development funding that has been committed by the Government will not achieve its full potential and the chances of failure will increase. Failure, that is, not in the sense of positive scientific failure which is all part of the natural course of investigation, but failure in the sense of organisational weaknesses that may create an environment in which even the best talent in the world cannot flourish and thrive.

This is why research leadership matters.

All HEPI reports raise important themes and issues but in focusing on leadership and how it relates to research I think this report opens up a host of particularly pressing issues that go to the very heart of why any society should invest in science. It raises issues about training and skills, about equality and diversity, about talent and failure, about incentives and incongruities; but most of all it very clearly exposes the root of the problem through the notion of the research leadership challenge. It also offers an evidence-based portfolio of policy responses in order to close the perceived gap that has opened-up between the current way of (not) thinking about research leadership and a more agile, positive and future-focused vision of research leadership. Professor Flinders' review was published in August 2020 and one of the aims of this HEPI report is to assess how much progress there has been in responding to the research leadership challenge. Professor Flinders concludes

that although progress has been made there still remains too many barriers and blockages to embracing the research leadership opportunity that exists for the UK.

In a post-Brexit, post-COVID context in which increased investment in Research and Development (R&D) is being made, it strikes me that research leadership is a topic that demands urgent consideration and arguably significant investment. Professor Flinders provides a blueprint for the future that I hope will help stimulate and shape change across the sector.

Nick Hillman

Executive Summary

Research leadership:

Noun.

1. The activity of supporting and facilitating the production of research in an inclusive manner that maximises the scientific quality and social impact(s) of that endeavour.
2. Relates to both individual development (self-leadership) but more commonly to the contribution of an individual to supporting and nurturing the research careers of others.
3. May refer to activities in relation to a specific project or programme of research, or to broader ambassadorial roles within research funding organisations, learned societies or academies.
4. Research leadership occurs in a number organisational and professional contexts and is in no way restricted to academia.

Language matters. Over the past five years a new vocabulary has emerged to capture the changing nature of knowledge-creation and knowledge-mobilisation in society. Traditional topics and phrases such as ‘higher education’ and ‘universities’, have to a large extent been subsumed within a new emphasis on the research, development and innovation ‘ecosystem’. Higher education and universities are, of course, central elements within this ecosystem but their relationship with other public, private and third-sector organisations in terms of driving change, nurturing talent and delivering public value is now far more prominent. This is reflected in the increasing emphasis on terms (porosity, absorption, alignment, synthesis, range, flow) and themes (structured serendipity, skill-shifting, crucible-effects, braided careers, co-production and co-design) that were simply not part of the conversation a short time

ago but which now form central elements of governmental strategies and funder statements. But when stripped-down to a core defining essence what exists at the centre of this new ecosystem-aware agenda?

For the purposes of this section (and with a longer answer provided below) an answer can be provided in just two words – facilitating mobility.

The two words may on their own be rather unremarkable but when inserted into debates about the past, present and future of higher education they arguably assume huge significance. This is because the hallmark of a truly world-class research environment is the facilitation of mobility. That is the mobility of people, talent, knowledge and skills across traditional professional, organisational and disciplinary boundaries. Universities tend to be clunky institutions. Disciplines remain siloed. Traditional careers remain narrow. Incentives do not encourage either boundary-hopping or the taking of risks. The contemporary challenge this brings is that increasing R&D funding, if invested through redundant architecture, is likely to lead to seriously sub-optimal outcomes. Moreover, when this challenge is interpreted through a leadership lens that emphasises skills, expertise and cultural agility, then a well-documented leadership-lag of around a decade is to be expected as a generation of researchers with the requisite skillset are recruited and trained.

The United Kingdom is, of course, home to a world-class scientific community but in an increasingly mobile environment in which a number of countries are keen to develop their science superpower credentials, complacency cannot be allowed to stymie progress. Facilitating mobility

and setting new standards when it comes to nurturing talent provides a way of attracting and retaining the world's most gifted researchers. And, of course, the sheer extent and pace of both technological and social change underline the need for science to reflect upon the requirement to change and adapt to new challenges and opportunities. Approaches, procedures and ways of working that may have been fit for purpose in the past are in no way guaranteed to ensure that any discipline or field of inquiry is fit for the future. And one key part of this need to adapt and keep pace relates to the recognition that major scientific discoveries with the potential to deliver positive social benefits are, in the future, unlikely to emerge within any one specific field but are far more likely to develop at the intersection or nexus between both disciplinary boundaries and between discovery and application. Added to this is an increased awareness of the benefits of open knowledge networks that utilise different forms of expertise but in so doing create a distinctive synthesis challenge.

This emphasis on mobility and operating at the intersection of science and society is increasingly reflected in the research funding landscape in the UK and beyond. An increased emphasis on facilitating the insights of inter-disciplinarity and inter-sectoral mobility has led to a shift towards funding projects that exhibit the following characteristics:

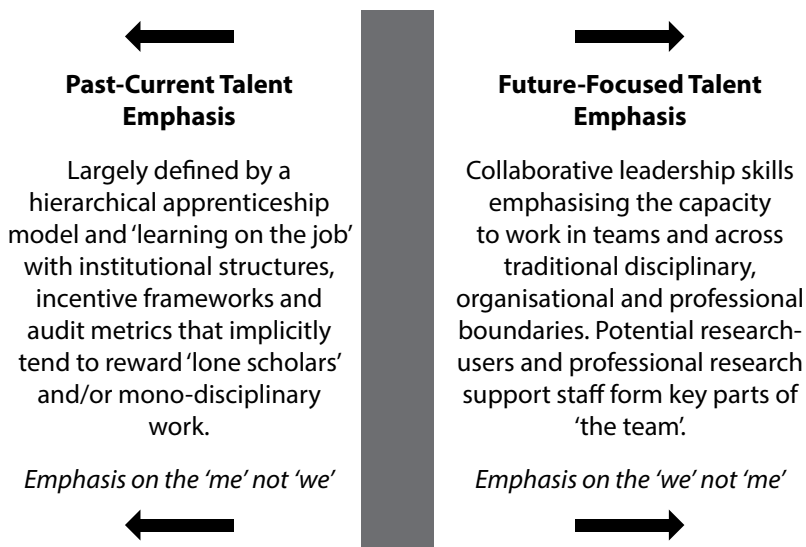
- they tend to be large and ambitious;
- international in scope and inter-disciplinary in nature;
- they may be resourced through a consortium of funders;
- they are challenge-orientated and solution-focused with a twin emphasis on both knowledge-creation and knowledge-production; and

- they seek to exploit the insights generated by inter-sectoral mobility through engaging with research-users through forms of co-design and co-production.

Taken together, these five characteristics combine to highlight a clear shift towards funding a new model of what might be called 'collaborative research' or 'team science'. The emphasis of the emergent research funding landscape is very much on maximising the connective and catalysing capacities of larger projects in reaching-out and co-ordinating across the full research, development and innovation ecosystem. It is this 'ecosystem-emphasis' that creates both a research leadership challenge (and a research leadership opportunity) for universities, institutes, centres and individual researchers (see Figure 1).

As Figure 1 illustrates, there is an urgent need to equip our future research leaders with the skills and incentives required to work collaboratively across sectors. Or, to put the same point slightly differently, there is a need to increase the flow within the ecosystem, while also nurturing a generation of research leaders who understand the importance of range (or, the capacity to work across and within different contexts in order to maximise connections, outputs and outcomes). As these skills and talents take time to develop and mature, there is an urgent need to reflect upon how we develop not only a healthy and diverse pipeline of talented research leaders who can seize opportunities and galvanise diverse teams, but also a broader talent framework that facilitates mobility into and out of academia in ways that reflect the changing nature of work, non-traditional career patterns and the needs of those with caring responsibilities (such as braided careers). This is exactly why research leadership matters.

Figure 1 Closing the Gap: The Core of the Research Leadership Challenge



Research leadership refers to the activity of supporting and facilitating the production of research in an inclusive manner that maximises the scientific quality and social impact(s) of that endeavour. It takes many forms and there is no one-size-fits-all approach to either nurturing or practising research leadership. It includes individual development (self-leadership) but is more commonly associated with supporting and facilitating the research careers of others. As such, it occurs across a number of levels: from the supervision of PhD students and post-docs, the mentorship of mid-career staff, and overseeing a specific project, programme of research or research centre through to far broader roles concerning the governance of funding frameworks or fulfilling a leadership role within a learned society or academy. It is also important to acknowledge that

research leadership occurs in a number of organisational and professional contexts and is in no way restricted to academia. But the baseline position is that the UK science base has traditionally adopted a rather *laissez-faire* approach to research leadership. That is not to say that the skills and talents which the notion of research leadership focuses on have not existed, but simply that they have emerged largely through a mixture of trial and error, osmosis and luck.

Such an amateurish approach is no longer tenable. Increasing scientific complexity combined with ever-increasing public expectations demand that the cultivation of leadership skills should be a foundational element of the research infrastructure. These are skills, moreover, that demand collaborative engagement and professional development beyond the sphere of any one single institution, discipline or country. For many UK-based scholars the EU's Framework Programme for Research and Innovation provided access to a portfolio of research leadership related schemes and opportunities. These ranged from the Marie Skłodowska-Curie Actions Postdoctoral Fellowships through to senior roles in research consortia through the European Research Council. Brexit therefore forms one element of a wider research leadership challenge for the UK. As such a key element of what might also be framed as a research leadership opportunity is to design and deliver a national strategy forged upon a 'Triple-A Approach' emphasising agility, alignment and ambition, that sets new international standards and reinforces the UK's global reputation for innovation.

