Issue 01
JUNE 2011

# HVM technology and innovation centre news

Newsletter of the High Value Manufacturing technology and innovation centre

Technology Strategy Board
Driving Innovation

*Will Barton (Technology Strategy Board) and consortium representatives sign the Memorandum of Understanding*

## Investing in the future

*In October 2010, the Prime Minister announced that over £200m will be invested in a network of elite technology and innovation centres, to be established and overseen by the Technology Strategy Board. These centres will be an important part of the UK's innovation system. They will allow businesses to access equipment and expertise that would otherwise be out of reach.*

*They will also help businesses access new funding streams and point them towards the potential of emerging technologies. They will bridge the gap between universities and businesses, helping to commercialise the outputs of Britain's world-class research base. The technology and innovation centres' programme is creating a vital resource which will help to drive economic growth by enhancing innovation in specific technology areas for years to come.*

## October launch for first technology and innovation centre

On March 17th the first technology and innovation centre was announced, to focus on high value manufacturing.

Seven partners, with expertise in different areas of high value manufacturing, will work together to form the new technology and innovation centre. The partners are the Advanced Forming Research Centre (University of Strathclyde), Advanced Manufacturing Research Centre (University of Sheffield), Centre for Process Innovation (Wilton & Sedgefield), Manufacturing Technology Centre (Universities of Birmingham, Loughborough and Nottingham and TWI Limited), National Composites Centre (University of Bristol), Nuclear Advanced Manufacturing Research Centre (University of Sheffield) and the Warwick Manufacturing Group (University of Warwick).

The new centre will provide open access to technologies to SMEs as well as to global companies. The new centre will provide an integrated capability and embrace all forms of manufacture using metals and composites, in addition to process manufacturing technologies and bio-processing. The high value manufacturing technology and innovation centre

Over the period up to October 2011, the partners have committed, via a memorandum of understanding, to work to:

- Develop a strategic framework of markets, industries and technologies which will guide the direction of the Centre. This work will be conducted in conjunction with the Institute for Manufacturing, University of Cambridge
- Establish the company limited by guarantee which will provide the central focus for the consortium
- Put in place the supporting legal agreements
- Start recruitment of key personnel
- Agree a business plan and establish the grant funding mechanism

The centre is expected to be formally launched in October 2011.

This newsletter keeps you informed about the development of the first of these centres, in High Value Manufacturing. In each issue we profile one of the constituent members of the new centre - starting this month with the Advanced Forming Research Centre at the University of Strathclyde.

University of Strathclyde Glasgow Advanced Forming Research Centre
The University of Sheffield. Advanced Manufacturing Research Centre
BOEING
cpi ...the future inspired
mtc Manufacturing Technology Centre
NATIONAL COMPOSITES CENTRE
NUCLEAR AMRC
WMG Innovative Solutions

## CONSORTIUM MEMBERS

**Advanced Forming Research Centre**
Location: *Glasgow*
Key Competencies: *Billet forging / sheet forming / precision forging*
Contact: *Bill Ion*
w.j.ion@strath.ac.uk

**Advanced Manufacturing Research Centre**
Location: *Sheffield*
Key Competencies: *Machining / materials and component testing / hybrid & metallic composites / assembly*
Contact: *Keith Ridgway*
k.ridgway@sheffield.ac.uk

**Centre for Process Innovation**
Location: *Wilton, Redcar*
Key Competencies: *Printable Electronics / Chemical Processing / Biotechnology*
Contact: *Graham Hillier*
graham.hillier@uk-cpi.com

**Manufacturing Technology Centre**
Location: *Coventry*
Key Competencies: *Automation & Tooling / fabrication, joining & assembly / additive & net shape / process modelling*
Contact: *Clive Hickman*
clive.hickman@the-mtc.org

**National Composites Centre**
Location: *Bristol*
Key Competencies: *Composites manufacture*
Contact: *Peter Chivers*
Peter.Chivers@nationalcompositescentre.co.uk

**Nuclear Advanced Manufacturing Research Centre**
Location: *Sheffield*
Key Competencies: *Fabrication of Civil Nuclear components*
Contact: *Stephen Court*
stephen.court@namrc.co.uk

**Warwick Manufacturing Group**
Location: *Coventry*
Key Competencies: *Lightweight product system optimisation /Energy storage and management / Digital verification and validation*
Contact: Dave Mullins
David.Mullins@warwick.ac.uk

A number of centres also offer competencies in: *Measurement & verification / Cost Modelling / Design & Manufacturing Systems / Materials Analysis*

*In each issue we profile one member of the consortium*

# Partner Spotlight:
# Advanced Forming Research Centre
## University of Strathclyde


The Advanced Forming Research Centre (AFRC) is a collaborative venture between the University of Strathclyde, Scottish Enterprise, the Scottish Government and internationally renowned engineering firms including Rolls-Royce, Boeing, Mettis Aerospace, TIMET, Aubert & Duval and Barnes Aerospace.

Formally opened in January 2011 by HRH the Duke of York, the AFRC represents a total investment of £30M over 5 years.

The Centre undertakes fundamental and applied research, and develops cutting-edge forming and forging techniques to support manufacturing processes in the aerospace, energy, marine and automobile industries.

*Key manufacturing challenges:*

**Tighter tolerances:** Plant monitoring, control and robotics.

**Longer die life:** Improved die design and use.

**Lubrication:** Investigating mechanisms and improved lubricants.

**Improved models:** Microstructure, properties and probabilistic methods.

## A beacon for excellence

The AFRC is housed in a purpose built facility, combining workshops, production scale machinery and laboratories to conduct research experimentation, in order to generate and exploit valid and industrially relevant results. Equipment includes:

- Industrial forming machines, including screw and hydraulic, servo and super plastic forming presses.
- State-of-the-art laboratory including metrology and metallurgy.
- Workshops with electro-mechanical and high performance computing simulation facility.

The Centre commenced operations in August 2009 and moved into the building in June 2010.

Professor Jim McDonald, Principal of the University of Strathclyde, commented: "The AFRC will cement Scotland's global reputation for excellence in engineering, and is already receiving demand for research from around the world. The collaborative approach between the University, Scottish Enterprise and leading engineering companies will enable us to be at the forefront of innovation in the high-value manufacturing sector, while making a significant contribution to the wider economy."

Providing industrial scale forming machines embedded in a research infrastructure, the AFRC will be a beacon for engineering and manufacturing excellence all housed in a high quality, purpose-built facility designed to reflect the status of this internationally significant research centre.

Stephen Burgess of Rolls-Royce , Chair of the AFRC Board, explained: "The innovative processes developed at this centre will help transform the competitiveness of manufacturing companies at a local, national and international level."

AFRC welcomes enquiries from companies large and small who need our expertise and resources in forming and forging and who are interested in collaboration.

The Centre is located on the Inchinnan Business Park, which is close to Glasgow Airport.

## CONTACT AFRC:

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*For enquiries about the overall programme of technology and innovation centres please contact centres@tsb.gov.uk*