

cambridge **enterprise**
commercialising University science
for the benefit of society



Annual Review 2009



**UNIVERSITY OF
CAMBRIDGE**

Commercialisation for the Benefit of Society

The past decade has seen a large increase in public funding for research. Not unreasonably, questions are being asked about the value that the public derives from this expenditure. This is a very difficult question to answer completely, but there are individual elements where we can readily demonstrate value.

Commercialisation of research outputs and expertise, for both the near-term and the long-term, are such elements. While near-term commercialisation is often carried out directly through collaborative research with industry, generating long-term commercial impact from basic research requires the University to put in place mechanisms to aid academics in protecting intellectual property, finding suitable licensees or other partners, developing proof of concepts, developing business plans and/or starting new ventures.



Professor Ian Leslie

This Review reports impact from basic research and demonstrates effective support over the timescales required. We do not expect impact from basic research to be instantaneous – a fact that is often overlooked by those asking questions about the value of public investment. The support provided by Cambridge Enterprise to academics is as necessary for maintaining public investment in basic research as basic research is to maintaining the burgeoning innovation ecosystem around Cambridge and the UK.

Professor Ian Leslie

Pro-Vice-Chancellor for Research, 2004–2009

University of Cambridge

Chief Executive's Message

Professor Leslie's leadership in developing and implementing policies and structures to encourage knowledge and technology transfer at the University of Cambridge is greatly appreciated. The contributions of all of our Directors, staff, academic partners and business colleagues are recognised with gratitude as we build on two full financial years under the new limited company structure.

As is the case with demonstrating impact from basic research, the evolution of Cambridge Enterprise has and will take place over a long period of time.

However, the principles of using the best business practices and channels to deliver the results of the remarkable research at Cambridge for the benefit of society is current and constant.

A handwritten signature in blue ink that reads "Teri Willey". The signature is written in a cursive, flowing style.

Teri Willey
Chief Executive

Case Study

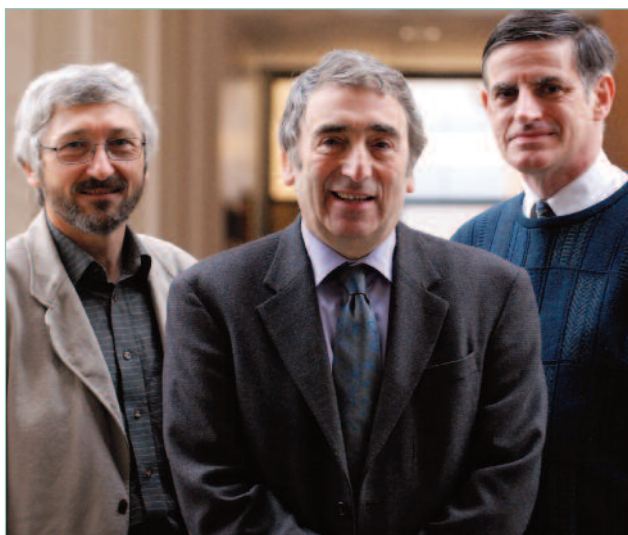
Evolution of Campath

Campath is improving the lives of people with chronic lymphocytic leukaemia and, if trials prove successful, multiple sclerosis patients.

Chronic lymphocytic leukaemia (CLL) mainly affects people over 60 and is rare in people under the age of 40. Multiple sclerosis (MS) usually occurs in young adults, is more common in women, and has a prevalence that ranges between 2 and 150 per 100,000 depending on the country or specific population.

In the late 1970s Professor Herman Waldmann, then a lecturer in the Department of Pathology at the University of Cambridge, obtained funding to investigate immunological tolerance and a way to improve bone marrow transplants. His team, which included Professor Geoff Hale and Dr Mike Clark, worked on developing an anti-lymphocyte monoclonal antibody. This in turn has led to a potential effective treatment for MS.

Photo: Greg Smolonski



From left: Dr Mike Clark, Professor Herman Waldmann, Professor Geoff Hale

Timeline

1979

Professor Herman Waldmann immunises rats with human lymphocytes.

1982

First bone marrow transplant using Campath-IM is performed.

1985

Campath licensed to Wellcome Biotech by BTG.

1991

Professor Alastair Compston embarks on 18 year collaboration with Herman Waldmann. First patient with secondary progressive multiple sclerosis successfully treated.

1995

Wellcome abandons Campath at the end of Phase 3 trials. BTG look for new licensee.

1996

Alastair Compston, Alasdair Coles, Herman Waldmann *et al* publish a paper on their pilot study on MS.

1997

Campath licensed to LeukoSite.

1999

LeukoSite merges with Millennium Pharma.

2001

FDA approval for use in CLL. Millennium enters agreement with ILEX Oncology for post-market development of antibody.

2003

Phase 2 clinical trials of Campath-1H begin, led by Coles and Compston. Trials against MS.

2004

Genzyme acquires ILEX.

2007

Two large Phase 3 trials of Campath-1H in relapsing-remitting MS begin. Campath-1H receives US approval for first-line treatment of CLL.

2008

Results of Phase 2 MS trials published.

2011

Phase 3 trials against MS completed.

Royalty income from Campath received by the Department of Pathology has been used for a number of purposes, including:

- setting up of a Trust Fund for supporting research and post-graduate teaching
- supporting further research on recombinant antibodies in Dr Clark's laboratory leading to further patented innovations in therapeutic applications

Case Study

Evolution of CASTEP

Modern manufacturing industries face a problem: how to continue to produce and use better, more effective materials after centuries of technological development. Impurities, lack of the right raw materials and making products lighter yet stronger, with the increasing need to give consideration to the environment, are among the challenges faced by modern industries.

The time and money needed to select the best material from a range of candidates using empirical evidence creates obstacles. This leaves the manufacturer with the problem of how to effectively improve the chances of finding the right material.

One solution has arisen from long-term research carried out in the Department of Physics at the University of Cambridge. Over the last 25 years, Professor Mike Payne and his group have developed a commercially successful computer-based simulation toolkit which is used worldwide in a range of industries. Their approach uses fundamental quantum mechanics to predict the performance of a material based on its structure at an atomic level. In this way, software-based screening means only the most suitable candidates need to be investigated in the lab, helping to minimise the resources needed to develop new materials.

For more details about CASTEP visit www.castep.org



Professor Mike Payne
Department of Physics, University of Cambridge

Timeline

1985

Mike Payne, a Pembroke College Research Fellow seconded to MIT, challenged to write a code to analyse the atomic structure of materials.

1986

Completed initial version of code and returned to Department of Physics, University of Cambridge.

1988

Gained funding from the Engineering and Physical Sciences Research Council to develop the code.

1990

Together with research group could routinely simulate up to 50 atoms.

1991

By porting the code to parallel computers, performed simulations for systems containing up to 400 atoms. As a result of development work, code robust enough to provide other researchers under brand name CASTEP (Cambridge Serial Total Energy Package).

1994

Licence agreed with Molecular Simulations (now Accelrys Limited) to convert code into user-friendly software package to sell commercially as part of their materials modelling suite of software.

1998

Annual sales exceed £1 million.

2000–2002

Code completely rewritten by the CASTEP Developers Group to provide a better platform for future developments such as enhanced functionality and porting to novel computer systems.

2008

Cumulative sales reach \$20 million.

The CASTEP licence fee income has been put to use in a variety of ways, including:

- membership of the Institute of Physics (IoP) for around 450 students per year
- supporting a postdoctoral position for six months, with the postholder subsequently being awarded an EPSRC Advanced Fellowship, appointed to a Readership at St. Andrews and a Chair at University College, London

Cambridge Enterprise Group Overview

Cambridge Enterprise delivers its mandate through three overlapping business units:

1. Technology Transfer Services

Services include invention disclosure management; patent strategy, filing and maintenance; proof of concept funding; research reagents transfer; intellectual property licensing and contract management; income distribution and bespoke marketing.

2. Consultancy Services

Services include support for University staff and research groups wishing to provide expert advice or facilities to public and private sector organisations worldwide. This includes negotiation of contract terms, assistance with costing and pricing, formal arrangements for use of University facilities, invoicing, debt collection and income distribution.

