



A taxonomy of the UK's Innovation, Research & Technology sector

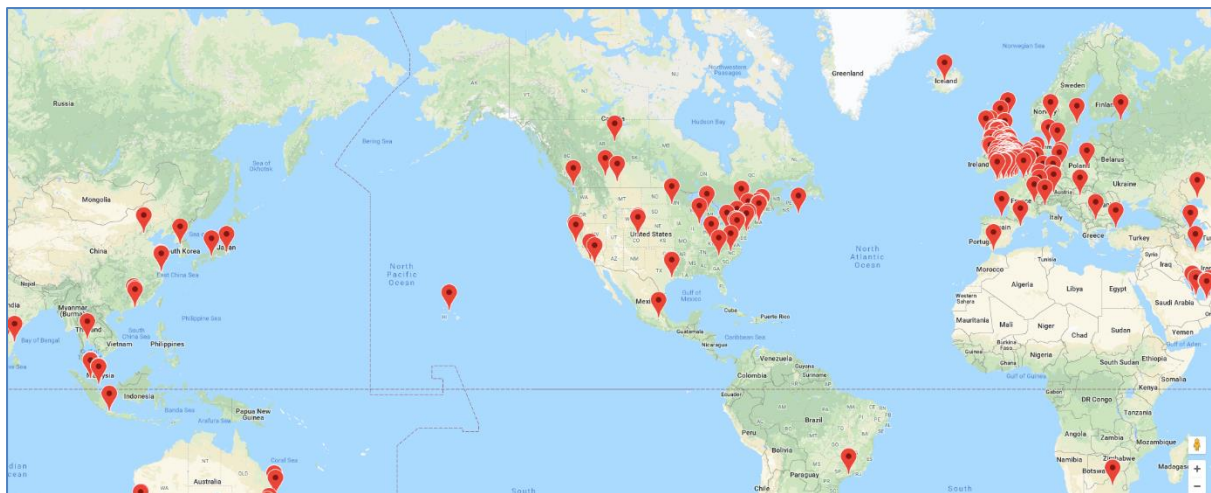
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Context:

AIRTO is the Association of Innovation, Research and Technology Organisations. Its membership comprises approximately sixty of the principal organisations operating in the UK’s Innovation, Research and Technology (IRT) sector. The IRT sector has a combined turnover of £6.9Bn, employing over 57,000 scientific and technical staff (equivalent to the academic staffing of the Russell Group of universities) and, for comparison, it is significantly larger than the network of Fraunhofer Institutes in Germany both in size and its scope of activities. The sector contributes £34Bn to UK GDP¹. AIRTO’s members work at the interface between academia and industry, for both private and public sector clients. In 2014 a report by Oxford Economics¹ found that all of this contribution was achieved with little more than £2Bn or 0.3% of government expenditure being directed towards the IRT sector.

Members include independent Research and Technology Organisations, Catapult Centres, Public Sector Research Establishments, National Laboratories, some university Technology Transfer Offices and some privately held innovation companies.

The IRT sector is active beyond the UK in countries spanning Asia, the Middle East, Africa, North America, South America, Europe, and Australasia, across a wide range of technology areas including health care, transport, aerospace, defence, space, information and communications, build environment, maritime, materials. Such activities are an important vehicle for international collaboration, ‘export’ of the UK’s science, innovation, and skills, and for soft diplomacy. IRT organisations also make the UK an attractive place for multi-national investment. Click on the image below to reach our interactive map of AIRTO members’ international operations.



This document is intended to provide a taxonomy of the UK’s Innovation, Research & Technology sector, including setting out definitions of the range of activities and legal structures that prevail within our sector.

1. Definitions of activities/services undertaken

Organisations in the IRT sector undertake a wide range of innovation, activities and services, including: research and development (R&D) and consultancy; independent validation and testing; multi-client project inception and management; commercialisation strategy and sourcing project finance.

Applied R&D

Innovative research and development activities (usually scientific in nature) undertaken to develop new services or products, or improving existing services or products. This frequently at an early stage of the development of a potential new service or product.

Technology validation

Laboratory or field based testing to validate that all the components of a technology work effectively in defined conditions.

Certification

Certification is the formal recognition by an authoritative body of the competence to work to specified standards of performance. Certification represents a written assurance by a third party of the conformity of a product, process or service to specified requirements. All accreditation standards include the principles of quality management systems, such as those found in the well-recognised ISO 9001 QMS standard. It is the ability to demonstrate technical competence that puts accredited certification on a level above non-accredited certification².

