

New Olympic innovation initiative championed by ICE London

Delivery of London's 2012 Olympics is the catalyst for a new UK technology innovation initiative, the engineering and construction part of which is being championed by the Institution of Civil Engineers. London region director **Jacki Bell** reports.

The London region of the Institution of Civil Engineers (ICE) is representing the engineering and construction industry in a new science and technology innovation initiative called the London SciTech Challenges.¹

Supported by the London Development Agency, the initiative is using delivery of the London 2012 Olympic and Paralympic Games as a catalyst to stimulate relationships between the city's small-to-medium-sized enterprises (SMEs) and London universities.

ICE was approached as the organisation best able to represent and collect information from the engineering and construction sector. With 80 000 members worldwide and 8000 in the greater London area alone, ICE was seen as providing a strong voice for the civil engineering and related professions.

Two challenges per sector

The six innovation sectors and their champions chosen by SciTech Challenges are

- athletic performance, sport and health—championed by UK Sport
- media and broadcasting—championed by the BBC



Innovation challenges for the engineering and construction sector are to maximise thermal mass of Olympic stadium buildings and use information and communication technology as a driver for change

- engineering and construction—championed by ICE
- food technology and distribution—championed by Sustain
- environmental legacy—championed by London Sustainability Exchange
- research and monitoring devices—championed by the National Physical Laboratory.

Each sector has provided two challenges on which SMEs and universities can work together to produce solutions. ICE's challenges for the engineering and construction sector are as follows.

- To develop a means of widespread (Olympic park-wide) utilisation of thermal mass of buildings and stadiums to avoid summer air conditioning and winter heating.
- To apply information and communication technology (ICT) as drivers of change in the construction industry and the built environment.

Thermal mass and ICT

The premise for the first challenge is that the Olympic Delivery Authority has stated 2012 will be the most sustainable games ever. The venues and infrastructure will create a longer-term legacy than any other aspect and are also where the greatest innovation challenges lie. Meeting those challenges will stretch the engineering and construction industry's ability to provide the most sustainable infrastructure possible.

Achieving a sustainable environment for the games will necessitate creation of infrastructure that requires as little energy as possible in construction, operation and maintenance. Developing buildings with effective retention of heat and that are able to self-regulate in an energy-efficient way makes both economic and environmental sense as well as going a long way to meeting government energy efficiency targets. The range of structures needed to hold a large event such as an Olympics represents a real challenge in making thermal mass technol-

ogy as adaptable as possible.

Regarding the second challenge, development of sustainable infrastructure not only requires innovation in use of materials but also innovation in the way structures are monitored and operated in the future. An alternative way to improve self-regulation of energy in advanced building construction is to develop ICT systems that more efficiently control the use of energy sources in intelligent buildings.

Results showcased in 2009

Engineering and construction companies had to submit their responses to the two challenges by 14 July 2008. They were then linked to the most relevant academic institutions to help take their ideas forward. These include Brunel University, City University London, Imperial College London, University College London and the University of East London

The results of these collaborations will then be reviewed by the partner organisations and assessed in November 2008, to be followed by an exhibition in February 2009. It is then hoped that SciTech Challenges will be rolled out to the rest of the UK in an ongoing project to realise the opportunity 2012 presents in developing design and technology.

It has been a difficult task to identify innovation challenges for the engineering and construction industry as most of the profession's innovation is delivered through improved procurement and construction processes.

With climate change becoming an increasingly urgent issue, however, ICE wants to see a greater use of environmental efficiency and design in future infrastructure, and looks forward to the contribution that SciTech Challenges can make to this.

Reference

1. See <http://www.scitechchallenges.com> (last accessed June 2008).

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