



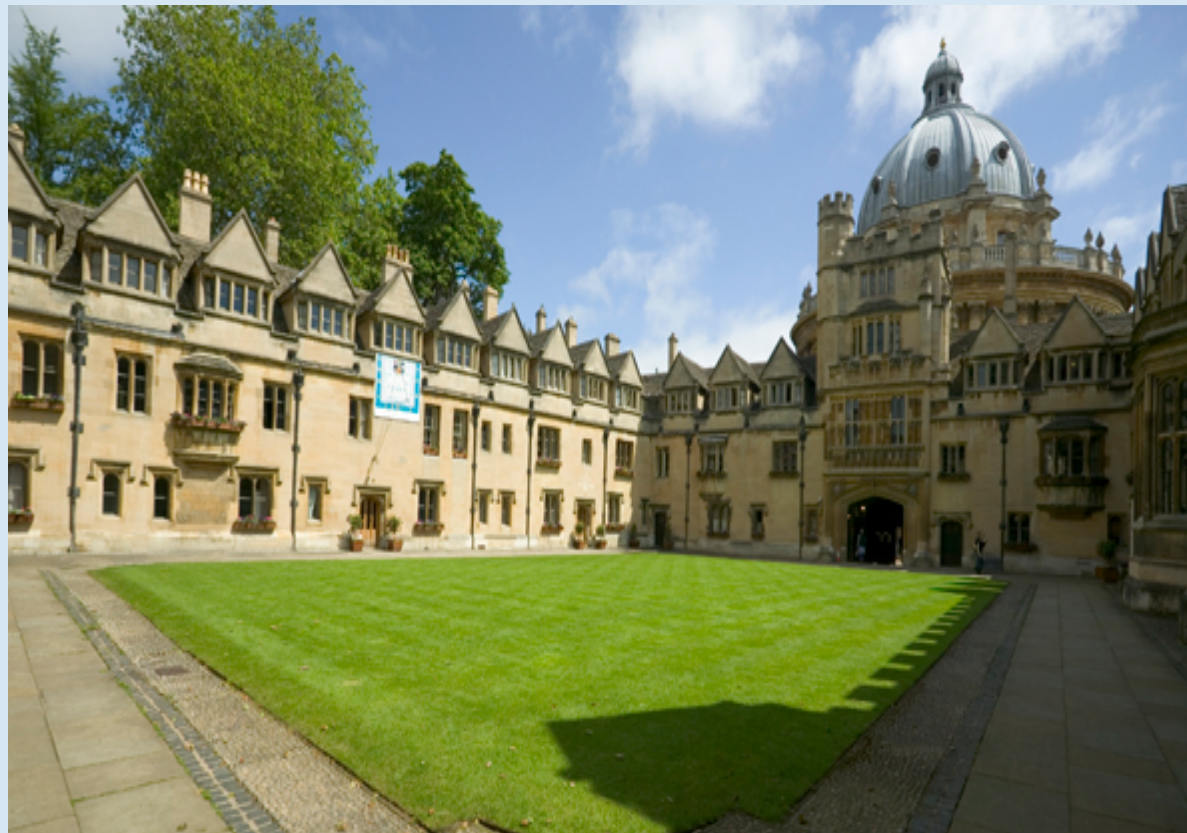
GLOBAL EDUCATION DIALOGUES
The East Asia Series
2013-2014

**Funding the
Commercialisation
Process
- a view from the
University of Oxford**

**Terry Pollard
Associate Consultant
Isis Innovation Ltd**

University of Oxford

- Oxford is the oldest university in the English-speaking world (founded c.1188)
- 26 British Prime Ministers educated at Oxford
- Royal Society founded from Oxford in 1640
- 47 Nobel prize winners



Modern Oxford & Isis Innovation

OXFORD

- Most Powerful UK Research University
- Highest University Research Spend in UK at £542 million (2011-2012)

ISIS

- A profitable company 100% owned by the University of Oxford, established in 1987
- Helps researchers *who wish to* commercialise the results of their research
- A world-class Technology Innovation business. Isis 5th highest British PCT patent applicant

