

cambridge **enterprise**  
commercialising University research

Annual Review 2011



UNIVERSITY OF  
CAMBRIDGE

## From the Pro-Vice-Chancellor (Research)



Professor Lynn Gladden

One of the University of Cambridge's core values is to contribute to society through the pursuit, dissemination, and application of knowledge. Cambridge Enterprise works in support of this by ensuring that Cambridge innovations have a positive and measurable impact on society.

As identifying impact from research becomes an increasingly high profile aspect of the higher education agenda, the work which Cambridge Enterprise does in commercialising research results is more important than ever. A constructive and continual dialogue between industry and the University is key in order to understand the requirements of industry and find the best partner to take University ideas forward.

In the four years since its formation as a wholly owned subsidiary of the University, Cambridge Enterprise has supported more than 1,000 academics at all stages of the commercialisation process, from supporting grant applications, to facilitating consultancy agreements, to licensing and company formation. The impact of Cambridge research can be seen in the financial return it provides, and in the continuing growth of the Cambridge Phenomenon, one of the most productive technology clusters in the world.

However, impact is not just measured in the number of patents filed or new spin-outs created. Our primary goal when commercialising research is to ensure that Cambridge ideas have a positive impact on society, regardless of the financial return. To achieve this, continued government support and funding of basic and fundamental research is vital, as this is where the most transformative discoveries have originated in the past and will continue to originate in the future.

**Professor Lynn Gladden**  
Pro-Vice-Chancellor (Research)  
University of Cambridge

## From the Interim Chief Executive



Dr Richard Jennings

This Review marks four successful years for Cambridge Enterprise as a separate company and the completion of a very favourable review of our activities by the University, but also the return of our former CEO, Teri Willey, to the US in June 2011.

Under her leadership, income from licensing, consultancy and equity transactions exceeded £37 million over the past four years. Over £30 million of that amount was returned to the University and to the researchers whose ideas are the foundation of important products and businesses.

Cambridge Enterprise is one of Europe's leading technology transfer offices, engaging with a wide range of individuals and organisations in order to facilitate the dissemination of the results of Cambridge's research through commercial channels. We achieve this by coupling the outcomes of fundamental research with proof of concept funding and best practice technology transfer and consultancy. With the continued support of the University and government, our successes will continue.

Over the past year, and despite the complex external economic environment, the Cambridge Enterprise team completed 116 licences, signed 183 consultancy contracts and returned more than £468,000 to our evergreen seed funds through equity transactions. Income from licensing is up 24% over last year, income from consultancy has increased by 37%, and our portfolio companies raised more than £189 million in new and follow-on funding, including \$200 million raised by Plastic Logic.

It continues to be a privilege to work with the Cambridge Enterprise team, as well as our directors, academic partners and business colleagues. We thank all of them for their support in ensuring the continuing and future impact of Cambridge ideas and innovations.

**Dr Richard Jennings**  
Interim Chief Executive  
Cambridge Enterprise Limited

## Key performance indicators

Cambridge Enterprise is responsible for the commercialisation of University of Cambridge intellectual property. The company delivers its mandate through three overlapping business units: technology transfer services, consultancy services and seed fund services. Over the past financial year, Cambridge Enterprise achieved the following:

### £10.2 million

income from licensing, consultancy and equity transactions, of which **£8.4 million** was returned to the University, academics and departments

### 440 disclosures

comprising **154** IP disclosures, **232** consultancy disclosures and **54** new business ideas

### 116 licences signed

**85** for commercial purposes and **31** for other purposes, including research licences

### 695 active agreements

under management, including **202** research licences

### 40 proof of concept

and follow-on funding projects supported by Cambridge Enterprise; **25** projects awarded funding totalling **£4.1 million**, of which **£160,000** was awarded from Cambridge Enterprise's proof of concept fund

### 168 patent applications

filed, of which **60** were priority applications, **45** were international Patent Co-operation Treaty (PCT) applications and **63** were national applications

### 183 consultancy contracts

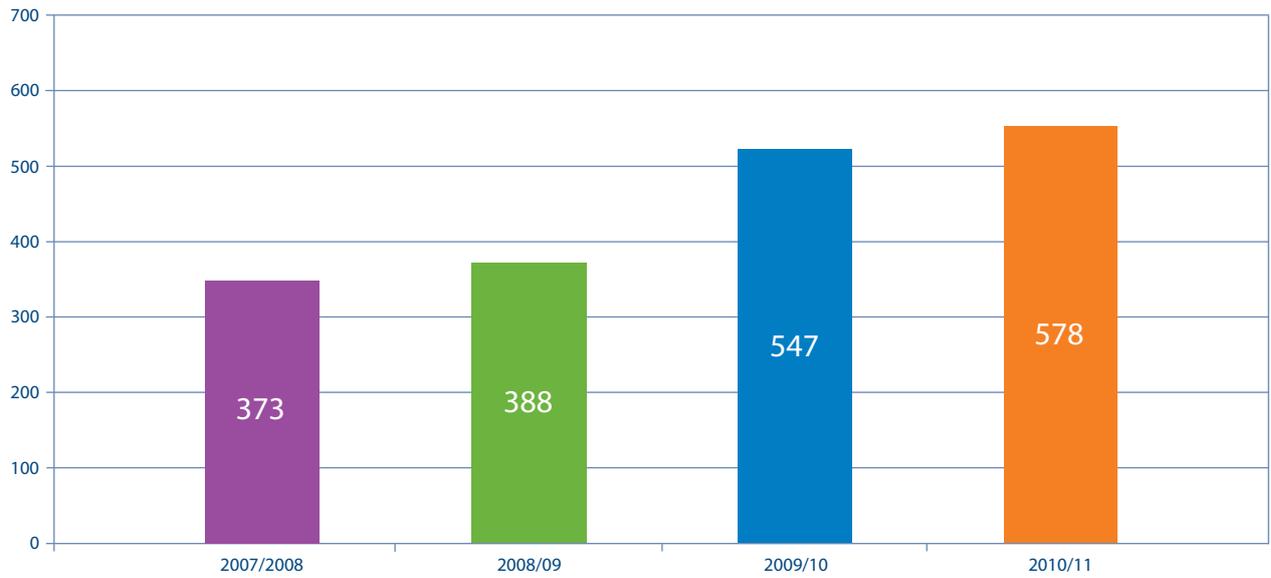
agreed, an increase of **11%** over 2009/10

