

Diamond Light Source

A cornerstone of the Harwell Campus and the UK Industrial Strategy

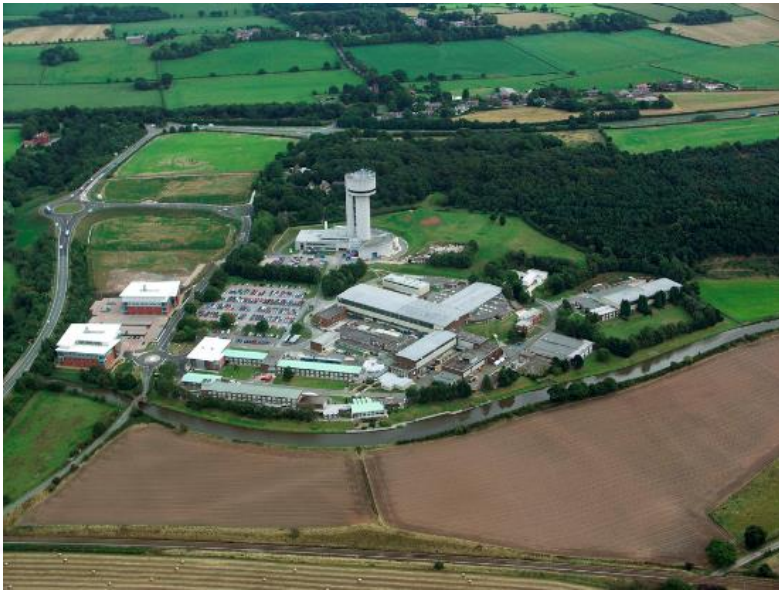


Andrew Harrison

African Light Sources Round Table – November 20th 2020

Making the case

- Provide world-class facility – building on success of SRS Daresbury (SEI x3.5), complementary to ESRF - to meet key needs of UK research and innovation and address key societal problems
- Education, training and skills for the technical industries of tomorrow
- A cornerstone for an innovation Campus



Grand Challenges:



AI & Data Economy

We will put the UK at the forefront of the artificial intelligence and data revolution



Clean Growth

We will maximise the advantages for UK industry from the global shift to clean growth



Future of Mobility

We will become a world leader in the way people, goods and services move



Ageing Society

We will harness the power of innovation to help meet the needs of an ageing society

AI and the data economy, clean growth, future of mobility, ageing society

From foundations to facility

Diamond Light Source Ltd created in 2002 as a Joint Venture
between UK Gov't (STFC) – 86% - and the Wellcome Trust – 14 %
Build synchrotron with world-leading performance at 3 GeV to complement ESRF