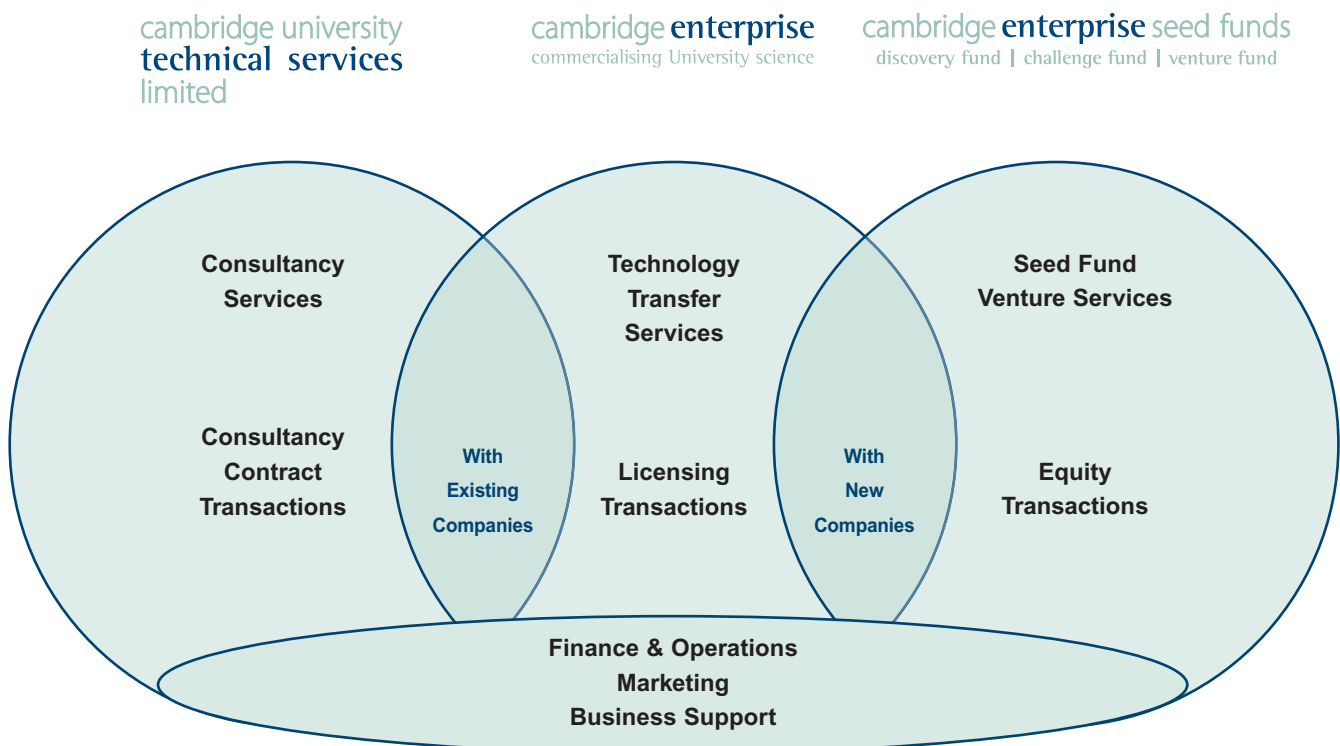
3. Seed Fund Venture Services

Services include access to capital and expertise via Cambridge Enterprise Seed Funds and Investment Committee, angel and early stage investors through Cambridge Enterprise Venture Partners, equity portfolio management, business planning, mentoring, surgeries, marketing, technical and IP feasibility programmes.

The activities of the Finance & Operations, Marketing and Business Support teams help to demonstrate the impact of basic research, both in economic and societal terms through good business and administrative practices.

Through bespoke management information systems and best business practice, case information can be linked back to the source of the original research funding, helping academics, research funders and the University to track and measure the ongoing impact of this critical funding through the commercialisation process.

The impact of this basic research is then communicated to academics, research funders, policy makers and influencers to highlight the essential role of basic research in commercialisation and innovation.



Cambridge Enterprise Group Overview

Senior Management Team



Teri Willey
Chief Executive



Richard Jennings
*Director, Technology Transfer
& Consultancy Services*



Nicola Anson
*Director, Operations & Finance**



Malcolm Grimshaw
Head of Physical Sciences



Paul Seabright
Head of Consultancy Services



Geraldine Rodgers
Head of Seed Funds



Iain Thomas
Head of Life Sciences



Shirley Jamieson
Head of Marketing

*to 22 December 2009

The Cambridge Enterprise Group is managed day-to-day by a Senior Management Team comprised of Heads of Team and Executive Directors.

Cambridge Enterprise – 7 Principles

1. Attract and accept into the portfolio those cases that have the strongest potential to make a significant positive impact and where using commercial channels is the most reasonable means to carry the idea forward
2. Take the course of action that supports commercialisation of the technology and work creatively to add value to the technology through the use of patent, proof of concept and internal and external evaluation resources
3. Work effectively with University inventors and innovators to support their aspirations, manage conflicts, comply with University regulations and encourage synergy with the mission of the University
4. Engage with industry and investors early to understand their requirements and find the best partner (licensee or start-up senior management and investors) to take the idea forward
5. Negotiate fair and reasonable terms that reflect the contribution of the assets and expertise being transferred
6. Negotiate and close the greatest number of the best possible deals
7. Look after the deals once they are closed to encourage commercialisation and optimise returns

Key Performance Indicators

Demonstrations of Impact

Commitment to commercialise and resulting income are the key metrics we use to demonstrate the impact of fundamental research. Consultancy, licence and equity transactions are contractual demonstrations of commitment to transfer

knowledge or commercialise the results of research and scholarly activities from Cambridge. Income from these efforts is demonstration that value is recognised in the market which leverages a highly skilled workforce, supports the tax base and more.

334 disclosures received

220 transactions completed

£8 million income received

£5.7 million returned to the University and academics

499 active IP and licence agreements under management including 143 research licences

117 new IP disclosures received

124 patent applications filed

83 IP transactions signed: 50 for commercial purposes and 33 for other purposes, including research licences

18 proof of concept projects supported by Cambridge Enterprise: 11 projects awarded funding totalling **£453k**, of which **£64k** was awarded from the Cambridge Enterprise Proof of Concept Fund and **£12k** awarded as Cambridge Enterprise Seed Fund Pathfinder Awards

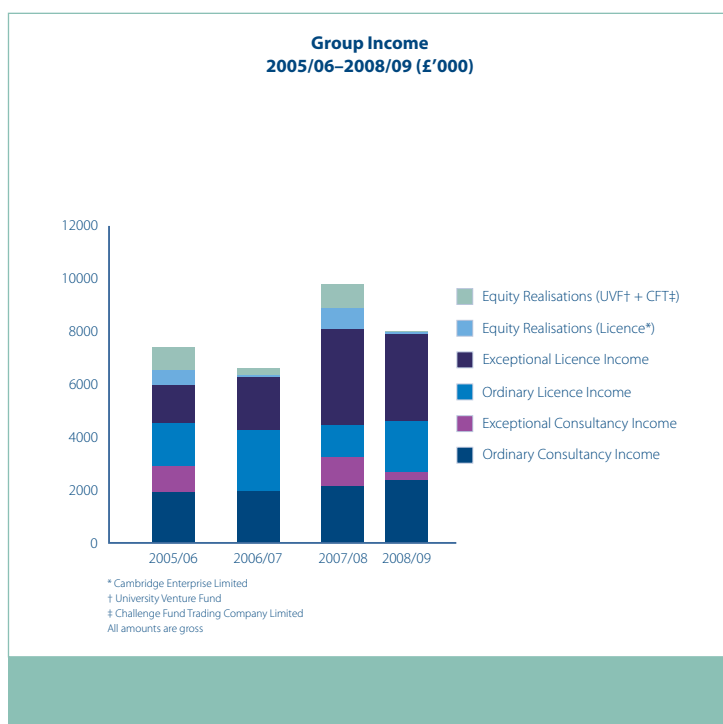
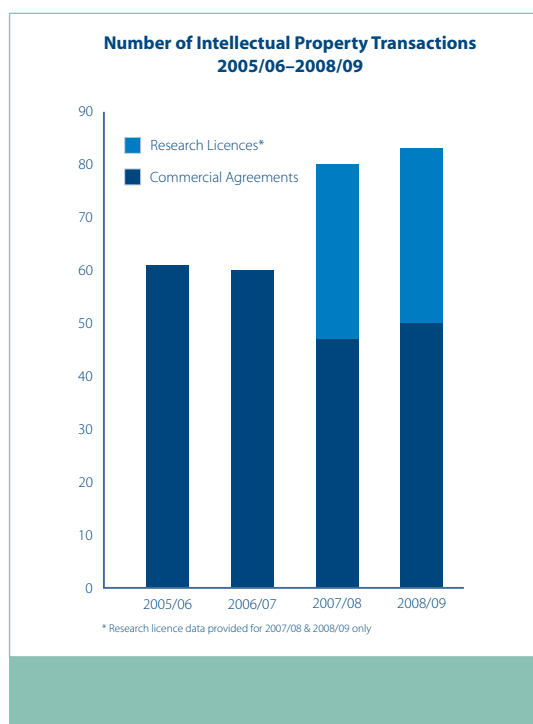
153 consultancy disclosures received (new consultancy projects)

124 consultancy agreements signed

64 new business ideas disclosed and reviewed

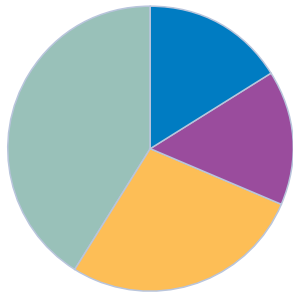
13 investments contributing new equity to the portfolio (**8** through **£349k** seed investment and **5** through IP investment)

72 companies in which Cambridge Enterprise holds equity



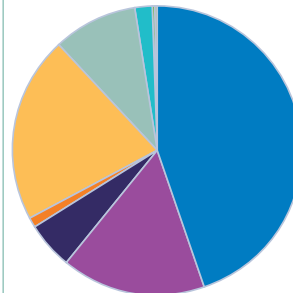
Performance & Activity Indicators

**Invention Disclosures by School
2008/09**



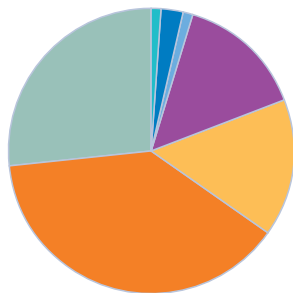
- School of the Biological Sciences
- School of Clinical Medicine
- School of the Physical Sciences
- School of Technology

