DISCOVERY

The purpose of the Royce Discovery Centre (RDC) is to take materials and processing concepts, and develop them from basic principles through analytical and experimental processes with the aim of proving the concept in terms of feasibility and applicability for industrial use.

In order to achieve this, we draw on the expertise present within the Department of Materials Science and Engineering at the University of Sheffield, along with that of equipment and materials manufacturers. This allows us to understand the potential of what is possible, and investigate how this can be fully realised in an industrial setting.

Particular strengths of the Department are:
- Alloy development
- Additive manufactured part design and optimisation
- Microstructural modelling
- Materials characterisation and testing
The Royce Translational Centre (RTC) has been set up to evolve novel materials and processing techniques developed by research teams and make them accessible for trial by industry.

We are giving companies the opportunity to investigate the feasibility of investigating new technologies for their business without the need to invest in capital equipment.

Businesses operating in the manufacturing and engineering supply and value chain will be able to assess the emerging technologies, make a measured assessment of the applicability of, and threats to, their existing markets that these advances present and drive specific research activities that have a direct benefit to them.

For some, this opens up R&D options that would previously have been inaccessible. For others, the facility enables them to perform speculative research so that in-house research facilities can remain focused on processes that are closer to market.

Once proven, companies can invest in these manufacturing processes with the confidence that they will add value to their business and their customers.

Part funded by the
The manufacturing and processing of materials to form components is one of the largest industrial sectors. In metal processing it alone accounts for 46% of all manufactured value, with an economic worth of £1.3 trillion in Europe. Manufacturing processes that offer low-volume, low-waste methods for producing high performance components are starting to supersede traditional metals processing techniques.

The benefits of Near Net Shape and agile manufacturing are clear:

• Reduced material waste compared with subtractive methods
• Superior products with complex internal structures - add strength, reduce weight, increase functionality, easier maintenance
• Open design products created by communities of end users
• Ability to produce customised parts in small batches at low cost
• Quicker time to market - faster design and prototyping cycles, and elimination of other traditional manufacturing steps, e.g. transportation, tooling and assembly
• Greater competition - lower barriers to entry
• Smaller, less costly more agile supply chains

By investing in state-of-the art equipment, we are able to investigate, develop and prove materials and processes that will become the standards for the next generation of manufacturing, and help our partners add value to their services in the future.