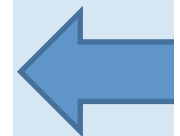
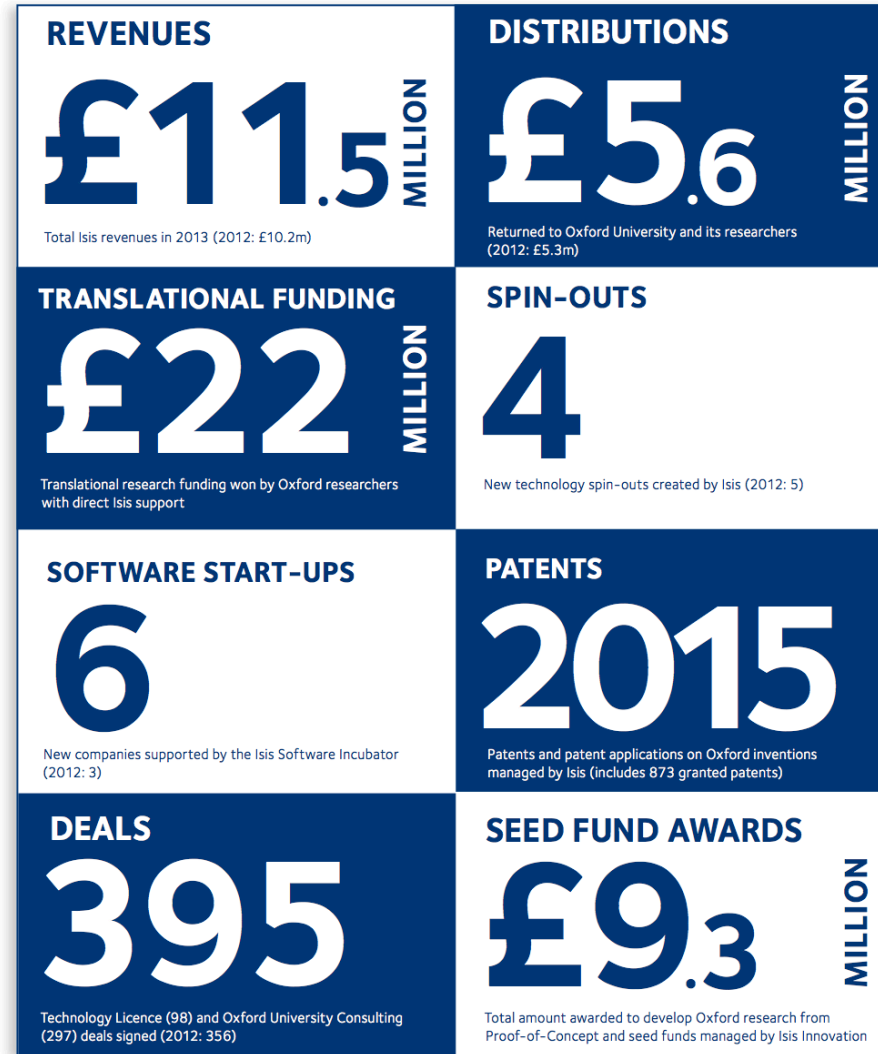


Returns to the University and beyond

- Oxford University invests in Isis to protecting University intellectual property
- Financial Returns
 - Distributions of royalties back to University
 - Research Funding from spin-outs to University
 - Oxford University Challenge **Seed Fund** & Oxford Invention Fund
 - New Patents/applications
 - Research Funding from **Translation Awards** to University
 - **Spin-outs** Cash & Spin-outs shareholding portfolio Value
 - Supporting **Strategic IP Deals** eg: Chemistry, IBME
 - HEFCE **Third Stream Government Funding**
- Other, non-financial, benefits to the University
 - Transferring technologies to improve lives
 - Contributing to the 'Impact' of the University
 - Promoting good news stories from University
 - Local engagement and local economic activity
 - Managing Oxford Innovation Society