However, in terms of understanding, promoting and building research leadership capacity in the UK, it is vital to acknowledge three dimensions of the debate. First and foremost, the nature

of research leadership in a scientific context is collaborative and team-based, not hierarchical and individualised. The emphasis is therefore upon recognising the existence of different leadership roles within any team and then harnessing different talents to a shared scientific goal. Thinking about research leadership therefore demands a capacity to look beyond traditional academic roles and to recognise the contributions of research-related professionals (for example, finance managers, intellectual property (IP) experts and knowledge-brokers) and research-users (including the public) to the vitality, dynamism and ultimate success of any project. It also provides an opportunity to unlock and utilise talents and skills that may have been overlooked or under-appreciated in the past – due to the existence of embedded inequalities within higher education – which a focus on different talents or contributions to research leadership may play some role in addressing.

The second dimension of the debate revolves around the need to recognise that the UK science base does already possess a significant number of researchers who have successfully led large projects. But what is lacking is any serious or strategic structure for ensuring that the insights and skills possessed by successful research leaders are harvested for the benefit of future generations in an inclusive manner. Innovations and attempts to do this or to facilitate mobility do, of course, exist but generally at an institutional or disciplinary level which then run into obvious range-related challenges. Islands of excellence are of little benefit to anyone if they remain islands shut off and isolated from broader learning processes. This brings us to the third dimension of the debate and the need for a systemic approach.

The research leadership challenge cannot be addressed, nor the research leadership opportunity realised, by any single higher education institution, learned society or research council for the simple reason that all these elements exist within the ecosystem which itself needs reform. Greater alignment of ambitions, improved connectivity and flow, adjustments to incentives frameworks and the creation of boundary-spanning platforms all demand system-wide thinking. Research leadership is no different, which is why this report adopts a system-based approach that focuses attention not just on the development of leadership skills at the individual level, but also on the need to change the institutional and incentive structures within which those individuals operate. This level of change is required to bring about improvements at a deeper cultural level, possibly even redefining and reimagining the role of the scientist, academic and scholar in the twenty-first century. Having examined the existing evidence base and consulted widely within and beyond academia, this report makes 12 inter-related recommendations.

- 1. Scale-Up Ambition:** Through a process of co-production and co-design, a new approach should be established to foster a more strategic, inclusive and ambitious approach to research leadership.
- 2. Create Core Capacity:** Driving forward this agenda, catalysing action and sustaining momentum demands the creation of a central unit to co-ordinate activities, liaise with partners and distribute resources.
- 3. Understand What Works:** A fresh programme of research should be commissioned to produce a far more sophisticated understanding of the dynamics of research leadership than is currently available.

4. **Acknowledge Excellence:** Nurturing talent and supporting future generations of researchers very often goes unrewarded. A small number of national 'Celebrating Research Leadership' prizes should be established.
5. **Facilitate Mobility:** A 'Discipline Hopping' funding scheme and 'Research Re-Entry Fellowships' (or 'Returnships') should be piloted to facilitate inter-disciplinary and inter-sectoral mobility.
6. **Manage the Middle:** Mid-career researchers are often a left behind constituency when it comes to nurturing talent. A new skills-focused 'cluster competition' should be established for researchers at this level.
7. **Push the Top:** Nurturing talent and supporting people to reach their full potential is as important for professors as for post-docs. Establishing a new cross-council Senior Research Leadership Programme should be considered.
8. **Embed EDI** – A future-focused talent emphasis creates an opportunity to promote Equality, Diversity and Inclusion (EDI). A number of prestigious Laureate Professorial Fellows should be established to recognise excellence and drive change.
9. **Reflect Upon REF** – Urgent consideration needs to be given to the manner in which the Research Excellence Framework (REF) might more closely align to support inter-disciplinarity and the mobility of people, ideas and talent.
10. **Reconfigure Resources** – The vast majority of research funding is distributed on a highly individualised basis with little explicit thought to the cultivation of collaborative skills or the creation of innovative teams. This should be reviewed.

- 11. Reassess What Counts** – Reward structures within universities generally do little to incentivise research leadership. It is critical that reward systems are better able to assess contributions to collaborative ventures and engagement in non-academic but research-related environments.
- 12. Mentorship Matters** – The existence (or lack thereof) of a supportive and engaged mentor is a critical factor in explaining successful research careers. However, huge inconsistencies exist in mentoring arrangements and they need to be addressed.

Taken together, these 12 recommendations combine to offer a paradigm shift in how research leadership is viewed, cultivated, incentivised and sustained. It focuses on the full professional journey in ways that facilitate different forms of mobility in an explicitly inclusive manner. Delivering this new approach will take time, sustained investment and the commitment of a number of organisations; but it would also offer a relatively low-cost / high-gain strategy for not only maximising the value and impact of existing investments but for ensuring the UK science base really is fit for the future.¹

1. Why innovate now?

'The UK's world-class research and innovation is the foundation of our health and wellbeing, our economic prosperity and our nation's global influence' the UKRI Strategic Plan for 2022-2027 notes:

However, the world is changing fast and the UK needs a research and innovation system that is fit for the future and able to respond with agility to social, environmental, technological and economic change on a global scale. The UK has a long and proud tradition of excellence in research and innovation. The government wants to capture the power of this extraordinary talent and creativity to secure the UK's status as a science superpower and innovation nation. We need a more connected and agile system. We must capitalise fully on the breadth and depth of talent across the UK and create a nexus for global talent and investment.²

Rethinking and focusing upon the notion of research leadership provides a way of harnessing, nurturing and supporting extraordinary talent and creativity. A focus on skills and support through experiential learning and the facilitation of mobility also provides a way of connecting-up across the ecosystem in ways that are likely to unlock innovation, catalyse thinking and create communities of practice that span traditional boundaries. It was for exactly this reason that the *UKRI Delivery Plan 2019* contained an explicit commitment to investing in talent, people and research infrastructure and called for 'a paradigm shift in supporting careers that seamlessly span sectors and increase mobility'.³ Understanding why research leadership matters provides a way of achieving this shift and driving positive change.

The 'why now?' reasons can therefore be set out as follows:

1. *Scientific* – Major transformational breakthroughs are in the future likely to emerge at the intersection of disciplines and demand complex collaborative structures in which research leadership skills are vital to success.
2. *Societal* – As the global COVID-19 pandemic illustrated, major societal challenges are likely to demand rapid and agile inter-organisational responses in which scientists are confident operating within a range of contexts.
3. *Financial* – The Government's pledge to increased investment in R&D demands that the science base is able to utilise that funding in an efficient and effective manner with a focus on the delivery of societal benefits.
4. *International* – The research leadership challenge is one that many countries around the world are grappling with in order to increase their global scientific standing and economic position. The UK can lead this agenda.
5. *Equality* – Thinking about research leadership provides a way of recognising the value of different talents, building positive research cultures and forging a more diverse and inclusive science base.

A recent report by the McKinsey Global Institute focused on the role and importance of 'skill shifting' within a range of professions.⁴ The changing nature of work, the emergence of new forms of precarity, the implications of AI and automation, to highlight just a few issues, focus attention on what the notion of being fit for the future actually means for any profession. In this context a fresh and future-focused emphasis on leadership (not as it was necessarily thought about or

structured in the past but how it might be reimagined in the future) has emerged in a wide range of public, private and third-sector contexts. The result has been an emphasis on skill-shifting within a leadership lens that embraces diversity and seeks to facilitate the mobility of talent.

The link between this broader activity and the research, development and innovation ecosystem is to be found in the original Nurse Report of November 2015 and specifically with its core position that a successful research endeavour is increasingly dependent on two elements: institutional structures that facilitate the smooth movement of ideas, skills and people; plus an approach to research talent that acknowledges the need to nurture scholars who combine a number of academic and non-academic skills and qualities, and who are also able to operate within a range of research-related contexts.⁵ The current 'Nurse 2.0' review into the 'existing ecosystem of [Research, Development and Innovation] performing organisations across the UK' is likely to focus even greater attention on co-coordinative capacity and mobility within and across the system, while also reiterating the need for a bolder approach to talent management. What this report adds to the debate is:

- i. an emphasis on why research leadership matters within any approach to talent management;
- ii. a plea for systemic thinking that looks across the full professional journey from PhD student or post-doc right through to full and distinguished professors; and
- iii. a set of practical policy options for building and nurturing research leadership capacity in an inclusive manner that really is fit for the future rather than being fit for the past.

2. What is research leadership?

Research leadership is a complex concept. There is no one-size-fits-all model and it is not a topic of common discussion within academia, in general, or within the social sciences, in particular. Even the most basic attempts to define the concept are absent from scholarly and professional literature. Different disciplines will have their own particular understandings of what effective or good leadership looks like *vis-à-vis* research, the tenets of which will generally be passed down through tacit knowledge, institutional relationships and cultural mores.

The terms research and leadership are also not the most obvious bedfellows in the sense that academics generally tend to instinctively defend their intellectual autonomy and professional freedom from what are automatically perceived to be the top-down, restrictive and generally bureaucratic structures of anything related to leadership. It is therefore possibly not surprising that our understanding 'of research and research performance remains largely uncharted territory' and in relation to research leadership in particular the existing knowledge base has been described as 'relatively emaciated'.⁶ A basic function of this report and the review on which it is based has therefore involved an attempt to cultivate a debate about what the concept of research leadership actually means as a first step towards considering how it might be supported and developed in an inclusive manner.

