

New Study shows Britain's Technology and Innovation Sector has thrived during the recession!



Professor Richard Brook, President of AIRTO (the Association of Innovation, Research and Technology Organisations) discusses a new study by Oxford Economics and the importance of the sector. Autumn 2014 has been a busy time for thinking about innovation policy, with the review of the Government's Science and Innovation Strategy in the run up to the Autumn Statement, the publication of the Hauser Review of Catapult Centres and Labour's work on its Science and Innovation policy emanating from a recent Green paper. Furthermore, an independent research study from Oxford Economics is highlighting the economic contribution of the sector and its impact on UK plc.

It may be helpful to say what we mean by INNOVATION. It is the translation of new ideas into successful products (and services). Innovate UK (formerly the Technology Strategy Board) defines innovation as "the successful exploitation of new ideas – because it drives economic growth". The new Oxford Economics study shows that Britain has a large and thriving technology and innovation sector contributing significantly to national capabilities and economic growth. The sector's business is centred on provision of specialist

skills, facilities and knowledge to carry through the introduction of technology related innovations into commercial business and public service.

The organisations that populate this sector include Catapult Centres, other independent Research and Technology Organisations (RTOs) and many of the Government's Public Sector Research Establishments (PSREs), as well as specialist private companies providing services in this area and university enterprise departments. Many are members of AIRTO.

Findings of the Oxford Economics study reinforce the scale of the sector's work and its potential to continue growing its

contribution to the economy and public services. AIRTO's 50 plus members alone employ over 40,000 scientists, engineers and technical staff, comparable in size to approximately twenty research intensive universities. They have a combined annual turnover in excess of £5.5 billion, considerably larger than Germany's Fraunhofer Institutes. Other highlights show that through the recession, since the last survey in 2008, organisations in the sector have grown by an average of 2.5% per annum; their historically high

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level of productivity has been maintained and has even increased slightly. Furthermore, the sector's organisations are playing an increasingly important role in stimulating innovation, in fostering co-location on their campuses and in training postgraduates, much of the latter in conjunction with universities.

Why the Technology and Innovation Sector is so important.

The UK has superb research in its universities but, as noted recently by David Willetts MP, there is "no policy to move funding away from fundamental and curiosity-driven research. The impact agenda is about getting researchers to think

about the potential implications of their research, not to get them to study something else." (Science in Parliament Vol 71 No 2 pp 27). This reflects a long standing policy.

Who is looking after the more immediate applied research, innovation support and technology application needs of businesses and public services? While some companies can take care of this for themselves and some university researchers are motivated by this type of work, most specialist scientific support and technical assistance for business and public services comes from the technology and innovation sector. This is critically important. Research has shown that innovative developments for most businesses originate within their supply chains. The capacity to turn such innovations into wealth and social benefit therefore relies on specialist support from the technology and innovation sector. It is unfortunate that until recently the sector's role has been poorly recognised in science and technology policy. Prior to the introduction of the Catapult Centres, we have to go back several decades to find programmes designed to support the activities of the sector on any appreciable scale. And yet, as the recent introduction of the Catapult Centres, historical precedent and experience abroad shows, an element of Government intervention is essential for the inception, progression and

renewal of a nation's capacity to apply new technology.

It is the role of the technology and innovation sector to pull through new technology into everyday use. This includes the fruits of fundamental and curiosity driven research in academia. The sector comprises the professional organisations and companies which supply the essential specialist services required to realise such innovations as successful value adding products, services or processes in the commercial marketplace or public service. There is a strong emphasis on the practicalities of implementation. As an example, AIRTO's members provide access to essential skills, experience, facilities, development capacity and training, [provision of specialist skills, facilities and knowledge] frequently culminating in proving compliance with regulation and

... provision of specialist skills, facilities and knowledge ...

standards and demonstrating performance at scale and the benefits to end users. They add value, bringing to bear the necessary combination of professional attitude and approach, skill set, experience and specialist facilities which they specialise in providing. Such work is part of the progressive risk reduction that has to take place between TRLs 3 and 7 on the Technology Readiness Level scale, whether the original idea and technological innovation came from a business or from academic research.

Client needs for these services vary by sector and according to circumstance. Consequently the

various organisations that comprise the Innovation Sector specialise in different types of work and different areas of application. Some serve specific industries (eg automotive). Others provide expertise in particular technologies (eg composite materials), others tackle multidisciplinary challenges (Catapult Centres for example) and some provide

... important role in stimulating innovation ...

support for business processes (planning, staff development, risk and project management) in the particular context of innovation. Their work is undertaken for clients responding to the introduction of new products to market pull, competitive pressures and evolving regulation and also for those exploiting research to create new offerings and markets for their technology. Most members have varying

degrees of interaction with both private and public sectors. The type of involvement varies from member to member according to need, circumstance and how they are financed.

AIRTO is the membership network for these organisations. It helps members to stimulate innovation, develop and exchange knowledge and best practice and foster connections between business, academia, finance and Government.

Why Government's role is important and what it can do to drive British-led innovation

As Britain emerges from recession it stands to gain a global competitive advantage

by building on the current strength of the technology and innovation sector. It needs to continue to increase the level of innovation in business and public services.

Everyone recognises the risks in carrying through innovation programmes. Working in the innovation sector where new technologies are continually

being introduced requires partnership between public and private sectors to share risk and increase confidence for investors. The challenge for Government is to mitigate those risks and support take up of innovative developments to the point where private finance has the confidence to take over. Spanning the TRL gap (or 'valley of death') from a policy perspective is therefore a matter of creating an appropriate and well-balanced 'public/private partnership'. In this context, for the sector to function efficiently and maximise contribution to the UK's continued growth, three things are needed from Government:

1. Assistance with replenishing physical and intellectual capital as established technologies are transferred to industry and new leading edge technologies move ahead. Without renewal of capital facilities and associated skills in the TRL 3 to TRL 7 domain (beyond the capital resources required by universities for their research), it will not be possible for the UK to exploit fully its investment in research. Industry will be disadvantaged in its ability to develop, test and demonstrate competitive, innovative products, services and technologies.

2. Leverage via public sector procurement to pull through innovative products and services into everyday use. Providing purchasing contracts, to innovative SMEs in particular, will help to raise the level of private investment in R&D and thereby increase SMEs' resources for growth and job creation. The Small Business Research Initiative (SBRI) could be used more extensively, from procuring research through to the supply of demonstrators and prototypes. R&D tax credits will further incentivise innovation and should be widely available, but they are not a substitute for procurement initiatives as they do not provide such a direct underpinning for investment decisions.

3. Continued focus on skills that strengthen innovation capabilities. This means ensuring that the UK has a strong and abundant mix of multi-talented people. Particularly interesting for AIRTO members are the skills needed for commercialisation of research. There is a shortage of people with these skills, including vitally important 'soft/people skills', to deal with this important challenge. Government could inspire STEM-related career aspirations in young people by raising the profile of PSREs and other non-university research and innovation establishments and their role in the economy. Promotion of Government owned and Government supported research and technology organisations as potentially rewarding career paths would be highly beneficial.

For further information:

For further details or to receive a copy of the forthcoming Oxford Economics report please contact enquiries@airto.co.uk; +44 (0)208 943 6600.