

## DEBATE SUMMARY

The Hauser Review of the Catapult Network

Held at The Royal Society on 12<sup>th</sup> November, 2014.

The Foundation is grateful to the Comino Foundation, the ERA Foundation, the Lloyd's Register Group, McLaren Racing Ltd, the Institution of Mechanical Engineers, Jisc and the Michael John Trust for supporting this debate.

The hash tag for this debate is #fstcatapultcentres .

**Chair:**           **The Earl of Selborne GBE FRS**  
Chairman, The Foundation for Science and Technology

**Speakers:**   **Dr Hermann Hauser CBE FRS FREng FInstP**  
Co-Founder Amadeus Capital and Chair of the Hauser Review of the Catapult Network  
**Simon Edmonds**  
Director, Catapult Programme, Innovate UK  
**Adrian Allen OBE**  
Commercial Director,  
University of Sheffield Advanced Manufacturing Research Centre (AMRC)

DR HAUSER said that the UK was a world leader in technology (with four out of the world's top ten universities and a citations record second only to that of the USA) but on spending to translate knowledge into successful commercialisation the UK was a laggard, spending no more than a small country like Finland. The Catapult Centre (CC) network, launched in 2010, aimed to provide a business focused infrastructure to bridge the gap between research and industry. The initiative had been inspired by, but was not intended to be a copy of, the huge and growing network in Germany of Fraunhofer Society Institutes, which have played a major role in the success of Germany's manufacturing industry particularly through work with the Mittelstand. The UK CCs were led by people from industry (already the CCs had succeeded in attracting outstandingly talented teams and leaders) whereas the German centres were led by professors.

Already seven CCs had been created, operating in thirteen locations across the UK. Two more CCs were in the pipeline. Although initially the bulk of funding came from the taxpayer (through Innovate UK formerly the Technology Strategy Board), the plan was that the centres should be funded one third by industry, one third by Government and one third from contracts and projects won in open competition. Dr Hauser said that his review report recommended that, based on the current criteria, a further one or two CCs should be created per year so that by 2030 there would be thirty CCs. This could not be achieved unless the Innovate UK budget was doubled to about £1 billion per year by 2020. The current criteria for choosing themes for CCs were (a) a large global market to exploit, (b) a UK global lead in research capability, (c) a platform technology

capable of benefitting many companies and (d) an exploitation strategy which would benefit UK plc. He stressed that the aim should not be for 100 per cent of the commercial benefit to accrue to the UK but for the UK to ensure that it retained those parts of the value chain which had the highest added value. ARM was a good example of exploiting value in this way. ARM captured the value of chip design but left manufacture to others.

Dr Hauser gave a brief overview of some of the achievements to date of each of the seven CCs and then listed some of the possible future themes for which CCs might be appropriate: healthcare (a possible \$1 trillion market), personalised medicine, the Internet of Things and machine learning. He believed that machine learning could have a major disruptive effect on our lives; machines could now learn faster and better than human beings.

SIMON EDMONDS said that the background to the 2010 CC initiative had been the contrast between the UK's strengths in research, in inventiveness and in a number of global businesses and its weakness in transferring technology from centres of research to businesses. A lack of Government support for technology transfer and privatisation of large research laboratories had led to a major gap in the support for research exploitation. The UK had suffered from sustained and long-term under-investment in public and private research and development and publicly funded innovation; in the UK investment had been static for decades whereas in most other competing nations it had been increasing.

There were weaknesses in the UK's talent base, especially in STEM (science, technology, engineering and mathematics) skills and management skills. He welcomed the boldness of the Government's continuing financial commitment to the CC network despite its overriding concern to bring public expenditure under control. He listed some of the major challenges with which the initiative would be faced if it was to deliver its potential and expand as proposed in the Hauser Review: finding the right location for new CCs (decisions should not be driven by regional policy considerations); finding the right chairman and chief executive for new CCs; engaging greater involvement of small and medium enterprises and universities with the CC network; creating a pipeline of new CCs to achieve the thirty by 2030 target set by the Review; and finding the right funding model for a bigger and more ambitious network. He did not favour the Australian approach which required the equivalent of CCs to be self-sustaining after four years.

ADRIAN ALLEN described his experience of developing a successful long-term industrial partnership in research – a ten year story beginning with a small business and culminating in the University of Sheffield Advanced Manufacturing Research Centre (AMRC) in Rotherham which now formed part of the High Value Manufacturing Catapult. 1,000 direct jobs had been created.

The AMRC founders persuaded the Boeing company to invest some of its global R & D spend in a centre, located on the site of an ex-slag heap and based on university-led innovation developed with local industry. His motivation had been to find a way of harnessing modern technology to create new jobs in modern manufacturing. He had witnessed in Sheffield how innovative technology had led to the destruction of thousands of jobs based on traditional manufacturing. His experience had shown that the new tools and machines which reduced jobs also generated cost savings and global competitive advantage which could result in major new job opportunities. Such results could not be achieved without vision combined with capacity, capability and commitment. It was important to develop a collaborative approach, identifying those areas where the interests of universities, government, industry and workers coincided. He commented that "universities" should not be taken as just the big old institutions; he thought that the Baker/Dearing University Technical Colleges could be valuable collaborators for CCs.

In the discussion periods before and after the dinner interval, many contributions focused on location issues, the relationship between CCs and Research and Technology Organisations (RTOs), gender issues and performance measurement.

