

Discussion paper - recommendations in advance of the Autumn Statement 2023

Economic growth powered by innovation

Calling for an innovation-led strategy to address the UK's immediate economic challenges, and for the long-term development of an energy-secure Net Zero economy.

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SUMMARY OF RECOMMENDATIONS TO IMPLEMENT AN INNOVATION-LED STRATEGY FOR BOOSTING GROWTH

- **Achieve short and medium-term growth through targeted research and development (R&D):** Maintain current commitments to public funding of research, development and innovation.
- **Ensure sustained long-term investment in R&D:** By 2030, AIRTO is calling for the UK to advance beyond 3% for Gross Expenditure (public and private) on R&D as a percentage of GDP to sit in the top quartile of OECD nations.
- **Make closer-to-market innovation across the UK more central to the Innovation Strategy and achieving lasting economic growth:** Re-balance public funding for R&D and innovation (RDI) to provide more support for closer-to-market innovation infrastructure (e.g., demonstrators) for key sectors and industries, to help reduce the cost and time to translate technologies to market.
- **Instilling confidence for industry in the UK's resilience and consistency:** Give industry the confidence to make critical research and development investment in the UK by committing to clear, consistent, and ambitious long-term government policies. This includes bolstering specific commitments to RDI aimed at advancing the UK's path to Net Zero, signalling its commitment to addressing the climate crisis.
- **Building on our world-leading existing capabilities:** Invest in the innovation ecosystem by creating a recapitalisation fund of £100m per annum for non-profit distributing innovation, research and technology (IRT) organisations which do not have recourse to shareholder funding.
- **Prioritise people and skills:** Develop a comprehensive 'workforce plan' for RDI in the UK, encompassing education and skills, and involving the key players from industry, the IRT sector, and academia.

INTRODUCTION

AIRTO, the Association of Innovation, Research & Technology Organisations, on behalf of its members, has prepared this written representation ahead of the Autumn Statement 2023. We are calling for a clear, consistent, innovation-led strategy that will boost growth to address the UK's immediate economic and societal challenges, and in the long-term lead to a strong, growing energy-secure Net Zero economy.

AIRTO represents the UK's extensive Innovation, Research and Technology (IRT) sector, which employs 57,000 highly skilled people, has a combined annual turnover of [£6.9Bn and contributes £34Bn to UK GDP](#). Organisations in this critical sector work with industry, government and academia to promote and implement innovation, and provide technical solutions to challenges and crises. The IRT sector is a key partner for industry in delivering the support needed for innovation driven economic growth.

KEY MESSAGE – IMPLEMENT AN INNOVATION-LED STRATEGY FOR BOOSTING GROWTH

AIRTO welcomed the commitments to public investment in science and innovation, made in the 2021 Spending Review aimed at boosting and levelling-up economic growth, delivered through the [Innovation Strategy](#); we further welcomed the re-commitments to boosting innovation made in both the Autumn Statement 2022 and the Spring Budget 2023.

In the wake of the persisting financial pressures presented by energy costs, inflation, and the associated cost of living crisis, it is critical that the government continues to recognise and invest in **innovation as a key mechanism for stimulating the economy and supporting businesses to raise productivity and to become stronger and more resilient. Innovation is also a key mechanism for tackling the climate crisis and for safeguarding our energy security.**

This means continuing to honour recent public funding commitments for science and innovation in the short-term and increasing this funding in the long-term to the levels invested by the leading, competitor nations.

Public funding commitments are essential to achieve the government's ambition of 'Science and Technology Superpower' status. Continued investment in the science base is a vital part of achieving this status. In parallel there must be a better balance of support for development and innovation activities if the full economic benefit of being a 'Science and Technology Superpower' is to be realised. Such an innovation-led strategy (as discussed in AIRTO's Position Paper ['More D!'](#)) will stimulate the UK's commercial exploitation of science and innovation resulting in significant and continuing boost to economic growth. The national ambition to be a 'Science and Technology Superpower' and the ensuing economic growth is strongly supported by AIRTO and its members, but it is accepted that this will require considerable strategic investment in skills and infrastructure by all the relevant stakeholders, and especially government which must take the lead in orchestrating the achievement of the goal.