Accreditation

As defined by UKAS³ (the UK Accreditation Service), accreditation is the formal recognition that an organisation is competent to perform specific processes, activities, or tasks (which are detailed in a scope of accreditation) in a reliable credible and accurate manner. Accreditation services provide an independent third-party endorsement of certification of an organisation's systems or products. The provision of accreditation must:

- be objective, transparent and effective;
- use highly professional competent assessors and technical experts in all relevant fields;
- use assessors (and subcontractors) that are reliable, ethical and competent in both accreditation processes and the relevant technical fields.

Accreditation delivers confidence in certificates and conformity statements. It underpins the quality of results by ensuring their traceability, comparability, validity and commutability.

Consulting

Providing expert advice of a specialised scientific or technical nature.

Training

Activities which support learning or development of specialist skills. These activities may or may not include delivery of formal courses of qualification. These may activities range from apprenticeship level training to providing accredited continuing professional development (CPD).

Collaborative projects

Projects involving several organisations working together to achieve a common goal. Frequently this involves organisations coming together to deploy their complimentary capabilities, be they skills, knowledge, facilities or techniques.

Knowledge transfer/Knowledge exchange

As defined by PraxisUnico⁴, are activities which support collaborations between universities, businesses and the public sector.

Technology Transfer

As defined by HEFCE (the Higher Education Funding Council for England)⁵, this means exploitation of intellectual property rights (IPRs) that have been established as a result of scientific or technological research, for further development towards a market application. This may occur through establishment of a new venture (e.g. 'spin out' company) or by licensing IPRs out to, or in from, a third-party collaborator (examples of which may include academic organisations).

Fundamental research

As defined by Innovate UK⁴, this means experimental or theoretical work primarily to gain new knowledge of underlying phenomena and visible facts.

Feasibility studies

As defined by Innovate UK⁴, this means analysis and evaluation of a project's potential, aimed at supporting the process of decision making. This is achieved by uncovering its strengths, weaknesses, opportunities and threats as well as identifying resources needed and the prospects for success. Feasibility studies will usually help businesses decide to work either individually or collaboratively with other industrial or research organisations, before conducting a subsequent larger technology project.

Industrial research

As defined by Innovate UK⁶, this means planned research or critical investigation to gain new knowledge and skills for the purpose of product development, processes or services that lead to an improvement in existing products, processes or services. It can include the creation of component parts to complex systems and may include prototypes in a laboratory or environment with simulated interfaces to existing systems, particularly for generic technology validation.

Experimental development

As defined by Innovate UK⁴, this means the acquiring, combining and shaping of existing scientific, technical and other relevant knowledge and skills to produce plans, arrangements and designs for products, processes or services. This can include the development of commercially-usable prototypes.

2. Definitions of legal status:

Community Interest Company, CIC

A CIC is a special type of limited company which exists to benefit the community rather than private shareholders.

Company Ltd by Guarantee, CLG:

Type of corporation used primarily for non-profit organisations that require legal identity; does not usually have a share capital or shareholders, but instead has members who act as guarantors. A number of organisations fall into this category and many of these as categorised as independent **Research & Technology Organisations (RTOs)**.

Company Limited by Shares:

"Limited by shares" is a company with shareholders, whose liability to creditors of the company is limited to the capital originally invested, i.e. the nominal value of the shares and any premium paid

in return for the issue of the shares by the company. A limited company may be "**private**" or "**public**". A private limited company's disclosure requirements are lighter, but for this reason its shares may not be offered to the general public (and therefore cannot be traded on a public stock exchange). This is the major distinguishing feature between a private limited company and a public limited company or '**plc**'. Most companies, particularly small companies, are private.

Employee Trust /Employee Benefit Trust

Employer controlled trust which pays out benefits to workers, often retirement income, such as a pension.

Executive Agency:

part of a government department that is treated as managerially and financially separate in order to carry out some part of the executive functions

GOCO:

Government Owned Contractor Operated

GOGO:

Government Owned Government Operated

PSRE:

Public Sector Research Establishment

Wholly owned subsidiary:

Completely or partly owned, and partly or wholly controlled by another company that owns more than half of the subsidiary's stock. A subsidiary can be a company, corporation, or limited liability company. It can be a government or state-owned enterprise. The controlling entity is termed the parent company, or holding company.

