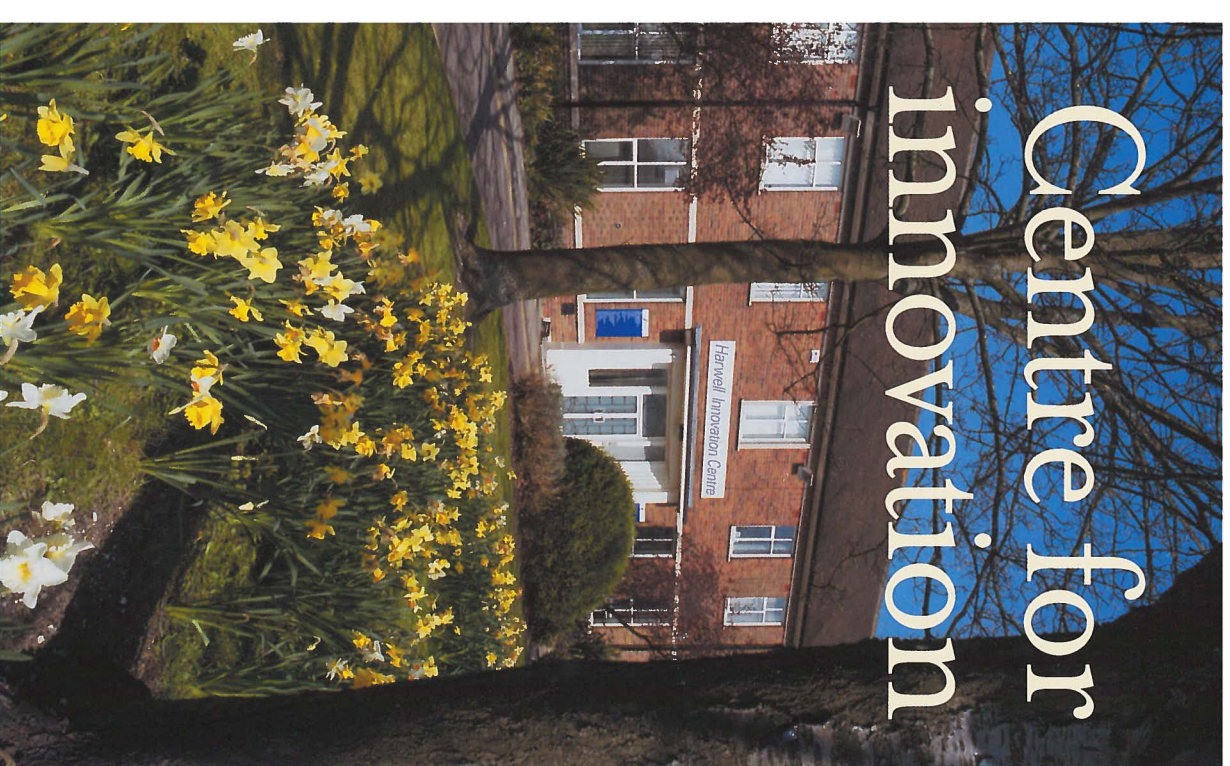


Centre for Innovation



Opened in May 2000 the Harwell Innovation Centre is the largest in Oxfordshire, with 56 tenants in total. Harwell Innovation Centre is one of a network of centres managed by Oxford Innovation. Three of its tenants are profiled here.

Harwell Innovation Centre provides start-up companies with a professional environment to grow their business along with a range of business support services needed during the first vital years of operation.

The centre offers flexible accommodation allowing companies to expand or contract as the need arises. Becoming a tenant is a low risk decision because there are no long term commitments and only one month's notice is required.

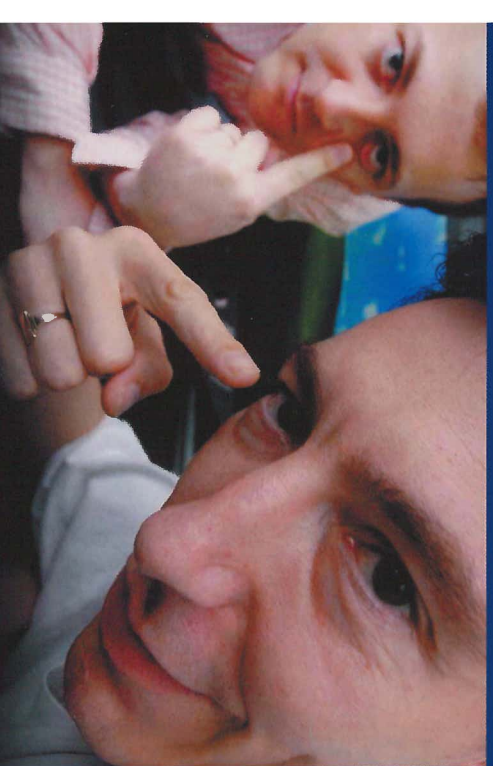
New businesses can move in and start work immediately. High speed internet, network and telephone connections are already in place. Professional support services are available ranging from receptionists to practical help from a network of specialist business advisors.