A systematic review of the existing research and literature revealed the almost complete absence of research, data or evidence on the specific topic of research leadership in higher education. When reflecting upon what effective research leadership might look like in different contexts and at different

career stages Professor Linda Evans at the University of Manchester observes correctly that ‘in one sense such leaders are inadequately equipped, for the knowledge base available to them is extremely limited’.⁷ Professor Jacky Lumby, Emeritus Professor at the University of Southampton, echoes this point with the conclusion that ‘[e]vidence of the impact of leadership and different forms of leadership on the extent and quality of research ... is slim’.⁸ This is a critical point. Vast amounts of research and writing have been undertaken on the theme of leadership, in general, and in relation to university leadership, in particular, but the relationship between leadership and effective or world-class research remains almost non-existent.

And yet conversations, focus groups and meetings with university-based researchers and professional research support staff reveal the existence of significant enthusiasm for addressing this gap. Academics, and especially early-career researchers, want to operate in a professional context where their achievements in relation to both scientific excellence and social impact are recognised. They also recognise the benefits of mobility and fear being trapped in an overly-narrow and constraining academic career. What is also clear is that significant positive interest also exists amongst mid-career and senior staff who often feel either unsure about how to develop a research leadership profile, or completely unsupported and unprepared when taking on research leadership roles. Nurturing talent is not, from this perspective, an endeavour that should focus solely on early-career researchers but should, in fact, run throughout the full professional journey, from pre-doc to distinguished professor. There is then widespread recognition that the changing research funding landscape presents a leadership challenge that must be addressed

through positive and strategic engagement. Moreover, these conversations have also demonstrated a professional appetite for thinking innovatively and ambitiously about supporting non-traditional career structures, about how we facilitate forms of mobility in ways that challenge and inspire researchers and about how we define and nurture talent. More specifically, these conversations within the research community (broadly defined) have helped to clarify the core essence and meaning of research leadership to the extent that it is possible to offer a clear and concise definition of what research leadership is:

Research leadership

Noun.

1. The activity of supporting and facilitating the production of research in an inclusive manner that maximises the scientific quality and social impact(s) of that endeavour.
2. Relates to both individual development (self-leadership) but more commonly to the contribution of an individual to supporting and nurturing the research careers of others.
3. May refer to activities in relation to a specific project or programme of research, or to broader ambassadorial roles within research funding organisations, learned societies or academies.
4. Research leadership occurs in a number organisational and professional contexts and is in no way restricted to academia.

This definition is not perfect, it is open to future challenge and refinement, but it does put down some markers and reference points that have themselves emerged out of the extensive and wide-ranging consultation and engagement processes underpinning this report. It also dovetails with the reports of international funders and scientific bodies that have themselves identified the existence of a significant research leadership challenge.

Three brief points help explore and explain this definition.

First and foremost, this definition is not focused on heroic individual leaders. It seeks to emphasise the collaborative nature of research and the likely existence of numerous leadership roles within any project. It is therefore possible to fulfil a leadership role without formally being 'the leader', which resonates with existing theories of leading from the back (or leading from the middle) with its emphasis on nurturing, facilitating and supporting others. Research leadership is very often seen not in front-of-stage or spotlight terms but in off-stage roles where facilitating, nurturing and protecting the research potential of others is the core essence.

Secondly, following on from this, all forms of research leadership – from supervising PhD researchers to directing a research institute or helping to lead a funding body – involve some element of management or administration. At the same time, research leadership is about far more than project management or administrative efficiency. It includes a capacity to enthuse, ignite and sustain an intellectual vision that is inclusive, flexible and open to challenge. It also involves an ability to take that vision beyond academia in order to demonstrate the social relevance of that research, and therefore why science matters.

Research leadership is therefore increasingly tied to notions of innovation, entrepreneurship and ambassadorial skills that research suggests few university-based researchers are encouraged to develop within the existing academic career framework.

The great benefit of even this relatively straightforward definition of research leadership is that it facilitates a starting point from which to begin thinking about how research leadership skills might need to evolve and change as an individual progresses in their professional journey (see Table 1). What is interesting about this focus on evolution is the manner in which it views research leadership as a very specific, important and yet discrete element of the broader debate about talent management. Moreover, while Table 1 provides a first attempt to tease-apart the notion of research leadership and ascribe specific skills (or talents) to specific career stages the potential weakness is that it also adopts a very linear and arguably traditional approach to thinking about research careers.

To put the same point slightly differently, a future-focused approach may well need to recognise the mobility of people into and out of higher education (for example, braided careers) and therefore how to accommodate and reward such mobility. It will also need to embrace a broader range of talent than solely thinking in terms of academic or research-related staff. The research leadership challenge brings with it a need to build innovative skills-based career frameworks for those professional research support staff who increasingly play a role in the design and delivery of projects and yet rarely receive the recognition they deserve. At the moment, increasingly large numbers of university staff exist in a professional hinterland somewhere between traditional university administrators and academic staff. It is for this reason that people in this group – often professional knowledge brokers based in boundary-spanning units or centres – are increasingly referred to as ‘third space’ staff who lack any discernible career framework despite the contribution they make to filling vital research leadership roles.

Table 1 The Evolution of Research Leadership Skills and Experience

Phase	Key Question	Leadership Emphasis	Talents & Skills*	Initial Talent Management Evolves into Research Leadership
<p>Phase 1 Doctoral</p> <p>FIRM FOUNDATIONS</p>	<p>How do I understand research leadership and why it matters?</p>	<p>Largely self-leadership but also leadership within research groups, conferences, networks and publications.</p>	<ol style="list-style-type: none"> 1. Awareness of broader professional environment and shifting research landscape. 2. Regular engagement and interaction with other disciplines and research-users. 3. Opportunity to gain experience in research-related but non-academic environment. 4. Understanding of professional opportunities beyond academia. 5. Ability to assess and manage risks and learn from failure. 	
<p>Phase 2 Post-Doc</p> <p>HARVESTING TALENT</p>	<p>How do I gain experience in relation to research leadership and assess success?</p>	<p>Leadership within small research groups (including supervision of pre/doc students) while developing an independent research profile.</p>	<ol style="list-style-type: none"> 1. Willingness to contribute to small team-based projects or to the creation of new research platforms or innovative 'docking points' with research-users. 2. Capacity to operate in an inter-disciplinary context and/or utilise insights from other disciplines. 3. Appreciation of different research cultures within and beyond academia. 4. Ability to offer training or professional support to peers, PhD students or research-users. 5. Awareness of the challenges and opportunities of co-design and co-production. 	

<p>Phase 3 University Scientist [Lecturer / Senior Lecturer]</p> <p>MID-CAREER MOMENTUM</p>	<p>How do I develop my experience in order to be able to lead larger and/or more complex projects/build innovative collaborations?</p>	<p>Leadership role within research projects, networks, collaborations, etc. or centres, mentorship. Abilities in relation to knowledge mobilisation and impact. Project and network management skills (finance, staff).</p>	<ol style="list-style-type: none"> 1. Capacity to create and promote a confident and inclusive research vision. 2. Ability to undertake project management responsibilities in key areas, including the management of staff. 3. Cultural and emotional intelligence derived through training, experience and inter-sectoral mobility. 4. Understanding of different leadership styles and the need for adaptation in different contexts. 5. Commitment to nurturing future leaders through formal and informal mentorship, and the facilitation of / encouragement towards new skills-based opportunities.
<p>Phase 4 Professor</p> <p>HIGH-LEVEL AMBITION</p>	<p>How do I excel in terms of demonstrating research leadership, especially in relation to nurturing future generations, building research infrastructure and shaping the agenda?</p>	<p>Leadership role within large and complex projects, mentorship to junior colleagues. Proven project and network management skills. Possibly leadership in relation to building (inter) national capacity, influencing policy, shaping debates, horizon-scanning and/or playing an ambassadorial role.</p>	<ol style="list-style-type: none"> 1. Proven capacity in relation to complex project management. 2. Experience of coping with crises and/or potential repurposing. 3. Proficiency in relation to strategic coalition building and advocacy. 4. Extensive media management and public engagement experience. 5. Familiarity of research leadership challenges at the (inter)national level and experience of working within complex networks/ politically salient contexts.

A second and related point focuses attention on the notion of vertical integration between different careers and professions. With leadership-related initiatives, investments and opportunities exist in a vast range of professions to encourage thinking about connecting-across between those ventures in order to foster exactly the insights, skills and contacts they are designed to provide. And yet, as will be discussed below, mobility in and out of higher education tends to be incredibly restricted, which arguably starves the system of creative energy and critical challenge.

Research leadership matters from this perspective because it forces some appreciation of the need to ensure flow – the circulation of people, ideas and talent to avoid stagnancy. It is, of course, possible to identify a number of research-related and leadership themed investments that have in recent years attempted to facilitate flow and increase porosity. The UKRI Future Leader Fellows, ESRC Public Policy Fellows and the British Academy's Innovation Fellowships Scheme are all examples of a general emphasis on facilitating mobility. But a third point might raise the question of the degree to which these schemes form part of an integrated systemic approach as opposed to risking simply reinforcing the siloed thinking and fragmentation that they are to some extent designed to resolve.