Clear, consistent government plans are critical to providing industry the confidence to invest in the UK, both in providing the necessary private funding for innovation and in physical infrastructure, and expanding operations. Both are essential for future economic growth. The government needs to set a fresh goal to lift R&D intensity up from its previous aim of 2.4% of GDP to compete globally. The government should refresh the target for R&D intensity in the UK, as measured by Gross Expenditure (public and private) on R&D as a percentage of GDP. By 2030, AIRTO is calling for **the UK to advance beyond 3% to sit in the top quartile of OECD nations.**

Setting and achieving targets depends on reliable metrics for R&D expenditure. After recent changes to the way data is compiled, the process should be examined to ensure it is fit for purpose.

AIRTO advocates an innovation-led strategy for stimulating the economy to address the UK's immediate economic challenges, and for the long-term development of an energy-secure Net Zero economy. As part of its previously stated commitments to increase the public expenditure on research and development (which will drive increases in private industrial investment), the government should also bolster specific commitments to research and development aimed at advancing the UK's path to Net Zero, signalling its commitment to addressing the climate crisis.

UTILISING THE IRT SECTOR

The UK has a range of world-leading organisations that comprise the IRT sector, which are independent and trusted agents for driving innovation in industry. Some of these organisations are government owned, some are not-for-profit entities, and others are private research organisations. All are a key part of the nation's science and technology infrastructure, working closely with industry, and collaborating with academia.

The sector has huge potential for significantly increasing its support for government and industry in the short- and medium-term as part of the plan for stronger economic growth, and in the longer term as an integral part of the country's science and innovation strategy aimed at achieving the goal of raising the level of GDP invested in R&D.

A major area of activity for the IRT sector operations is research, development, innovation and demonstration in the mid Technology Readiness Level (TRL), where public investment has a 'multiplier effect' due to the generic nature of the activity and its relevance across whole sectors and industries. This is reinforced by the IRT sector's commitment to the transfer of knowledge to industry and its deployment for innovative activity. AIRTO advocates to re-balance public funding for research, development and innovation to provide more mid-technology readiness level support (e.g., demonstrators) for key sectors and industries, and reduce the cost and time to translate technologies to market (as discussed in AIRTO's Position Paper ['More D!'](#))

The IRT sector can play a crucial role in ensuring the nation reaps the full benefit from increased investment in R&D. To achieve this, there are changes needed in the government's support for the IRT sector, as recommended in Sir Paul Nurse's recently published [Independent review of the research, development and innovation \(RDI\) organisational landscape](#). This will involve investment in the R&D physical and digital infrastructure and skills, providing the necessary resources and capabilities to create a catalytic effect attracting private industrial funding with associated economic benefits.

Therefore, it is recommended that the government create a recapitalisation fund for the non-profit distributing IRT organisations which do not have recourse to shareholder funding (because of their ownership and commitment to mission-driven support). This will allow a very significant increase in their support of and benefit to UK plc. and will complement existing government investment in Catapult Centres and Public Sector Research Organisations (PSREs). A key feature of this resource allocation, for it to be effective, is longevity. Longevity of support is equally vital for current funding mechanisms for Catapult Centres and PSREs.

Achieve short and medium-term growth through targeted R&D

The publication of the [UK Innovation Strategy: leading the future by creating it](#) in 2021 was a progressive plan by government to deliver on its stated goal for the UK to become a ‘global hub for innovation’ by 2035. AIRTO urges government to retain its commitment to this strategy, as a mechanism for **achieving short and medium-term growth through the early adoption of emerging new technologies**. The Innovation Strategy is also an integral part of the government’s plan for long-term economic growth whilst achieving Net Zero and addressing the energy crisis. AIRTO contends that the government’s response requires investment in the UK’s innovation capabilities to ensure business growth materialises from aspiration into reality, by placing science and technology at the heart of both the UK’s economic recovery and continued advancement to Net Zero, in line with the recommendations of the [Independent Review of Net Zero: MISSION ZERO](#).