"Everyone has the opportunity to meet and network with like-minded entrepreneurs because we host a weekly coffee morning," says manager, Mandy Bennett. "There is also a low cost, virtual office facility suitable for businesses not yet ready to move into an office."

Harwell Innovation Centre provides start-up companies with flexible accommodation.

Bunnyfoot thrives

As one of the early occupiers, Bunnyfoot moved into the Harwell Innovation Centre in August 2000. At that time there were just two staff. Now it is a thriving consultancy with an 11-strong team.



"We are the UK's premier usability and accessibility consultancy," says Caroline Middleton of Bunnyfoot. "One of our business strengths is our state-of-the-art eye tracker. We can show you exactly where someone is looking when interacting with your product."

The eye-tracker technology is combined with Bunnyfoot's expertise in behavioural psychology and customer research. Together they give great insight into a company's products or services. Website testing will identify how typical users interact with a site, any necessary improvements and, ultimately greater customer satisfaction, loyalty and increased sales.

The business is expanding into many new areas including interactive television and games testing. "We recently created a dedicated gaming laboratory. Fitted out with the latest gaming equipment linked to biometric detectors we can also measure such things as heart and breathing rates to explore the complete user experience," says Caroline.

Bunnyfoot has also applied its eye-tracking to record and analyse responses to adverts and billboards, to determine whether product names and brands are recognised and recalled.

Health Physics from Aurora

In 2003 Aurora Health Physics Services Ltd (Aurora) moved its head office from Devon to Harwell Innovation Centre. From modest beginnings Aurora now has twelve full-time and two temporary staff and its portfolio has increased from just two to over seventy clients.

Aurora is an independent company offering a wide range of radiation protection services worldwide. It was formed by senior radiation safety professionals with a very broad spectrum of experience and skills gained from working in all areas of the radiation protection field both in the UK and overseas.

The business currently has clients across a wide range of markets including the nuclear industry (civil and military), non-nuclear sector (including heavy industry, airports, oil & gas, small users, research), universities, healthcare and emergency planning for local authorities and the emergency services.

"We deal with such diverse radiation protection issues as radioactive sources in schools to natural radioactivity on offshore oil and gas platforms in Spain," says Allan May of Aurora. "Other work has involved radiation and contamination surveys of nuclear test sites in the Algeria desert.



Jon Taylor of Aurora monitors for radioactivity on an oil platform off the coast of Spain.

"We're confident that we can support any individual or organisation working with, or associated with radiation, regardless of their particular application," he says. "Having our headquarters in the Harwell Innovation Centre has given us access to traditional nuclear markets by providing a base for excellent business opportunities in the Thames Valley and London. It has given us additional credibility by association with the Harwell name which is held in high regard with the clients we serve."

Bob Truman in the Algerian desert during radiation monitoring.



HLBBshaw

For the last four years Parabola has been providing intellectual property protection services from its offices at the Harwell Innovation Centre. Parabola was recently acquired by HLBBshaw.

"The development of science-based business on the wider campus is very exciting for a firm like ours, where attorneys are science graduates writing about, and setting up legal protection for the latest technologies," says Paul Wolff, senior patent attorney with HLBBshaw at Harwell, founded Parabola in Reading in 2000 and opened the Harwell office two years later. The company has plans to expand its Harwell operation.

HLBBshaw was started in 1989 and represents clients in all main technology areas. The firm has special strengths in dealing with difficult cases and in its ability to successfully defend and enforce its clients' IP rights. The company is able to offer specialist portfolio management skills for patent and trade mark cases.

"Our clients are breaking new ground, making new discoveries and finding new uses for existing technologies. The innovative work taking place on the campus makes this an ideal location for us. We can provide the legal support they need. Advising about trade marks and patents is our area of expertise. We can take care of this and leave our clients free to concentrate on their work.

"We are keen to be on campus and accessible to all the companies based here," says Paul. "Free intellectual property clinics are held on Thursday afternoons by appointment where we can provide advice and guidance on IP issues."



Harwell Innovation Centre
Flexible premises for new entrepreneurial businesses

• Fully serviced office accommodation

• A professional workspace for a small company

• Shared IT facilities

The new future for the future of Harwell

UKERNA

UKERNA is responsible for the operation and development of JANET, the UK's research and education network, and its associated services.