Annual Report 2013



Technology Transfer Process

UNIVERSITY
RESEARCH

TRANSLATIONAL
RESEARCH

COMMERCIALISATION WITH
INDUSTRY PARTNERS

IDENTIFY

PROTECT

TRANSLATE

MARKET

LICENSE

SPINOUT

POST DEAL

- Internal marketing

- Ownership

- Evaluation

- PATENTING

- Patent strategy

- Protection

- **Proof of concept**

- Development

- Endorsement

- Overview

- Customer targets

- Promotion

- Valuation

- Negotiation

- Legalise

- Planning

- **Fundraising**

- The Team

- Billing

- Distribution

- Re-negotiation

Investment Sources

Oxford University Challenge Seed Fund

- Launched with £4m in 1999
- University provided £1m; HM Treasury, Wellcome, Gatsby £3m
- £5.7m invested in 102 projects – development, seed equity
- Resulting in Equity stakes in 31 spin-outs, 4 completed licensing deals & 33 active technology projects. These 31 spin-outs have attracted £80m seed/venture investment



Oxford Invention Fund

- Donations to the University of Oxford as part of Oxford Thinking, the University's overall fund raising Campaign
- Invest in development of new technologies and innovation from Oxford

ISIS Angels Network

- Business Angels, Seed/Venture Capital
- 100 members
- Events, No Charges



Oxford University Spin-outs (post 2000)

2000	7	Third Phase, Mindweavers, Oxford BioSignals, Oxford BioSensors, TolerRx, OXIVA, Pharma DM
2001	7	OxLoc, Oxford Bee Co, Oxford Ancestors, Novarc, Oxford ArchDigital, Natural Motion, Inhibox
2002	9	Pharminox, Minervation, Oxford Biomaterials(Spinox), Zyentia, Oxitec, Oxford Immunotec, Oxford Risk, GlycoForm, BioAnalab
2003	4	Summit(Vastox)*, ReOx, Riotech, OCSI
2004	4	Avacta(OMD)*, G-Nostics, Surface Therapeutics, EKB Technology
2005	5	Oxford Nanopore Technologies, Oxford RF Sensors, Oxbridge Pulsars, Celleron, Oxford Catalysts*
2006	7	TDeltaS, Oxford Medistress, Particle Therapeutic, Aurox, Oxford Advanced Surfaces*, Cytox, OxTox
2007	4	Eykona Technologies, Clinox, Oxford Biodynamics, Crysalin
2008	4	Semmler, Oxford-Emergent TB Consortium, Navetas(ISE), Organox
2009	3	Oxford Financial Computing, Zyoxel, Oxford Yasa Motors
2010	4	OxEms, Kepler Energy, IXO, Oxford PhotoVoltaic
2011	5	Oxyntix, Oxtex, Oxford Multi Spectral, Oxford Imaging Detectors, OCB
2012	4	Intelligent Ultrasound, OxEHealth, Oxford Vacmedix, Run3D

Total external investment to date in 66 spin-outs 2000-2012: **£340m**

£46m 1st round Seed/Business Angels – average amount invested £850k; 1/3rd > £1m invested.

£294m follow-on Venture/Institution Capital

* stock exchange listing

Oxford Catalysts Plc (now Velocys Plc)

- First patent filed in June 2001
- Received £150k proof-of-concept funding
- Oxford Catalysts Ltd created in 2005, initially with £500k seed funding
- Oxford Catalysts Plc floated on AIM in early 2006, raising £15m
- Acquired Velocys Inc in 2008 and has now taken on this name; employs 90 people at sites in the UK (near Oxford) and in the US
- Market cap £173 million (3 Feb 2014)



Isis Software Incubator (established in 2010)

- Support for early-stage software ventures from Oxford University
- Assists the creation and development of a software business opportunity, whether or not a company has yet been incorporated
- Isis provides commercial mentoring, negotiation support, services, desk space, access to business networks
- Projects that have a credible business concept and need:
 - Substantial work to develop IP and build a realistic commercial prospect
 - With entrepreneurial founders
 - But do **NOT** need patents, investors, full-time management



goKomplain



The next challenge...