### 68 companies

in the Cambridge Enterprise portfolio, of which six contributed new equity to the portfolio in 2010/11

# Key performance indicators

### Cumulative transactions 2007/08 to 2010/11

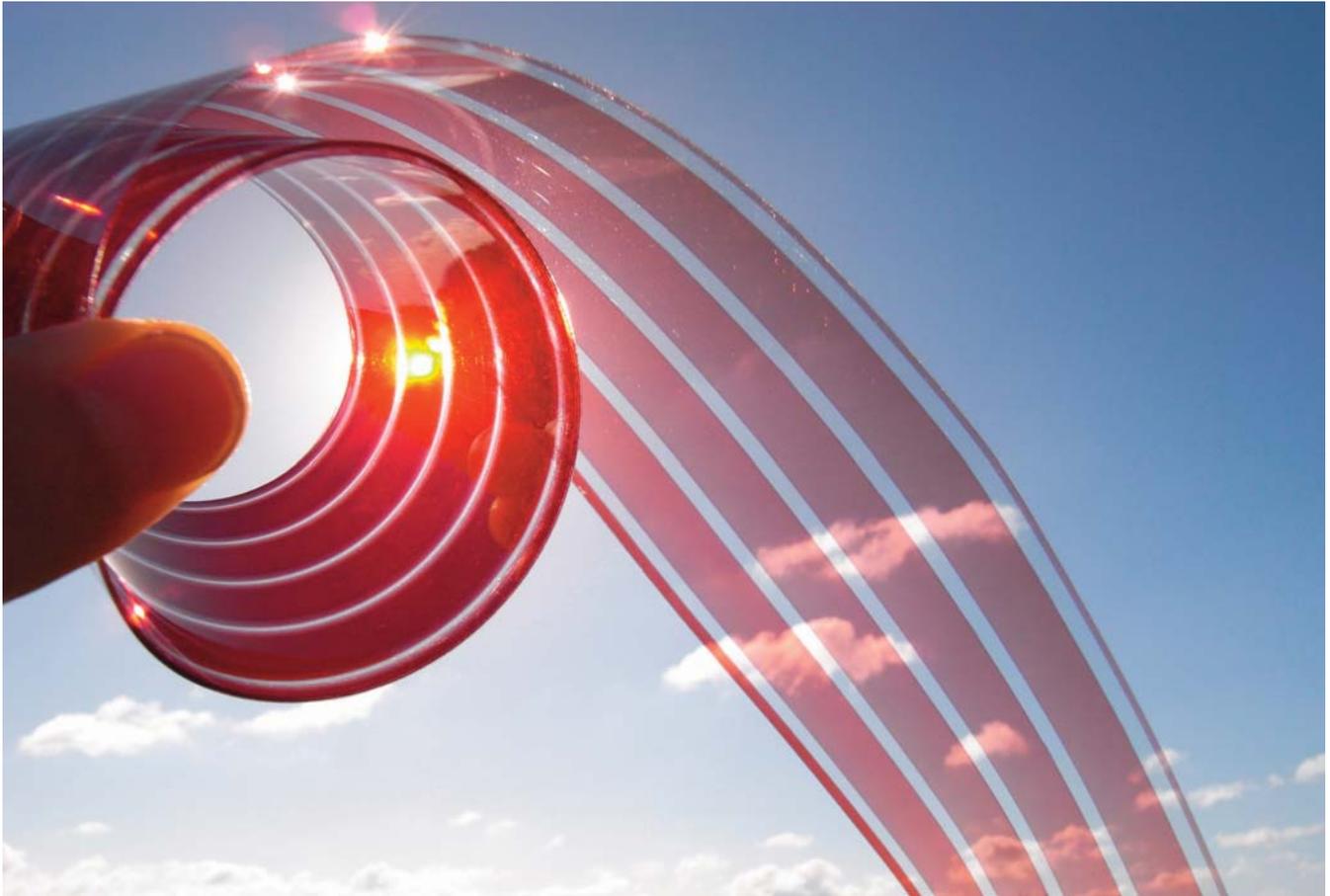


### Technology disclosures 2007/08 to 2010/11



### Signed consultancy agreements 2007/08 to 2010/11





### Shedding a new light

Worldwide approximately 1.6 billion people, more than 20% of the global population, lack access to mains electricity. Despite the best efforts of many governments, this is a problem that is not going away, with the World Bank estimating that 1.2 billion people will still be without electricity in 2030.

‘Emerging markets have often been viewed as a niche market for solar power,’ explains Simon Bransfield-Garth, CEO of University of Cambridge spin-out company Eight19. ‘But if it’s a niche, it’s a very big niche. In the industrialised world, solar power is seen as something that’s beneficial, but not essential. But for people without electricity, even modest solar powered lighting can be transformational to the way they live.’