A fourth and final point that does focus back on how research leadership is defined, interpreted and supported takes the discussion back to a focus on equality, diversity and inclusion. This raises a question of identification as much as one of interpretation and simply highlights that the great danger of any talent management system is that it risks locking-out individuals at a fairly early stage in their career and creating

significant barriers that can make it very difficult to identify and embrace 'lost leaders' later in their career. This is a critical point. Part of any ecosystem-aware approach to research leadership has to somehow accommodate the ways in which different people can thrive and flourish in different climates, at different times and under very different pressures. But this, in itself, highlights the existence of a research leadership opportunity as part of a broader attempt to address long-standing patterns of structurally embedded inequality within higher education. This leads us to reflect upon the evidence that a research leadership challenge actually exists.

3. What is the research leadership challenge?

The research leadership challenge revolves around the issue of alignment. The research funding landscape is changing in ways that are designed to align with the demands of an increasingly complex social context. At the core of this process of change is an increasingly explicit focus on three interrelated questions:

- i. Scientific breadth: How do the parts contribute to the whole and serve to produce more than the sum of their parts?
- ii. Viewpoint diversity: How do we stress test research in terms of methods and findings in order to increase its scientific quality and social relevance?
- iii. Knowledge utilisation: How do we maximise the public value and social relevance of publicly funded scientific research?

This emphasis on scientific breadth, viewpoint diversity and knowledge utilisation form the cornerstone of the emerging research funding landscape, and they help explain this report's core focus on research leadership and its relationship to facilitating mobility. Moreover, these three elements and the questions they pose are fuelling an increasingly obvious shift within the research funding landscape toward investments that exhibit the following characteristics:

- i. They are large, ambitious and complex (they seek to exploit scale and to build-upon previous investments).
- ii. They are inter-disciplinary in design, inter-sectoral in nature and international in scope (they seek to focus on the intersection between disciplines and to engage in border-crossing).

- iii. They are challenge-orientated or mission-driven and involve close engagement with potential research-users (they combine a dual focus on knowledge-creation and knowledge-utilisation).
- iv. They embrace an increasingly broad definition of useful knowledge that stretches beyond scientific research (one that seeks to utilise experiential knowledge, tacit knowledge and lived experience).
- v. They are likely to involve a range of funders and participating institutions and promote an emphasis on the co-design and co-delivery of research (through a 'hub-and-spoke' approach to governance).

What this chapter has so far presented are three elements and five dimensions of change that underpin why research leadership matters. Putting the point very simply, research activities in the future are likely to look very different to how research has traditionally been undertaken in the past, and this requires that any national science base needs to adopt what has been termed a 'Triple A' approach forged upon alignment, agility and ambition. Those higher education systems that fail to recognise and adapt to the shifting context (the ecosystem dynamics) by facilitating mobility and investing in research leadership capacities are likely to fall back and away from those early innovators.

The question this report poses is whether the UK is genuinely committed to seizing this agenda and whether it has the capacity to design and deliver anything that resembles an integrated and systemic approach. The research leadership challenge stems from the manner in which the existing infrastructure and incentives of higher education tend

to reinforce and perpetuate an arguably outdated talent emphasis, while at the same time militating against exactly those forms of future-focused behaviour that are so crucial to the UK's science base (see Figure 1).

Figure 1 Closing the Gap: The Core of the Research Leadership Challenge

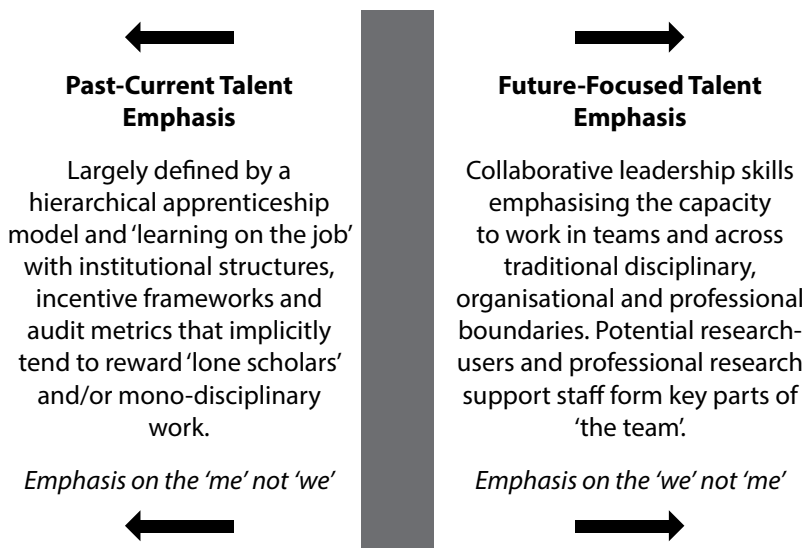


Figure 1 is clearly an attempt to simplify a complex set of issues. There will always be a role for highly individualised lone scholar research that is by its very nature more 'me' than 'we'. This is particularly true when the research is high-risk or paradigm-challenging in nature. In this sense a healthy research, development and innovation ecosystem must sustain and nurture a range of scholarly species. Nevertheless, at a broad level it accurately reflects the existence of a significant research leadership challenge for higher education. An awareness of this challenge was a consistent and central

feature of the evidence submitted to the national consultation that underpinned the review on which this report is based. It is also a challenge that was explicitly acknowledged in the *R&D People and Culture Strategy* that was published in July 2021. As such, the evidential basis underpinning the research leadership challenge can be summarised in ten points.

Point 1

The available evidence points to the existence of a dominant mode of research leadership in higher education that is generally referred to as the apprenticeship model or 'learning on the job'. This, in itself, reflects the extent to which the underlying culture of academic research remains largely rooted in a set of nineteenth-century assumptions about the independent scientist model.

Point 2

Existing support structures to promote and nurture research leadership are highly fragmented, under-developed and generally not fit for purpose. They also tend to focus on early career researchers to the detriment of mid-career and senior staff. In recent years, leadership-related provision and support has been significantly enhanced in relation to teaching and university management but not in relation to research. The *UKRI Strategy 2022-2027: Transforming tomorrow together* calls for 'sector-permeable career paths' and a whole-of-career approach to thinking about leadership training and support.⁹

Point 3

Mid-career and senior academics are commonly expected to assume research leadership responsibilities with very little or no formal training. Skills are developed through trial and error

with the evidence suggesting that the most common elements associated with a successful research career are luck and the existence of a supportive mentor.¹⁰

Point 4

An emphasis on luck that is heavily dependent on the goodwill of colleagues in an increasingly pressured professional environment is not sustainable. Moreover, many contributions to research leadership roles are often not formally recognised or rewarded in workload models of promotion and reward frameworks. This risks locking-in systemic gendered inequalities and creating perverse and individualised incentives.

Point 5

Extensive evidence suggests that researchers very often feel isolated, unsupported and vulnerable when it comes to leading research projects, especially when inter-organisational co-ordination is required. Data from the *Principal Investigators and Research Leaders Survey (PIRLS)* suggests that only a quarter of research leaders feel fully confident in supervising researchers or providing careers advice. Half say they would benefit from training or support in these areas and there is an urgent need for higher education institutions to find ways to develop these competencies further. Without building integrated and inclusive research leadership infrastructure the risk is that the demands of the changing ecosystem, especially when it comes to facilitating forms of mobility, will simply accentuate the already significant challenges regarding mental health and wellbeing within higher education that previous HEPI reports have highlighted.¹¹

Point 6

The sixth part of the evidence base relates not to individual behaviour but to the systems of regulatory governance and assessment that researchers, professional research support staff and universities more generally work within. A related evidence base also suggests that the existing institutional frameworks, performance audits and dominant disciplinary cultures very often tend to lock-in a highly individualised and mono-disciplinary mode of scholarship which offer researchers few incentives for taking on research leadership roles or contributing to team-based projects.¹² As this report attempts to underline, the most difficult societal challenges are complex, cross-cutting and, as such, often referred to as 'super wicked', so more effective collaboration between researchers and research-users is a source of considerable and increasing public value.

Point 7

The great insight of COVID was the manner in which it revealed how collaborations could be developed, information synthesised at speed, research commissioned in days and weeks instead of months and years and how agile the ecosystem could be when a crisis suddenly removed the barriers and blockages that generally restrict innovation and flow. The reality, however, is that normal science generally takes place in a context where the networks between researchers are underdeveloped and often thwarted by bureaucracy and the pathologies of inter-organisational competition. There is demand for mechanisms that allow researchers to support each other, share practice, learn from experience and operate in a range of research and research-related contexts.

