

The Technology Directorate

Helping industries to access the wealth of state-of-the-art equipment and world-class expertise at the University of Liverpool.

Located within the Faculty of Life Sciences, the Technology Directorate can help you find the best resources to develop your ideas. Through our Shared Research Facilities, we offer access to a range of intricate and complex analytical technologies and, crucially, the expertise to help you get the most from them.

Each facility is run by a team of experts, led by an internationally renowned academic, making each facility not only a provider of specialist analytical services but also a centre of expertise, advice and guidance.

Our highly experienced staff have an in-depth knowledge of the key technologies available across the University and can help you find the most appropriate solution to meet your objectives. We also have contacts and partnerships across the North West, so if we can't provide the infrastructure you need, we can put you in touch with other organisations that can help.

From simple feasibility studies to complex long-term collaborations, we can provide the skill and technology to support you from initial concept right through to data analysis and interpretation.

Shared Research Facilities

Cellular Imaging

World-class optical microscopy, including one of the first light sheet microscopes in the UK, housed in a suite of custom-designed, temperature-controlled rooms.

Cell Sorting

Rapid sorting of highly defined cell populations to a high level of purity.

Laser Capture Microdissection

The ability to cut and collect individual cells from larger tissue samples at the microscopic level.

Computational Biology

Computational resources and expertise to manipulate and interpret very large-scale, complex data sets from a range of analytical platforms.

NMR Metabolomics

600 and 700MHz spectrometers specifically tailored to the emerging technique of metabolomics, including automated sample handling and calibration.

MRI

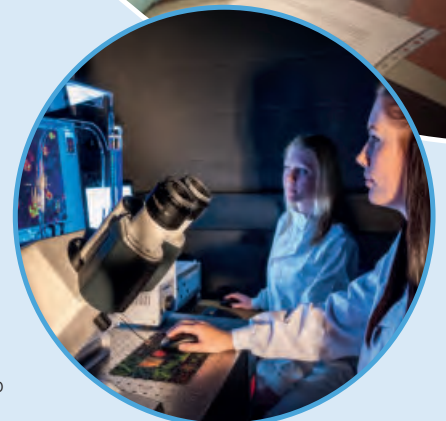
Equipment, infrastructure and expertise to produce high-resolution images and spectral data from soft tissue in human subjects.

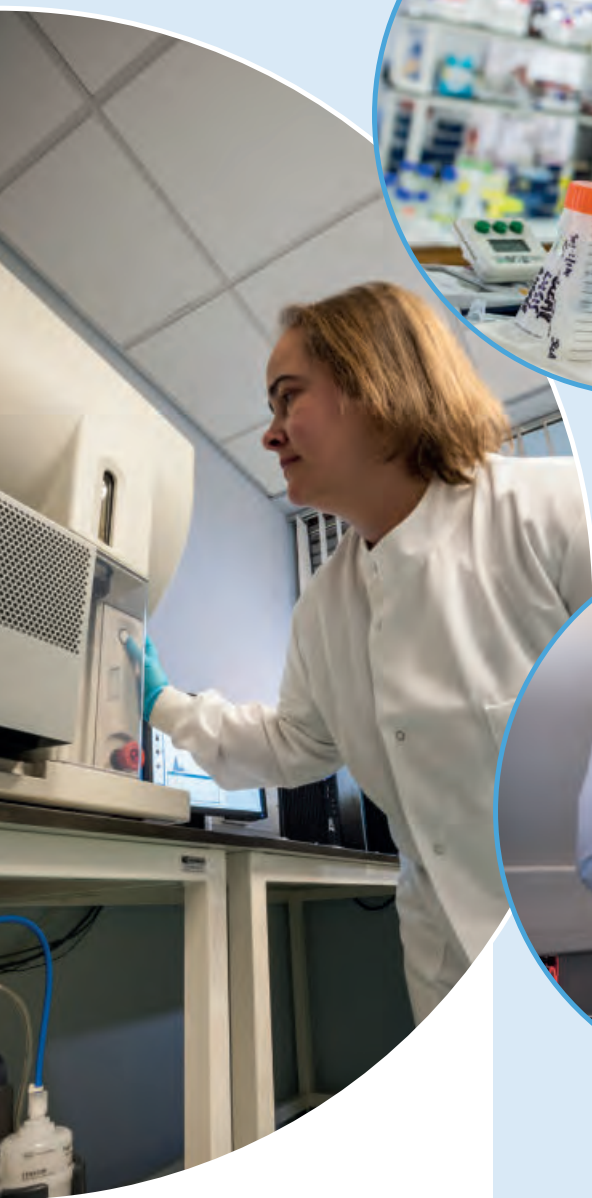
Proteome Research

Broad selection of mass spectrometry platforms configured to support a wide range of analytical techniques, particularly in the field of proteomics.

Genomic Research

NERC UK service provider and MRC genomics hub featuring a range of next generation sequencing platforms to support the global research community.





Contact Us

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Why work with us?

