

BIA submission: RDI Landscape Review

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The BioIndustry Association (BIA) welcomes this independent review that will ‘ensure [the UK’s] research, development and innovation institutions serve the needs of businesses and places across the UK’, as laid out in the UK Innovation Strategy¹. A strong RDI landscape is vital to accelerating national economic development and maintaining the UK’s position as a leading world economy.

This response concerns the role of life science SMEs within the RDI landscape. SMEs are the route through which the UK will realise the economic and social benefits of a strong RDI landscape. This is exemplified by the recent successes of companies such as Kymab, Oxford Nanopore, Immunocore, Arecor and GW Pharmaceuticals.² Yet, we note that the scoping group and sounding board members of the review do not include representation from SMEs. We would welcome the opportunity to input further on behalf of UK life sciences SMEs as the review progresses.

The life sciences sector: the UK’s leading RDI-performing industry

The UK’s life sciences sector is among the most research, development and innovation intensive sectors in the UK, consistently investing more into R&D than any other sector.³ It is not only a key player in the UK RDI landscape but acts as a highly globalised sector operating beyond the confines of the UK RDI system. The sector is universally recognised as world-leading and delivers great benefits to the economy, the health of the nation, and is key to the Government’s agenda of making the UK a science superpower. The UK life science industry is also a major RDI employer, with 268,000 people across the UK. There are 6,330 life sciences businesses, 85% of which are SMEs, and combined they generate a turnover of £88.9bn.⁴ The sector’s deep understanding of applying innovation to biology is helping to address humankind’s greatest challenges. Most recently, life sciences SMEs played a crucial role in developing and manufacturing effective vaccines against COVID-19. This fast and robust response was only possible due to an existing networked community in and beyond the sector and the continuous investment into the life sciences ecosystem.

Although the UK life sciences sector is strong, some unique challenges set it apart from other R&D-intensive industries. Modern life sciences R&D is complex and highly specialised. Most of it is not conducted by large companies but by a network of specialist SMEs, each playing a different role. This helps manage risk, reduces start-up costs for new businesses and allows for greater R&D productivity. Those companies are the lifeblood of the sector, producing the medicines of tomorrow, growing into profitable companies and feeding innovation into the larger pharmaceutical and healthcare industries.

¹ BEIS (2021), *UK Innovation Strategy: leading the future by creating it*: <https://www.gov.uk/government/publications/uk-innovation-strategy-leading-the-future-by-creating-it>

² BIA (2022), *UK biotech financing in 2021*: <https://www.bioindustry.org/policy/finance-tax-and-investment/finance-report-2021.html>

³ BIA (2021), *Becoming a life sciences superpower*: <https://www.bioindustry.org/uploads/assets/fc087ec2-ac56-4a6e-b117aa5edc643543/Becoming-a-life-sciences-superpower-Report.pdf>

⁴ OLS (2021), *Bioscience and health technology sector statistics 2020*: <https://www.gov.uk/government/statistics/bioscience-and-health-technology-sector-statistics-2020>

However, the SME heavy make-up of the sector comes with its unique set of challenges. Smaller innovative companies often operate on an outsourcing model whereby they rely on universities and other companies to conduct R&D on their behalf. In addition, life sciences RDI is capital and time intensive, typically requiring 12-15 years and significant amounts of investment over that period. These small, entrepreneurial firms do not have other assets on the market generating revenue during this time, meaning they must rely on successive fundraising rounds to maintain cash flow. The long development timelines and the complexity of the science involved in life sciences R&D limits the sources of finance available – typically involving few specialist investors – and increases the necessity for Government support, especially at the earliest stages of business development.

The strength and breadth of this RDI intensive sector and its research-performing companies is the result of many years of cross-party government support and would not have been reached without a sustained industrial strategy pursued by successive governments and continuous public investment in research and innovation. Government support, both financial and strategic, not only helps innovative companies to create value for the economy but enables them to collaborate with researchers across the RDI landscape, including in academia and other organisation in the UK and globally. This ecosystem-wide review is therefore a timely opportunity – as the UK emerges from the pandemic with a renewed impetus for scientific progress, and with the life sciences sector vibrant and relatively well-financed – to look at the system as a whole and what each component needs to perform at its best. Below we highlight the areas of most importance to life science SMEs, which we would welcome the opportunity to expand on through further engagement with the Review.

Creating the right policy environment

The strength of the UK RDI ecosystem lies in its diversity. This includes diverse forms of public funding that support early-stage ideas and scale up cutting-edge innovations, fiscal incentives for investment into R&D, a strong talent and skills pipeline and a consistent support and forward-thinking policy environment. To further build on this strength, it is important for the RDI system to be unbureaucratic, truly integrated with the private sector and work at pace, for example, for grants to reach innovative companies in a timely manner.

Effective public funding streams. Public funding plays a key role in enabling researchers and companies in the RDI ecosystem to innovate, grow, and leverage private investment. The BIA has consulted its membership of life science companies to analyse what does and does not work in research and innovation funding systems.⁵ To ensure public funding streams remain attuned to agile industry needs, leverage private investment most efficiently, make the most effective use of taxpayers' money and remain effective in the long term, they need to:

- be sector-specific to provide long-term consistency and assurance to researchers and investors. The renewal and expansion of the publicly funded Biomedical Catalyst⁶ enabling breakthrough scientific research to materialise is a positive example that can be applied to other sectors and academia.
- maintain a balance between responsive and challenge-led programmes to allow all types of innovation to thrive
- focus on grants, which are better suited to supporting risky early-stage RDI, not loans
- be diverse to support the varied needs of life science SMEs
- be unbureaucratic and informed by the needs of users (those performing RDI).