December 2003



May 2004



Today



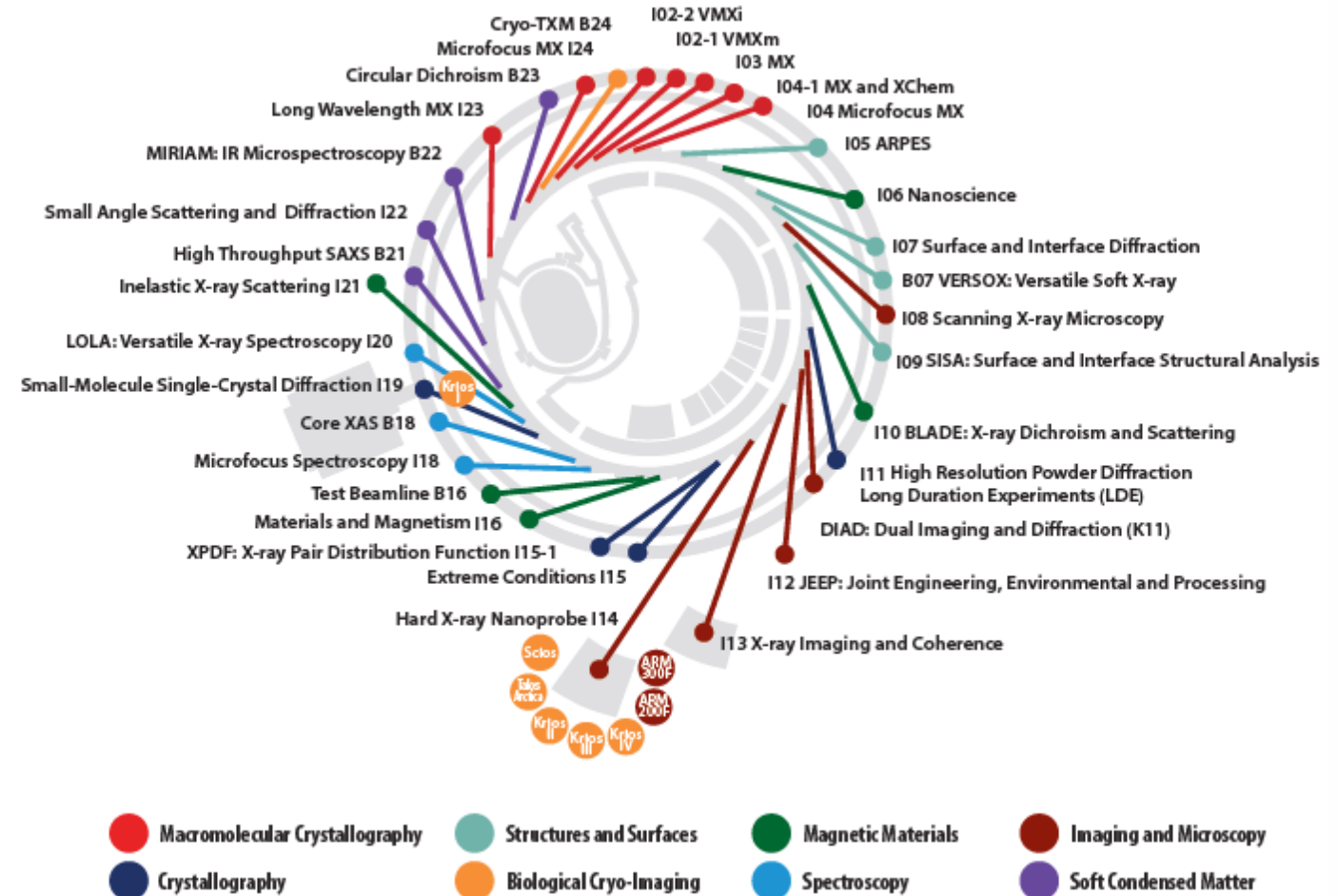
