



AIRTO Position Statement

Producing the skills for an innovation driven economy

It is widely recognised that a strong drive for innovation in products, services and businesses is the key to the UK's competitiveness, for which the UK requires a world-class skills base. To support this Britain's education system must deliver a good standard of literacy and numeracy, and the nation must increase aspirations and opportunities for scientific and technologically based careers. This position paper sets out how this should be approached and recommends that the Government and training providers engage the intermediate research and technology sector as key partner for increasing apprenticeships, employability of the graduate workforce, thereby better utilising the UK's assets for accelerating innovation.

The importance of technical and other skills

It is widely recognised that a strong drive for innovation in products, services and businesses is the key to the UK's competitiveness in global markets and, importantly, its exports. Without innovative, leading edge products and services, the UK's economy will fail to deliver the prosperity needed to support the standard of living to which we have become accustomed.

Creating a favourable environment for innovation is therefore a fundamental component of the current drive to grow the UK's high-value, knowledge-based economy. Innovation is needed, not only through technology-based invention and novelty, as most commonly understood, but also through new practices, processes, methods and models of doing business and a host of other ways of improving offerings and value to customers.

Clearly, the UK needs a rounded portfolio of skills in all the main business disciplines, including research and development, market research, marketing, sales, operations, production, finance and, above all, good management.

Underlying research and development is the requirement for a leading edge skill set in scientific research, technology development, design, production and various other engineering specialisations. Additionally, we need some very specific skills in the demanding work needed to translate research outcomes into commercially advantageous business offerings.

The importance of capitalising on research and innovation is recognised by Government and business. However, encouragement and assistance from Government and growing entrepreneurialism from the private sector will only succeed if we can tap into a domestic skills base with the coverage and capacity to realise the vision of the country's political and business leaders.

The UK needs a strong indigenous skills base

It is widely acknowledged that the UK, along with many other countries in the developed world, has a deficit in the development of the necessary technological skills in its indigenous population.

Immigration may make up for part of the deficit, but it is crucial to our future for the UK to work to upgrade its own indigenous skills base in order to provide the resources for future business growth and job creation, as well as catering for other important roles in society. This has been given added urgency by the recent moves to tighten the rules for admitting immigrants. The UK, along with other developed nations, is also threatened by progressive losses from the established skills base as members of the 'baby boomers' generation retire.

Stimulating interest in scientific and technologically based careers

Attracting talent, at all levels, into science and technology requires a combination of measures to:

- Instil ambition in up and coming generations of young people
- Generate enthusiasm for scientific and technological achievement
- Provide opportunities for engagement and career development in UK firms and universities
- Promote careers in science and technology as desirable, rewarding and 'cool'.

A new and recent consideration is the impact that student university fees will have on course popularity and provision and hence the supply of graduate and postgraduate skills into the economy. The outcome of this policy direction remains to be seen.

There are many other issues in education still to be resolved that we do not dwell on here, including matters related to curriculum, early versus late specialisation and, particularly, the impact of targets on the education system and educational standards. The emphasis on increasing numbers in tertiary education, meeting targets and the linking of funding to achievement of examination results has been accused of progressively leading to a lowering of standards.

It is disturbing to see the repeated statements from business and industry to the effect that the UK's education system does not equip sufficient young people with the basic skills required by employers. In a period of economic difficulty this exacerbates the problems of unemployment amongst school leavers and new graduates.

We must therefore ensure that we have a primary and secondary education system that delivers a good standard of literacy and numeracy. Indeed some AIRTO members report that this aspect of the skills problem has reached an unacceptable level and that they cannot find sufficient recruits with the competence in fundamental literacy, numeracy and reasoning that is required for their businesses. Unless our education system successfully matches the demand for skills from the economy to supply from secondary and tertiary education, in terms of both quality and quantity, the UK will progressively fall further behind its global competition.

Providing opportunity

Experience in recent decades has shown that one size doesn't fit all in education and career development. So it is good to see the developing emphasis on vocational as well as academic education and training, along with the re-introduction of apprenticeships. This variety of opportunity is likely to offer the greatest and fairest chance for young people from a wide variety of backgrounds to find their best route to a fulfilling and socially mobile career opportunity. Coupled with a new approach to target setting this should go some way to improving the situation with supply and demand highlighted earlier.

Supporting apprenticeships and work experience

Apprenticeships, internships and work experience have traditionally provided entry points through which people starting out on a career can accumulate broader business experience as well as pursuing further formal qualifications where appropriate. The working environment also provides a very suitable context for mentoring and coaching.