A lack of electricity does not mean that people are not using power, however. In developing countries, more than \$38 billion is spent on kerosene for lighting each year, about 1.5 times the size of the global solar power market. The kerosene is used to power small lanterns, which cost a few cents each to purchase, but about \$1 per week for enough kerosene to keep it lit, representing an energy cost that is about 1,000 times the equivalent cost of plugging a light into a wall. So, as is often the case, those with the lowest incomes pay the most for basic utilities.

Using kerosene can be dangerous (more than one million people are reported to die each year due to kerosene-related accidents) and kerosene lighting emits about 190 million tonnes of CO<sub>2</sub> per year, which is roughly the same size as the carbon footprint of Argentina. By contrast, a solar-powered lamp is safe, sustainable and does not contribute to CO<sub>2</sub> emissions.

The growth of solar lighting in developing countries, as in the West, has been hampered by the up-front cost. A solar home lighting system will typically cost between \$40 and \$250 depending on its scale, which although it might sound initially expensive, is compelling against the cost of the kerosene it replaces.

## Technology Transfer: Physical Sciences

Eight19's solution is to turn solar power into a service. The company has developed IndiGo, a pay-as-you-go personal solar electricity system. By combining solar power with mobile phone technology, the system is affordable and can be topped up at regular intervals by purchasing scratch cards. The IndiGo system uses a standard SMS message to authenticate the top-up and the customer receives a pass code that they punch into the meter, giving them electricity to light a room or charge their mobile phone.

The system costs \$10 initially, and customers simply purchase credit to power the lamp on a weekly basis, similar to how they use kerosene lanterns now. 'By offering solar power as a service, customers are able to make a direct transition from their current spend on fossil fuels to lower cost and higher performing solar power,' says Bransfield-Garth.

The company has run two trials of the device: a small trial in Nairobi in September, followed by a larger trial in Zambia, Kenya, Malawi and India in October. It is now developing the distribution, service and maintenance in these countries, especially in rural areas. Full-scale manufacturing of the IndiGo system will begin in January 2012.

Located on the Cambridge Science Park, Eight19 was formed in 2010 as a spin-out from the Cavendish Laboratory, backed by a £4.5 million investment from the Carbon Trust and leading international speciality chemicals company Rhodia. Its formation followed its successful completion of the Carbon Trust's Cambridge University-TTP Advanced Photovoltaic Research Accelerator.

The company is building upon the research of Professor Sir Richard Friend, Professor Henning Sirringhaus and Professor Neil Greenham in the area of organic photovoltaics. Unlike more familiar thin film solar platforms, organic photovoltaics are not inherently limited by constraints around material supply and toxicity, and benefit from a number of fundamental advantages, including potentially very low cost production enabled by low temperature and high throughput processing typical of plastic films. Organic photovoltaics potentially deliver further value throughout the supply chain, from ease of installation for construction companies, to producers seeking simplified manufacturing integration.

Eight19 maintains close links with the Cavendish Laboratory. Cambridge Enterprise worked with the teams in the Cavendish, TTP and the Carbon Trust to help guide and negotiate the commercial and intellectual property arrangements from the start of the Research Accelerator through to company formation. The Physical Sciences team at Cambridge Enterprise completed four licensing agreements with Eight19 this year.





Dr Tim Bussey, Dr Lisa Saksida

### Improving medical tests

Neurocognitive disorders such as schizophrenia and Alzheimer's disease are complex, and developing effective treatments for them is equally complex. In order to understand such diseases better, and to develop new therapies, researchers have been breaking down the disorders into their component characteristics and studying each of those characteristics individually.

A major strand of this approach involves improving the animal cognition tests used in research and drug discovery. The laboratory of Dr Tim Bussey and Dr Lisa Saksida in the Department of Experimental Psychology has been developing tests that will hopefully lead to better experiments on animal models of disease, and ultimately aid in the development of new drugs to treat neurocognitive disorders.

Drs Bussey and Saksida have designed a device that allows for improved ways of evaluating attributes associated with neurocognitive disorders. The device, a chamber which houses a computer-controlled testing environment, allows researchers to test memory, attention and problem-solving ability in a fully automated environment. Additionally, the tests are reward-based, which often give better results than those obtained through aversive testing.

In the Bussey-Saksida chamber a mouse uses a touchscreen interface identical to that used by humans. It uses high-contrast images, tailored to a mouse's eyesight. Instead of pressing a lever or poking its nose into a hole, as is the case with many other mouse cognition tests, the mouse touches a screen with its nose in order to receive a food reward. This is very similar to the way in which cognition tests are administered in humans. A variety of tests can be administered using this method to form a cognitive profile of an animal. One application of this method is to understand how specific disease-related genes contribute to cognition.

## Technology Transfer: Life Sciences

Cambridge Enterprise licensed the Bussey-Saksida chamber to Leicester-based Campden Instruments in 2008, and a series of new tests to the company in 2009. Campden worked with the inventors and the Life Sciences team at Cambridge Enterprise to refine the chamber before launching it as a commercial product.

The main issue to be addressed was the sensitivity of the touchscreen. Most touchscreens are mass manufactured for human use, and are not sensitive enough for use with rodents. The Bussey-Saksida lab worked with Campden's engineers to build the requisite sensitivity into the screen, and brought in additional enhancements from their collaborations with other cognitive neuroscientists in the field. The next issue for Campden was the resolution and clarity of the images used in the tests.

'All of this comes down to establishing a standard which defines all the key technical points of the equipment,' says Campden's Managing Director. 'If you want well-calibrated science, you need well-calibrated equipment.' Once the enhancements to the Bussey-Saksida chamber were complete, Campden went through a beta testing phase with the Bussey-Saksida lab and other labs local to Cambridge before the commercial launch.