- **Cutting edge equipment:** A continued, sustained programme of investment means our facilities contain the most up-to-date instruments and equipment.
- **Complementary expertise:** Each facility is run by a senior academic lead who is a proven expert in their field.
- **Supported and managed facilities:** All the equipment in our facilities is supported and maintained by dedicated technical staff.
- **Flexible models of engagement:** Whether you want training to run your own samples on our instruments, to spend time working in a facility under the guidance of the academic lead, or just want us to analyse your samples, if we can accommodate it, we will.

Virtual Engineering Centre

Specialists in developing and integrating Virtual Engineering technologies that allow organisations to explore possibilities, maximise product performance and compete in increasingly challenging global markets.

The Virtual Engineering Centre (VEC) provides innovative solutions for real-world industry problems through the exploitation of our world-leading academic research and access to the latest technology.

Whether you want to create a virtual prototype, recreate an environment in the virtual world to test a product, or run millions of scenarios using the latest technology in high-performance computing, our proven expertise can improve quality and safety, and reduce costs and time to market, across many advanced manufacturing and technology sectors.

Our unique Sandpit model underpins the way we work with business. It offers the perfect environment to foster collaboration and address common barriers through exploratory projects, and harnesses the specialist technologies and leading edge research available from the VEC and its extensive networks.

Our clients

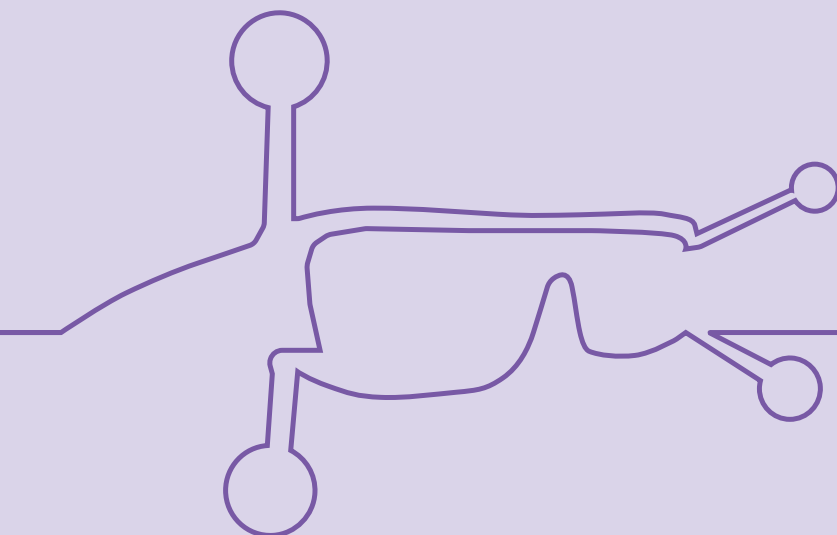
We work with blue chip companies and SMEs across a broad range of industries including aerospace, automotive, energy, transport, FMCG and space.

Our services

- Autonomous and intelligent systems
- Virtual test and engineering reliability
- Digital design and manufacture
- Support for certification.

Our facilities

- VESL (Virtual Engineering Simulation Laboratory)
- RASL (Robotics and Autonomous Systems Laboratory)
- VR (Virtual Reality) Laboratory
- Haptics Laboratory.



Case study

Client: Bentley Motors

Challenge: British luxury car manufacturer Bentley Motors was keen to work collaboratively with the VEC, and technology partner Optis, to assess the value of integrating Virtual Reality (VR) and high fidelity simulation into its product development process.

Solution: Using data from its flagship Mulsanne model, Bentley Motors and the VEC developed a unique framework to evaluate the assessment, verification and integration of VR technologies and immersive environments. The VEC undertook verification studies on the existing design through the integration of key software into a fully tracked 3D stereoscopic environment, which demonstrated that VR technology provided a platform for robust decision-making across the design team.

Impact: Bentley Motors engineers are now able to recreate new models virtually, giving them a powerful design review tool that speeds up product development times, reduces the number of physical prototypes required and eliminates the need for late stage modification, resulting in a reduction in overall development costs. Due to the success of this project, Bentley Motors has now adopted this approach for the development of all of its next generation products.

To date, the VEC has engaged with over 120 SMEs and more than 50 large companies nationally, and has helped to generate over £30 million of investment in the North West economy.



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Why use the VEC?

- **Unique:** Only facility in the UK to offer multi-disciplinary virtual engineering experts and exploratory laboratories, specialising in virtual test and engineering reliability, digital design and manufacture, and autonomous and intelligent systems.
- **Well-connected:** Underpinned by specialist research centres at the University of Liverpool (including areas of risk and uncertainty and autonomous systems) and our strategic partner, STFC Hartree Centre, which boasts high-performance computing and big data capabilities.
- **Industry-leading:** Capacity to foster innovation, collaboration and new technologies development and deployment through our novel Sandpit model.
- **Complete service:** Bespoke solutions from product development and implementation to training and customer support.