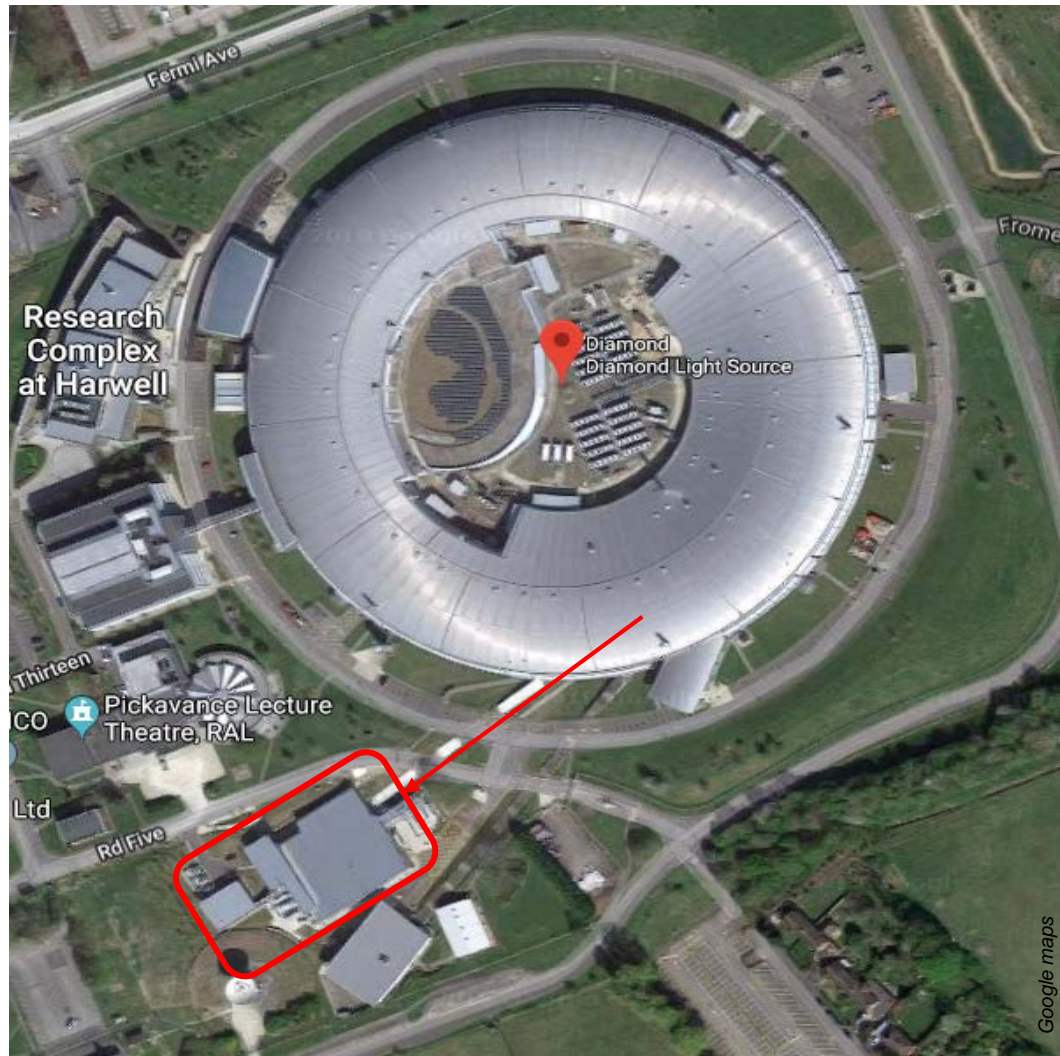
April 2006