UNIVERSITY RESEARCH

TRANSLATIONAL RESEARCH

COMMERCIALISATION WITH INDUSTRY PARTNERS

IDENTIFY

- Internal marketing
- Ownership
- Evaluation

PROTECT

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- Patent strategy
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- Planning
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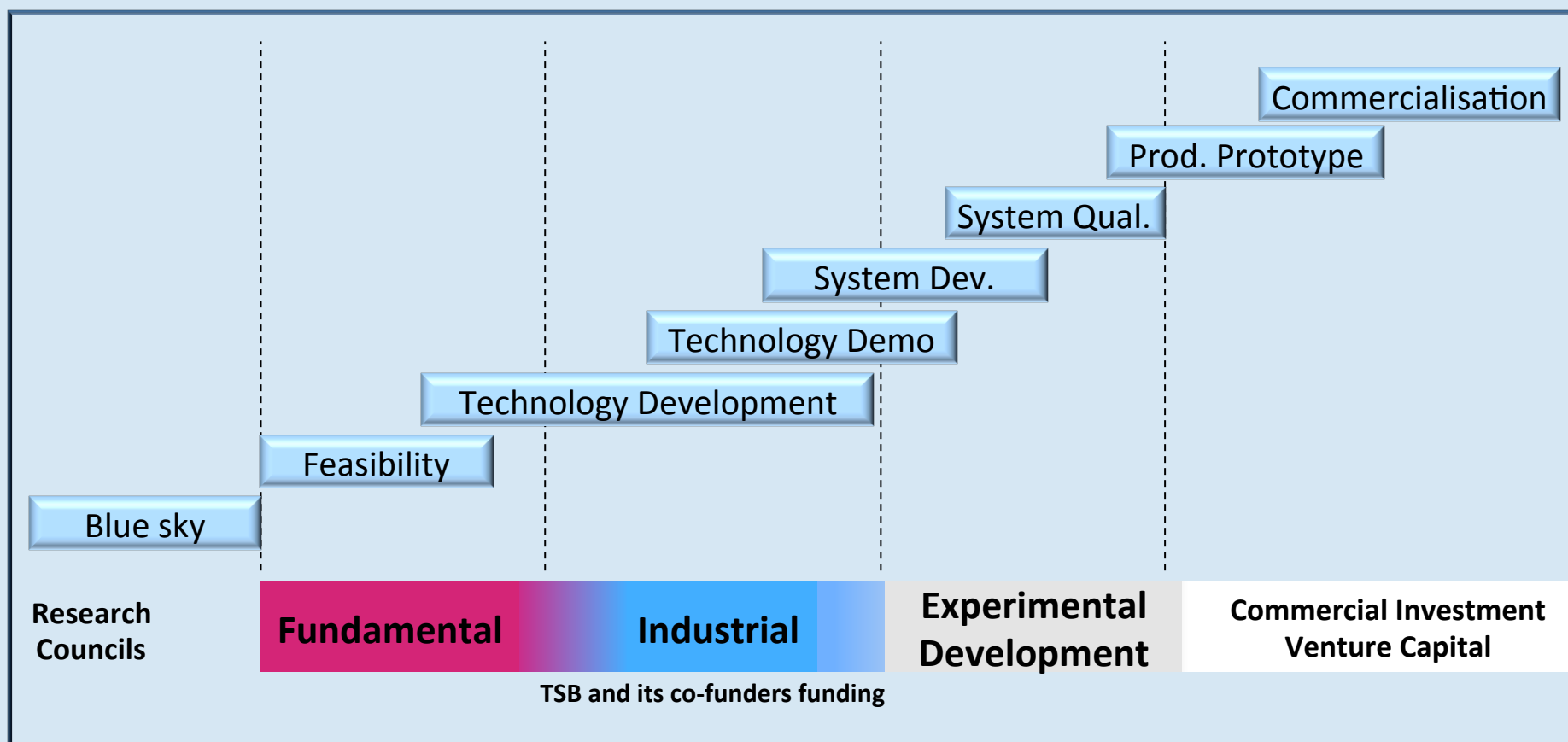
POST DEAL

- Billing
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Oxford incubators & science parks