**Income Distribution by School
2008/09**



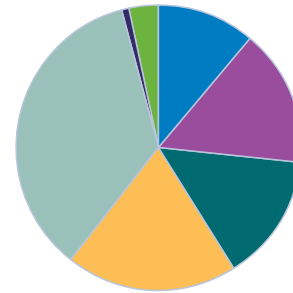
- School of the Biological Sciences (Licensing)
- School of Clinical Medicine (Consultancy)
- School of Clinical Medicine (Licensing)
- School of the Physical Sciences (Consultancy)
- School of the Physical Sciences (Licensing)
- School of Technology (Consultancy)
- School of Technology (Licensing)
- Other (Consultancy)
- Other (Licensing)

**IP Transactions Completed by School
2008/09**



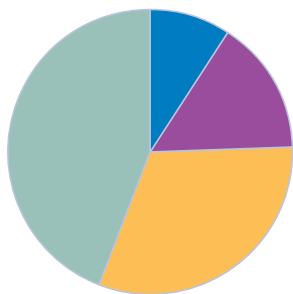
- School of Arts & Humanities (Commercial Agreements)
- School of the Biological Sciences (Commercial Agreements)
- School of the Biological Sciences (Research Licences)
- School of Clinical Medicine (Commercial Agreements)
- School of the Physical Sciences (Commercial Agreements)
- School of the Physical Sciences (Research Licences)
- School of Technology (Commercial Agreements)

**Consultancy Disclosures by School
2008/09**



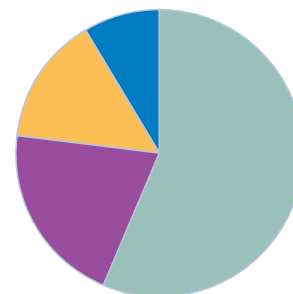
- School of the Biological Sciences
- School of Clinical Medicine
- School of Humanities & Social Sciences
- Institutions Independent of any School
- School of the Physical Sciences
- School of Technology
- University Offices

**Patent Filings by School
2008/09**



- School of the Biological Sciences
- School of Clinical Medicine
- School of the Physical Sciences
- School of Technology

**IP Transactions Completed by Region
2008/09**



- United Kingdom
- USA
- Other Europe
- Rest of World

Impact from Basic Research Now

Consultancy is well recognised as an effective way for universities to disseminate their knowledge and expertise. Through consultancy, long-term university research can make its earliest direct impact on society. Cambridge Enterprise provides a service to academics enabling them to channel consultancy projects through Cambridge University Technical Services (CUTS), a wholly owned subsidiary of Cambridge Enterprise Limited. Using CUTS enables the project to be recognised by the University, allows academics to identify their relationship with the University and to be insured under the University's policies.

This year has seen further expansion with resources growing to match demand. In April, Dr Paul Seabright was appointed as full-time Head of Consultancy Services to manage this rapidly expanding area. Repeat business from both external clients and academic consultants forms an important part of the business and is an endorsement of the quality of the services offered. This year has also seen a significant increase in first-time users.

In the past year:

- **25% increase in new projects**
- **11% increase in underlying income** (excluding exceptional projects)
- **39% increase in signed consultancy agreements**

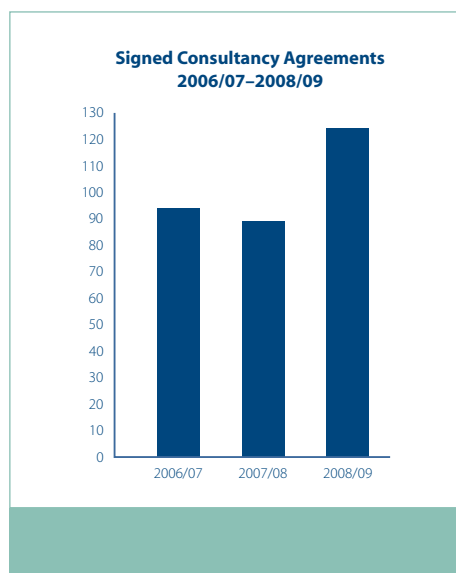
Departments in the Schools of Physical Sciences, Technology and Biological Sciences collectively earned £553k from the use of facilities. Additionally, many academics use this income to support their research activities and £313k was transferred to departments this year, with the Schools of Clinical Medicine and Technology being the major beneficiaries.

Highlights

- **153 new consultancy disclosures** received
- **124 consultancy agreements** signed
- **£2.7 million consultancy income** earned
- **90% of consultancy income returned to academics and departments**

Crossway House

CUTS contracted with architect Richard Hawkes for Michael Ramage of the Department of Architecture to design the roof structure of Crossway House. The building was designed using a 600-year-old tile vaulting technique, which uses local and sustainable materials to construct structures of enormous strength. CUTS later contracted with South African National Parks for the services of Ramage, John Ochsendorf and James Bellamy for a new visitor centre in South Africa using the same technique. The building went on to win several architecture awards, including World Building of the Year.



Crossway House, Staplehurst, Kent

Technology Transfer: Intellectual Property

Starting Earlier and Developing Further

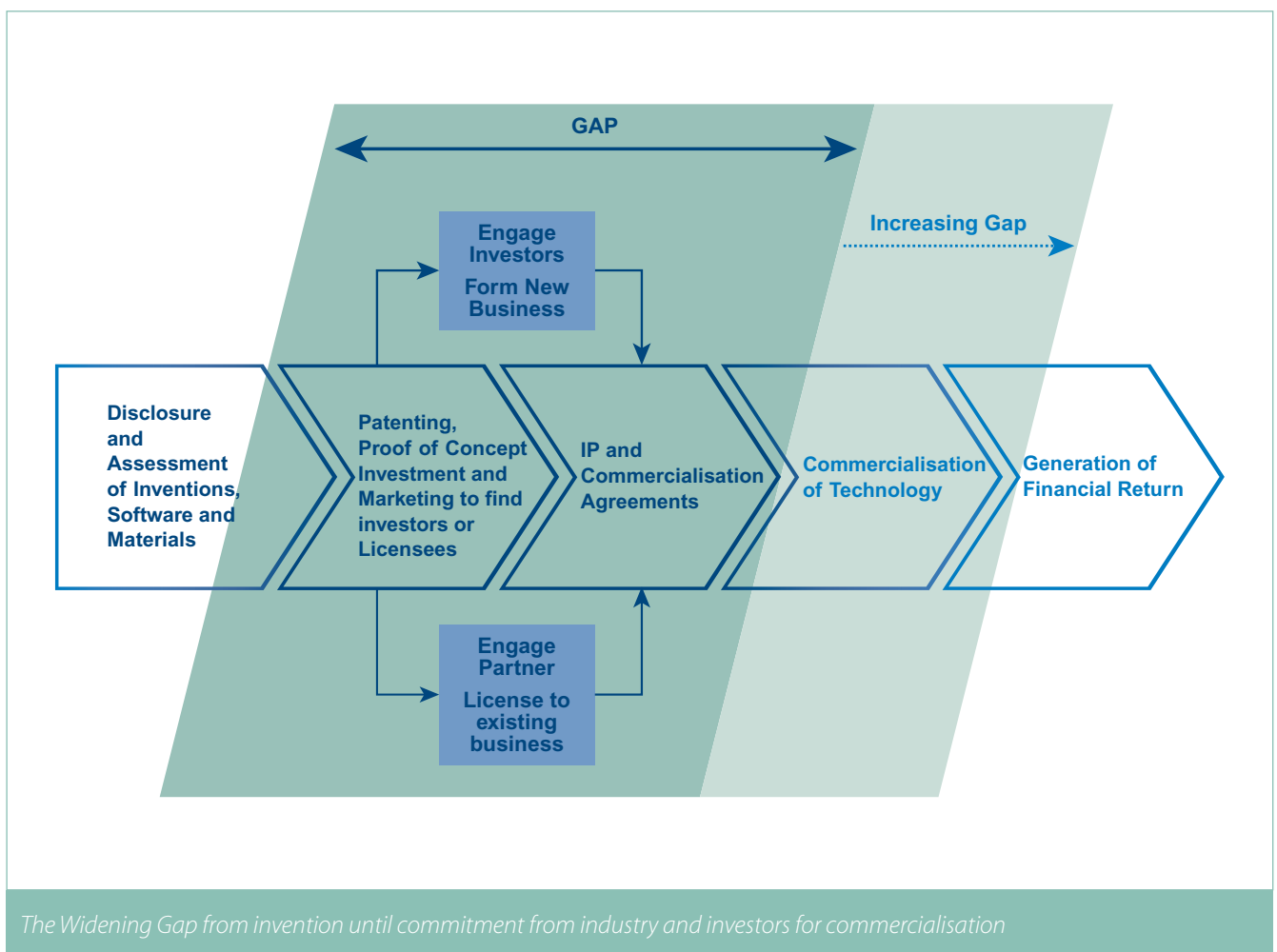
With the early stage funding gap (whether venture or industrial investment) growing each year, we are engaging earlier than ever to develop the resulting ideas further to ensure that they are more attractive to ever more demanding and scarce smart money, management and commercial partners.