The next steps for the tests are to modify them for early stage human testing, as well as creating new animal tests to measure other aspects of cognitive function. Both doctors have also been working with Dr Roger Barker of the Centre for Brain Repair on Huntington's disease models.



C/O Lafayette Instrument Company, Inc.



Dr David Whitebread

## Translating teaching ideals into teaching practice

In China, an ever-growing middle class with ever-growing income levels is determined to ensure their children receive the very best and the ticket to a successful future in China – as it is everywhere in the world – is a quality education.

As a result of China's longstanding one child policy, often parents only have a single child and they are willing to go to great lengths, and expense, to make sure he or she receives the very best education. For many Chinese parents, this means university in either the US or the UK, and so they are keen to have their children attend schools in China that emulate a Western model in order to give them a head start on university studies in the West.

Many educational providers are turning to educators in the West to assist them in the development of new schools and programmes. Dr David Whitebread, Senior Lecturer in the Faculty of Education, was approached by the Shihzu International Education Management Corporation, a Hong Kong-based charity, to help establish an English language kindergarten in China. Students will learn in both Chinese and English, in a brand new purpose-built school. The school will have a three-form entry for children aged three, four and five, with approximately 200 in each year.

Dr Whitebread and his colleagues are undertaking the large-scale project, which encompasses everything from designing the building and developing a curriculum to hiring and training the teachers, with the assistance of the Consultancy Services team at Cambridge Enterprise. Consultancy Services negotiated an agreement that was modified to cope with the complexities associated with dealing with a Chinese company, and also subcontracted

## Consultancy Services

some services to Heather Lowe, headteacher of Homerton Children's Centre, and Sue Bingham, a qualified Montessori teacher who has recently completed a PhD on the emotional development of young children, under the supervision of Dr Whitebread.

While China's relationship with the West is complex in many respects, when it comes to education, there is a great desire to emulate Western models. 'The educators and parents are incredibly enthusiastic, and want to make sure children receive the best education possible,' says Dr Whitebread. 'One of the challenges in China, however, is translating that enthusiasm into practice. You walk into a Chinese kindergarten and there are mottos and quotations from Western educational figures such as Montessori and Froebel all over the walls, but the practice doesn't bear any resemblance to them. The teachers have learned the words, but they've got to internalise what they mean.'

The traditional teaching method in China is didactic, characterised by chanting and repetition. However, many Chinese educators are keen to diverge from traditional methods in favour of curricula that embrace active learning. 'I think at a societal level, the Chinese are very good at solving what I call convergent problems, and following instructions,' Dr Whitebread says. 'However, their self-perception is that they're not very creative and they're not very good at problem-solving. You can understand why they may think that about themselves when you see the way in which they learn at school.'

While the project is long-term and complex, it poses an exciting challenge for Dr Whitebread. 'The people we're working with are very well-informed and keen to do it right.' However, he cautions, the project will take time. 'You can't just take an English model and directly transfer it to China. I don't want to end up with something that looks exactly like a Western kindergarten; it's got to be a Chinese kindergarten.'

Recruitment for the school's first headteacher is underway, and the school is expected to open in September 2012.

Dr Whitebread stresses the importance of the help and expertise of the Consultancy Services team. 'I've done little projects over the years, but I wouldn't dream of doing any of these large-scale projects without them. We're fortunate to be working in the best university in the world, and we should have a huge international outreach, particularly in an educational capacity. Projects of this size would be very difficult to do without having the resources which Cambridge Enterprise provides.'



L-R: Heather Lowe, Dr David Whitebread, Sue Bingham





## Breathing life into a new business

Lung disease affects one in seven people in the UK, resulting in over 24 million doctor visits each year, at an annual cost of £500 million to primary care providers and £6.6 billion to the broader UK economy. Over 300,000 specialist lung function tests are carried out annually, and yet one in three patients is unable to use a spirometer, the existing technology used to monitor lung function. For instance, small children have problems blowing into standard spirometers because when they feel resistance, they stop blowing, thereby preventing an accurate reading of lung function, while some older patients can be harmed by the physical effort required by current methods.

For Dr Richard Iles, a consultant in Respiratory Paediatrics at Addenbrooke's Hospital, the solution to the problems associated with spirometers was to develop a non-contact method of measuring lung function, utilising know-how and expertise from the University's Department of Engineering.

In most cases, university spin-outs are built around a piece of basic research. The process often takes many years to get from an idea in a laboratory to a product that is available on the market. PneumaCare, formed in 2008, did things a little differently. The company started with an unmet clinical need and approached the University to find out if there was a way they could work together in order to develop a device to meet that need.

Dr Iles and Dr Ward Hills, now Chief Executive Officer of PneumaCare, approached Dr Joan Lasenby of the Department of Engineering, who conducts research in the area of motion capture for the gaming and film industries. The problem which PneumaCare put to Dr Lasenby was very similar to the work which her research group was doing, and in just two weeks, using a couple of cameras and a projector, she and her graduate students had constructed a rudimentary device which was able to accurately measure lung function.