diamond

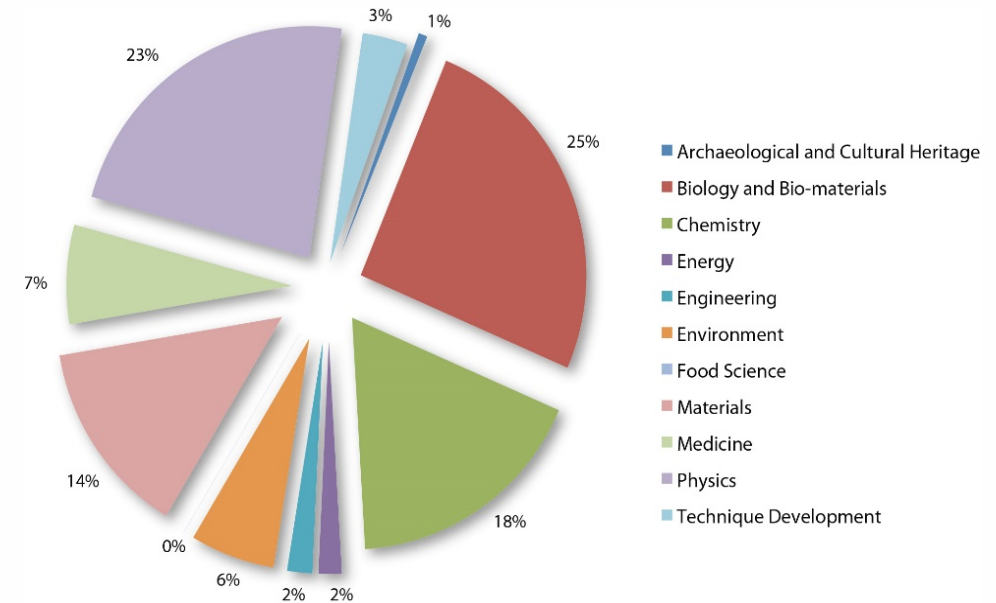
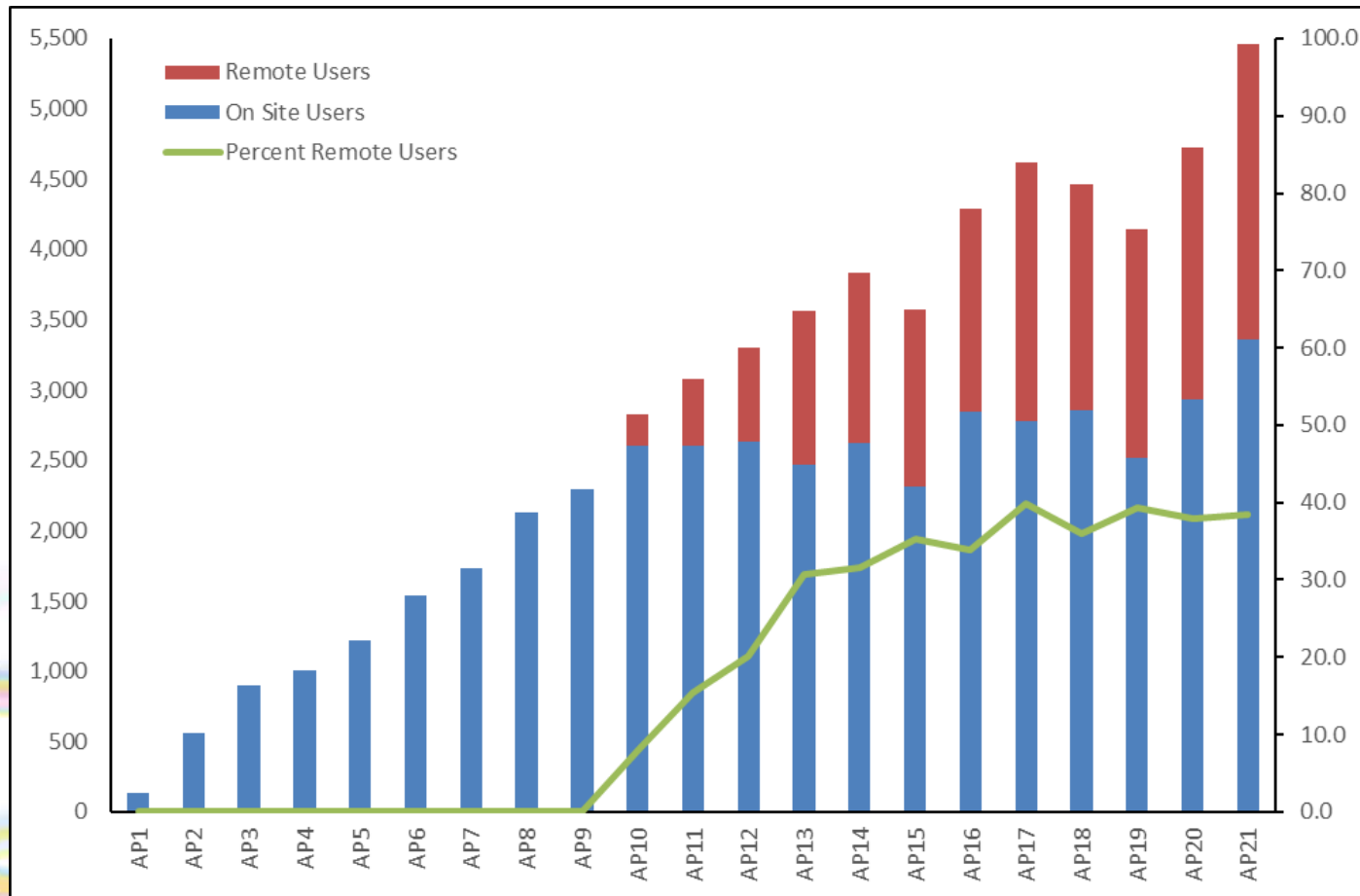
Reaching full operational capacity

33 beamlines operating by the end of 2020
Integrated national centres for EM: Cryo-EM and TEM



