

**Conference Report – 1<sup>st</sup> EPSRC Manufacturing The Future Conference – 19<sup>th</sup> – 20<sup>th</sup> Sep 2012 – Holywell Park Conference Centre, Loughborough, UK**

**Overview**

As the first conference of its kind for the EPSRC, the Manufacturing The Future Conference served to bring together the diverse range of academic centres, companies and innovation schemes that are connected to the EPSRC. Key focuses of the conference were around the state of British manufacturing and showcasing potential for the future (such as the high degrees of innovation shown in some of the individual presentations). At the centre of this was a presentation by Michael Kitson, of Cambridge University, on the importance of manufacturing and the visit of MP David Willets, the Minister for Universities and Science.

A 2<sup>nd</sup> incarnation of this conference will be held at Cranfield University on 17<sup>th</sup> – 18<sup>th</sup> Sep 2013.

**Plenaries Summary (for other presentations see abstracts booklet):**

***'The economics of why manufacturing matters'* – Michael Kitson, University of Cambridge, UK**

Michael Kitson, an economist, gave a plenary lecture around the manufacturing decline in the UK (and significant move towards a service based economy) and the problems associated with this in the long term. Manufacturing, which has declined to only 10% of the share of UK economic output (from 35% in 1970) was not seen to be a problem until recently.

He highlighted that a key issue is that a large number of economists do not recognise this → often citing reasons such as a) de-industrialisation is common feature of advanced economies b) comparative advantage c) consumers demand more services when richer d) the UK has structurally changed and reclassified itself.

He presented a number of counter arguments in favour of manufacturing, such as the fact that manufacturing is inherently more 'productive' than services → outputs per employee are greater. As a result manufacturing is an 'engine' of growth, important source of exports and is the source of positive 'spill-overs' to other sectors. As a result it can deliver increased GDP and could help rebalance the trade deficit issue that the UK has increasingly had for the last 25 years which has resulted in more and more borrowing and is not sustainable.

He finished on the discussion of 'industrial policy' or lack thereof historically in government as plans to strengthen manufacturing and innovation bases are inherently long term policies. He also discussed the need for the UK to compete on the innovative, high technology end.

<http://www.jbs.cam.ac.uk/research/faculty/kitsonm.html>

**Visit and address of David Willets, Cabinet Minister for Universities and Science**

A short address by David Willets was a timely follow up to the previous plenary on the importance of manufacturing. A key announcement in the speech was a new £14.1 million grant towards 5 new EPSRC manufacturing centres (see link below):

<http://www.epsrc.ac.uk/newsevents/news/2012/Pages/futuremanufacturing.aspx>

The speech also outlined some of the key areas of industrial strategy that the government are aiming to pursue, see article below for more details:

<http://www.bis.gov.uk/news/speeches/vince-cable-industrial-strategy-september-2012>

**'Manufacturing Research, The Industrial Context and Requirement' – Rick Parker, Rolls Royce, UK**

Rick Parker discussed Rolls Royce's activities in innovation, research and development. See following link for examples;

<http://www.theengineer.co.uk/in-depth/rolls-royce-technology-chief-ric-parker/311593.article>

**'Future Manufacturing Challenge, Fraunhofer and Working with Industry' – Thomas Bauernhansl, Fraunhofer-IPA, Stuttgart, Germany**

Thomas Bauernhansl's plenary looked at the role of institutions such as Fraunhofer in the innovation system. Fraunhofer receives roughly a parity balance of public and private funding but more importantly aims to 'bridge the gap' between academic research and industrial implementation.

As with many of the day's speakers, technology readiness levels (TRLs) were discussed. These range from 1 (initial 'blue-sky' research) through to 9 (industrially implemented). Stages 5-6 are often critical and can be the make or break of a project/product etc → Fraunhofer aim to focus around this area and will help a range of companies in that stage of development. There is a strong industrial contract approach at the institution and typical projects are ½ to 1 year in length to develop

[http://www.ipa.fraunhofer.de/IFF\\_at\\_the\\_University\\_of\\_Stuttgart.31.0.html?&L=2&no\\_cache=1&sword\\_list%5B%5D=bauernhansl](http://www.ipa.fraunhofer.de/IFF_at_the_University_of_Stuttgart.31.0.html?&L=2&no_cache=1&sword_list%5B%5D=bauernhansl)

**'Emerging manufacturing systems: micro and desktop factories' – Reijo Tuokko, Tampere University, Finland**

Reijo Tuokko gave an overview of current global activities in this area, in particular at his university's department of production engineering.

<http://www.tut.fi/en/units/departments/production-engineering/>

**'The Manufacturing Fellows' – Peter Foote (Cranfield University, UK) and Geoffrey Nash (University of Exeter, UK)**

Both speakers (links to respective university pages shown below) gave talks on emerging technologies and developments, for example, in the case of Geoffrey Nash, the study and application of materials such as graphene were discussed.

<http://emps.exeter.ac.uk/engineering/staff/grn201>

<http://www.cranfield.ac.uk/sas/aboutus/staff/footep.html>

**Further reading (displays at poster session):**

1. **Association of Engineering Doctorates (AEngD):** <http://www.aengd.org.uk/> - Site covering most Engineering Doctorate Centres with information such as events, knowledge share etc. – individuals can sign up to this site.
2. **Other EngD Centres:**
  - a. **Centre for Manufacturing Technology – University of Nottingham:** [www.manufacturingdc.ac.uk](http://www.manufacturingdc.ac.uk)
  - b. **Centre for Innovative and Collaborative Construction Engineering – Loughborough University:** [www.cice.org.uk](http://www.cice.org.uk)
3. **EPSRC Centre for Innovative Manufacturing in Industrial Sustainability:** <http://www.industrialsustainability.org/> - Recently formed centre with a number of sustainability based projects at Cambridge, Loughborough, Cranfield and Imperial College Universities
4. **UK Department for Business, Innovation and Skills (BIS):** <http://www.bis.gov.uk/>