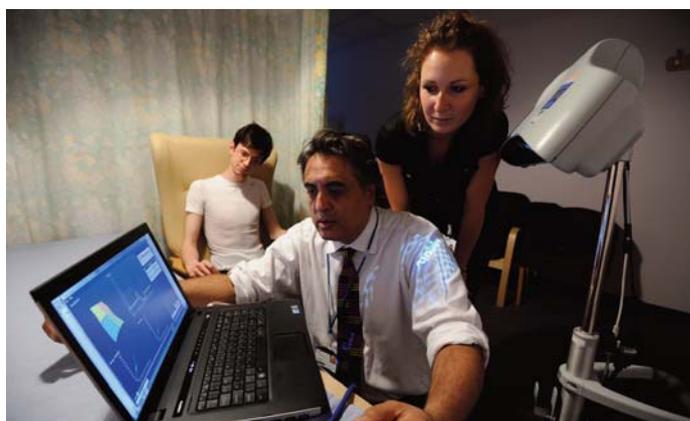
## Seed Funds

The PneumaScan™ works by utilising video motion capture technology to produce accurate three-dimensional moving models of a patient's breathing. It presents data in much the same way as it might be observed by a doctor: in three dimensions and moving. As it is non-contact, the device can be used on very young, elderly or unconscious patients, none of whom is able to use a spirometer. Additionally, PneumaScan™ is useful in post-thoracic surgery assessment, as it allows analysis of breathing after lung surgery.



Dr Ward Hills

The company used the initial data from the very early device to obtain funding to build a prototype. Soon afterwards, it approached the Seed Funds team at Cambridge Enterprise, who recognised the potential of the company's technology. In 2009, PneumaCare became the first company to receive funding from the University of Cambridge Discovery Fund, one of three evergreen seed funds managed by Cambridge Enterprise on the University's behalf. The Discovery Fund was formed to provide pre-licence, pre-seed and seed funding for very early stage companies such as PneumaCare. With very little early stage venture investment available, the Discovery Fund is a much-needed resource for young Cambridge companies. The investment from the Discovery Fund, along with funding from the Cambridge Capital Group and Plextek, a local engineering firm, gave the nascent company its first £200,000 of funding.



'We got to where we needed to be, in order to prove there was an investable business, with very little money. So when the investors put their money in, we were up and running,' says Dr Hills. Cambridge Enterprise advised and supported PneumaCare in its early days, helping to connect the company with directors and management, and retains a seat on PneumaCare's board of directors.

With this funding, the company was able to set up a working prototype at Addenbrooke's Hospital, giving them regular access to doctors and clinicians who provided vital feedback and advice on developing the next generation of the product. Dr Hills explains, 'Being in the hospital all the time got people thinking about us and helped us to develop the device for the widest possible range of applications.'

In May 2011, PneumaCare was awarded CE marking for the second version of PneumaScan™, allowing the company to sell the product throughout Europe and many other parts of the world. Over the past year, the company has secured over £2 million in funding, won a NHS/Technology Strategy Board grant, tripled staff numbers, relocated to new premises, and won a number of awards, including the Medical Futures Innovation Award.

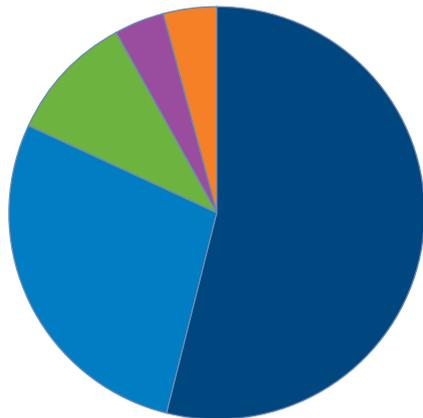
The ability of PneumaCare to leverage relatively small amounts of capital into a viable business was dependent on the people involved and the relationships they built. 'Having the University on our doorstep was an incredibly valuable asset, both for the early stage support provided by Cambridge Enterprise and the expertise of Dr Lasenby and her group. The University had the creativity and know-how we needed in order to solve a problem and help build a product with the end user always in mind,' says Dr Hills.

PneumaScan™ is currently in use at five hospitals in the UK, including Sheffield, Papworth and Addenbrooke's. The company anticipates selling its product in international markets, including southeast Asia and North America, in 2012.

## Economic impact from research

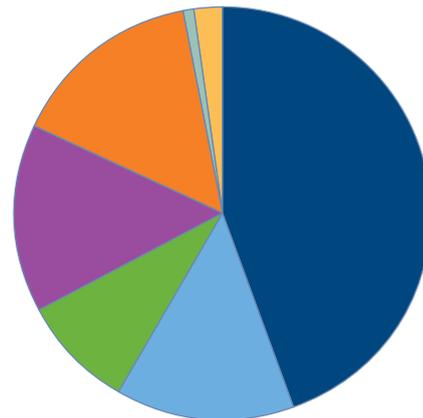
Income from knowledge transfer activities is a key indicator of the value that Cambridge research has in the marketplace. Total group income from licensing, consultancy and equity transactions in 2010/11 was £10.2 million, of which £8.3 million was or will be distributed to academics, departments and others to recognise their contributions and to encourage their further participation in knowledge transfer.

