An Introduction to the Digital Engineering and Test Centre

Scope

This document outlines the background to the Digital Engineering and Test Centre ("DETC"); how and why it came about; its vision; and method of operation.

It should provide the reader with an adequate introduction to the DETC before they approach the DETC with an interest in collaborating in the centre's work, or before continuing on to read any of the other official contractual DETC documents.

Requirement

The need for a facility to coordinate digital engineering and test for the UK automotive sector (on- and off-road) has come about for several reasons, including

- The ever-pressing need for cheaper and quicker testing and validation of ever more complex vehicle electronics and software systems, controlling ever more safety-related functions;
- The growth and availability of the digital; gaming; and Big Data technologies in offering the potential to bring new practices; computing platforms; and technologies (for example virtual-reality and augmented reality) into automotive to help solve product design and manufacturing challenges;
- The potential for gamification techniques to help improve manufacturing processes; and
- The opportunity to link current digital tools (simulation, CAD, CAE, etc) together to improve productivity and streamline the design process

Vision of the DETC

To halve the time and cost of the development and validation of advanced propulsion systems

Mission

To be an industry-led UK centre for excellence, open to all, where industry and academia work collaboratively to drive innovations in product development and manufacturing of next generation propulsion systems using digital tools and techniques.

Objectives

- To integrate and enhance state-of-the-art digital tools and techniques to accelerate the rapid introduction of next generation propulsion systems to the market
- To provide the automotive sector with a unique resource, combining facilities and expertise, capitalising on the link between industry and academia
- To connect through the Here East development to London's wider digital economy including the gaming industry
- To be a catalyst for innovation, inward investment and high value job creation

The objective of the DETC is to become a globally recognized centre for digital engineering and testing by developing and providing an underpinning capability in these areas aligned to the

Automotive Council strategic technologies in powertrain, as well as Intelligent Mobility and advanced manufacturing processes for automotive.

The centre will develop and use virtual engineering tools and techniques to accelerate the development, test, and manufacture of automotive propulsion systems. As a Spoke of the Advanced Propulsion Centre ("APC"), the DETC also brings specific functional, technological and regional capability to the APC network helping to deliver the reality of a Propulsion Nation. The Centre is co-located with the APC London office and the High Speed Sustainable Manufacturing Institute ("HSSMI") on the Loughborough University ("LU") London campus on the Queen Elizabeth Olympic Park, and will be a destination for VIPs visiting London with an impressive technology showcase of the centre's work in digital engineering.

Notification

The DETC is a collaborative project between, and jointly administered by, LU and the HSSMI. LU has been selected by the Department for Business, Energy, and Industrial Strategy ("BEIS") to be awarded grant funding towards the running costs of the DETC, as an APC Spoke. HSSMI is a not-for-profit research and development organisation.

Governance and Finance

The DETC is directed strategically by an Advisory Board ("AB") comprising senior stakeholders from both industry and academia. The composition and remit of the AB is contained in the AB Terms of Reference.

The DETC also has management oversight from a Management Board ("MB") which comprises representatives of LU (grant-holder), HSSMI (delivery partner) plus the DETC Programme Director ("PD"). The MB operates under its own Terms of Reference.

All permanent employees of the DETC are, in fact, on the HSSMI payroll as the delivery partner for the DETC programme.

The centre and its staff are managed and led on a daily basis by the PD, who reports to the Advisory and Management Boards of the DETC.

A grant of ~£6.7m has been provided to LU from BEIS. This grant is dispersed by LU to HSSMI and other partners as appropriate to meet eligible costs claimed. HSSMI uses the grant to run and deliver the DETC over a period from 5th May 2015 to 30th September 2020. This money is divided into ~£4m core infrastructure funding, and ~£2.7m funding for collaborative projects with Affiliates (see below), which also help to build up the DETC in terms of capability and knowledge. The BEIS grant is provided subject to a matching contribution from the industry and academic partners (Affiliates) of ~£10.5m worth of cash or in-kind contribution ("match") over the five-year period. This equates to a total DETC budget of ~60% match to 40% BEIS funding.