⁵ BIA (2020), *Life Sciences: Catalysing investment and growth*: <https://www.bioindustry.org/uploads/assets/uploaded/b19779d4-470c-4787-83c1e20b4ffdec60.pdf>

⁶ BIA (2021), *Biomedical Catalyst*: <https://www.bioindustry.org/policy/finance-tax-and-investment/biomedical-catalyst.html>

Fiscal incentives for R&D. Public funding streams are complemented by other policy levers that the Government and UKRI have at their disposal to steer the UK's RDI landscape and maintain its global competitiveness and collaborative nature. Like the dual-support system in university funding, there is great complementarity in these support mechanisms. These include a supportive tax system, with R&D tax credits that are internationally competitive to attract investment into R&D in the UK, tax-advantaged employee share options that allow SMEs to offer competitive remuneration packages; and venture capital incentives that encourage private investment into early-stage companies.

Access to finance. Conducting research and development is an expensive undertaking that requires significant amounts of investment, usually for many years. A healthy RDI environment needs diversity in financing options available to research-performing organisations, especially to SMEs, many of which do not have revenue streams of their own. The right foundations for companies to be able to access finance to conduct R&D are rooted in public policy, including financial regulations and investment cultures, which support or inhibit a research-performing business' ability to raise private capital in its various forms. The Government has been seeking to address this for many years, with some significant success. Initiatives include the 2017 Patient Capital Review, the 2021 Productive Finance Working Group led by the Bank of England, and the Life Sciences Scale-Up Taskforce launched in the 2021 Life Sciences Vision. These are important and need sustained Government implementation.

Enabling collaboration. An innovative company in a supportive public policy environment has the confidence to collaborate with other organisations and researchers in the UK. The more porosity exists in the ecosystem, the more knowledge and skills can be shared and realised as a whole. This includes sharing of knowledge, skills and information through established networks such as the Knowledge Transfer Network (KTN). Collaborations across borders are an equally important engine for research and innovation and the UK will benefit greatly from developing the closest possible relationship to Horizon Europe and other international scientific programmes. Beyond simple monetary returns, the global nature of these type of programmes helps forge new collaborations, open new markets, and increase the diversity of prestigious funding available.

Accessing talent and developing skills. Academia and other education providers in the UK need the right support to nurture talent and develop skills that can be accessed by knowledge- and research-intensive companies. The UK is renowned worldwide for its excellent science base and is home to some of the most prestigious universities in the world. This thriving science base is the foundation for the whole UK sciences ecosystem. To provide the right skills and talent to companies, it must continue to be supported and well-funded. In addition, the immigration framework must protect and ensure the international movement of researchers who form an integral part of the UK's RDI landscape.

A key part of maintaining the UK RDI ecosystem's competitiveness is ensuring that researchers have access to the training they need to develop the scientific skills required to discover and advance new bold ideas, but also the leadership and entrepreneurial skills needed to build and progress a company. For ideas to materialise and companies to progress, cross-sector mutual understanding needs to be broadened by increasing the overlap between teaching sciences and finance or business. Industry also has an important role to play in upskilling the workforce and the life sciences sector is committed to this.

A permissive regulatory environment. The UK needs to maintain and build on its robust and science-led regulatory regime if it is to remain a world-leader. Key to innovation is a regulatory framework that is agile and responsive to RDI-performing organisations. A good regulator allows innovation to flourish whilst maintaining the confidence of government, innovators and the public. However, science is global and so regulation must

operate within that global context, too. UK RDI organisations therefore need a strong regulator that not only leads the conversation nationally but internationally.

Continuity in policy. Continuity in the policy environment is key for research-performing companies to succeed in the long term. In the life sciences sector, this includes the continued implementation of a coherent strategy such as the Life Sciences Vision and multi-year settlements for the relevant public authorities so as to maintain the UK's globally competitive science R&D ecosystem. Continuity in public funding and policy making creates confidence in companies who want to innovate and reassures private investors. Changes to the way the current system functions need to remain focused on outcomes and build in a greater capacity to innovate for all parties involved.

Forward-thinking. Any public investment is dependent on the UK's RDI policy environment remaining supportive of and responsive to the dynamic and changing needs of its research performing organisations, including among industry. Introducing the new Advanced Research and Invention Agency (ARIA) to the ecosystem could add a well-needed dimension to the UK's innovation capabilities by funding current and upcoming strategic high-risk, high-reward technologies, such as artificial intelligence and engineering biology. To be effective, it will be important to involve industry in every aspect of its design and delivery.

Research-performing, innovative companies in the UK life sciences sector are an important player in the UK's RDI ecosystem, paving the way towards making the UK a science superpower. For the UK RDI landscape to thrive, it is important for all stakeholders in the system, including the Government and industry, to work together and make sure systematic changes, public and private funding streams and the policy and regulatory environment are efficient and effective. A thriving RDI ecosystem will be vital to accelerate sustainable economic development and maintain the UK as a leading world economy.

About the BIA

The BioIndustry Association (BIA) is the trade association for innovative life sciences in the UK. Our goal is to secure the UK's position as a global hub and as the best location for innovative research and commercialisation, enabling our world-leading research base to deliver healthcare solutions that can truly make a difference to people's lives. Our members include start-ups, biotechnology and innovative life science companies; pharmaceutical and technological companies; universities, research centres and accelerators; and a wide range of life science service providers.

The BIA's members are at the forefront of innovative scientific developments targeting areas of unmet medical need. This innovation leads to better outcomes for patients, to the development of the knowledge-based economy and to economic growth. Many of our members are small, pre-revenue companies operating at the translation interface between academia and commercialisation.

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