Distribution of group income 2010/11



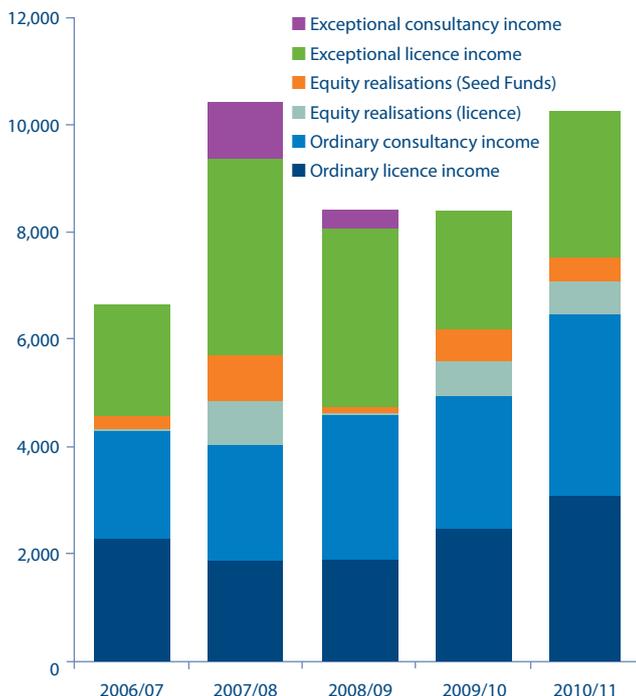
- Distributions to academics and others
- Distributions to departments
- Investment in patent assets and proof of concept
- Returned to Seed Funds
- Support for group

Income distribution by School 2010/11

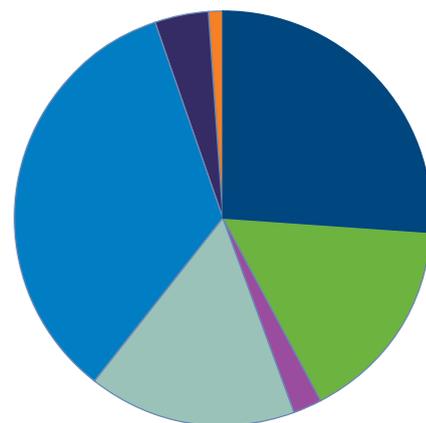


- School of Arts and Humanities
- School of Biological Sciences
- School of Clinical Medicine
- School of Humanities & Social Sciences
- School of Physical Sciences
- School of Technology
- Other

Group income 2006/07 – 2010/11 (£'000)



Sources for 2010/11 operating costs (including investment in patent assets)



- Margin contribution from consultancy & licensing services – ordinary
- Margin contribution from consultancy & licensing services – exceptional
- Margin contribution from equity realisations
- Grant funding
- University funding for services
- Fees for fund management
- Other income

# Financial performance

## Group income & expenditure summary

Year to 31 July 2011

|   | <b>2010/11</b>  | <b>2009/10</b>  | <b>2008/09</b>  | <b>2007/08</b>  |
|---|-----------------|-----------------|-----------------|-----------------|
|   | <b>£'000</b>    | <b>£'000</b>    | <b>£'000</b>    | <b>£'000</b>    |
| <b>Group income:</b>  |                 |                 |                 |                 |
| Income generated from activities (ordinary)                   | 6,465           | 4,953           | 4,591           | 4,049           |
| Income generated from activities (exceptional)                | 2,711           | 2,207           | 3,639           | 4,720           |
| Seed fund and licence equity realisations*                    | 1,044           | 1,213           | 160             | 1,650           |
| University & HEIF funding                                     | 1,782           | 1,262           | 737             | 703             |
| Fees for services   | 325             | 318             | 336             | 250             |
| Other income  | 134             | 88              | 402             | 489             |
| <b>Total group income</b>                                     | <b>12,461</b>   | <b>10,041</b>   | <b>9,865</b>    | <b>11,861</b>   |
| <b>Group costs, IP investment &amp; distributions:</b>        |                 |                 |                 |                 |
| Operating costs (staff costs, other costs & interest payable) | (2,655)         | (2,589)         | (2,557)         | (2,478)         |
| Investment in IP assets (patent & proof of concept)           | (1,070)         | (906)           | (940)           | (628)           |
| Distributions to academics & others                           | (5,781)         | (3,707)         | (5,475)         | (6,675)         |
| Distributions to University*                                  | (2,846)         | (2,896)         | (1,276)         | (2,354)         |
| <b>Total group costs, investments &amp; distributions</b>     | <b>(12,352)</b> | <b>(10,098)</b> | <b>(10,248)</b> | <b>(12,135)</b> |
| <b>Net income/(expenditure) for the year</b>                  | <b>109</b>      | <b>(57)</b>     | <b>(383)</b>    | <b>(274)</b>    |

### 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.

\* Seed Fund and licence equity realisations and distributions to University include an amount received on behalf of and returned to the University evergreen funds (University Venture Fund, Challenge Fund Trading Company Limited, University Challenge Fund and University Discovery Fund) for equity realisations in the year. Cambridge Enterprise Limited charges an annual Seed Funds management fee to the University of Cambridge for the management of the University evergreen funds.

## Equity managed by Cambridge Enterprise

|  | <b>Total</b> |
|--|--------------|
|  | <b>£'000</b> |
| Investment valuations as at 31 July 2011         | 13,436       |
| Investment valuations as at 31 July 2010         | 13,545       |
| Equity realisations for the year to 31 July 2011 | 1,044        |

## Equity portfolio

Cambridge Enterprise holds equity in 68 companies on the University's behalf.