Funded by the JISC (the Joint Information Systems Committee), JANET is one of the world's leading research and education networks and has been developed over 20 years to ensure that its users' networking requirements are not only met but enhanced through a programme of leading edge developments and services.

JANET grew out of the Science and Engineering Research Council's SERCnet network which started life at Rutherford Appleton Laboratory. UKERNA took over the management and development of the network in 1994 when it ran at 34Mbits. This year's network upgrade will result in a fibre based 10Gbits network with the capability to scale to 40Gbits and beyond.



UKERNA is moving to a new £4m purpose-built premises early next year.

UKERNA's mission is to 'support UK competitiveness and learning through the delivery of network services to enable research and education'. In addition to the JANET network infrastructure UKERNA also provides a range of services to assist our customers in maximising the benefits of their connections to JANET.

These services include JANET CERT, a dedicated Computer Emergency Response Team for security related matters.

Videoconferencing advice and booking services are also available and UKERNA is

currently managing the DFES funded Videoconferencing Services Project for schools. JANET Roaming is an innovative solution for allowing guest access to network resources on an international level. The Access Grid Support Centre offers a range of services to academic Access Grid users in the UK.

The original team was based in the Atlas Centre on Ferni Avenue and UKERNA has remained there ever since. Now, the company is poised to move premises for the first time in its history. It will be relocating to a £4m purpose-built eco-friendly building on the Harwell Chilton campus in early 2007.

Harwell Drying & Restoration Services (HDRS)

One of the buildings close to the Buncefield explosions.

Harwell Drying & Restoration Services has been connected with the Harwell site since 1979. The business specialises in disaster recovery and the restoration of documents after damage from fire, flood and explosion.

In 1979 a flood at Oxford's Taylorian Institute damaged 200 books dating from the 16th century. Museum staff contacted drying experts at Harwell. This led to significant research and development into the restoration of documents and books during the 1980s and projects were undertaken for the Law Society and the House of Commons Library amongst many others.

HDRS operates a subscription system called the Priority User Service. Since it began in 1990 it has attracted over 700 members in the UK and Ireland who could call upon HDRS in the event of fire or flood damage to their collections. Members include various government departments, the National Archives, The British Library, most major UK universities and numerous private sector companies.

After a management buy out in 1995 HDRS has expanded steadily from two staff in 1995 to a current workforce of 25. Over the years HDRS has been involved in numerous major loss projects including recoveries after the 2000 floods and the Norwich Library Fire.

Most recently HDRS was involved in several recovery operations following the Buncefield oil depot explosion. HDRS teams worked tirelessly to recover

RWE NUKEM

Although the name RWE ANUKEM is quite new to the campus, many of the staff who work for this nuclear engineering specialist have spent their careers at Harwell.

The company has continued to expand its engineering design and consulting services across all its offices, and at Harwell in particular. In the last six months over 60 staff have been recruited and another large office in the Harwell Library has been occupied.

Recruitment continues and RWE NUKEM is negotiating possession of the last and largest wing of the Library which can accommodate a further 100 people. With over 250 staff at Harwell, RWE NUKEM is one of the



largest private employers on the campus.

"We are a vibrant and dynamic organisation and it is particularly pleasing that recent recruits have included a large number of young staff

HDRS has been able to salvage 95% of the material damaged in this fire.



documents that had been damaged by shards of glass, building dust and water. As many of these documents were crucial to firms affected, HDRS organised a fast track schedule at

Harwell. This allowed documents to be quickly reinstated to maintain business continuity and minimise claim costs.

"We would like to congratulate Harwell on its 60th anniversary. We hope to play a part in the future development of the campus into a leading international business centre for science and technology," comments Mike.

RWE NUKEM also has 65 health physics staff based at Harwell providing a wide range of customers, including UKAEA, with radiation safety services. Services include radiation monitoring, radiation protection advice, HSE-approved dosimetry services, radiation safety training, and instrument calibration. The unique Groundhog™ service, which is used to survey land that is potentially contaminated with radioactive material, has been used extensively in support of UKAEA's remediation of the Harwell site.

Reflecting on 60 years

On 1 January 1946, the former WWII bomber training station of RAF Harwell was taken over by the Ministry of Supply to become the Atomic Energy Research Establishment (AERE) Harwell. During the next 20 years the building firm of Chivers & Sons added the redbrick buildings to the original 60 serviceable RAF buildings and the site rapidly grew to two miles in length accommodating 130 buildings. Among the first new buildings in 1948 was the Radiochemical Facility (B220) and the seven-storey chemical engineering building (B351).