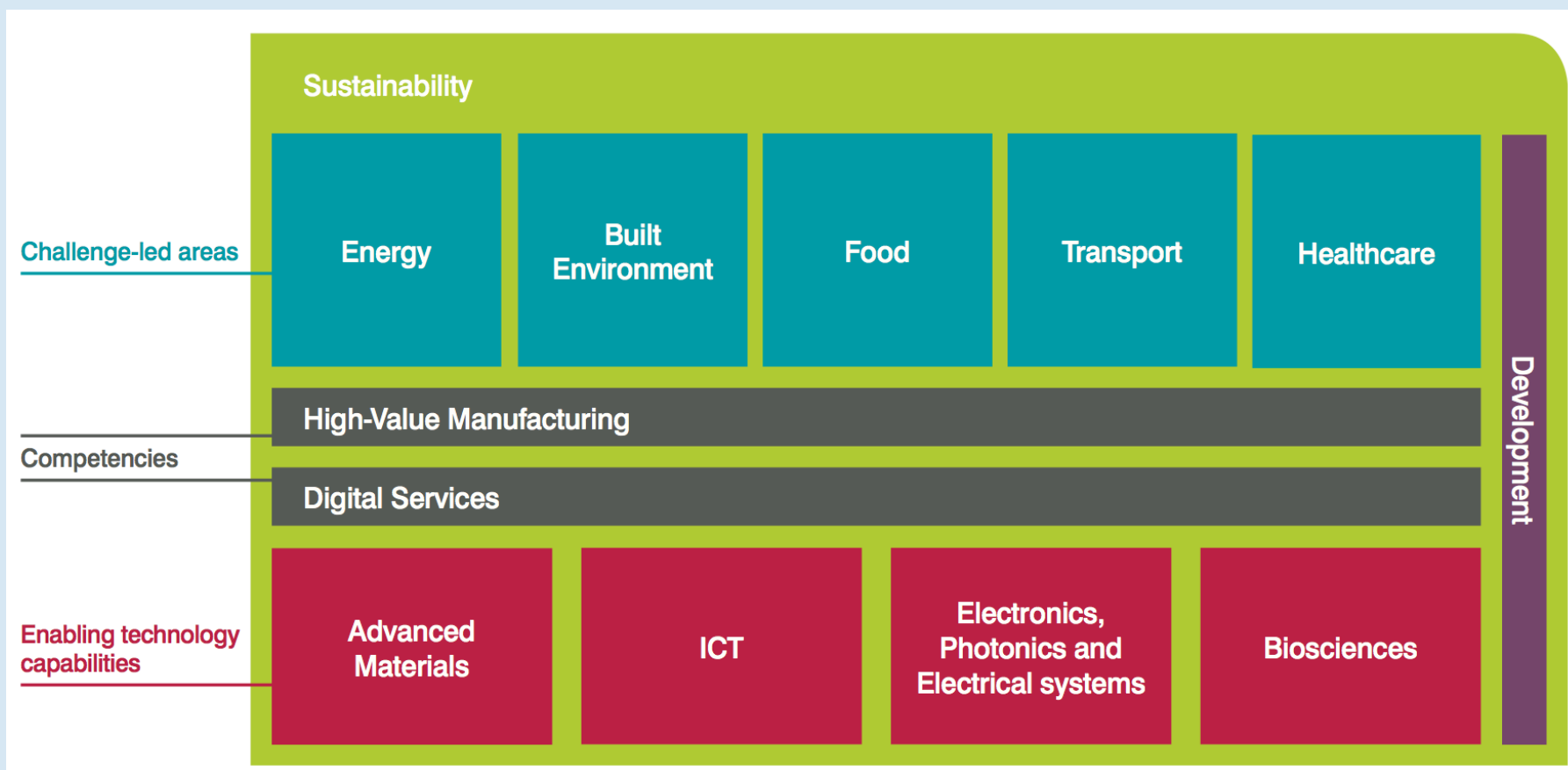
Technology Strategy Board



Technology Strategy Board

- Staffed by experienced industry professionals
- Sets challenges around future UK markets (based on analysis of opportunities and capabilities) – then industry lead projects
- Invested more than £2bn with industry partners
- Supported projects involving more than 3,000 businesses
- Collaborated with more than 110 universities on projects with industry
- Reduced red tape and bureaucracy
- Launched SBRI process to fulfil government requirements by contracting with SMEs
- Worked with industry to create large-scale technology demonstrators
- Refocused Knowledge Transfer Networks and supported national *Innovate* event to create new contacts to support partnerships and innovation