Ensure sustained long-term investment in R&D

The Autumn Statement 2023 is a major opportunity during the current Parliament to lay the foundations for the UK’s ambitions for Science and Technology Superpower status and deliver on the stated ambitions for the UK Science and Technology Framework. It is vital that investment in research and innovation is sustained to ensure the UK achieves and maintains a leading position, relative to competitor nations. An increase in public investment is an important mechanism for catalysing industrial/private investment in R&D. Not only is it widely recognised that increases in public investment in R&D ‘gear in’ industrial/private investment but is also widely understood that the total combined investment has a significantly multiplied beneficial effect on the UK economy. Therefore, we are calling on the government to use the Autumn Statement 2023 to confirm the commitment to current levels of public support for R&D in the short and medium term, and to increase the levels in the longer term so that the UK keeps pace with the funding levels of key competitor nations. The long-term target level for UK investment in R&D must be an objective figure based on these comparisons, so AIRTO advocates that the UK aims to advance beyond 3% for Gross Expenditure (public and private) on R&D as a percentage of GDP to sit in the top quartile of OECD nations.

Closer-to-market innovation across the UK is central to the Innovation Strategy and achieving lasting economic growth

The Innovation Strategy (published in 2021) aims to harness assets across the country, recognising the UK’s geographically dispersed R&D and innovation ecosystem as a means of maximising the benefits of innovation for local economies and building on local strengths and clusters in places. The UK needs to bolster its capabilities for close-to-market R&D to successfully accelerate the pull-through to market of products and services from research and the addressing of market driven opportunities and problems. Much of these innovation assets reside in the IRT sector which has some of the nation’s most skilled scientists, development engineers and innovative business leaders working in innovation and at the interface between academia and industry. This sector plays a fundamental role in driving productivity, providing centres of excellence for innovation operating across the UK in both cities and hubs of activity in non-urban areas. In considering priorities, the government should recognise these hives of closer-to-market innovation across the UK as central components to the delivery of the UK’s Innovation Strategy, and that continued investment is necessary to harness their capabilities to drive growth. Re-balancing public funding for research, development and innovation to provide more support for closer-to-market infrastructure (e.g.,

demonstrators) for key sectors and industries, would help reduce the cost and time to translate technologies to market (as discussed in AIRTO's Position Paper ['More D!'](#)).

Instilling confidence for industry in the UK's resilience and consistency

The climate crisis and energy security crisis are, arguably two of the world's most pressing concerns. Globally we must cut emissions by 11.7% each year if future generations are to thrive. The innovations required to deal with these crises offer global opportunities for trade, with the UK's world-class expertise and international reputation for innovation and entrepreneurship leading the way. The level of innovation required to tackle these big missions is colossal and needs nurturing if it is going to be successful. **A fresh commitment to, and investment in, the UK's innovation capabilities will be critical to underpin successful economic recovery and resilience.** The Covid-19 pandemic demonstrated how the UK's R&D infrastructure can effectively be employed to address national crises, but also how a co-ordinated method of invoking this support is not in place. By shaping its strategy around lessons from the Covid-19 pandemic and understanding the weaknesses that it has exposed in national resilience, the government stands to harness the power that science and technology can bring to tackling societal challenges and transforming lives.

In addition to bolstering resilience, there are some behaviours that, if instituted pervasively across government departments, would create confidence for industry and investors alike: For instance, working with greater agility and speed in decision making and deployment of resources, and ensuring better retention and stability of knowledge, know-how and experience, by attracting and retaining key personnel. Also, creating better clarity for business about the future direction of policies and strategies, will provide a stronger basis for private investment in science and innovation, which ultimately will attract high value jobs to the UK and drive economic growth.

