Science & Technology Facilities Council
Hartree Centre

Cliff Brereton – Director, Hartree Centre


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• 2011 Tildesley Report
• Economic Impact through Software & Modelling
• £160M Investment from BIS
E-Infrastructure

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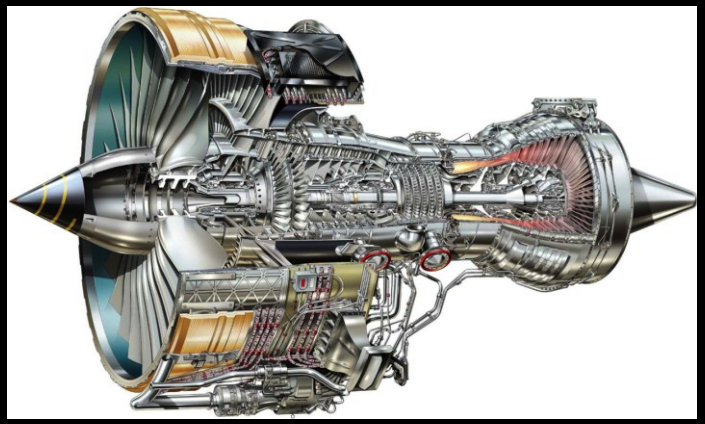


Better products, developed faster and cheaper

- Blue Joule 120,000 Cores (1.4 Pflops)
- Blue Wonder 19,000 Cores
- 9PB of Disk Storage
- 15 PB of Tape Storage
- 3 Visualisation Walls
- Big Data Analytics Cluster (288TB)
  - At Rest
  - Streaming
  - Predictive
- Novel server technologies

Our Machines

Science & Technology Facilities Council
Hartree Centre

- Engineers
- Chemists
- Life Scientists
- Mathematicians
- Software Developers
- Data Scientists

Our People


Science & Technology Facilities Council
Hartree Centre
• Collaborative R&D
• Software & Algorithms
• Training & Skills
• Platform as a Service
Our Services

Hartree Centre
Science & Technology Facilities Council

Our Clients include


Newcastle
University


Imperial College
London


UNIVERSITY OF LEEDS


Aston University


KING'S College
LONDON


Cranfield
UNIVERSITY


Lancaster
University


UNIVERSITY OF
BATH


UCL


UNIVERSITY OF
EXETER


Queen Mary
University of London


Swansea University
Prifysgol Abertawe


University of
BRISTOL


UNIVERSITY OF
CAMBRIDGE


Keele
University


UNIVERSITY OF
BIRMINGHAM


UNIVERSITY OF
Southampton


MANCHESTER
1824
The University of Manchester


Durham
University


University of
Reading


University of
Roehampton
London


THE UNIVERSITY OF
WARWICK


University
of
St Andrews


THE UNIVERSITY of EDINBURGH
One of the world's top 20 universities


University of Dundee


University of
HUDDERSFIELD
Inspiring tomorrow's professionals


University of Chester


US
University of Sussex

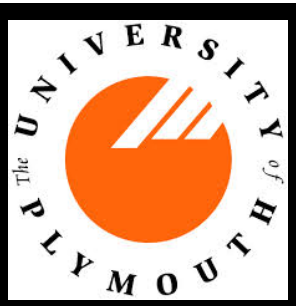

The University of
Nottingham
UNITED KINGDOM · CHINA · MALAYSIA


University
of Glasgow


UNIVERSITY of York


Brunel
University
London


UNIVERSITY OF
LIVERPOOL


The
UNIVERSITY of
PLYMOUTH


UNIVERSITY OF
WESTMINSTER


UNIVERSITY OF
OXFORD


University of
Strathclyde
Glasgow


The
University
Of
Sheffield.


PRIFYSGOL
BANGOR
UNIVERSITY


University of
Leicester


UEA
University of East Anglia

4 Forces of Change

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Industrial Engagement

- *Funding models demanding economic impact*
- *Using existing computational modelling in industrial workflows*
- *Better outcomes, developed faster and cheaper*
- *New engagement models, delivery disciplines, cadence & language*

Power

- *Unprecedented scaling of systems needed*
- *Availability and Affordability*
- *Existing architectures are not sustainable*
  - *Moore's Law ending*
- *Emerging platforms and new Architectures*
  - *New languages, compilers, middleware and applications*
  - *Cloud*

Big Data

- *Open data is great – but useless on its own*
- *Analytics is the key to value*
- *Everything will change*
  - *3 V's*
  - *Internet of Things*
  - *Security standards*
- *Todays architectures will be obsolete in 5 years*
- *Emerging platforms and new Architectures*
  - *New algorithms, languages, compilers, middleware and applications*

Democratisation

- *Availability of skills will remain a bottleneck*
- *Science and Knowledge workers*
- *Build the Data Scientist in to the Machine / Software*
- *New ways of interaction*
  - *Speech*
  - *Visualisation*
  - *Mobile*
- *Emerging platforms and new Architectures*
  - *New algorithms, languages, compilers, middleware and applications*

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- Applying existing & new computational science industrial workflows delivers economic value
- Existing architectures no longer sustainable
- Analytics will realise the value of a data driven world

Summary

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