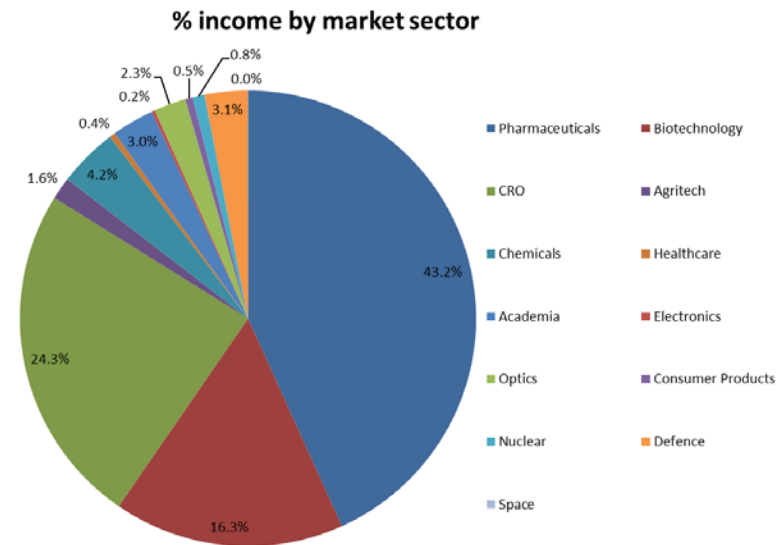
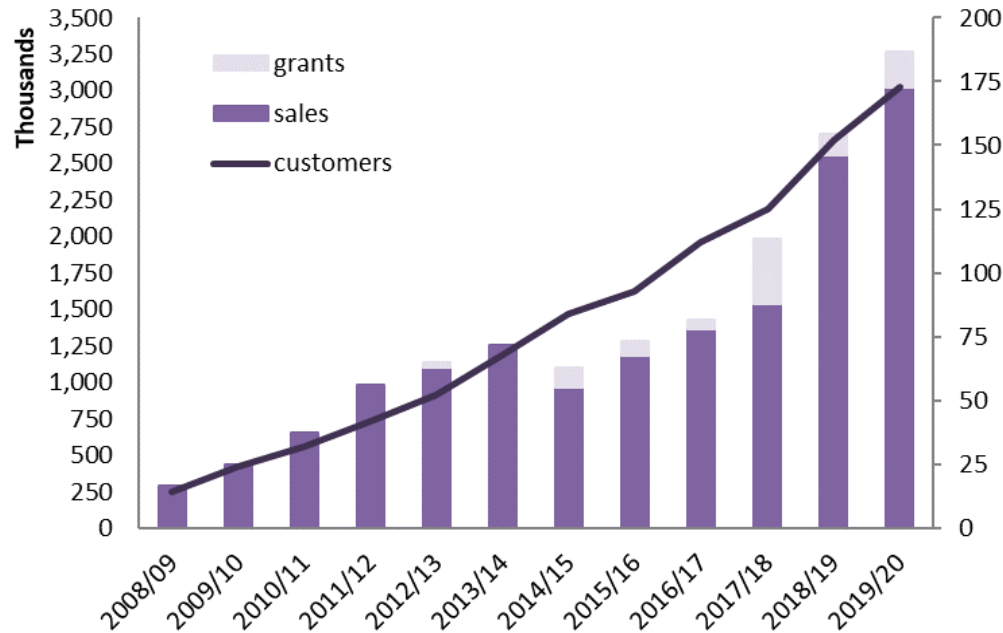
Building the community

- Phase 1: provide world-leading research capability – initially for existing community
- Phase II-III: build community - key scientific needs in academia and industry, mostly non-expert
- 13th year of user access with over 12,000 ‘visits’ *per annum* - 40% remote, 45 % life sciences
- 70 co-funded PhD students, 2000 more engaged in experiments *per annum*