Once we have a committed commercialisation partner, there is often a long road ahead until the impact is demonstrated in the market. Cambridge Enterprise has 499 active IP and licence agreements under management; over half of these are for products and services currently on the market. All of these agreements have generated income, however 82% of licence income for 2008/09 was generated by only 2% of the licences in the portfolio. Many of these income generating licence agreements were signed several years ago, with the length of time taken from initial disclosure to the signing of the first licence agreement ranging from 1.3 years to 16.7 years.

On average:

- 2.8 years from disclosure to first licence agreement signed
- 8 years from disclosure to licence income generated
- 10.3 years from disclosure to agreement of the first licence for the 4 highest earning licences in the portfolio 2008/09

The financial return to the University is modest compared to the significant economic impact as evidenced by the number of products and services reaching the market.



Demonstrating Commercial Potential

Business Activity

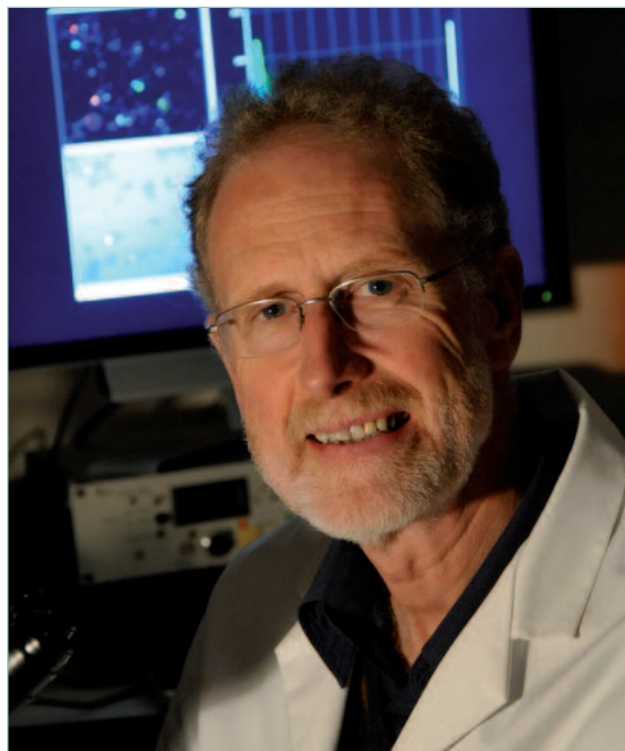
This year, the Life Sciences team concluded 33 licences in a range of technology areas. A highlight is the increasingly wide adoption, with 6 new licences, for Dr Peter Smielewski and Dr Marek Czosnyka's ICM+ software, providing improved data monitoring and management that contributes to research in intensive care settings. A licence to Peprotech for recombinant human activin A provides a significant price reduction to this key material for stem cell researchers. Start up companies from Cambridge academics provide a key platform for the development of early stage technology, with many licences to Psynova Neurotech and Smart Holograms.

Proof of Concept

A major focus has been the use of translational monies to secure proof of concept experiments, understand markets better and de-risk technologies to increase the chances of exploiting Cambridge technology. Cambridge Enterprise continues to support academics in winning translational funding and has deployed more resources (including CE funds) on a greater range of projects than in previous years including:

- Market access and analysis for a bio-fuels technology (Dr Dupree, Biochemistry)
- Acquisition of IP package (data, chemicals and supporting patent) for novel anti-infective molecules from a company which jointly owned the IP with CE that was unable to exploit the rights (Dr Matt Cooper, ex-Chemistry)

- Commissioning the design and manufacture of a prototype controller that enables radiographers to navigate intuitively through 3D medical images (Professor Lomas, Radiology)
- Working with PI and licensee to acquire animal data for molecules with antiviral properties (Dr David Brown, Pathology)
- Early stage validation and discovery work with Professor McNaughton (Pharmacology), where Cambridge Enterprise both assisted with his successful application for Biotechnology and Biological Sciences Research Council (BBSRC) follow-on funding and contributed to the required funds
- Market research report and IP evaluation for applications of a micro-droplet platform technology (Professor Chris Abell & Professor Wilhelm Huck, Chemistry)



*Professor Peter McNaughton
Department of Pharmacology, University of Cambridge*

Case Study

Improved Imaging for Medical Diagnosis

Advances in medical imaging mean that we are all familiar with spectacular depictions of the inside of the body. It is now commonplace for the data from scans using CT or MRI to be collected in a 3D format.

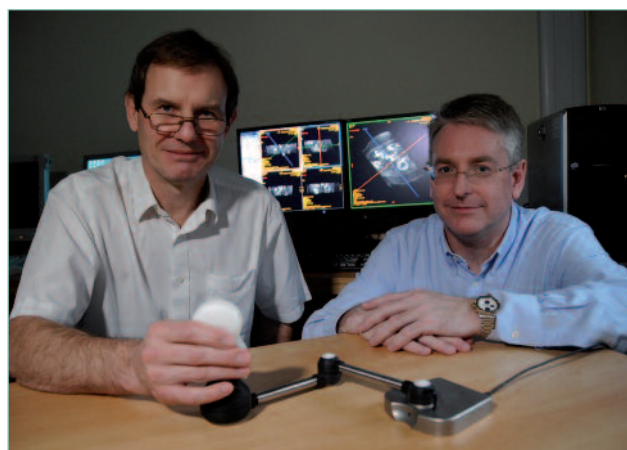
The most important view of this data for a clinician is a 2D slice through the 3D data. A good analogy is a stick of seaside rock. The writing runs through the whole stick in three dimensions and is easily read by slicing through the rock at any point. In the case of clinical data that slice may be any orientation, not just a vertical one.

3D clinical image data is analysed on computer workstations which can provide the required 2D slice. However, manoeuvring that slice to the optimal location to enable clinicians to see a particular structure such as a blood vessel or to see if the liver is free of tumours is not easy. It requires multiple mouse clicks and often results in the clinician being visually distracted and disorientated from the image.

Professor David J. Lomas (Department of Radiology) and his colleague Martin Graves realised that when examining a patient with standard ultrasound, it is possible to easily obtain the desired 2D view within the patient without visual distraction or

disorientation. They went on to use similar principles to design a new computer controller for 3D CT and MRI data that mimics an ultrasound probe.

Cambridge Enterprise is working with Professor Lomas and Martin Graves to make the controller a reality and to commercialise the technology to improve patient care. This has involved two rounds of proof of concept funding to build two prototypes and development of a portfolio of Intellectual Property which includes patent filings and design rights on the controller.



*Professor David Lomas and Martin Graves
Department of Radiology, University of Cambridge*

Partnering for Effective Commercialisation

This year 49 IP agreements were signed off in the Physical Sciences area – 17 licences for commercial purposes and 32 research licences.

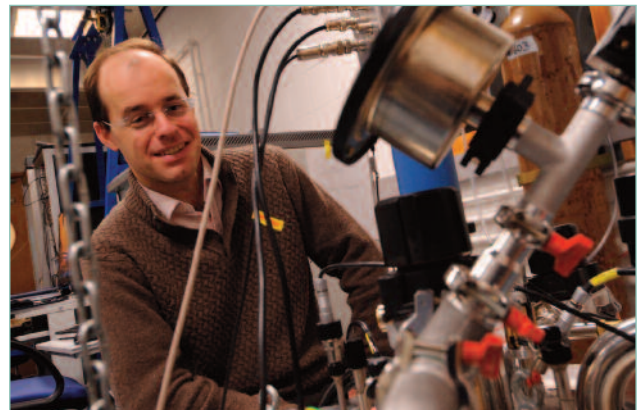
Highlights

- A licence to Advex for a device architecture for large public information signage using liquid crystal technology, from the group of Professor Bill Crossland and Dr Tony Davey
- A commercialisation agreement with the Defence Science and Technology Laboratory regarding a technology for the production of an ultra-hard steel by a new low temperature method. This steel is the outcome of many years of research by Professor Bhadeshia at the Department of Materials Science and Metallurgy, and is now being piloted by a major steel producer
- A licence to Cadbury for Professor Mackley's microcapillary film technology

In today's challenging economic climate, it is critical to renegotiate some agreements to ensure that companies are in a position to continue technology commercialisation. It has also been particularly important to use proof of concept funding wisely to add value to our technologies before licensing. We work with our inventors, the Research Councils and the East of England Development Agency to provide funding to perform market studies and to develop prototypes. Two examples of follow-on funding from the Engineering and Physical Sciences Research

Council stem from the Department of Engineering and relate to developing software from Professor Kenichi Soga for more efficient design of building foundations, and to producing demonstrator Liquid Crystal on Silicon (LCOS) devices for the telecoms industry in a group led by Professor Ian White.

A key role of the Physical Sciences team is fostering relationships with major commercialisation partners. In particular, we work with strategic partners to manage the intellectual property arising from the Centre for Advanced Photonics and Electronics (CAPE) and from the Photovoltaics Research Accelerator (funded by the Carbon Trust), and have this year concluded a new partnership agreement with Plastic Logic Ltd.



*Professor Henning Siringhaus
Department of Physics, University of Cambridge
Co-founder, Plastic Logic Ltd*

Case Study

Architecture Virtual Reality World

Autodesk® Navisworks® software solutions have provided thousands of projects worldwide with the ability to unite contributions from project design, engineering, construction and manufacturing professionals into a single building or process plant model. The result is a more efficiently constructed building.