GLEEP, Europe's first nuclear reactor, was constructed in Hangar 8 (H8) and became operational in August 1947. A second larger graphite reactor known as BEPO and the prototype for the Windscale Piles, was built in H10 requiring the hangar roof be raised by five metres! BEPO started operation in 1948 and crucial information for the safe operation of Magnox power stations and was Europe's main supplier of medical isotopes for some years.

A dozen other reactors followed including ZEPHYR, the world's first "Fast Breeder" reactor of the mid-1950s, and the swimming-pool reactor called LIDO. Harwell's most powerful reactors, DIDO and PLUTO, were constructed in the late 1950s and used for testing materials and fuels used in nuclear power stations in much of Harwell's work came to fruition in the world's first nuclear power station at Calder Hall, opened by the Queen in 1956.

By 1953 over 6,000 people were being employed at Harwell. Throughout the '50s and '60s they carried out most of the R&D underpinning the UK's civil nuclear industry.

A number of different accelerators were built to enable scientists to probe the heart of the atom. These used charged particles accelerated to high speeds to burrow into atomic nuclei so splitting them apart. The accelerators ranged from

a simple half a million volt Cockcroft-Walton machine, included several Van de Graaff accelerators of up to 12 million volts, up to a linear accelerator of 136 million volts which included the world's first pulsed neutron source.

A synchrocyclotron was housed under H7 and a 60 million volt Variable Energy Cyclotron also built. Harwell's physicists and engineers designed the 7,000 million volt Nimrod machine which formed the Rutherford Laboratory in 1957. Successors to these machines are in use on the campus today such as ISIS and Diamond are examining a large range of materials by unlocking the genetic structure of life.

Professor John Cockcroft was the first director of Harwell (1946-1958) and on 19 July 1954 the UKAEA came into being under the chairmanship of Sir Edwin Plowden. The Queen visited Harwell in 1957 and other illustrious visitors followed over the years, including Churchill, Montgomery, Soviet leaders Bulganin and Krushchev, and UK prime ministers such as Anthony Eden and Margaret Thatcher.

From the outset scientists designed and built their own instrumentation and the Electronics Division, staffed with experts

from the radar establishment at Malvern, built the world's first transistorised computer CADET and the world famous 'Harwell 2000' electronics units. A wide range of nuclear instrumentation was developed and this continues on site through Canberra Harwell. Physicists invented a powerful ion-source used by the semi-conductor industry for the fabrication of silicon 'chips'.

The demand for powerful computers grew from the one kilobyte electronic valve machine "Mercury" in the 1950s to the two-gigabyte GRAY supercomputer of the late 1980s. A site-wide network of 160 computer terminals was installed in 1968 and linked to the other UKAEA sites.

Meanwhile the alternative energy quest was fusion, the nuclear process that fuels the stars, and on 12 August 1957 the ZETA thermonuclear device started up in H7. In the 1960s this research was transferred to Culham which ultimately housed the JET facility, the first device in the world to sustain the fusion process for two seconds.

The Science & Technology Act (1965) encouraged non-nuclear research and the pioneering concept of research and development 'clubs'. These were set up

in areas such as heat transfer and marine technology. A major seawater desalination project was started and radioactive labelling used to measure wear in car engines.

The Non-destructive Testing Centre was set up in 1967 providing a wide range of inspection techniques for industry. The Ceramics Centre exploited nuclear fuel technology for the glassware, smelting and refractory industries. Physicists improved wear resistance in precision components by bombarding them with ions and such novel technology was exported to UK industry.

New centres of excellence emerged in 1971 as the Radiochemical Centre (later Amersham) and NRPB were created as new organisations. The National Chemical Emergency Centre was formed in 1973 and the Energy Technology Support Unit in 1974. Oil crises motivated research into finding solutions for difficult problems in the offshore oil and gas industries. These included crack detection systems, radioactive monitoring of grouting inside oiling legs, robots for tanker hull inspections and pipeline 'pigs' for internally examining the UK's gas grid for defects.

1 Workers operating remote manipulators in B220.

3 Workers in radioactive protective suits in B220 in the 1950s.

5 Halifax bomber towing a glider from RAF Harwell in 1944.

7 Cockcroft-Walton accelerator in 1950s in H8.

9 Zero Energy Thermonuclear Assembly (ZETA) in H7.

11 Refurbishing a cancer therapy unit.

2 One million square feet decommissioned.

4 The seven-storey Chemical Engineering building B351.

6 BEPO reactor.

8 John Cockcroft, first director of Harwell.

10 LIDO pool reactor.