### Biotech:

|                                    |  |
|------------------------------------|--|
| <b>Ampika Ltd</b>                  | Creating bio-active compounds from plants growing in the rainforest.   |
| <b>APOE</b>                        | Spin-out from Funxional Therapeutics.  |
| <b>Astex Pharmaceuticals Ltd</b>   | Astex Pharmaceuticals is a leader in innovative drug discovery, development and commercialisation, committed to the fight against cancer and other life-threatening diseases.  |
| <b>Avlar BioVentures Ltd 1</b>     | Investment in seed and early stage biotechnology and healthcare opportunities.   |
| <b>Avlar BioVentures Ltd 2</b>     | Investment in seed and early stage biotechnology and healthcare opportunities.   |
| <b>Biotica Technology</b>          | Combinatorial biosynthesis of therapeutic polyketides.   |
| <b>BlueGnome Ltd</b>               | Specialist developer of microarray-based solutions for the screening of chromosomal abnormalities in cytogenetics and IVF.   |
| <b>Cambimune</b>                   | Cambimune carries out the work of Cambivac outside of China.   |
| <b>Cambivac</b>                    | Antiviral drugs for respiratory diseases in pigs and poultry.  |
| <b>Cambridge Theranostics</b>      | Evidence-based natural products that can improve heart health.   |
| <b>CellCentric Ltd</b>             | Novel therapeutics for cancer and degenerative diseases.   |
| <b>Chroma Therapeutics</b>         | Small molecule drugs based on chromatin biology, mainly in the areas of cancer and inflammatory disorders.   |
| <b>De Novo Pharmaceuticals Ltd</b> | A leading in-silico de novo drug discovery company, using novel computational technologies to identify 'lead molecules' for the creation of new drugs.   |
| <b>Expedeon</b>                    | Production of proteins for drug discovery, development and large-scale manufacture.  |
| <b>Funxional Therapeutics</b>      | Development of novel human pharmaceuticals, exploiting relatively high-throughput functional screening assays to find compounds with unexpected modes of action.   |
| <b>Horizon Discovery Ltd</b>       | A leading provider of research tools to support the development of personalised medicines.   |
| <b>Illumina</b>                    | Illumina is a global company that develops innovative array-based solutions for DNA, RNA, and protein analysis.  |
| <b>Lumora</b>                      | Technology that enables quantitative molecular diagnostics to be performed rapidly with remarkably simple, robust, low-cost hardware.  |
| <b>Mission Therapeutics</b>        | Specialist pharmaceutical company whose aim is to translate new molecular understandings of human cell biology into drugs that will markedly improve the management of life-threatening diseases, particularly cancer. |
| <b>PhicoTherapeutics</b>           | Phico Therapeutics is developing a novel platform technology to produce therapeutic anti-bacterials active against all species of bacteria.  |
| <b>Procognia</b>                   | Developing a fuller understanding of proteins as drug targets and biomarkers.  |
| <b>Sentinel Oncology Ltd</b>       | Small molecule drug discovery company focusing on the discovery and development of new chemical entities for the treatment of cancer.  |
| <b>Spriogen</b>                    | A clinical stage biotechnology company creating potent small molecules based on novel mechanisms and modern chemistry to target cancers and infectious diseases.   |
| <b>Sure Laboratories Ltd</b>       | A range of microarray-based tests including PGS aneuploidy screening of single cells in IVF applications.  |
| <b>Vivamer Ltd</b>                 | Polymer mediated cell delivery systems.  |

### Cleantech:

|                                     |  |
|-------------------------------------|--|
| <b>Breathing Buildings</b>          | Natural ventilation systems and design consultancy services.   |
| <b>Cambridge</b>                    | Developing a platform technology for use in key target applications, each with our core gas-free high-efficiency technology embedded inside. |
| <b>Eight19 Ltd</b>                  | Printed plastic solar technology for flexible, lightweight, robust and lower cost solar cells.   |
| <b>Enecsys Ltd</b>                  | A breakthrough in inverter design for residential and commercial solar photovoltaic (PV) installations.                                      |
| <b>Enval Ltd</b>                    | Unique recycling processes that provide financially lucrative and environmentally beneficial alternatives to landfill.                       |
| <b>Gas Recycle and Recovery Ltd</b> | Development of innovative technology driven process solutions to the photovoltaics, microelectronics and materials processing industries.    |
| <b>Green Pb</b>                     | Recycling lead batteries.  |
| <b>Metalysis Ltd</b>                | A leading technology business for the global speciality metals industry.   |
| <b>Plastic Logic Ltd</b>            | A leading developer in plastic electronics manufacturing, a revolutionary new technology for printing electronic devices.                    |

# Equity portfolio

## Diagnostics:

|                                       |  |
|---------------------------------------|--|
| <b>Arctic DX</b>                      | Molecular tests for colorectal cancer and age-related macular degeneration.  |
| <b>Diagnostics for the Real World</b> | Development of rapid, simple, cost effective and high performance diagnostic tests for resource-limited settings.                |
| <b>PneumaCare Ltd</b>                 | Non-invasive lung testing.   |
| <b>RainDance Technologies</b>         | Provider of innovative microdroplet-based solutions which accelerate human health and disease research.                          |
| <b>Smart Holograms Ltd</b>            | Development and commercialisation of 'sensor holograms' for use in the diagnostic, drug discovery and medical device industries. |
| <b>Urosens</b>                        | Point-of-care tests for cancers of the urinogenitary tract for use in the urology clinic or doctor's surgery.                    |