More specific actions to strengthen industry's confidence in the UK's R&D infrastructure, leading to increased industrial investment include:

- A programme of activities to promote the UK's involvement in the EU Horizon Europe programme. This should be specifically targeted at industry and business.
- The implementation of the key complementary parts of the Pioneer Programme, such as 'moonshots' and worldwide collaborative projects, funded by the current underspend on Horizon Europe.
- A clearer strategy on implementation of UKCA marking, including the rapid establishment of a mutual recognition agreement for UKCA/CE marking with the EU.
- A clear, ambitious strategy for Net Zero, enacting the recommendations of the [Mission Zero report](#). Particularly relevant to the UK's R&D infrastructure and its industrial partners, is the call for an R&D Roadmap for Net Zero with a 2050 horizon.
- The increased investment in the development of indigenous skills for innovation, and the continued deployment of the Global Talent Visa to attract researchers at all levels from technician to world class experts.

Building on our existing world-leading capabilities

If the Innovation Strategy is to achieve the economic boost it promises, it needs to build on the best of our existing capabilities to fully exploit the innovation and development assets spread across the UK. The UK government should prioritise implementation of the recommendations of Professor Sir Paul Nurse's [Independent review of the research, development and innovation \(RDI\) organisational landscape](#). This means nurturing the role of the innovation ecosystem by capitalising on the extensive network of existing innovation assets. These lie in the UK's PSREs, Research & Technology Organisations (RTOs), Catapult Centres, Science Parks and Innovation Campuses. This nurturing

involves increased financial support to invest in their capabilities, expertise and infrastructure, which will invigorate future innovation based economic growth across all parts of the UK. **We are therefore calling on the government to use the Autumn Statement 2023 to go further in strengthening:**

- The global dimension: by leveraging the international network across the IRT sector to export innovation and world-firsts by building new collaborations and promoting British Standards around the globe. More support mechanisms are needed to foster collaborations and steps must be taken to ensure that established and renowned UK entities continue to play their pivotal part in programmes like Horizon Europe. The UK's international standing as a 'Science and Technology Superpower' will be hampered if we lose ground in our relationships with key collaborators in EU member states.
- Investment in the innovation ecosystem: by investing in some of the UK's non-profit distributing organisations that underpin the innovation ecosystem's foundations, offering living labs, testbeds and demonstrators, which currently remain undercapitalised. For the UK's innovation ecosystem to be truly world-leading by 2035, this under investment must be addressed. Therefore, it is recommended that the government create a recapitalisation fund of £100m per annum for IRT organisations which do not have recourse to shareholder funding (because of their independent ownership and commitment to mission-driven support). This will allow a very significant increase in their support of and benefit to UK plc. and will complement existing government investment in Catapult Centres and PSREs. A key feature of this resource allocation, for it to be effective, is longevity. Longevity of support is equally vital for current funding mechanisms for Catapult Centres and PSREs.
- Systematic promotion of the UK's IRT sector assets (government owned, not for profit and private) to national and international businesses.

Prioritise people and skills

Overall, the government's commitments in the Innovation Strategy to increase public investment in science and innovation are welcome, but the government needs to put people at the heart of its plans by investing in education and skills to develop the UK workforce and improving opportunities for the brightest and best to come to work in the UK.

Therefore, it is recommended that government develop a comprehensive, long-term 'workforce plan' for research and development in the UK covering education and skills, and involving the key players: industry, the IRT sector, and universities.

IRT sector organisations are very active in the development of skills, for example identifying and delivering training linked to the needs of merging industries. They also have significant partnerships with universities to deliver postgraduate training targeted at developing people for future careers in applied research and industry. Much of this is delivered with ad hoc public support, or without public funding.

AIRTO would welcome a closer partnership with government in the delivery of education and skills and is willing to play a supportive role in the development of a 'workforce' plan for RDI in the UK.

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