Creating value across boundaries demands an appreciation of why research leadership matters.¹³ This need has increased post-Brexit as UK researchers have lost access to key sources of collaborative engagement and critical networks for honing research leadership skills and talents. Any 'Plan B' to compensate from the UK's potential exclusion from Horizon Europe must therefore have a focus on research leadership at its core.¹⁴

Point 8

The eighth piece of evidence that suggests the existence of a significant research leadership challenge is the emergence over the past three years of a number of projects and programmes that have all in their own ways sought to build research leadership awareness and skills. Possibly the most advanced of which is the Future Leaders in Innovation, Entrepreneurship and Research (FLiER) scheme that was launched by the Academy of Medical Sciences in February 2019. A two-year long immersive, collaborative and cross-sector learning experience, FLiER is explicitly designed to align the skills of the next generation of medical researchers with the needs of an increasingly complex scientific and societal landscape in an agile and ambitious manner. As the President of the Academy of Medical Sciences, Sir Robert Lechler, underlined when launching the initiative, the future of medicine and public health 'will depend on leaders who can transcend traditional scientific and sector boundaries and find dynamic new ways to improve health'. The Scottish Crucible, developed by the Royal Society of Edinburgh but now delivered in several parts of the UK, can be seen as a similarly ambitious, agile and aligned initiative. The initiative focuses on bringing together researchers from across the scientific spectrum to consider a

specific social challenge alongside representatives of affected communities and policymakers. The ideal is not to solve the problem in any simple sense but to hone a 'crucible effect' where ideas and perspectives that would never generally have the opportunity to clash and coalesce can, in fact, meet. Networks are formed, skills are developed, sources of knowledge uncovered and the research ecosystem is in that sense nourished in ways that seek to nurture both 'structured serendipity' and powerful cohort effects that deepen and develop overtime.

Point 9

A ninth source of evidence can be found within the numerous reports by a large number of international research funders and policymakers – including the Global Research Council, International Social Science Council and European Commission – that all in their own ways focus attention on the issue of research leadership.¹⁵ In essence, what these reports and the broader body of international interest in the topic sought to underline was the issue of alignment and a potential leadership trap. A lack of alignment in the sense of the existence of a gap between the dominant cultures, processes and ways of working within higher education, on the one hand, and the requirements of society and funders for far more agile, flexible and inclusive approaches to research, on the other (as in Figure 1). The research leadership trap emerges from the potential risks and costs of failing to close – or at the very least manage – this gap in terms of non-adaptation by universities and scholars potentially leading to a withdrawal of funding, or the imposition of greater external controls (for example audits and reviews).

Point 10

The tenth and final source of evidence exists not within higher education but within the public sector and potential researchers. This perspective takes the discussion back into the broader research, development and innovation ecosystem but focuses attention not on how research connects into policy and practice, but how the latter can connect into the former. The NHS Leadership Academy, Local Government Academy, Civil Service Leadership Academy – or even more specific initiatives like the Cabinet Office’s Project Leadership Programme or the new Leadership College for Government – all run leadership development courses for people at different career stages and that have significant research-related content and components. These initiatives are generally very keen to engage with higher education and could provide rich collaborative platforms for crucible-like engagement and forms of horizontal mobility, thereby facilitating inter-sectoral mobility and inject a challenge element into both research and policymaking.

The evidence that innovations such as this are urgently needed is provided in the Institute for Government’s *How government can work with academia* report of June 2018.¹⁶ But what is missing is any systemic approach to joining-up these initiatives or clear ‘docking points’ for researchers to engage with.

The main aim of this section has been to review the evidence that a research leadership challenge exists. But what does the evidence suggest are the root issues underlying this challenge? This question forms the focus of the next chapter.

4. What are the root issues underlying the challenge?

Research leadership matters. This is the core and simple argument of this report. The argument needs to be made, because what leadership means and why it matters in relation to facilitating world-class research, has never been the topic of sustained thought or investment. Changes in both the broader socio-political context and the nature of scientific investment are, however, focusing attention on the existence of a research leadership challenge. This challenge has been presented in the form of a gap that needs to be closed between the talent emphasis of the past (highly individualised, discipline-led, limited mobility, learning on the job) and the needs of the future (collaborative competencies, inter-disciplinary, team-based, managed mobility). In this context, three things were striking about the national review into research leadership that was conducted between 2018 to 2020 and on which this report is based.

First, the national review involved a huge multi-stage consultation process with a major call for evidence supported by focus groups, institutional visits, social media activity, debates, events and conference discussions. The most striking feature of this activity and the whole review was the clear and widespread view that a major research leadership challenge did exist and that it urgently needed to be addressed. Early career researchers were particularly aware of a mismatch between the advice and opportunities they were offered by their supervisors and host institution, as opposed to the far broader and more vibrant skills signals they were picking-up from engaging with funders and research-users.

Secondly, the national review was commissioned by the ESRC and was initially focused on the relevance of research leadership to the social sciences. However, what quickly became apparent was that the challenge was relevant across the whole scientific spectrum, as reflected in the launch of initiatives such as the FLiER scheme. This is not to suggest that the traditional emphasis of the social sciences, arts and humanities on lone-scholar or relatively small-team projects does not present particular challenges, as the broader ecosystem clearly shifts towards a 'big science' and 'team science' model. But there is an equally strong argument that the arts, humanities and social sciences have a key foundational role to play within this emerging landscape. Research leadership investment should therefore be seen as a core element of strategic research infrastructure and not the responsibility of any one single research council or funder. However, UKRI's position as a 'strategic brain' responsible for supporting and stewarding the research landscape clearly places it at the forefront of this debate.¹⁷

Thirdly, identifying problems is generally far easier than finding solutions. One key finding from the national review was that a range of learned societies, funders, institutions and research-users were all grappling with their own versions and interpretations of the research leadership challenge. And yet the ecosystem dynamics which have, in part, stimulated a fresh focus on research leadership also spill over to affect the nature of the initiatives and investments that might be put in place to address the challenge. In essence, the emphasis on facilitating mobility across traditional organisational, professional and disciplinary boundaries makes it very hard, if not impossible, for any one organisation, profession or

discipline to address the challenge. What is needed is the facilitation and incentivisation of mobility and flow within the ecosystem. Some form of national strategic framework that focuses on aligning incentives and opportunities is needed to unlock agility and ambition. This leads to the core and fairly blunt argument of this section: there is no point investing in innovative research leadership development opportunities if the individuals who develop new skills, competences and networks are then sent back into a higher education system that fails to recognise, utilise or reward such attributes.

This is a key insight from leadership development innovations in other sectors, and it explains this report's emphasis on systemic within-system change rather than focusing on arguably easier but most likely cosmetic innovations on the periphery of the higher education system. Research leadership matters and it needs to be valued and integrated throughout higher education policy. It also needs to be seen as a positive opportunity for redefining, reinvigorating and reimagining how and why universities inspire staff and students. But for this to occur it is necessary to identify the root issues – the barriers and blockages – that need to be addressed in order to unlock this potential. Looking across the existing evidence base one root issue and six structural factors can be identified.

The core root issue is cultural rather than structural. Academic life has traditionally been defined by robust arguments concerning intellectual freedom and academic autonomy. A large number of academics view research as their primary role and are understandably keen to defend it against what might be seen as external interference. The 'decline of donnish dominion' to paraphrase the title of A.H. Halsey's classic 1992 study of academic life charts the origins of these

strong scholarly norms, and how they have been affected or threatened by more recent managerial reforms.¹⁸ This cultural history matters because it helps explain why the research councils have in the past tended to adopt a rather *laissez-faire* approach to building research leadership capacity and talent management, on the basis that this role should fall to research organisations (universities) and scientific communities and not to arm's-length government agencies. And yet the evidence also suggests that universities have adopted a fairly relaxed approach to research leadership, often on the basis that this was best left to scientific communities. The result might be seen as a classically British version of muddling through and the main argument of this report is that this approach is no longer acceptable.

Cultures are, however, notoriously sticky and difficult to change. In relation to research leadership the cultural dimension is further affected by at least six structural issues that can be identified as follows.

Structural Issue 1 – Precarity and Unbundling

Increased job insecurity combined with a still dominant but very narrow academic currency provides little incentive for researchers, particularly at the beginning of their career, to think broadly and strategically about skills and mobility. Permanent academic career paths are also being increasingly unbundled into specific career tracks (teaching-focused, research-related, impact-champion) but moving between pathways can be difficult, if not impossible. Increased vulnerability among early career staff may result in lost leaders, with important consequences for equality, diversity and inclusion.¹⁹

Structural Issue 2 – Pressure and Risk

Academics exist within an increasingly pressured environment. Expectations of excellence in relation to teaching, administration, impact, research and publications have – and continue to – affect the mental health and wellbeing of researchers. In this context dedicating time to research leadership roles is often viewed as a risky endeavour that is unlikely to be recognised or rewarded in pay and performance reviews. The demands of leading on the design and submission of large, inter-disciplinary collaborative projects tend to be extensive and intense, the preparatory process possibly spanning several years, but where the chances of success remain slim.²⁰ An important element of research leadership is resilience and learning from failure.