The DETC is obliged to provide a regular statement to BEIS of grant claim for all DETC activities (see below) and match contribution from its affiliated organisations, along with a rolling record of progress against the agreed KPIs.

Affiliation

The DETC is an outward facing operation and engages with industry and academic organisations through an affiliation model, which is open to all and free to join. The two levels of affiliation are:

- "Associate Affiliation" – Organisations sign a two-way Non-Disclosure Agreement and enjoy a number of benefits, including free access to DETC hot-desks and development facilities.
- "Full Affiliation" – Organisations sign a full affiliation agreement which commits them to providing a level of contribution into the centre. This may take the form of time of their staff to work on research projects, access to their development facilities, licenses of their development software, etc. Benefits afforded to Full Affiliates include:
    - Rights to use any IP arising from DETC core activity (IP generated after the time of becoming an affiliate);
    - Ability to apply, as part of a consortium, to participate in a CR&D project which may attract some government funding;
    - Sharing the costs and risks of their Digital Engineering & Test related developments with other affiliates and the centre; and

  Details of the levels and form of an Affiliate's contribution are agreed with each organisation and contained in their Affiliation Agreement. The contribution helps to supplement the public funding with which the centre has been started, and add to the manpower available from the DETC permanent members of staff.

Project work and outputs

There are several types of activity undertaken by the DETC, namely:

- Core Workstreams – these are focussed research projects of general interest and benefit to the automotive sector or with an aim of informing future work in the DETC. They are funded research projects, using the DETC researchers, drawing from the BIS grant but can also deploy contribution from Affiliates. All learnings from the Core Workstreams are disseminated publically. Any IP arising from any Core Workstream activity resides with the DETC – therefore HSSMI and LU, and is also available for use by Full Affiliates.
- External (Affiliate) Projects – These are analogous to grant-funded Collaborative R&D projects run by InnovateUK or the APC. They follow a similar application process in which the consortium's proposal is independently assessed for novelty; industry need; business case; additionality; and its ability to add to the Centre's capability in DE&T. They must be industry-led and may be eligible for some supporting grant against the collaborators' own contributions. Consortium members must be Affiliates of the DETC, and their contribution within a project must be in addition to the contribution they are providing for being an Affiliate. IP generated within these projects becomes the property of the consortium members (under the terms of their Collaboration Agreement) and a "license to use" (not ownership) is also automatically granted to HSSMI and LU for non-commercial use within the DETC.
- PhD research – The DETC also co-funds, from its core BEIS grant, a number of PhDs supervised by a variety of universities who are working in this space. Their research will cover areas of DE&T and their interfaces with, amongst others, gaming technologies and Big Data. As publically-funded research, the PhDs will disseminate their research findings in the normal ways.

Documents and further information

For more information, including updates on project work; events; staffing; research; etc, please visit our website at www.detc.uk or email us at info@detc.uk

Key documents referred to in the introduction above are:

- Affiliation Agreement – signed by every industrial and academic organisation who wish to participate in the DETC work and share in the arising benefits. Affiliates accept the obligation to provide a level of contribution to the DETC's work for the period of their affiliation.
- Advisory Board Terms of Reference
- Management Board Terms of Reference

Additional Definitions (those not already explained in the text above)

- "Affiliate" – an organisation joining the DETC to participate in the project work and enjoy the benefits summarised above
- "Advisory Board" – the board made up a number of senior representatives from Affiliate organisations, HSSMI and LU, as defined in the Advisory Board Terms of Reference, providing the DETC with (amongst other matters) strategic and technical direction
- "Management Board" – the board made up of HSSMI, LU and the DETC PD, as defined in the Management Board Terms of Reference, to provide governance oversight, managing the requirements of the BIS Grant Offer and the Affiliates
- "Collaborative Research and Development" – CR&D in the model of InnovateUK and APC, in which a consortium of organisations work together on a project under the terms of a Collaboration Agreement
- "Collaboration Agreement" – an agreement between the consortium members, which sets out the ways in which a project team will collaborate and how any arising benefits (e.g. IP) will be shared between the collaborators