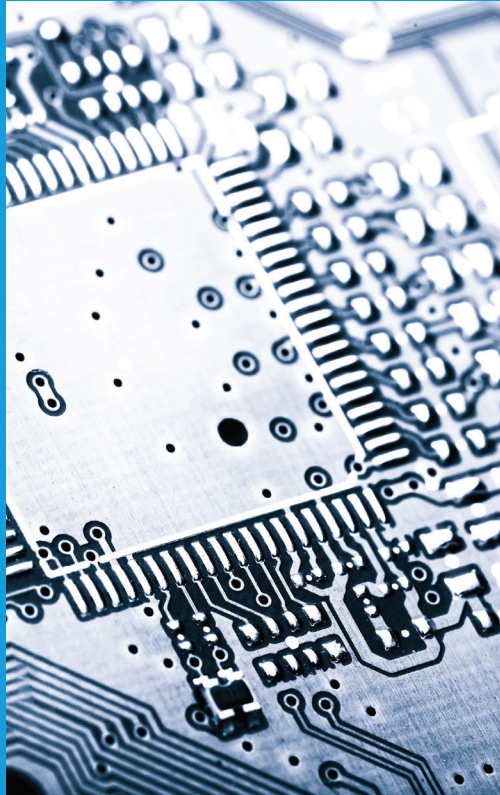


# Driving growth and innovation

The UK has a thriving innovation, research and technology sector. We stand to gain a global competitive advantage by building on the strength of this world-class asset.

AIRTO is setting out a vision and ambition for the sector, pinpointing actions needed to raise levels of innovation and growth in the economy.

July 2015



Including findings of a report by Oxford Economics  
on behalf of AIRTO, published November 2014

# The UK's thriving IRT sector

Innovation is the translation of new ideas into successful products and services, driving economic growth for the UK.

Supporting this in the UK are organisations in the **innovation, research and technology (IRT) sector** which, as an independent research study by Oxford Economics<sup>1</sup> highlights, contribute via their catalytic impact over £32Bn to the UK economy and generating £13Bn in tax revenue yet consuming just 0.3% of government spend - an unusually high ratio and critically important in demonstrating the sector's unique position in the innovation ecosystem.

**Turnover in the IRT sector is estimated to have been £6.9 billion in 2012/13 and AIRTO members account for 80% of this.**

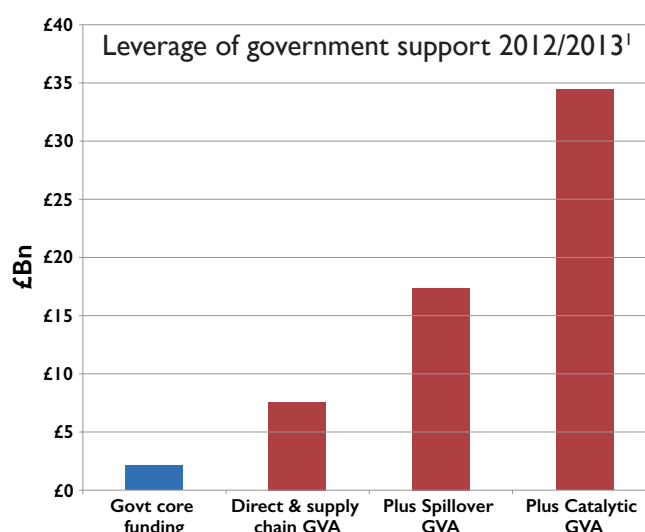
The sector provides skills, facilities and knowledge to translate technological innovations into commercial business and public services; it includes Catapult Centres, independent Research and Technology Organisations, many Government Public Sector Research Establishments, some specialist private companies and university enterprise offices. It employs 57,000 scientists, engineers and technologists, equivalent to the Russell Group's academic workforce, and significantly more than Germany's Fraunhofers. Its organisations have grown by 2.5% per annum (mean) since 2006 and their historically high productivity has remained strong, despite national economic stagnation, in the period covered by the Oxford Economics<sup>1</sup> study.

**The UK stands to gain a global competitive advantage by building on the strength of this world-class asset.**

## Innovating with companies and universities

The capacity to turn innovations into wealth and social benefit, whether originating with business and industry or in academia, very often relies on specialist support from the IRT sector...

The UK has well-performing universities and there has been strong, long-standing investment of public funding in fundamental and curiosity-driven research. But who is 'looking after' the more immediate applied research, innovation support and technology application needs of businesses and public services? Innovative developments for most businesses originate from within their supply chains. The capacity to turn such innovations into wealth and social benefit critically relies on specialist support from the IRT sector to supply specialist scientific support and technical assistance. The role of the sector is to help pull through new technology into everyday use regardless of whether the original idea and technological innovation came from a business or from fundamental, curiosity-driven research in academia.



**"IRT sector productivity is 45% higher than the national average"**

**"The IRT sector generates a contribution of >£13Bn to UK tax revenue"**

**"The IRT sector supports 140,100 jobs - equivalent total employment of Milton Keynes"**

# Vision and Ambition

In addition to supplying practical scientific and technical skills and experience, as well as development facilities and training, the sector provides help with demonstrating performance at scale, user benefits, and compliance with regulation and standards. Such activities are part and parcel of the progressive risk reduction needed to reach technological and commercial maturity, and to ensure that innovations are taken up to the benefit of business and public services.