Structural Issue 3 – Silos and Audit

Despite the emphasis on inter-disciplinary and collaborative research the institutional architecture of higher education remains forged around discipline-based units and audit structures. Being an inter-disciplinary researcher remains a risky endeavour despite the fact that being able to work at the intersection or nexus between disciplines and to connect across and between seams of scholarship that would otherwise have remained disconnected is likely to be the defining dimension of genuinely world-class research in the future. The structural infrastructure of higher education does very little to incentivise or support the notions of flow, range and mobility that are hallmarks of a successful research endeavour.²¹

Structural Issue 4 – Recognition and Reward

The core currency within higher education remains peer-reviewed academic publications and external research grant income. Reward and recognition frameworks also remain highly individualised with limited progress in terms of recognising contributions to team-based projects. A rhetoric-reality gap tends to confuse many early-career researchers as they are encouraged by funders, academies and research-users to adopt a broad and engaged approach to their activities; but are then advised by senior academics and mentors within their own institution to focus-down very narrowly on writing and research in a very traditional sense. This confused signalling acts as a major impediment in forging more innovative and vibrant team-based research platforms.²²

Structural Issue 5 – Entry and Exit

Despite a growing emphasis on open knowledge processes, inter-sectoral mobility remains difficult. The traditional pipeline model of researcher development – whereby an individual follows a fairly linear, predictable and structured path through a number of stages – no longer captures the reality of modern employment patterns. The pipeline model has also contributed to the historical exclusion of individuals from certain minority backgrounds. If the ‘ecosystem-effect’ is to mean anything then it has to reflect the natural world in terms of providing multiple entry, exit, re-entry and pivot points which facilitate the flow and mobility of talent. At the moment higher education remains far too rigid, and it is very difficult for ‘lost leaders’ to re-enter academia.²³

Structural Issue 6 – Equality, Diversity and Inclusion

It is impossible to separate a focus on research leadership from the broader issues and concerns that surround any discussion of leadership within higher education, especially as it relates to longstanding and well-known issues of equality, diversity and inclusion. Embedded structural inequalities continue to ensure that the researcher development and leadership landscape is not a flat one. Intersectionality compounds impacts and serves to lock-out critical insights, perspectives and talents which are in reality crucial elements of a healthy and inclusive research, development and innovation ecosystem.²⁴

What this final focus on equality, diversity and inclusion serves to highlight is that the research leadership challenge might equally be interpreted as a research leadership opportunity. That is, as a core ingredient of a vision for a more strategic, open, diverse and inclusive research environment. The next chapter focuses on specific policy recommendations for how this opportunity might be seized.

5. How to seize the research leadership opportunity?

The main argument of this report is that research leadership matters. It matters because muddling through has largely defined the UK's approach in the past, but is unlikely to deliver its global science aspirations in the future. As the scientific process itself becomes more complex, the need for international engagement is greater, the demand for demonstrable societal benefits increases and the existence of intricate inter-dependencies within the research, development and innovation ecosystem become more obvious, so too does research leadership demand serious attention. The emergent national and international research funding landscape increasingly demands a broader range of leadership-related talents and skills than have traditionally been cultivated, nurtured or incentivised within higher education. This is what needs to change if universities are to thrive and flourish. A 'Triple A' approach has been advocated in this report, based upon the principles of alignment, agility and ambition.

The aim of this chapter is to very briefly outline a set of practical policy proposals which, when taken together, combine to form an integrated and systemic approach to building research leadership capacity across the full professional journey (for example, from pre-doc to full professor). It is also an approach that seeks to build flexibility and movement into and across the traditional pipeline-based talent management approach to facilitate horizontal mobility and braided careers. It therefore offers a delicate balance between continuity and change, in a way that could be introduced gradually over a number of years, with the underlying intention of fostering cultural change. There is no reason why thinking about research

leadership should be interpreted as a threat to academic autonomy or scholarly freedom. Quite the contrary. This is an agenda which, if undertaken in an inclusive, collaborative and evidence-based manner, provides an opportunity to increase and demonstrate the societal value of both higher education and public investment in research. Moreover, when viewed against overall levels of increased funding in R&D, thinking about research leadership represents a comparatively low-cost but high-gain investment which could unlock a number of positive multipliers in terms of productivity, employment, innovation and growth.

Before setting out the component elements of a new approach to research leadership it is necessary to identify the underpinning principles and values that shape that approach and, through this, inform every element. The five main principles emerging from the existing evidence base, and from what members of the research system (broadly defined) have indicated, should inform a new approach that can be set out as follows.

The first principle relates to ensuring **efficiency and value for money (#1)** by maximising the value and return on existing and future investments in research. At present many funding streams operate almost in isolation with very little focus on the exploration of potential synergies or positive spill-over effects. A focus on research leadership therefore provides an opportunity to realise that potential and subsequently increase levels of efficiency through shared learning, best practice and forms of peer-to-peer support.

This flows into the second underpinning principle and an emphasis on designing and delivering **a more integrated,**

responsive and balanced approach (#2) to talent management. The adoption of an approach that runs throughout the full professional journey, that embeds an explicit 'leadership lens' at every stage and through all funding streams and which seeks to accommodate non-traditional career paths and embraces the need to facilitate the mobility of people, ideas and talents.

It therefore makes perfect sense in terms of alignment, agility and ambition to adopt a **principled commitment to equality, diversity and inclusion (#3)** as of central significance to any attempt to hone research leadership skills.

The penultimate principle embraces a commitment to **facilitating mobility and movement (#4)** within the broader ecosystem as central to a future-focused research endeavour.

The fifth and final suggested principle is possibly slightly unexpected but has emerged from a broad and diverse consultation: **a bias towards action (#5)**. This is a critical point. Organisations such as Advance HE (incorporating what was the Leadership Academy for Higher Education) and Vitae clearly offer high-value provision across the higher education sector. But interviews, focus groups and discussions have underlined the existence of what could be termed a mismatch between supply and demand.

What researchers say they need but are struggling to access – especially those at the beginning of their careers – is researcher development and leadership support that is focused around specific challenges, underpinned by case studies and delivered by people that have actually gone through it themselves. The preference is for experiential

learning and the opportunity to develop skills in new contexts, for the chance to join professional networks that bring them into contact with people from beyond their own institution and discipline and to foster skills in relation to co-production and co-design. High-quality and committed mentorship was by far the most common demand.

What researchers say they are offered but do not want is patchy and often short-term provision, pitched at a very basic level, provided through generic classroom-based formats, delivered by facilitators with little or no direct senior research leadership experience, and that tend to focus on a large number of leadership traits, models, competencies, concepts and frameworks that provide very little help in terms of helping participants navigate the day-to-day realities of academic life.

There is a clear bias towards action in the demand-side of the research leadership opportunity which is why initiatives like FLIER, the Scottish and Welsh Crucibles and the Clore Leadership Programme are viewed so positively. Irrespective of their discipline or career stage, researchers appear highly sceptical of the benefits of leadership training but extremely keen to participate in carefully crafted developmental opportunities delivered 'live' in a variety of research-related environments.

What Table 2 provides is a starting point for discussion, an integrated programme of opportunities and an emphasis on systemic thinking in order to drive cultural change. It is also forged upon a principled foundation that has emerged out of extensive consultation and some elements – such as 'Reflect Upon the REF' – are already happening.²⁵ But reflection must flow into substantive measures: doing nothing is not an

option. 'Business as usual' is a recipe for scientific decline and wasted public investment. The global science system will need a strong and diverse cadre of research leaders in the coming decades and the question is really whether the UK wants to be at the forefront in terms of providing them.

Seizing the research leadership opportunity therefore involves a double-dimension that is rarely discussed. The obvious dimension relates to the design and delivery of new collaborations, opportunities and partnerships, especially those that span research-related sectors and adopt new and bold approaches to equality, diversity and inclusion. This is the infrastructure of research leadership and a sphere of professional practice that is currently as fragmented as it is under-developed. But above this there is a higher and very different dimension to the research leadership debate that concerns the meta-governance of higher education ('the rules of the game'). It is this latter dimension and the responsibilities of politicians, policymakers and funding chiefs to commit to addressing the research leadership challenge that is rarely highlighted.

This is not a tick box challenge that can be resolved through short-term investments, just as it cannot be tackled by any single part of the ecosystem. It is also important to appreciate that the benefits of investing in talent, skills and leadership can often be difficult to assess, especially through traditional linear evaluative mechanisms.²⁶ Progress therefore requires joined-up thinking and a shared vision, backed up by clear national leadership and a recalibrated incentives system. The next and final chapter looks at progress towards this goal since the original review into research leadership was published in the summer of 2020.

Table 2 A 'Triple A' Approach to Research Leadership: Alignment, Agility, Ambition

	Recommended Element
Research Infrastructure	1. Scale-Up Ambition – A new and integrated strategic framework should be established in order to foster a more aligned, agile and ambitious approach to research leadership.
	2. Create Core Capacity – Driving forward this agenda, catalysing action and sustaining momentum demands the creation of a central unit to co-ordinate activities, liaise with partners and distribute resources. This is best positioned within UKRI.
	3. Understand What Works – A fresh programme of research should be commissioned to produce a far more sophisticated understanding of the dynamics of research leadership than is currently available. Research on research leadership is urgently needed.
	4. Acknowledge Excellence – Nurturing talent and supporting future generations of researchers very often goes unrewarded. A small number of Research Leadership prizes and awards which span the full ecosystem should be established.
Research Innovations	5. Facilitate Mobility – A 'Discipline Hopping' funding scheme and Research Re-Entry Fellowships (or Returnships) should be piloted in order to facilitate inter-disciplinary and inter-sectoral mobility.
	6. Manage the Middle - Mid-career researchers are often a left behind constituency when it comes to nurturing talent. A new skills-focused 'cluster competition' should be established for researchers at this level.
	7. Push the Top – Nurturing talent and supporting people to reach their full potential is as important for professors as for post-docs. Establishing a new cross-council Senior Research Leadership Programme should be considered a priority.
	8. Embrace EDI – A future-focused talent emphasis creates an opportunity to promote equality, diversity and inclusion. A number of prestigious Laureate Professorial Fellows should be established to recognise excellence and drive change.

