

Bridging Industry-to-Beamline through an Advanced Laboratory-Based Characterisation Facility

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The Pilot Regional Centre -----Wales-----

The Science and Technology Facilities Council (STFC) is a world leading multidisciplinary science and technology organisation. Its facilities provide a range of research techniques using neutrons, muons, lasers and x-rays, and high performance computing and complex analysis of large data sets. In Wales, a regional pilot beamline-bridging centre, a partnership between an academic institution (Swansea University) and a research and technology organization (RTO, TWI Wales) has been setup to develop new relationships with industry partners in the region, leading to new engagements with STFC facilities, in particular Diamond Light Source and ISIS Neutron and Muon Source, the Central Laser Facility, and Hartree Data Centre.

Engagement Point (AIM)

The lab-based facilities at Swansea University Advanced Imaging of Materials (AIM) Facility and TWI Wales include numerous X-ray, light, and electron microscopy, non-destructive evaluation, and characterisation techniques. These will be used to carry out proof-of-concept work with local industry, and identifying need for STFC facilities.

Relationship with Industry

Throughout the process, before, during, and after use of STFC facilities, the Regional Centre maintains contact with the industrial partner, assisting in experimental design, data capture, data processing and analysis. This contact continues through to tracking the impact of the work on the business.

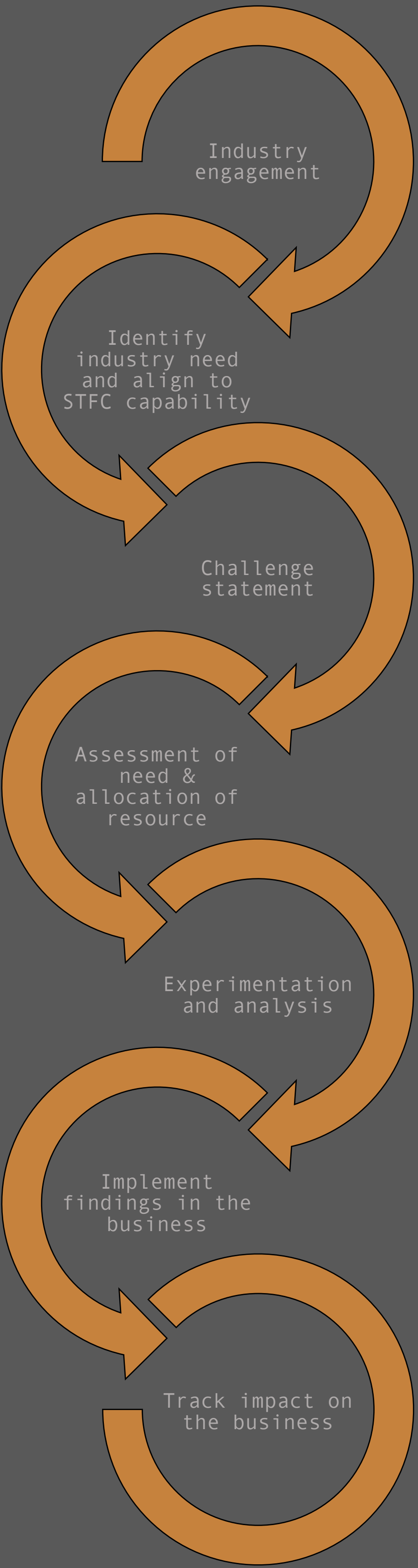
Common Pathways

- The pilot project has identified a few routes to engagement with industry in Wales.
- Current and previous industry users and partners of AIM and TWI.
 - Industry-focused postgraduate projects at Swansea University. The Postgraduate researchers are aware of the capabilities within AIM, and are well placed to lead a project linking to STFC facilities.
 - European-funded industry engagement/support projects assist companies locally, but when these capability limits are reached, STFC capabilities can meet the demand.
 - Work-based learning projects run via the university to upskill industry, who discuss their challenges with the Regional Centre team.
 - Welsh Government Innovation Specialists team.

STFC Regional Centre Wales
- Linked to the Advanced Imaging of Materials (AIM) Facility at Swansea University, and TWI Wales

The Application Process

The Regional Centre assist industry partners in completing a light-touch application process for access to STFC facilities, demonstrating the need, technical information, and impact on the company.



Challenges

- Reaching industry, and translating the complex and diverse capabilities that STFC has to offer.
- Providing enough support to identify the industry challenge in context, and to match with STFC capabilities.
- Supporting the companies throughout the process, as they are often small-to-medium enterprises, without vast resources and technical/scientific expertise available to devote to a project.
- Implementation of results in the business and tracking the impact.

Examples

- Artificial intelligence software company requiring high-performance computing
- Corrosion build-up *in-situ* (replicating service conditions)
- Residual stress development in metallic parts

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