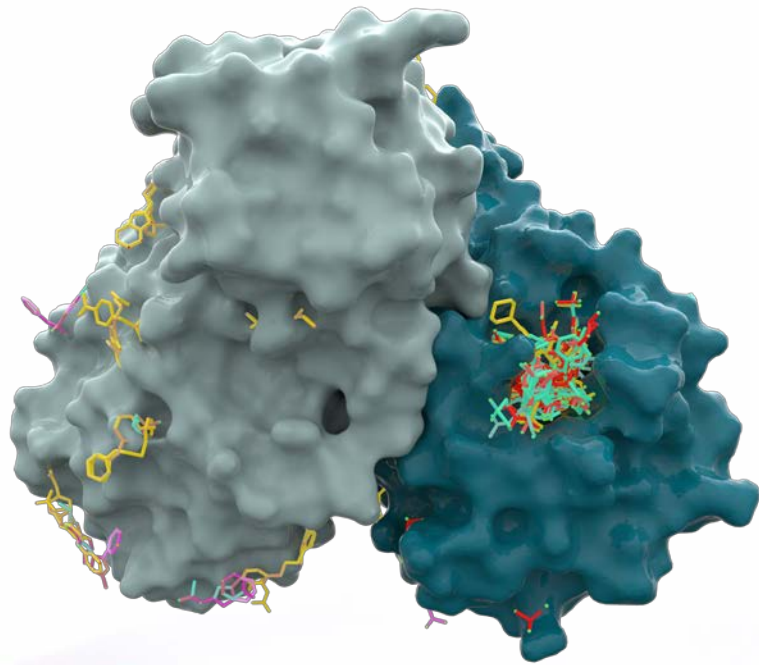


Engaging with industry

- Find out what industry needs: DISCo – Diamond Industrial Scientific Council – advisory body drawn from key companies across industrial sectors
- Set up dedicated team to provide service: industry needs answers to problems rather than data, and it needs them quickly
- 170 companies pay for access – 30% of all competitive beamtime involves industry



Delivering world-class science with impact



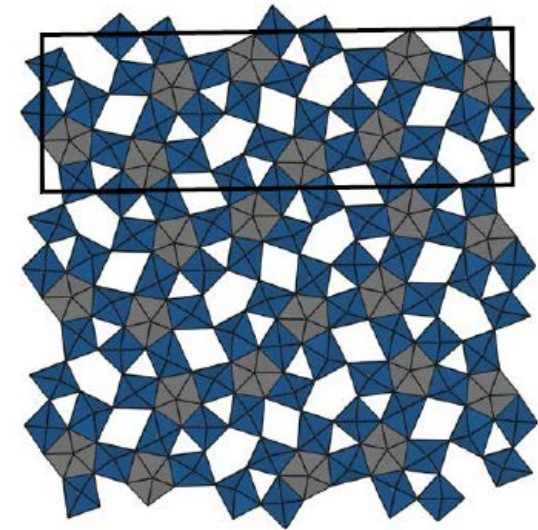
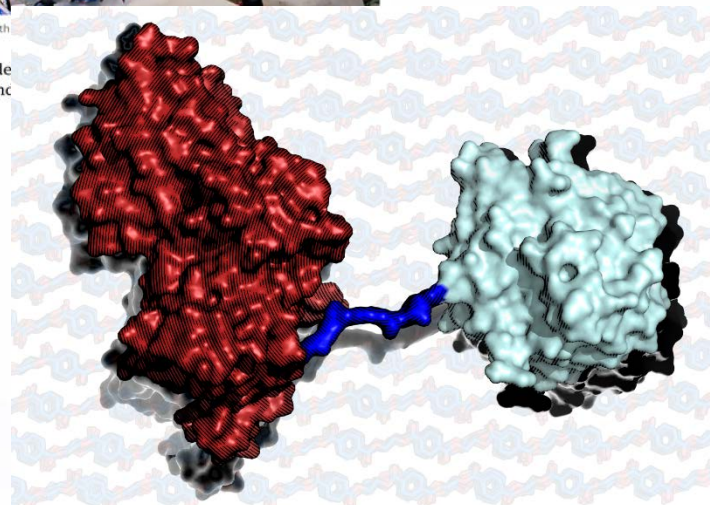
New super-enzyme eats plastic bottles six times faster

Breakthrough that builds on plastic-eating bugs first discovered by Japan in 2016 promises to enable full recycling



▲ Plastic bottles makes up almost one sixth of the waste in the UK
Morgan/Alamy Stock Photo

A super-enzyme that degrades plastic has been created by scientists and it could help recycle plastic bottles.



Many small steps towards a COVID-19 drug

Daniel A. Erlanson 

Nature Communications **11**, Article number: 5048 (2020) | [Cite this article](#)

118 Accesses | **32** Altmetric | [Metrics](#)

Niobium tungsten oxides for high-rate lithium-ion energy storage

K. J. Griffith, K. M. Wiaderek, G. Cibin, L. E. Marbella, and C. P. Grey, *Nature*, vol. 559, pp. 556–563, 2018.

The bigger picture – the Harwell Campus

ISIS

CLF

eBIC
ePSIC

RFI

RCaH

Facilities

Support Labs

Challenge-focussed institutes

Over 100 companies co-located and growing

Diamond

Faraday Institution

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