

Creative thinking

A network of university centres aims to develop innovative technology that will create jobs and maybe even whole new industrial sectors

By **Heath Reidy**

Pioneering research has for a long time been one of the pinnacle strengths of the UK, which is, after all, home to some of the world's leading universities. And a series of centres at some of those universities has been set up specifically to research areas that can strengthen manufacturing industry.

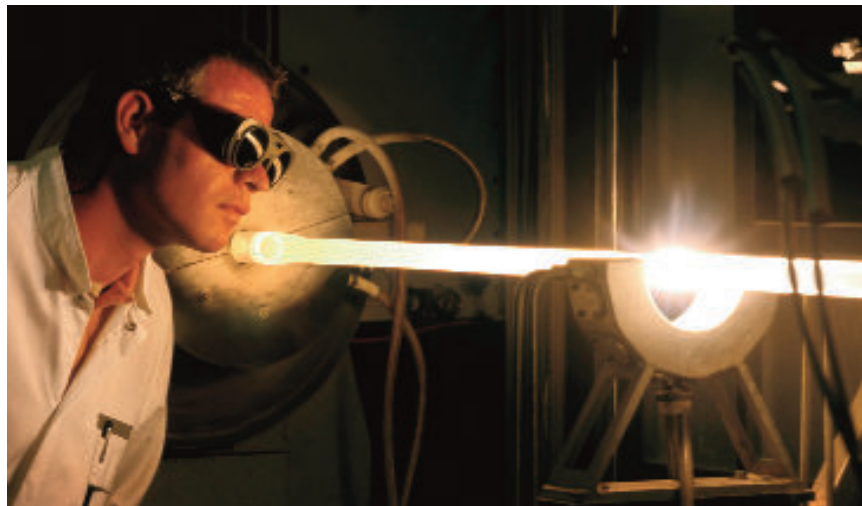
Under the steady umbrella of the Engineering and Physical Sciences Research Council (EPSRC), the 16 Innovative Manufacturing Research Centres aim to develop sustainable, low-carbon, cost-effective manufacturing technologies.

Three new centres, with a slightly new name, the EPSRC Centres for Innovative Manufacturing, were set up in January. The trio specialises in: photonics at Southampton University; regenerative medicine at Loughborough University; and liquid metal engineering at Brunel University. The research council has given £5 million funding to each new centre.

The first Innovative Manufacturing Research Centres were set up in 2001, primarily to act as leaders in their specialised areas, driving forward the research agenda. Emma Feltham, head of business relationships at the EPSRC, was involved in helping to set up the centres. She says their objectives were to "create, deliver, disseminate and exploit a coherent and unified programme of novel user-led research in innovative manufacturing, to generate significant world-class new knowledge and provide strong support to the UK manufacturing sector".

One decade on and that goal hasn't changed. "The drive still is to make sure that innovative manufacturing research is being done in a way that is relevant and can be picked up by industry," she says.

But other things have changed quite a bit over the past decade. There is the issue of



Focus on innovation: Research centres aim to shed new light on manufacturing technologies

Recycling efforts could be worth billions

Brunel University's £9 million EPSRC Centre for Innovative Manufacturing in Liquid Metal Engineering will research advanced technologies to allow industry to reuse, remanufacture and recycle metals. The idea is to come up with techniques that are cost effective, reduce energy use, and will be embraced by industry.

Professor Zhongyun Fan, who leads the centre at Brunel, says: "Our task isn't simply to develop advanced manufacturing technologies – it's also to stimulate new attitudes to metals within industry, at government level and throughout society."

The centre's goal is to move away from what the EPSRC describes as "resource-hungry manufacturing methods that swallow up vast amounts of primary ores and raw materials" and instead steer towards reusing metals that are already in circulation. In parallel with this, the centre will explore ways of optimising processes for transforming metallic materials from a liquid to a solid state.

Researchers at the centre are collaborating with 15 industrial partners.

Fan says: "Our work could help generate billions of pounds worth of benefits for the economy over the next 10-20 years."

skills shortages, carbon emissions and, lest we forget, the recession that has battered Britain recently. The new research centres aim to assist in these areas, by pioneering technologies to underpin the manufacturing sector, creating industries and job opportunities along the way.

There are no limits to what technologies can be researched at a centre. In fact, the more innovative the research the better, says Feltham. The latest three centres were selected for funding because they

impressed the EPSRC peer reviewers with their proposals to fill gaps in the research coverage of the existing centres. The work of the new centres will range from Loughborough's idea of helping the medical sector to save lives with regenerative medicines that repair damaged tissues and organs, to Brunel's mission to develop recycled lightweight metal components for the automotive industry.

Feltham says: "We know that the part of manufacturing that is really important is the high-value stuff. If you have got really innovative ideas coming through then that will keep us ahead of our competition."

The centres are mainly funded by the EPSRC but also by industry. The idea is that companies work with a centre and fund projects that they are interested in and can develop into marketable products. More than 800 companies are now working with the centres, including Arup, BAE Systems, Ford and Rolls-Royce. The EPSRC aims to encourage more companies to support the centres in the future.

Meanwhile, the research council is preparing to add several more centres to its already impressive list next year. But Feltham says that it probably won't be able to support a centre at every university in the UK. Instead she hopes that the EPSRC will support those parts of manufacturing industry that will be particularly beneficial to Britain in the future, while acting as a "national resource".

"I'd like us to be able to support and underpin the areas of manufacturing that are going to be really important for the economy in the long term," she says. ?