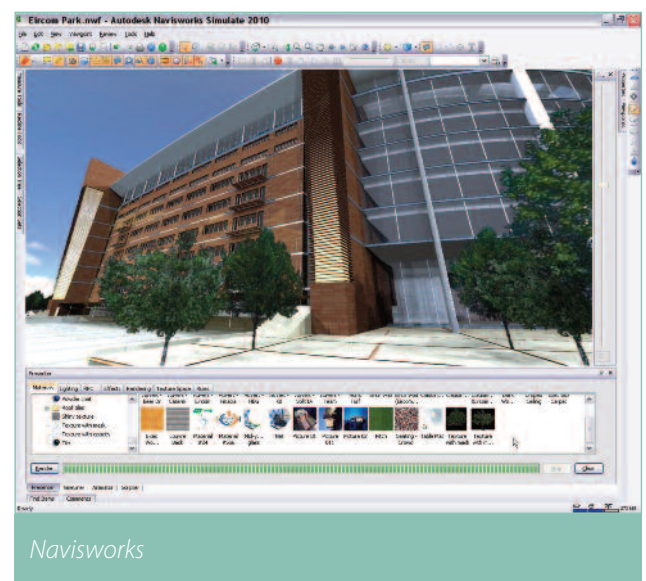
In an ideal world, the client and all the stakeholders undertaking the construction of a new factory, office building or large public building would be able to not only view the finished product but also walk through the structure. Autodesk Navisworks delivers real-time visualisations, enabling a walk-through and exploration of complex 3D models. The Navisworks software products provide stakeholders with a whole-project view, allowing for improved design decision making, construction documentation and performance prediction. Beyond construction, the software allows for the management and operation of the facility.

The origins of the software lie with the University of Cambridge's Department of Architecture, which in 1969 spun-out Applied Research of Cambridge, one of the first 'Cambridge Phenomenon' companies. Applied Research of Cambridge led the way in transforming building design from a paper base to computer modelling. Later, a successful Japanese descendant of this company, Informatix, funded further research by Paul Richens and Tim Weigand (ex-Computer Laboratory) at the Martin Centre, the results of which were licensed for commercial development to LightWork Design. Navisworks eventually separated from its parent, with Tim as Chief Technology Officer, to be acquired by Autodesk in 2007. Autodesk, a world-leading supplier of engineering software, has recently renewed a royalty agreement with Cambridge Enterprise covering the

technology which originated in the Department of Architecture.

In 2005 Navisworks won the Queen's Award for Enterprise, in recognition of doubling its exports of computer software during the previous three years. More recently, JetStream V5, part of the Autodesk Navisworks product family, was used in the construction of Heathrow Airport's Terminal 5, one of the UK's highest profile construction projects and one of the most logistically complex in Europe. The challenge was to reduce costs by 10%, or £375 million. The solution was a single 3D computer model created by the British Airports Authority and its project partners. This was used to design, build and ultimately maintain the terminal building. JetStream was used as a process checker and to view, review, detect clashes and extract information from a single building model.

Navisworks is regarded as an industry standard and will continue to help improve the efficiency of new builds and reduce costs.



Investing for the Public Benefit

Cambridge Enterprise Seed Funds manages three evergreen funds, with all realisations returned to the funds for reinvestment:

cambridge enterprise seed funds discovery fund | challenge fund | venture fund

University of Cambridge Discovery Fund

Established 2008
Target fund size £5 million
£1.3 million donated to date and
available for investment

University Challenge Fund

Established 2000
Fund size £4 million
Fully invested with realisations
available for reinvestment

University Venture Fund

Established 1995
Fund size £2.4 million
Fully invested with realisations
available for reinvestment

During the period 1 August 1995 to year ending 31 July 2009, the University funds*:

- Made **50 investments**, of which 47 were in new technology companies and 3 were in other early stage technology funds
- Portfolio companies raised over **£456 million in follow-on funding, plus £19.5 million in grant awards**, representing **a leverage of 56 times** the University investment

During the 2009 financial year:

- **22** of the **47** investee companies* have transferred technology from the University for public or business use via product sales or licensing and collectively **employed over 430 people**

* University funds and investee companies refer to investments through the University of Cambridge Discovery Fund, University Venture Fund and Challenge Fund Trading Company Limited for equity and does not include the investment of intellectual property for equity.

Seed Funds

Despite the economic downturn, our portfolio companies have had a successful year, both in terms of attracting the follow-on funding necessary to develop their technology products and in forging the business partnerships necessary for getting to market. 22 of our portfolio companies have bucked the economic trend, raising over £62 million in rounds ranging from £60k (Cambridge CMOS Sensors) to £9 million (Light Blue Optics). Although exits have been few this year, the continued growth of the portfolio builds a solid foundation for future years.

It has been a bumper year for projects under review and a high number of would-be entrepreneurs have engaged in our surgeries, mentoring programme and Mentoring Breakfasts.

Highlights

With the widespread success of our portfolio companies it is hard to select only a few highlights. In the life sciences, Chroma Therapeutics particularly deserves notice for its £1 billion deal with GlaxoSmithKline, providing a route to clinical development of their technology, which aims to discover and develop a new generation of targeted cancer and inflammation treatments. Other biotech companies continue to attract corporate collaborators for product development, including Astex Therapeutics and Horizon Discovery. In the physical sciences, Light Blue Optics is definitely one to watch after raising over £9 million this year to advance the company.

Our clean tech companies have also performed well. Enecsys raised \$10 million for its Series 'A' round from blue chip investors for the next stages of development of their micro-inverter for photovoltaic panels which could transform solar power generation, whilst Enval secured a number of waste handling agreements with multinational producers of laminated packaging and consumer goods manufacturers.

During 2008/09:

- 64 business ideas were reviewed
- 3 Pathfinder awards totalling £12k were awarded to support the development of new business ideas
- 8 new and follow-on investments of £349k were made in 6 companies
- Equity realisations of £160k were received
- £1.3 million was raised through donations to the University of Cambridge Discovery Fund for supporting new innovations and ventures
- £62 million raised by 22 of our portfolio companies

Investment Committee

Our Investment Committee has provided invaluable support to our team and our companies, on both new projects and existing businesses.

The Cambridge Enterprise Investment Committee comprises:

- **Mr John Lee**, *Chair*
- **Professor Gehan Amaratunga**, *Professor of Engineering and Head of Electronics, Power and Energy Conversion, University of Cambridge*
- **Mr Charles Cotton**, an investor in and adviser to venture capital firms with a background in technology innovation
- **Mr Laurence Garrett**, a seasoned venture capitalist with over 14 years' experience in the technology market
- **Dr Hermann Hauser**, *Founding Partner, Amadeus Capital Partners Ltd*
- **Dr Henry Kressel**, *Managing Director, Warburg Pincus LLC*
- **Mr Derek Jones**, *Chief Executive, Babraham Bioscience Technologies Ltd*
- **Professor Chris Lowe**, *Director, Institute of Biotechnology, Department of Chemical Engineering and Biotechnology, University of Cambridge*
- **Sir Keith Peters**, *Emeritus Regius Professor of Physic, University of Cambridge and Senior Consultant in R&D, GlaxoSmithKline*
- **Ms Teri Willey**, *Chief Executive, Cambridge Enterprise Limited*

Seed Funds

The University of Cambridge Discovery Fund

Critical to the University's ongoing success in ensuring impact from innovation is the raising of new sources of seed funding. This year, the University of Cambridge Discovery Fund was launched, as part of the University's 800th Anniversary Campaign, with an initial fundraising target of £5 million to support new ideas with commercial value arising from the University. This evergreen fund will provide an essential resource for proof of concept, pre-licence, pre-seed and seed investments, ensuring that the University has vital resources it needs to attract the best partners to commercialise new technologies for societal impact.

Despite the difficult environment for raising funds in the venture sector, the Discovery Fund reached a £1 million milestone after just eight months. Key

supporters, including Sir David Walker, Dr William H Janeway & Mrs Weslie R Janeway, Edward & Sally Benthall, Bruce & Elizabeth Dunlevie, Dr Mohamed A. El-Erian & Jamie W. El-Erian, Lord Roger Freeman, Professor Sir Richard Friend, The David Harding Charitable Foundation, Dr Andrew Herbert, Stephen Johnson, Professor Ian Leslie, Dr Jonathan Milner & Mrs Rosy Gounaris-Milner, Daniel Nabarro, Dr Nicola Nicholls, Roger Pilgrim & Nadine Majaro, The Quantum Fund, Walters Kundert Charitable Trust and Warburg Pincus are keen to help the University enable societal and commercial impact across the breadth of its research base, as well as gain an insight into entrepreneurial activity in Cambridge. Fundraising efforts will continue over the next year as the money is put to work in supporting new innovations and ventures.