However, providing such opportunities requires a commitment from the companies involved and a degree of risk that their investment may not be recovered if recruits don't live up to expectations. They are also exposed to the risk that, having trained raw recruits, those recruits may expect to be able to move on immediately, possibly to other companies, to satisfy possibly unrealistic expectations that a degree is a fast track to well-paid management positions. There is a job to be done here therefore as people progress through secondary and tertiary education in setting realistic career expectations while also stimulating interest and ambition.

While large organisations can bear these risks, many smaller enterprises cannot afford a sufficient portfolio of trainees to offset the risk. In such instances some assistance is required to offset part of the cost involved. Knowledge Transfer Partnerships provide a good example of a scheme widely supported by both the public sector and the private sector, in this case offering significant benefit to both the companies and the universities involved as well as experience to the students, who at the same time as gaining experience are being placed with potential future employers.

AIRTO members are helping

AIRTO members build their businesses around the application of innovative ideas and technologies for a broadly defined client base. They are therefore particularly dependent on being able to recruit versatile scientists and technologists. Potential recruits must have an interest in both science and technology and its application both in business and elsewhere in the economy and society.

To develop a pipeline of potential talent, about half of AIRTO's Members, including ARUP, AWE, BMT, BRE, NPL QinetiQ, already operate apprenticeship, graduate or postgraduate development schemes. A recent survey of our members has indicated two-thirds of AIRTO members are involved in schools outreach and most AIRTO members offer work experience opportunities to young people, with over two-thirds offering internships. About half of AIRTO members work with higher education institutions to deliver training, for example TWI, who are working with universities to explore ways of providing students with the mix of skills and experience from their degree courses to enable them to 'hit the ground running'.

AIRTO's members' interactions with a very broad client base, which includes businesses from diverse sectors, industries of widely differing types and public sector organisations of various kinds, supported by extensive contacts with academia, financiers and funding bodies, provide an unrivalled environment within which to develop a rounded skill set; only really large corporations are able to offer anything comparable, and then generally only in the context of tightly channelled commercial interests.

What more is needed? Capitalising on the independent sector's capabilities to develop skills

A particular area of interest for AIRTO members is the skill set needed to work successfully on the commercialisation of research. This is an area where there is a clear shortage of people with the multiple skills, including the vitally important 'soft/people skills', needed to deal with this critically important challenge for the UK. An apprenticeship programme for such individuals ideally might comprise a series of secondments, each for a period of six to eighteen months, to academia, the finance sector, departments of government (such as BIS) and commercial industry, much along the lines of a traditional fast track graduate development scheme in a large enterprise. Such a scheme, or a suitable variation on the concept, would require financial support but would quickly produce a younger generation of multi-skilled practitioners ready to carry on the challenge of capitalising on the UK's strong research and innovation base. AIRTO members and the independent sector would be very well placed to host this kind of programme, working in conjunction with their networks of commercial enterprises, universities and government departments.

This would capitalise on the vital role that the independent sector already plays in contributing to the development and retention of the UK's skills base by providing scientists, engineers and technologists with:

- professional development of talented graduates and PhDs;
- training through apprenticeships and internships
- defined career pathways
- job mobility

Engaging the RTO sector as a training partner at apprenticeship level and recognising the role the sector has to play in employability of the graduate workforce should be a central component of the government's strategy for better utilising the UK's assets for accelerating innovation.

Notes to Editors:

AIRTO – The Association for Independent Research and Technology Organisations – is the foremost membership body for organisations operating in the UK’s intermediate research and technology sector. AIRTO’s members deliver vital innovation and knowledge transfer services which include applied and collaborative R&D, frequently in conjunction with universities, consultancy, technology validation and testing, incubation of commercialisation opportunities and early stage financing. AIRTO members have a combined turnover of over £2Bn from clients both at home and outside the UK, and employ over 20,000 scientists, technologists and engineers.

AIRTO members include commercial companies, Research and Technology Organisations, Research Associations and selected research and technology exploitation offices from universities, operating at the interface between academia and industry. Most of AIRTO’s members operate in the important space between pure research and the pull of the market for commoditisation of knowledge into new products and services.

AIRTO exists to assist members network and engage collectively with government and policy makers in the UK’s R&D landscape on matters of mutual interest, including research policy, innovation strategy, encouraging enterprise and developing the commercial take up of scientific and technological advances. AIRTO works to influence and improve the strategy and climate for innovation for our Members by forging links and progressing dialogue with key decision makers in government and industry across technology intensive sectors. Our interests cover the activities of the Research Councils, the TSB, the European Commission and a number of UK Government Departments, as well as topics such as the use of public procurement to support innovation, challenge led research, skills provision, support schemes such as SBRI and those that deal with contract and collaborative R&D.

For further information on AIRTO please contact:

Dr Jane Gate

Director of Operations, AIRTO

Tel: +44(0)20 8943 6354

e-mail: jane.gate@airto.co.uk