3. AIRTO Members: Summary of legal status

Part 1 - Independent Organisations (including some with charitable status) & Technology Transfer Organisations		
AIRTO Member	Legal Status	Non-Profit Distributing
Agrimetrics	Company Limited by Guarantee	Yes
BRE Group	Company Limited by Guarantee	Yes
BMT Group	Employee Benefit Trust	
BSRIA Ltd	Company Limited by Guarantee	Yes
Campden BRI	Company Limited by Guarantee	Yes
CIRIA	Company Limited by Guarantee	Yes
City University London	University	
DG Cities Ltd	Charitable Trust	Yes
Digital Catapult	Company Limited by Guarantee	Yes
FloWave TT Ltd	Company Limited by Guarantee	Yes
Fraunhofer UK Research Ltd	Company Limited by Guarantee	Yes
Future Cities Catapult	Company Limited by Guarantee	Yes
High Value Manufacturing Catapult (inc. AFRC, AMRC with Boeing, CPI, MTC, NCC, Nuclear AMRC, WMG)	Company Limited by Guarantee	Yes
HR Wallingford Group Ltd	Company Limited by Guarantee	Yes
Institute for Environmental Analytics	University led consortium	
MPI	Company Limited by Guarantee	Yes
NIAB	Company Limited by Guarantee	Yes
NNFCC	Company Limited by Guarantee	Yes
Northern Automotive Alliance	Company Limited by Guarantee	Yes
OGTC	Company Limited by Guarantee	Yes
Organic Research Centre	Company Limited by Guarantee	Yes
Rothamsted Ltd	Company Limited by Guarantee	Yes
Satellite Applications Catapult	Company Limited by Guarantee	Yes
SATRA Technology Centre	Company Limited by Guarantee	Yes
Smith Institute	Company Limited by Guarantee	Yes
Stockbridge Technology Centre	Company Limited by Guarantee	Yes
Thatcham Research	Company Limited by Guarantee	Yes
The Scotch Whisky Research Institute	Company Limited by Guarantee	Yes
The European Marine Energy Centre	Company Limited by Guarantee	Yes
Transport System Catapult	Company Limited by Guarantee	Yes
TravelSpirit	Community Interest Company	
TWI Ltd	Company Limited by Guarantee	Yes
University of Greenwich	University	
University of Surrey	University	

Part 2 - Private Organisations		
AIRTO Member	Legal Status	Non-Profit Distributing
Axillium Research	Private Limited company	
BHR group	Private Limited Company	
C-Tech Innovation Ltd	Private Limited company	
HORIBA MIRA Ltd	Private Limited company	
LGC	Private Limited company	
Lucideon Ltd	Private Limited Company	
PA Consulting	Private Limited company	
Patent Seekers	Private Limited company	
QinetiQ	Company Limited by Shares (plc)	
Part 3 - Government Owned Organisations		
AIRTO Member	Legal Status	Non-Profit Distributing
BGS	NERC- wholly owned research centre	
HSE (Health & Safety Laboratory)	Executive agency	
Met Office	Trading fund	
National Nuclear Laboratory	GovCo	
National Physical Laboratory	GOCO	
NICA	MRC wholly owned research centre	
STFC	Government Agency	
UKAEA	Executive non-department public body	

Prominent Non AIRTO Organisations - Other PSREs/former PSREs/RTOs: Summary of legal status

Organisation	Legal Status	Non-Profit Distributing
Animal and Plant Health Agency (APHA)	Executive Agency	
Centre for Environment Fisheries and Aquaculture (Cefas)	Executive Agency of DEFRA	
Veterinary Medicines Directorate (VMD)	Executive Agency of DEFRA	
Public Health England (PHE)	Executive agency of the Department of Health	
Forest Research	Executive Agency	
Atomic Weapons Establishment	Government Owned Company	
DSTL	GOGO, Trading fund within MoD	
Hydrographics Office	Trading fund within MoD	
Pirbright Institute (formerly Institute for Animal Health)	Registered Charity and Company Limited by Guarantee	Yes
Clinical Sciences centre (CSC)	MRC wholly owned Research Centre	
Laboratory of Molecular Biology (LMB)	MRC wholly owned Research Centre	
Centre for Ecology and Hydrology (CEH)	NERC wholly owned Research Centre	
National Oceanography Centre (NOC)	NERC wholly owned Research Centre	

For further information, please contact:

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References

¹www.airto.co.uk/docs/airto_oxford_economics_2014.pdf

²<https://www.ukas.com/download/case-studies/pr/Plannin-and-Building-Control-Today-April-issue-2017.pdf>

³<https://www.ukas.com/about/about-accreditation/>

⁴ <https://www.praxisunico.org.uk/sites/praxisunico.org.uk/files/KEandCommercialisation.pdf>

⁵http://www.hefce.ac.uk/media/HEFCE,2014/Content/Pubs/Independentresearch/2016/University,KE,framework,Good,practice,in,technology,transfer/2016_ketech.pdf

⁶<https://www.gov.uk/guidance/innovate-uk-funding-general-guidance-for-applicants#categories-of-research-and-development>