The University of Cambridge Discovery Fund

Supporting the 800th Anniversary Campaign – Our Freedom to Discover

The Discovery Fund is a unique renewable resource that offers donors the opportunity to support the University many times over. A gift to the Discovery Fund:

- is vital in supporting the University's world-leading position through entrepreneurship
- is an effective way to support a significant priority in the University, of ensuring impact from fundamental and basic research
- will be put to work right away to support promising innovations
- will have an impact that goes well beyond the initial gift as realisations will be returned to the fund to support future innovations
- can be followed as it works, by tracking innovations launched as a result of a gift
- is a wonderful way of supporting innovation and smoothing the path for future entrepreneurs

For further information please visit www.enterprise.cam.ac.uk

Information on the 800th Anniversary Campaign can be found at www.alumni.cam.ac.uk/campaign/



Case Studies

Enecsys

This year was very successful for Enecsys. Founded in 2003 by Gehan Amaratunga, Asim Mumtaz and Lesley Chisenga with £90k of investment from Cambridge Enterprise Seed Funds, Enecsys is developing a micro-inverter for photovoltaic panels that promises to revolutionise the solar industry by enabling higher performance and lower cost 'plug and play' solar power systems. Enecsys' patented technology was developed from research funded by the Engineering and Physical Sciences Research Council. Enecsys has raised \$10 million in Series 'A' funding from blue chip investors, Wellington Partners and BankInvest. Bridge funding from Cambridge Enterprise Seed Funds and co-investors Winsome was critical in ensuring that Enecsys could secure its 'A' round, which closed in June 2009. Enecsys now has sufficient funds to manufacture and promote its product and looks forward to a bright future.



From left: Asim Mumtaz, Lesley Chisenga, Gehan Amaratunga

Photo: Enecsys

Psynova Neurotech

Psynova Neurotech has succeeded where many others have failed – by finding relevant biomarkers to diagnose and monitor disease. Psynova was founded in 2005 to build on Sabine Bahn's understanding of schizophrenia and bipolar disease and research funded by the Stanley Medical Foundation. Since then, Psynova has built an impressive network of clinical collaborations to help understand which biomarkers define these diseases and their progression. In 2008 Psynova entered into collaboration with US company Rules Based Medicine, giving access to development funding and most importantly a route to market for their first product.



Dr Sabine Bahn

Enterprise Champions

Building Strong Links with Departments

Enterprise Champions act as ambassadors within their University departments and institutions, providing academics, researchers and students easy access to someone who has an understanding of the support for commercialisation available in the University.

Meetings are held three times per year to bring together the Enterprise Champions and Cambridge Enterprise to discuss commercialisation issues and related University initiatives. These meetings also provide a forum for Enterprise Champions and Cambridge Enterprise to share knowledge and experience in commercialisation and intellectual

property, covering such topics as case evaluation and the decision making processes, commercialising intellectual property and an overview of the services for University members offered by Cambridge Enterprise.

The Enterprise Champions programme continues to evolve, with Ted Briscoe, Tim Minshall and Bill Colledge joining during 2008/09. The enthusiastic contributions of Champions Nabeel Affara, Steve Jackson, Alex Webb, John Archer and Duncan Maskell are greatly appreciated as they pass the Enterprise Champion baton on to colleagues within their departments.

“My role within the Department includes raising awareness of opportunities for technology transfer, interaction with the business community and generation of intellectual property. As such, it is helpful to know who is who within Cambridge Enterprise, and how Cambridge Enterprise operates in general. Progress is much accelerated if you know who to contact at Cambridge Enterprise on an IP related query. Meeting Cambridge Enterprise staff on a regular basis at the Enterprise Champions meetings facilitates this very well. The meetings also help to network with members of other departments with interests in the application and commercialisation of research. The meetings provide a regular forum to meet with the Pro-Vice-Chancellor for Research – a useful way to raise their awareness of what is happening in the Department.”

Dr Beatrix Schlarb-Ridley

Department of Plant Sciences

Enterprise Champions



Mr Michael Ramage
Architecture



Professor Peter Leadlay
Biochemistry



Dr Andrea Kells
Biological Sciences



Professor David Rubinsztein
*Cambridge Institute for
Medical Research*



Dr Shai Vyakarnam
*Centre for
Entrepreneurial Learning*



Professor Chris Lowe
*Chemical Engineering &
Biotechnology*

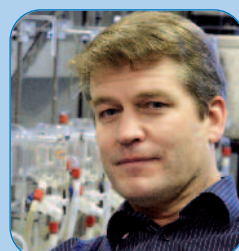
Photo: Nathan Pitt



Professor Stephen Elliott
Chemistry



Professor David Klenerman
Chemistry



Dr Anthony Davenport
Clinical Pharmacology



Professor Ted Briscoe
Computer Laboratory



Mr David Carter
Education



Professor Florin Udrea
Electrical Engineering



Mr Philip Guildford
Engineering



Dr Tim Minshall
Institute for Manufacturing



Dr Rachel Hobson
Materials Science & Metallurgy



Dr Tai-Ping Fan
Pharmacology



Professor Mike Payne
Physics



Michael Simmons
Physics



Dr Bill Colledge
*Physiology, Development &
Neuroscience*



Beatrix Schlarb-Ridley
Plant Sciences



Dr Paula Buttery
*Research Centre for English &
Applied Linguistics*



Dr Raymond Bujdoso¹
Veterinary Medicine



Dr David Aldridge¹
Zoology

¹Joined December 2009

Marketing

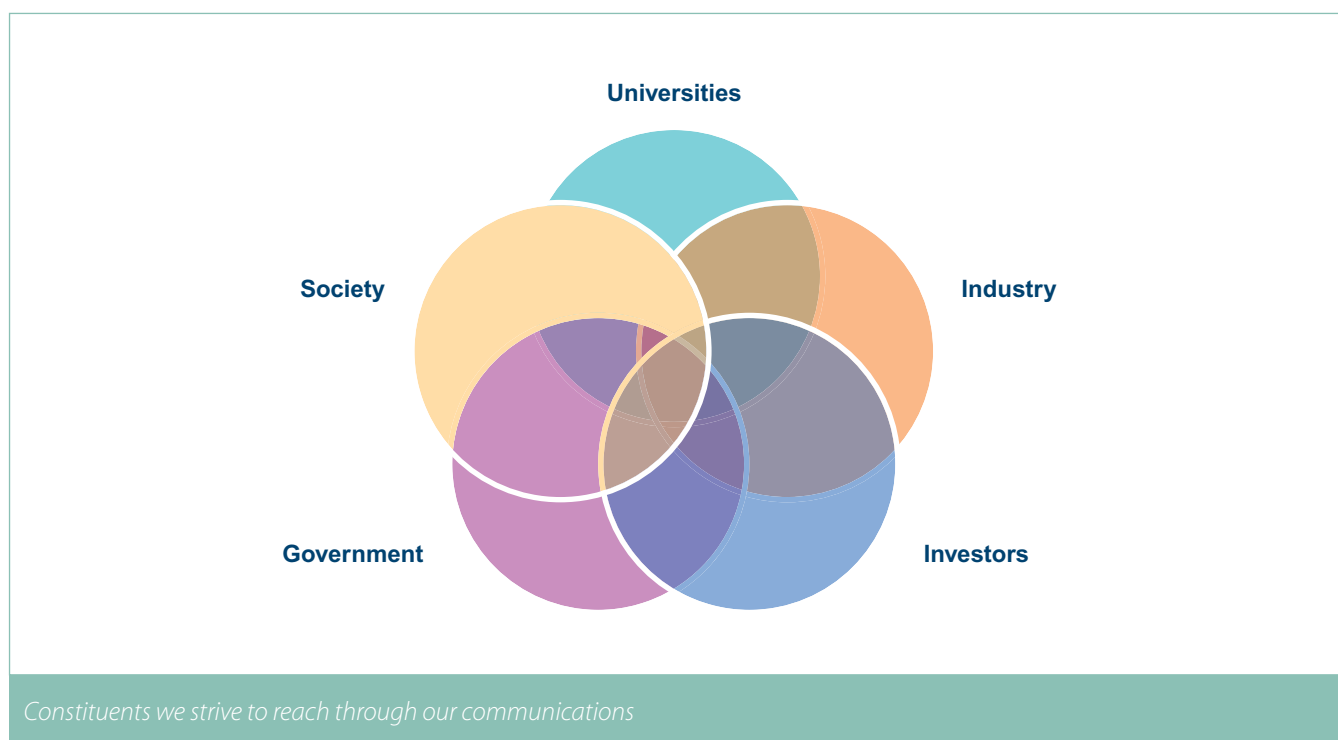
Communicating Impact

The University of Cambridge has a long history of scientific breakthroughs that have helped to transform the world. The names of Watson and Crick are instantly recognisable for their discovery of the structure DNA. In the future the names of Waldmann, Amaratunga and Bahn may also gain this level of recognition. Professor Herman Waldmann's research into immunological tolerance and methods to improve bone marrow transplants resulted in Campath, improving the lives of people with chronic lymphocytic leukaemia and potentially, if trials are successful, multiple sclerosis patients. Professor Gehan Amaratunga has co-founded a number of University spin-out companies, including CamSemi, a fabless semiconductor company developing new generations of power ICs; Enecsys, a clean tech company developing micro-inverter systems for high solar reliability; and Wind Technologies, a clean tech company developing a new brushless generator system for wind turbines. Dr Sabine Bahn's pioneering work in the area of novel biomarkers for neuropsychiatric and other mental illnesses resulted in her founding Psynova Neurotech. The company is initially concentrating on the commercial development and exploitation of novel biomarkers for schizophrenia and bipolar affective disorder.