## Industrial apps/cleantech:

|                                  |   |
|----------------------------------|---|
| <b>Cambridge CMOS Sensors</b>    | Revolutionary smart technology for gas sensors.   |
| <b>Cambridge Flow Solutions</b>  | Proprietary software and services for computational fluid dynamics.   |
| <b>Cambridge Lab on Chip Ltd</b> | Pumping and mixing of fluids in micro-fluidic devices which have applications across the chemical, pharmaceutical and medical industries.   |
| <b>Cambridge Mechatronics</b>    | Solutions for applications including miniature auto-focus (AF) and zoom camera technology and loudspeakers for audio and TV systems.  |
| <b>CamSemi</b>                   | Developing a new generation of sophisticated power management ICs .   |
| <b>Cambridge Superconductors</b> | Large grain, single crystal, high temperature superconductors.  |
| <b>Fibrecore Developments</b>    | Fibrecore is a lightweight, high stiffness metallic sandwich material, designed as a drop-in sheet metal replacement.   |
| <b>Granta Design</b>             | The world leader in the field of materials information technology.  |
| <b>ionscope</b>                  | ionscope develops and supplies unique ion conductance scanning systems for non-contact high-resolution microscopy of live or soft surfaces.   |
| <b>Light Blue Optics</b>         | Developing holographic laser projection technology.   |
| <b>Optisynx</b>                  | Developing the first ever alternative to the caesium atomic clock for the increasing number of customers requiring time accuracy up to Stratum 1 precision.   |
| <b>Paramata Ltd</b>              | Novel Innovative Intrinsic Sensing (IIS) <sup>TM</sup> techniques to monitor the structural integrity of such engineered composite materials in airplane wings, bridges, wind turbines and many other applications. |
| <b>Polatis</b>                   | High performance optical switch solutions for optical communications.   |
| <b>Q-Flo</b>                     | Advanced nano-enable materials, specifically in the area of carbon nanotube materials and their applications.   |
| <b>Surface Generation Ltd</b>    | A world leading company developing Reconfigurable Pin Tooling technology to reduce time and cost to market for large components.  |
| <b>TeraView Ltd</b>              | Specialises in three-dimensional imaging and spectroscopic systems which exploit the properties of terahertz technology.  |
| <b>Zinwave</b>                   | Manufacturer of Wireless over Fibre systems for in-building and access markets.   |

## Medtech:

|  |  |
|--|--|
| <b>Cambfix</b>                             | Platform technology to provide a comprehensive trauma fixation system.                       |
| <b>Clinical &amp; Biomedical Computing</b> | Software development consultancy that specialises in medical software.                       |
| <b>Inotec AMD</b>                          | Wound healing technology through Topical Oxygen Therapy, working with nature to heal wounds. |

## Other healthcare:

|                           |                          |
|---------------------------|--------------------------|
| <b>Microbial Technics</b> | Bacterial drug delivery. |
|---------------------------|--------------------------|

## Other technology (including software):

|                                 |   |
|---------------------------------|---|
| <b>Advex Corporation</b>        | Electric public displays using liquid crystal technology.                                       |
| <b>Cambridge InnoVision</b>     | Technology to enable capture of photo-realistic 3D models using off-the-shelf digital cameras.  |
| <b>CEDAR Audio</b>              | Manufacturer of the world's leading audio restoration and forensic audio enhancement equipment. |
| <b>iLexIR</b>                   | Specialists in text analytics, mining, classification and search applications.                  |
| <b>Sound ID</b>                 | Bringing personalised sound to mainstream consumers.  |
| <b>Sphere Fluidics Ltd</b>      | Pico-scale systems that will rapidly discover new cell strains and molecules.                   |
| <b>The CRISP Consortium Ltd</b> | CRISP2D (geotechnical modelling software) and consultancy services for geotechnical projects.   |

## Governance & structure

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

### Board of Directors

#### Chair

Edward Benthall Charterhouse Capital Partners

#### Non-Executive Directors

Professor Chris Abell<sup>†</sup> Professor of Biological Chemistry, University of Cambridge  
Charles Cotton Cambridge Phenomenon Limited  
Professor Sir Richard Friend Cavendish Professor of Physics, University of Cambridge  
Professor Lynn Gladden Pro-Vice-Chancellor (Research), University of Cambridge  
Dr Mike Lynch CEO, Autonomy plc  
Professor Tony Minson Emeritus Professor of Virology, University of Cambridge  
Dr Nicola Nicholls Non-Executive Director  
Professor Florin Udrea\* Professor of Semiconductor Engineering, University of Cambridge  
Teri Willey Mount Sinai School of Medicine

#### Executive Directors

Dr Tony Raven\* Cambridge Enterprise Limited  
Dr Richard Jennings Cambridge Enterprise Limited

#### Company Secretary

Registry University of Cambridge

#### Nominated Office of the Shareholder

Director of Finance University of Cambridge

### Investment Committee

John Lee Chair  
Professor Gehan Amaratunga 1966 Professor of Engineering, University of Cambridge  
Charles Cotton Cambridge Phenomenon Limited  
Laurence Garrett Highland Capital Partners LLC  
Dr Hermann Hauser Amadeus Capital Partners Limited  
Derek Jones Babraham Bioscience Technologies Limited  
Dr Henry Kressel Warburg Pincus LLC  
Professor Chris Lowe Professor of Biotechnology, University of Cambridge  
Sir Keith Peters Emeritus Regius Professor of Physic, University of Cambridge

### Senior Management Team

Dr Tony Raven\* Chief Executive  
Dr Richard Jennings Interim Chief Executive  
Dr Anne Dobrée Head of Seed Funds  
Dr Malcolm Grimshaw Head of Physical Sciences  
Shirley Jamieson Head of Marketing  
Mark Parsons Head of Finance & Accounting  
Dr Paul Seabright Head of Consultancy Services  
Dr Iain Thomas Head of Life Sciences

\*Joined December 2011

<sup>†</sup>Until September 2011

# 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



Cambridge Enterprise Limited  
University of Cambridge  
Hauser Forum  
3 Charles Babbage Road  
Cambridge CB3 0GT UK

Tel: +44 (0)1223 760339

Fax: +44 (0)1223 763753

Email: [enquiries@enterprise.cam.ac.uk](mailto:enquiries@enterprise.cam.ac.uk)

[www.enterprise.cam.ac.uk](http://www.enterprise.cam.ac.uk)