## **The Government and the IRT sector have pivotal roles in driving innovation and growth.**

As Britain emerges from the worst recession since the Second World War, it stands to gain a global competitive advantage by building on the current strength of the innovation, research and technology sector. It needs to increase the level of innovation in business and public services.

Prior to the introduction of the Catapult Centres, it was broadly recognised that several decades had passed without significant governmental support for the sector. In 2011, BIS recognised<sup>2</sup> that the sector had been an under-utilised asset for UK plc and that an element of Government support was essential for the inception, progression and renewal of a nation's capacity to apply new technology to maximum effect.

## **AIRTO's Vision and Ambition to 2025**

For the IRT sector to increase in real terms at 4% pa...

...innovation in UK business/public services, as measured by contribution to GDP

...delivery of ideas and services, and the number of private clients and public services working with the sector

...collaborations between business, government, academia, finance and overseas clients

...specialist skills, facilities and access to finance

and, by 2025...

to be employing 92,000 scientists and technical staff

to have raised productivity by 10%.

<sup>1</sup> The Impact of the Innovation, Research and Technology Sector on the UK Economy, Oxford Economics, 2014

<sup>2</sup> Innovation and Research Strategy for Growth, Department for Business, Innovation & Skills, 2011

**“IRT sector turnover has tripled to £6.9Bn pa since 2006”**

**“Employs >57,000 highly skilled people, equal to total academic staff of the Russell Group, and more than Germany's Fraunhofers”**

**“The IRT sector consumes just 0.3% of Government spend”**

# The Action Agenda

## For Industry and Business:

1. Set ambitious goals for growth and innovation
2. Use the expertise and support of IRT organisations to reduce risks
3. Ensure that the impact of both their own innovation and the contribution from IRT organisations helping them is widely understood
4. Capitalise on the academic research base and continue to invest in academic R&D collaborations
5. Provide and promote career development for graduates and apprentices

Risks in carrying through innovation programmes are well-recognised. Business and industry is well used to taking on risk, but in sectors where new cutting-edge technologies are continually being introduced, a partnership between public and private organisations is frequently needed to share risk and progressively increase confidence for investors. The challenge for Government is to help mitigate risks that are too great for the private sector to take-on and support take up of innovative developments to the point where private finance has the appetite and confidence to invest. Spanning the TRL gap (or 'valley of death') from a policy perspective needs an appropriate and well-balanced 'public/private partnership'.

For innovation in technology dependent sectors to flourish, replenishment of physical and intellectual capital becomes essential as new technologies and applications emerge, otherwise it will not be possible to continue driving emerging technologies to industry and new leading-edge technologies across the TRL 3 to 7 gap.

## For Government:

1. Invest in long-term capital Infrastructure for applied research, testing and commercialisation of technology
2. Harness the expertise and thought leadership of the IRT sector to shape national innovation policy
3. Use public procurement to accelerate adoption of new technology-based innovation
4. Invest in developing the UK skills base

Unless infrastructure is continually renewed, the UK will fail to exploit fully its investment in research and industry will be disadvantaged in developing and testing new, competitive, products, services and technologies. A particular requirement is capital for companies limited by guarantee, operating without core government financing.

Public procurement has the potential to pull through many innovative products and services into everyday use. Providing purchasing contracts, to SMEs, especially, will raise levels of private investment in R&D. SBRI could be used more extensively (e.g. for procuring research and supply of demonstrators /prototypes). R&D tax credits further incentivise innovation and should be widely available, but complement rather than substitute for procurement initiatives.

A strong and abundant mix of multi-talented people is needed for commercialisation of research. There is a clear shortage of people with the multiple skills, including vitally important 'soft/people skills', to deal with this critically important challenge. Government could inspire STEM-related career aspirations in young people by raising the profile of PSREs and other IRT organisations, highlighting their role in the economy.

The innovation, research and technology (IRT) sector comprises organisations and companies supplying professional services for innovation, including research, development, consultancy, technology translation/adaption, testing and certification, standards and their management and financing.

AIRTO (the Association of Innovation, Research & Technology Organisations) is the membership network for the IRT sector.

AIRTO's mission is to stimulate innovation and deliver impact by enabling knowledge & business practice transfer between organisations, and by connecting with Business, Academia, and Government.

Members include: Public Sector Research Establishments (PSREs); non-profit distributing member and non-member based Research and Technology Organisations (RTOs); privately held research and technology companies (including Contract Research Organisations - CROs); university enterprise/technology transfer departments; R&D departments of industrial companies; and business support organisations (including those offering access to finance support).

AIRTO Ltd, c/o National Physical Laboratory, Hampton Road, Teddington, Middlesex, UK, TW11 0LW  
020 8943 6600 | [enquiries@airto.co.uk](mailto:enquiries@airto.co.uk) | [@airtoinnovation](https://twitter.com/airtoinnovation) | [www.airto.co.uk](http://www.airto.co.uk)