Research Reviews	9. Reflect Upon REF – Urgent consideration needs to be given to the manner in which the REF might more closely align to support inter-disciplinarity, facilitate and reward contributions to research leadership.
	10. Reconfigure Resources – The vast majority of UK research funding is distributed on a highly individualised or institutional basis with little explicit thought to the cultivation of collaborative skills, the issue of reciprocity or opportunities for cross-sectoral learning.
	11. Reassess What Counts – Reward structures within higher education generally do little to incentivise research leadership. There is an urgent need to ensure that universities are better able to assess contributions to collaborative ventures and research positive cultures.
	12. Mentorship Matters – The existence (or not) of a supportive and engaged mentor is a critical factor in explaining successful research careers. But huge inconsistencies exist in mentoring arrangements, and huge opportunities exist to innovate to build resilient capacity.

6. Progress, policy and where next?

The main argument of this HEPI report has been that research leadership matters. It matters because the interlinked processes of knowledge-creation (achieving scientific excellence) and knowledge mobilisation (addressing societal challenges) are changing in ways that demand greater co-ordination, stronger project management skills and the ability to ‘trespass’ – to borrow a phrase linked to the approach of Albert Hirschman – across traditional institutional, professional and disciplinary boundaries.²⁷ To put the same point slightly differently, scientific success in the future will demand the development of a generation of scholars and researchers who possess both subject-specific knowledge (depth) and broader societal and intellectual awareness (range). Higher education has in the past been focused on delivering the former, but now it must innovate in relation to the latter.²⁸ ‘I am convinced that the greatest scientific discoveries in coming decades will be facilitated by those who can work across traditional academic disciplines and feel at home in multidisciplinary teams’, Professor Sir Robert Lechler has argued. ‘We can’t fully know what the future holds, but we do know we will need a pipeline of talented leaders that will disrupt the *status quo* to seize opportunities and galvanise multi-sectoral teams to overcome barriers’.²⁹

Working across disciplines and galvanising multi-sectoral teams, not to mention disrupting established ways of working or thinking, demand research leadership. As such, the aim of this last and concluding chapter is to look at how the research leadership challenge and opportunity has been taken forward in the UK since the national review on the topic was published almost exactly two years ago. The fact that the years

2020 to 2022 were dominated by the COVID-19 pandemic must obviously be taken into account. A focus on strategic long-term thinking was to some extent replaced by the day-to-day necessities of crisis management and ensuring that policymakers had access to the very best scientific research. Looking back, what is interesting is how the scientific structures of funding, commissioning, research and engagement did respond in a way that demonstrated an emphasis on the '3As' this report seeks to promote. The research infrastructure was rapidly re-aligned to meet the timescales and needs of research-users in an ambitious manner which demonstrated intellectual and professional agility. Processes were radically restructured, boundaries bridged and research leadership skills developed and honed in a high-pressure environment.

It is for exactly this reason that Professor Stephen Reicher at the University of St Andrews has suggested that COVID sparked an 'unprecedented coming together' that spanned disciplines and professions, while also taking science into society in ways that might now be taken forward.³⁰ But taking forward the positive momentum that COVID generated demands that the higher education sector demonstrates a far sharper and more explicit understanding of why research leadership matters. This is not to suggest that significant progress has not been made, but it is to suggest that a review of the current research landscape in late 2022 reveals three main weaknesses:

- i. heightened awareness versus limited understanding;
- ii. increasing engagement versus strategic fragmentation; and
- iii. ecosystem dynamics versus responsive reluctance.

Taken together, these three points suggest that the research leadership challenge has undoubtedly been recognised but that there is also a degree of systemic ambivalence across higher education in relation to how to grasp the research leadership opportunity. This, in turn, underlines the need for integrated strategic thinking within the sector, and a greater focus on collaborative partnerships. The following sections outline and evidence each weakness as a spur to promoting a focus on alignment, ambition and agility.

Heightened awareness but limited understanding

If the 2020 review had any impact at all it seems to have heightened awareness about the research leadership challenge and how it fits within the broader debates about the governance of wider research, development and innovation ecosystem. This was seen most clearly in the *R&D People and Culture Strategy* that was published in July 2021.³¹ ‘There is a variable quality of leadership practice and models of leadership that need to change to bring about wider culture change and enable the sector to get the best out of everyone’, the document noted, before going on to highlight, ‘Great leadership skills at all levels, making the sector fit for the challenges it faces and enabling a positive and inclusive culture’ as a fundamental ambition of the strategy.³² The 2021 *R&D People and Culture Strategy* represented an explicit acknowledgement of the research leadership challenge as the ‘variable quality of leadership practice’ was for the first time set out as a major sectoral challenge. The COVID-19 pandemic also focused attention on the skills and attributes that this report has placed within the notion of research leadership. Designing and delivering research that spanned disciplines, liaising with

policymakers and research-users, synthesising knowledge plus translational skills and possessing sophisticated political antennae all suddenly became facets of research leadership that took on a new impetus and importance.

The challenge, however, when it comes to taking forward the positive science-society linkages that COVID facilitated is that higher education still lacks a clear or mature research base on the topic of research leadership.³³ This is a slightly paradoxical and perplexing gap which highlights a lack of 'research on research' despite plans for significant additional public investment. A fresh and inter-disciplinary research programme on 'what works' in relation to supporting, nurturing and stewarding an inclusive and integrated approach to research leadership has not been commissioned. The tacit and experiential knowledge possessed by experienced and international researchers – or the leadership insights existing in other research-related environments – has not been harvested, let alone utilised to inform future generations. Numerous leadership development programmes have in recent years been established or reinvigorated within research-related professions and sectors (NHS, local government, civil service, cultural sector, major and complex project management) but connective and catalysing structures have not been put in place to facilitate the mobility of knowledge, people and talent between these leadership-related initiatives.

Focusing back on research leadership, it is possible to identify an increased and emerging seam of scholarship in two areas. The first adopts a highly quantitative and often bibliometric approach to the topic through an emphasis on dimensions such as spatial proximity, co-citation, author affiliation and geographically weighted collaboration networks.³⁴ This

'scientometric' approach reveals interesting linkages and geographies of co-operation but it generally fails to capture the more qualitative cultural, political and inter-personal dimensions of research leadership. The second area tends to focus on research leadership as it relates to health policy and clinical effectiveness, notably in relation to patient engagement and public participation.³⁵ This thin seam of post-COVID scholarship adopts an emphasis on the co-design and co-delivery of research with an emphasis on bringing potential research-users into 'the leadership loop'.³⁶

But just as Malene Hildebrandt and her colleagues studied 'Lean' thinking in relation to modes and models of research leadership, the pool of scholarship itself remains relatively lean.³⁷ The existing knowledge base provides very little, if any, information on (*inter alia*) different disciplinary cultures, gender biases, structured serendipity, time lags, learning from research leadership failure, (in)efficiencies of scale, co-ordination problems, different research leadership roles, inclusive incentives or how an emphasis on research leadership might be positioned more centrally within the emergent innovation landscape. A lack of foundational knowledge, understanding and data is therefore a key weakness in the current science base. This argument has significant implications given the increased activity and investment in this area.

Increasingly engaged, strategically fragmented

The disciplines of political science, public administration and governance have a lot to say about 'institutional hyperactivity'. That is, a tendency for initiatives and investments to be rolled out almost as a knee-jerk reaction to a sudden awareness that a problem or challenge exists. Looking back at how the

higher education system has evolved during the last two years it is possible to identify an increasingly engaged, if not hyperactive, sector *vis-à-vis* research leadership. From the UKRI Future Research Leaders to the National Institute for Health Research's (NIHR) Future-Focused Leadership Programme, and from the Leverhulme Trust's Leadership Fellows to the Oxford Primary Care Research Leadership Programme, the emergence of research-focused leadership schemes is difficult to dismiss. A large number of universities have also initiated their own research leadership development schemes in recognition of a rapidly changing context and added to this is the continuing role of national organisations such as Vitae with its well-known Research Development Framework or 'leadership lens'.

The central argument of this section is that questions of efficiency, focus and impact surround this increase in activity. Making this point is in no way intended to be a criticism of the strides that have been made in recent years, especially in relation to the facilitation of mobility, but it is to highlight the scope for greater alignment, ambition and agility. Looking across the existing research leadership landscape it is possible to make five brief points.

First and foremost a lack of fundamental basic data, knowledge or understanding about what research leadership is, why it matters and how it can be nurtured to address the demands of the future rather than the past raises obvious questions about the content, credibility and value of many of the current initiatives. This flows into a second point about the existence of a rhetoric-reality gap. Research leadership is now on the agenda in a way it was not just two or three years ago, and as a result a number of leadership-related research fellowships have been established. But the degree to which

these investments are in reality any different to a traditional fellowship remains unclear in many areas. Moreover, the likely degree of difference is to some extent limited if leadership-related and mobility-focused elements of the fellowship remain optional rather than compulsory, and if the incentive structure within higher education provides little credit for those individuals who develop a broader skillset.³⁸

A third and related point is that if there has been a shift in terms of innovative research opportunities, they have generally revolved around facilitating mobility rather than explicitly focusing on research leadership. Examples here would include the excellent ESRC Public Policy Fellows, the recently launched AHRC Public Policy Fellows and the British Academy's new Innovation Fellowship Scheme (funded as a pilot by the Department for Business, Energy & Industrial Strategy). The shared element of all these schemes – and several others – is that they focus on placing researchers at the intersection of research and policy. Participants therefore gain experience in non-academic but research-related environments and, from this, develop a sophisticated understanding of different cultures, timescales, expectations and forms of knowledge. What is arguably missing or that might be profitably emphasised is how and why such experiences are themselves related to research leadership (either self-leadership or fulfilling a leadership role within a large co-produced project). Initiatives and investments such as the Future Leader Fellows Development Network and the ESRC's pilot Post-Doctoral Fellowship Development Programme are starting to put in place wrap-around capacities that complement the specialism (depth) of the traditional fellowship model with the breadth of skills (range) that are likely to define academic success in the future.³⁹

In essence, these development programmes bring the emphasis back to the 'we' and not just the 'me' which is at the heart of the research leadership challenge. But what is needed is systemic thinking about how to deliver this support and cultivate this shift in emphasis across the whole university sector.