Through case studies, press releases and impact reports, the Marketing team effectively communicates often complex scientific ideas and principles to a wide and varied audience. In many cases, this provides the opportunity to explore the science behind the headlines and enlighten the reader about the 'eureka' moment of that sometimes unexpected discovery.

Fundamental research is critical to providing the technological breakthroughs which have significant positive societal and economic impact. By highlighting these breakthroughs back to the research funders, the Marketing team is able to demonstrate to the funders the impact of their contribution to the basic research, further illustrating the need for continued funding of basic research to continue scientific developments and innovation for the benefit of all.

The Association of Technology Managers (AUTM) Better World Report further demonstrates how basic research results in scientific advancements which have a significant positive impact on the world. The 2009 report included two of our portfolio companies leading the way in the field of medical diagnosis and treatment: Psynova Neurotech in schizophrenia and Diagnostics for the Real World in the treatment of chlamydia.



Governance & Structure

From Innovation to Impact

Cambridge Enterprise is governed and structured to support and demonstrate impact from basic research through consultancy, licensing of intellectual property and equity transactions. This is achieved through a solid Board, management team and governance structure. A wholly owned affiliate of the University of Cambridge, Cambridge Enterprise is a limited company with the University as its sole shareholder.

The Cambridge Enterprise Board of Directors has a fiduciary responsibility to the University as shareholder

and reports to the University through the University Finance Committee.

The Board members are appointed by the University and include three members external to the University, four members internal to the University and up to three members of Cambridge Enterprise Limited (including the Chief Executive). The Director of Finance for the University is the shareholder's representative and observer to the Board. The University Registry is the Company Secretary.

The members of the Cambridge Enterprise Board of Directors are:

- **Lord Freeman** *Chairman*
- **Professor Chris Abell**, *Professor in Biological Chemistry, University of Cambridge*
- **Mr Charles Cotton**, an investor in and adviser to venture capital firms with a background in technology innovation
- **Professor Sir Richard Friend**, *Cavendish Professor of Physics, University of Cambridge*
- **Professor Lynn Gladden**, *Pro-Vice-Chancellor for Research, University of Cambridge*¹
- **Professor Ian Leslie**, *Pro-Vice-Chancellor for Research, University of Cambridge*²
- **Professor Tony Minson**, *Professor of Virology, University of Cambridge*³
- **Dr J Nicola Nicholls**, a former scientist with a background in private equity
- **Ms Teri Willey**, *Chief Executive, Cambridge Enterprise Limited*
- **Dr Richard Jennings**, *Director, Technology Transfer & Consultancy Services, Cambridge Enterprise Limited*
- **Ms Nicola Anson**, *Director, Finance & Operations, Cambridge Enterprise Limited*⁴



Lord Freeman



Professor Chris Abell



Mr Charles Cotton



Professor Sir Richard Friend



Professor Lynn Gladden



Professor Ian Leslie



Professor Tony Minson



Dr J Nicola Nicholls



Ms Teri Willey



Dr Richard Jennings



Ms Nicola Anson

¹ With effect from 1 January 2010

² Until 31 December 2009

³ With effect from 7 October 2009

⁴ Until 22 December 2009

Positive Impact from Basic Research

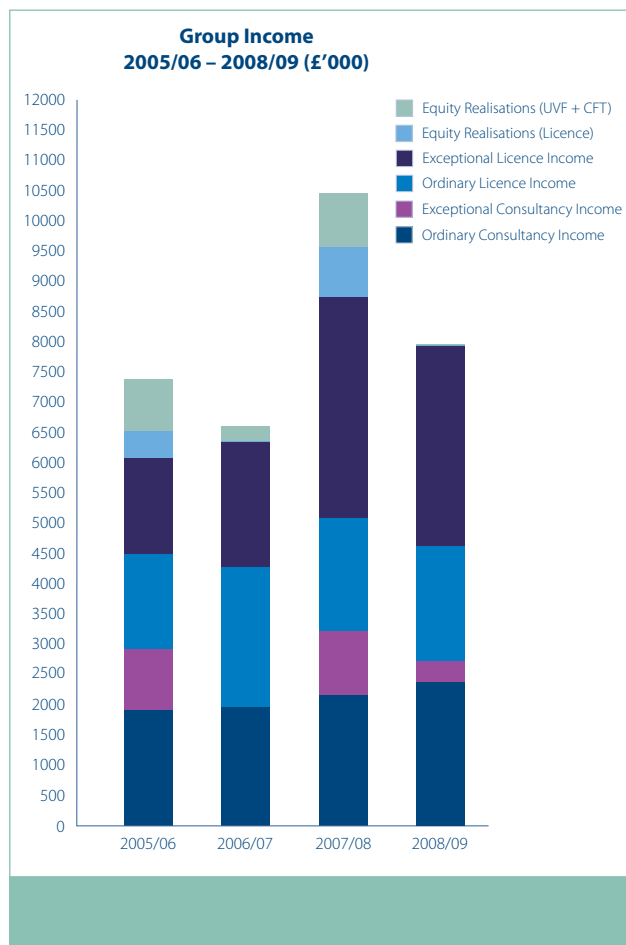
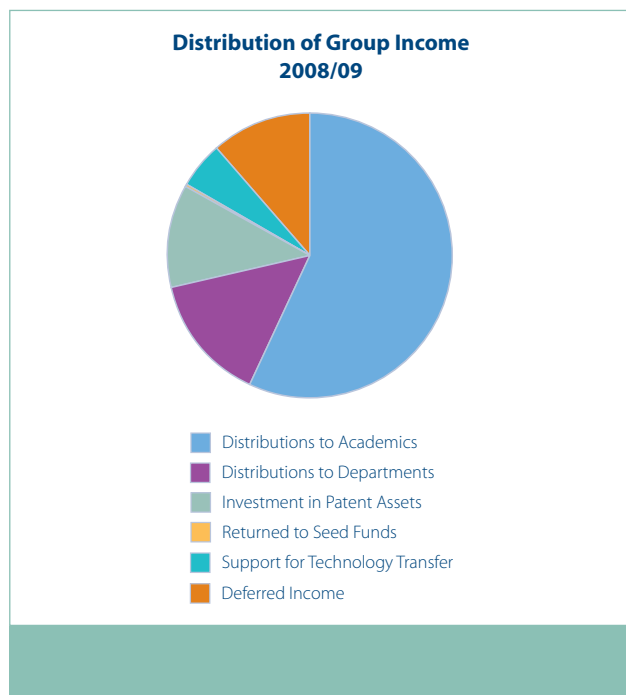
Income from knowledge and technology transfer activities represents an impact of basic research. The income reported here illustrates that the results of the research and scholarly activities at Cambridge are valued in the market place and are part of the economic multiplier which supports a highly skilled workforce critical to the UK tax base and our national economic health. Moreover it is an indicator of our impact on the world.

Cambridge Enterprise had a successful year despite the economic downturn. 2008/09 income from knowledge and technology transfer activities was £8 million, of which £5.7 million was or will be distributed to academics and departments to encourage participation in knowledge and technology transfer.

A further £940k was invested in intellectual property assets, £17k returned to the seed funds to support new opportunities and the remainder was used to support University academics in commercialising their ideas, implementation of the University's regulations on intellectual property rights and supporting government-mandated third stream initiatives.

Total group income from licensing, consultancy and equity realisations was 33% ahead of plan¹ and operating costs in line with plan. Equity realisations were significantly down from last year; however, the portfolio was solid with 22 of the companies in the portfolio successfully raising new money.

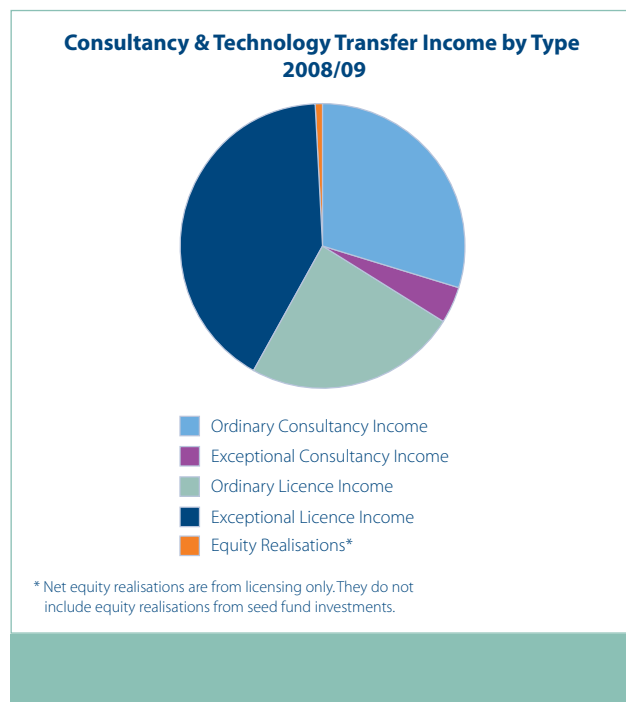
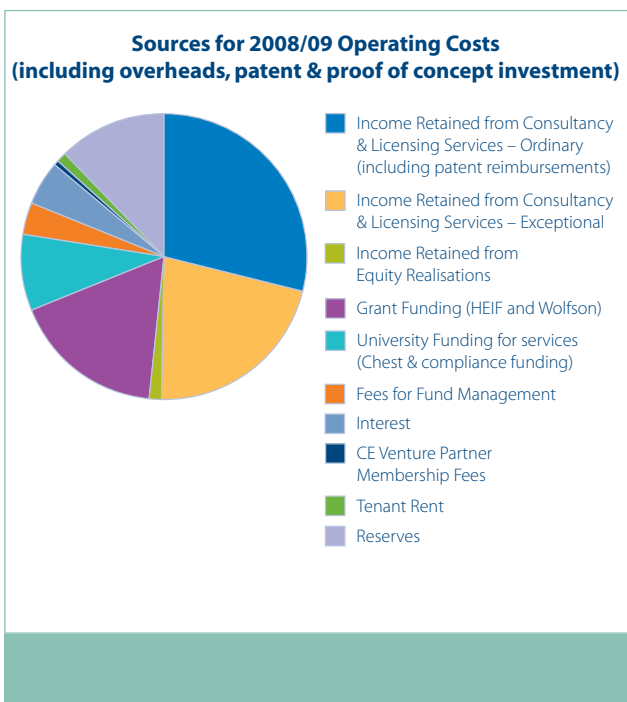
Amounts distributed to academics came from consultancy (including private practice²) and licensing income. The distribution to departments includes amounts donated to departments by academics under licence and consultancy arrangements, reimbursement for use of departmental resources and the department share of licence income.