On location one participant commented on the regrettable absence of CCs in the South West, in Wales and in Northern Ireland. But others, including the Panel, stressed the importance of ensuring that CCs were placed where they could

achieve excellence and maximum subsequent commercial benefits. The longer-term potential for new jobs created by successful commercial exploitation facilitated by CCs was likely to be far greater than the shorter-term jobs created by the CCs themselves. It was argued that innovation prospered best in clusters and that clusters took a very long time to mature. Successful clusters emerged in locations where there was a cultural readiness on the part of academics to engage with commerce and industry and where commerce and industry were culturally disposed to set aside prejudice and be open to innovation and collaboration.

On RTOs the remarks of a number of speakers indicated some concern that CCs might undermine the important contribution still being made by RTOs to the elimination of the "translation gap" and that the CC initiative might prove to be yet another example of a confusing and undesirable proliferation of government initiatives. And there were voices challenging the suggestion that the privatisation of RTOs had diminished that contribution. But, it was also argued that there could be mutually beneficial collaboration between RTOs and CCs.

On gender issues, some speakers challenged whether the CCs management adequately reflected the gender balance of the UK. There were no women at the leadership level although women held non-executive positions at board level. At executive level the position was less male-dominated. Although recruitment processes were open, the Panel acknowledged that it would be desirable for CCs to recruit more women at a senior level.

On performance measures some speakers questioned whether the evidence for judging the benefits claimed for CCs was available. The Panel acknowledged that, although some of the seven CCs had scored some important successes, and, although all seven were equipped with high quality staff people and infrastructure, the initiative was still relatively new and so "the jury was still out". The Hauser Review made an important recommendation that Key Performance Indicators should be agreed. The aim had to be to devise measures which would give the CCs the right goals and incentives while still ensuring that they worked ahead of the market. And, if continued funding support from both Government and industry was to be assured, the CCs needed to have soon the hard evidence to demonstrate their value and confirm their success compared to other options for exploiting research.

Other points made in the discussion periods were:

- 1 That intellectual property issues (which can be a big concern of universities) must not be allowed to impede the work of CCs to facilitate successful innovation and commercial exploitation;
- 2 There appeared at present to be cross-party political support for CCs. For a long-term initiative of this kind, it was vital that such support was maintained;

3 The CCs were making a valuable contribution to skills training through apprenticeships. And university research students were working in CCs and being supervised by CCs;

4 There were areas of UK commercial strength, such as the Food and Drink industry, which could benefit from a CC but the absence of a strong academic base in that area could be a problem. However, it was pointed out that the High Value

Manufacturing Catapult already did work of benefit to the food sector;

5 Collaboration between the CCs and the Research Councils was working well and was important for all parties.

Sir John Caines KCB

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Open the summary with Adobe Reader outside the browser and click on the URL to go to the sites below.

### **Hauser Review of the Catapult network**

Recommendations on the future shape, scope and ambition of the programme

Dr Hermann Hauser CBE FRS FREng FInstP

[www.gov.uk/government/news/hauser-report-calls-for-long-term-expansion-of-catapult-network](http://www.gov.uk/government/news/hauser-report-calls-for-long-term-expansion-of-catapult-network)

### **The Catapult Centres**

Video - Catapult Overview 2014

[www.vimeo.com/110737184](http://www.vimeo.com/110737184)

Catapult Centre Network

[www.catapult.org.uk](http://www.catapult.org.uk)

Cell Therapy Catapult

[www.ct.catapult.org.uk](http://www.ct.catapult.org.uk)

Connected Digital Economy Catapult

[www.cde.catapult.org.uk](http://www.cde.catapult.org.uk)

Future Cities Catapult

[www.futurecities.catapult.org.uk](http://www.futurecities.catapult.org.uk)

High Value Manufacturing Catapult

[www.hvm.catapult.org.uk](http://www.hvm.catapult.org.uk)

Offshore Renewable Energy Catapult

[www.ore.catapult.org.uk](http://www.ore.catapult.org.uk)

Satellite Applications Catapult

[www.sa.catapult.org.uk](http://www.sa.catapult.org.uk)

Transport Systems Catapult Ltd

[www.ts.catapult.org.uk](http://www.ts.catapult.org.uk)

### **Other URLs**

Innovate UK

[www.gov.uk/government/organisations/innovate-uk](http://www.gov.uk/government/organisations/innovate-uk)

University of Sheffield Advanced Manufacturing Research Centre (AMRC)

[www.amrc.co.uk](http://www.amrc.co.uk)

Building Research Establishment (BRE Group)

[www.bre.co.uk](http://www.bre.co.uk)

Comino Foundation

[www.cominofoundation.org.uk](http://www.cominofoundation.org.uk)

ERA Foundation

[www.erafoundation.org](http://www.erafoundation.org)

The Foundation for Science and Technology  
[www.foundation.org.uk](http://www.foundation.org.uk)

Lloyd's Register  
[www.lr.org](http://www.lr.org)

Institution of Mechanical Engineers  
[www.imeche.org](http://www.imeche.org)

Jisc  
[www.jisc.ac.uk](http://www.jisc.ac.uk)

McLaren Racing Ltd  
[www.mclaren.com](http://www.mclaren.com)

Rothamsted Research  
[www.rothamsted.ac.uk](http://www.rothamsted.ac.uk)

Royal Academy of Engineering  
[www.raeng.org.uk](http://www.raeng.org.uk)

The Royal Society  
[www.royalsociety.org](http://www.royalsociety.org)

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