This flows into a fourth point about systemic co-ordination and efficiency. The creation of different leadership fellowships and new policy-focused mobility opportunities are just two elements of a rapidly changing landscape in which initiatives are announced at pace. This has included the creation or announcement of a new portfolio of 'observatories', a national network of 'catapults' bridging research and industry, a raft of 'Policy and Evidence' centres, a 'refresh' of the 'What Works' centres, new NIHR Policy Research Units, new 'launchpad' investments and Innovation Accelerators, co-funded Local Policy Innovation Partnerships plus major investments at the regional level, like the West Midlands Regional Economic Development Institute and Insights North East. Taken together these investments underline the existence of a changing ecosystem in which higher education institutions often play a key role as anchor institutions. They also underline how and why the nature of research leadership is changing in ways that look very different to those that defined a successful career in the past. But three questions emerge out of this changing terrain:

- i. Does higher education currently possess the staff with the requisite skills, experience and attributes to fulfil leadership roles in these complex research investments?
- ii. How is higher education harvesting the insights and lessons about complex research leadership in these investments in

ways that can be used to nurture, support and shape the next generation?

- iii. Where is the horizontal linkage and connectivity between these investments that can nurture a positive cadre effect amongst those holding leadership roles within these investments?⁴⁰

A focus on research leadership provides a form of intellectual and professional glue that can bind these investments together in order to ensure that the overall value to society is far more than simply a sum of their parts. This leads the conversation – and this report – back to where it started, with a focus on the broader research, development and innovation ecosystem.

Ecosystem dynamics, responsive reluctance

The main argument of the last two sections was that the issue of research leadership has emerged as a significant topic of discussion and investment. A similar process can be identified in a number of countries around the world as they seek to invest in scientific research, address societal challenges and either forge or retain a global reputation. The main argument of this chapter, however, is that research leadership in the UK still remains a peripheral topic that competes for attention and investment against a number of cognate issues. But for the UK to achieve its scientific aspirations and societal goals the issue of research leadership needs to move from the periphery to the core of policymaking, funding decisions and thought-leadership when it comes to investing in research infrastructure (people) for the twenty-first century. Higher education has a major role to play in making this shift happen.

UKRI's first five-year strategy – *UKRI Strategy 2022-2027*:

Transforming tomorrow together – provides the clearest statement yet on the need to be ‘fit for the future’ rather than fit for the past. ‘We must seize this historic moment of national reinvention to transform our economy and our society’, the document states, ‘embedding research and innovation across them and creating opportunities and benefits for all’.⁴¹ The principles for change are set out as: diversity; resilience; connectivity; and engagement. In many ways the strategic vision is based on a commitment to the alignment, ambition and agility (3A) approach promoted in this report. But what is missing is any clear and explicit understanding of how an emphasis on research leadership could provide the connective tissue to turn the principles for change into actual practical change.

The UKRI vision is as impressive as it is inclusive but what it arguably lacks is a laser-like focus on nurturing the leadership skills and building the incentives framework needed to see it delivered. ‘Our challenge now’, the UKRI strategy states, ‘is to invest and incentivise the connected, collaborative partnerships needed to maintain and grow the UK’s international position in a highly competitive global context, building on strong foundations to realise the UK’s strategic advantage, levelling-up regional infrastructure and skills in the process’. This statement exemplifies the research leadership challenge. Higher education generally does not prepare researchers for these sorts of roles, the academic currency remains far too narrow and the incentive framework almost penalises those researchers who seeks to operate across the innovation landscape.

The ecosystem dynamics also remain too clunky. With UKRI as the strategic hub and the constituent research councils

left to deliver within a broad policy framework, the risk is that an emphasis on research leadership becomes almost lost in translation. UKRI oversees a talent management programme focused upon Future Leader Fellows, but additional leadership-related activities are generally left to the discretion of the research councils. The UKRI budget allocation plan for 2022 to 2025 recognised the existence of a co-ordination dilemma. 'We will transition to working in a collective manner across £2 billion of talent initiatives, covering studentships and fellowships' the document notes, '[T]his will allow us to harmonise further our talent investments to reduce bureaucracy, and to make it more efficient and easier to work across disciplines and across the R&I system.'⁴² Delivering this harmonisation and strategic alignment clearly takes time but it is also crucial to seizing the research leadership opportunity. When the suite of council-level delivery plans were published in September 2022 they contained an assortment of commitments but what was clearly missing was a core strategic spine that connected and steered all this activity towards a shared set of goals. The 'meta-governance' of research leadership, as a political scientist might describe it, remains opaque. A fragmented landscape of disconnected leadership initiatives risks not only wasting money but also failing to generate exactly those forms of cross-council and inter-sectoral linkage that need to be put in place if UKRI's vision is to be fulfilled.

The research leadership challenge is not just an issue for early career researchers. An aligned, agile and ambitious seizing of the research leadership challenge would embrace a whole of career approach with training and support provided throughout the professional journey (see Table 1). The July 2021 *R&D People and Culture Strategy* recognised that 'Great

leadership *at all levels* is key to unlocking potential' [emphasis added], and the ESRC's announcement as part of its new delivery plan to '[invest] in new pilot initiatives to strengthen leadership capabilities at the mid-career stage' is therefore a welcome innovation which could form the first step towards a more integrated cross-council approach.⁴³ But what is missing is any sense of a clear and connected cross-council vision that nurtures connectivity and vision across a range of recent and planned investments and ties this to a full-career approach to talent management. With this in mind it is worth noting that the 2020 ESRC report *Fit for the Future* found that if there was a glaring gap in research leadership support it existed in relation to supporting full professors advance to national and international leadership roles.

As a topic research leadership needs to shift from the periphery to the centre of the discussion. There is also a need to recognise that the basic nature of the challenge – the need to forge collaborative skills, experiences and opportunities across traditional disciplinary, professional and organisational boundaries – means that it is not a challenge that can be resolved by any specific learned society, research council or university. It is a challenge that demands collective thinking, an inclusive culture and a national framework or strategy to join up initiatives, understand what works and reach beyond higher education and across the ecosystem. At the moment, a focus on research leadership seems to fall between a number of over-layered themes – from people to culture, through to talent and innovation – without, by contrast, a well-defined focus on how and why research leadership provides not only a way of engaging with those themes but also a shared connective theme uniting them. Research leadership –

ensuring that academic staff and professional research support staff are 'fit for the future' rather than being 'fit for the past' – is, to put the core argument of this report very simply, both a challenge and an opportunity that demands a far sharper and strategic national commitment that is defined by an emphasis on alignment, ambition and agility.

Afterword

James Brook, Chief Operating Officer of Worktribe

The themes highlighted by Professor Flinders in this report are sure to strike a chord with the whole research community.

The ever-changing needs and challenges within the research landscape have driven us to continually evolve the Worktribe platform and technology – to empower the research staff using Worktribe to focus on the delivery of world-leading research across a myriad of fields.

Since 2011, a core focus of the Worktribe platform has been the facilitation of collaboration between academics and other knowledge brokers to deliver research-based results successfully, which is well supported by Professor Flinders's emphasis on favouring a team-based approach over individualism when managing large research projects from inception to output.

We and our users are acutely aware that processes and approaches must be reviewed and adapted to be fit for the future. We consistently look to challenge the status quo to develop new ways of working to improve delivery across the research lifecycle - using disruptive thinking to fuel progress and change. Embracing the opportunity of developing a research leadership framework to spearhead further change can only enhance the UK's standing and ensure that funding achieves its full potential.

Closer collaboration and communication between institutions is enabling best practice to come to the fore, which in turn facilitates more mobility of talent and knowledge and entices researchers to stay and continue their development in the UK.

This report rightly highlights that implementing a national strategic framework would assist in giving researchers a clear understanding of potential partnerships, collaborations and future opportunities.

We thank HEPI for the opportunity to sponsor this report and look forward to continuing to collaborate with our own user community as they take inspiration from reports such as this to develop new ideas and best practice.

Endnotes

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Research leadership is not a common topic of discussion.
It should be.

Research leadership matters. It drives, sustains, supports, protects and inspires people. It is connective and catalysing. This matters because without it, increasing public investment in research and development is unlikely to fulfil its potential in terms of both scientific excellence and societal impact.

Without thinking about what research leadership is and why it matters, the UK is unlikely to fulfil its science superpower ambitions.

What this path-breaking HEPI report uncovers, is a rather laid back and laissez-faire approach – possibly even amateurish – to nurturing research leaders who are 'fit for the future' rather than being 'fit for the past'.

For the UK to achieve its aspirations on the global stage, the issue of research leadership must move from the periphery to the core of policymaking, funding decisions and thought-leadership when it comes to investing in research infrastructure, talent and skills for the twenty-first century.

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