¹ Business plan approved by the University Finance Committee, May 2008.

² Private practice billing represents the income Cambridge Enterprise collects from patients who are provided with services from University clinical staff's private practices, as set out in the recommendation of the General Board of 12 July 2000 and Grace of 10 November 2000.

Financial Performance



Group Income & Expenditure Summary

	2008/09 ⁶ £'000	2007/08 ⁶ £'000
Ordinary Income		
Income Generated from Activities (ordinary)	4,699	4,049
Income Generated from Activities (exceptional) ¹	3,300	5,472
Income Generated from Activities²	7,999	9,521
Operating Costs	(2,557)	(2,478)
Other Operating Income (ordinary) ³	1,578	1,177
Interest	172	265
Net Income (after Operating Costs)	7,192	8,485
Investment in Patent Assets	(940)	(628)
Distributions to Academics ⁴	(5,474)	(6,676)
Distributions to University Departments ⁵	(1,161)	(1,455)
Total Investments & Distributions	7,575	8,759
Net Profit for the Year	(383)	(274)

Group Accounts

The Group Income & Expenditure summary comprises consolidated results for Cambridge Enterprise Limited and its wholly owned subsidiary company, Cambridge University Technical Services Limited presented in a management accounts format.

¹ Exceptional income includes non-recurring exceptional consultancy income, exceptional licensing income and non-recurring equity realisations from licensing.

² Includes income from consultancy and technology transfer activities, and patent reimbursements.

³ Includes £285k Chest funds as well as grant income from HEIF, allocation from Wolfson and other sources.

⁴ Includes distributions to academics for consultancy and technology transfer activities as well as reimbursements to departments for certain consultancy costs and deferred income.

⁵ The distribution to departments includes amounts donated to departments (academic consultants regularly donate their fees to the department) under consultancy agreements and the department share of licence income.

⁶ The financial year is 1 August – 31 July.

Financial Performance

Equity Managed by Cambridge Enterprise

	Cambridge Enterprise Limited¹	Challenge Fund Trading Company Limited²	University Venture Fund³	Total
	(£'000)	(£'000)	(£'000)	(£'000)
Investment Valuation as at 31 July 2009 ⁴	6,782	2,016	1,916	10,713
Investment Valuation as at 31 July 2008 ⁴	8,081	2,325	2,177	12,583
Equity Realisations for the year to 31 July 2009 ⁵	45	100	15	160

¹ Cambridge Enterprise Limited is a wholly owned subsidiary of the University of Cambridge.

² The Challenge Fund Trading Company Limited is a wholly owned subsidiary of the University of Cambridge, managed by Cambridge Enterprise.

³ The University Venture Fund is held by the University of Cambridge, managed by Cambridge Enterprise.

⁴ Investments are recorded at valuation as set out in the International Private Equity and Venture Capital Guidelines (October 2006)

⁵ Equity realisations principally represent deferred proceeds from prior year realisations

Modest overheads are incurred in managing both seed funds. These costs are recovered in part from the Challenge Fund and from 1 February 2008 are also recovered in part from the University Venture Fund.

Equity Portfolio

As at 31 July 2009

Cambridge Enterprise Limited

CE holdings

Advex Corporation	Granta Design Ltd
Arctic AX	iLexIR Ltd
Biotica Technology Ltd	Illumina (formerly Solexa)
British Titanium*	Ionscope Ltd
Cambridge Biotransforms Ltd (formerly Pollution Technologies Ltd)	Light Blue Optics Ltd
Cambridge Flow Solutions Ltd	Metris Therapeutics Ltd*
Cambridge Innovision Ltd	Microbial Technics Ltd
Cambridge Superconductors Ltd	Orthomimetics Ltd
Cambridge Theranostics Ltd	Polatis Ltd
Cavendish Kinetics Inc	Procognia Ltd (formerly Sense Therapeutics Ltd)
CEDAR Audio Ltd	Pronostics Ltd (formerly SmartBead Technologies Ltd)*
Chroma Therapeutics Ltd	Q-Flo Ltd
Citrix (formerly XenSource Ltd)	Raindance Technologies Ltd
Clinical and Biomedical Computing Ltd	RevelationBio Ltd
Diagnostics for the Real World Ltd	Smart Holograms Ltd
E-Stack Ltd	Sound ID
Expedeon Ltd (formerly Novexin Ltd)	The CRISP Consortium Ltd
Fibrecore Developments Ltd	Urosens
Funxional Therapeutics Ltd	WAX Info Ltd (formerly Cambridge Centre for Informatics)
Galapagos (Biofocus plc)	Zinwave Ltd

Challenge Fund Trading Limited

CE & CFT holdings

Cambridge Lab on Chip Ltd
Camfridge Ltd
Vivamer Ltd

CFT holdings

British Stem Cell Registry Ltd
Lumora Ltd

CE, CFT & UVF holdings

Akubio Ltd*
Cambridge Semiconductor Ltd
CellCentric Ltd
Enecsys Ltd
Enval Ltd
Metalysis Ltd
Psynova Neurotech Ltd

CFT & UVF holdings

Ampika Ltd
BlueGnome Ltd
Cambfix Ltd
Daniolabs (then Vastox, now
Summit)
Horizon Discovery Ltd
Inotec AMD Ltd
Optisynx Ltd
Sentinel Oncology Ltd

CE & UVF holdings

Astex Therapeutics Ltd
Cambridge CMOS Sensors
Cambridge Mechatronics Ltd
(formerly 1 Ltd)
De Novo Pharmaceuticals Ltd
Plastic Logic Ltd
Teraview Ltd

UVF holdings

Avlar BioVentures Ltd 1
Avlar BioVentures Ltd 2
Hypertag Ltd
Phico Therapeutics Ltd
Spirogen Ltd
Surface Generation Ltd

University Venture Fund

* In Liquidation

Looking Ahead

This year marks our second full financial year of operations as a wholly owned affiliate of the University of Cambridge. During this period Cambridge Enterprise has emerged as an example in how to support benevolent missions whilst practising business well. In doing so, as reported herein, Cambridge Enterprise has demonstrated the impact of remarkable research at the University through strong partnerships with companies and investors.

Looking ahead, Cambridge Enterprise embraces the challenge of increased demands in supporting commercialisation of research results and continuous improvement in the face of diminishing resources for early stage investment and financial support for knowledge and technology transfer.

As we are asked to do more with less, we realise how critical our donors are to us. We are grateful to our contributors to the Discovery Fund, recognising the increasing importance of philanthropic support where public funding and early commercial funding is shrinking. Likewise, we are grateful to the Hauser-Raspe Foundation for the state-of-the-art Hauser Forum, creating an enterprise hub to encourage the culture as well as practical transactions critical to technology transfer.

The innovations of Cambridge academics represent solutions to our most daunting problems in energy, healthcare, food and water. Some of these solutions are emerging from the current portfolio and some are yet to be discovered. With your support, we are poised to assist their development.

Finally, it is a pleasure to work with the staff of Cambridge Enterprise who demonstrate their unrelenting determination to support commercialisation of science for the benefit of society each day.

Lord Freeman

Chairman



Lord Freeman



*Dr Hermann Hauser & Dr Pamela Raspe
Topping out Ceremony at the Hauser Forum*

Company Information

Cambridge Enterprise Limited

University of Cambridge

Hauser Forum, 3 Charles Babbage Road, Cambridge CB3 0GT

Company Number: 1069886

Registered in England and Wales.

Registered Office:

The Old Schools, Trinity Lane, Cambridge CB2 1TN

Cambridge University Technical Services Limited

Company Number: 5749230

Registered in England and Wales.

Registered Office:

The Old Schools, Trinity Lane, Cambridge CB2 1TS

The Challenge Fund Trading Company Limited

trading as **Cambridge Enterprise Seed Funds**

Company Number: 3878072

Registered in England and Wales.

Registered Office:

The Old Schools, Trinity Lane, Cambridge CB2 1TS



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