TSB Focus Areas and Themes



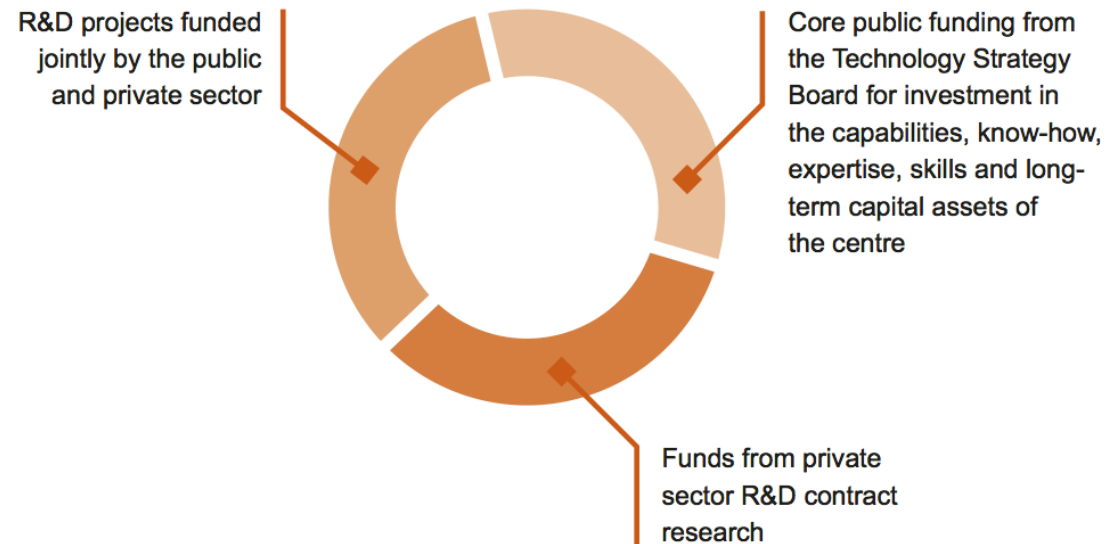
Source: Technology Strategy Board

Catapult Programme

Funding / Technology Strategy Board

Catapults are backed by considerable amounts of investment; their funds come from a combination of core Technology Strategy Board support and competitively won business and public sector funding.

Once the Catapults are fully established, they will generate their funding broadly equally from three sources. Core funded projects will address key, cross industry challenges and barriers that are slowing commercialisation.



- 2005 DTI funded Morgan LIFECar
- Develop components needed for a hydrogen powered sports car
- The Oxford Electric Power group designed from a blank sheet of paper to meet the motor specification; the result the YASA (Yokeless and Segmented Armature) motor (high power/torque, light weight)
- 2009 (June) **TSB** project (£1.9m) to demonstrate related technologies
- 2009 (Sept) Investment of £1.45m in YASA Motors
- 2009 (Oct) First Sales
- Raised £5m in equity finance last month



Latest News

The Drayson Racing FIA World Land Speed Record

 June 27, 2013

Drayson Racing has announced that it has set a new World Electric Land Speed Record of 204.185mph. Lord Paul Drayson has set the record for a sub-1000kg electric car in his converted Le Mans racer at Elvington airfield.

YASA Motors worked with Drayson racing to develop a bespoke 850bhp powertrain for the vehicle, which consists of 4 YASA-750H motors, each delivering up to 160kW. YASA have increased the power rating of the YASA-750H motor and increased the top speed of the machine to meet the performance criteria required by Drayson Racing.



Oxford Photovoltaics Ltd (Oxford PV)

- Oxford PV is bringing to market low cost, stable and fully scalable (thin film) solar cell technology that combines the benefits of inexpensive abundant organic materials with simple screen printing manufacturing technology
- “Green technology” similar to photosynthesis with wide range of colours and transparency options (solid state version of DSSC)
- Target application: Low cost solar power glazing for buildings and other application areas
- **TSB** funding of £100k in October 2010
- VC investment of £650k in July 2011
- Further investment of £2 million in February 2013



www.oxfordpv.com

www.isis-innovation.com



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Isis Innovation is a wholly-owned subsidiary of the University of Oxford, managing technology transfer and academic consulting for Oxford, and providing consulting advice to clients around the world



Managing the commercialisation of IP developed in Oxford - licensing, spin-outs and material sales.

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