Autumn 2015

CAMBRIDGE SCIENCE PARK

CATALYST

Cambridge Science Park Newsletter

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PARKLIFE

SARAH HOWELL APPOINTED AS CEO AT ARECOR

Arecor, which specialises in the delivery of superior biopharmaceuticals via the application of its innovative formulation technology platform, announced the appointment of Dr Sarah Howell as Chief Executive Officer on 11 June 2015.

Sarah, who has served as Chief Operating Officer and Vice President for Corporate Development at Arecor, brings very considerable experience from executive roles in the pharmaceutical industry including, most recently, as Vice President for CMC & Technical Development at BTG plc.

"This is an exciting time for Arecor, and I am very much looking forward to leading the Company through its next significant growth phase," commented Sarah. "We are established as an industry leader in delivering superior formulations of proteins, peptides and vaccines and are well positioned to continue to deliver transformational platform technologies to our pharmaceutical and biotech partners in the fastest growing segment of the industry."

Tom Saylor, who retired as CEO after eight years, will remain as a non-executive director at Arecor. He said: "I am delighted that Dr Howell has agreed to assume the role of CEO of Arecor. Sarah is a highly experienced and capable executive who will add significant value providing vision and strong leadership moving forward."

www.arecor.com

Above// **Dr Sarah Howell, Chief Executive Officer, Arecor**

Above// **Tony Kinsella, Chief Executive, and Dr Xiang Zhang, Principal Consultant, Healthcare outside the Department of Materials Science and Metallurgy at the University of Cambridge**

LUCIDEON OPENS HEALTHCARE MATERIALS TECHNOLOGY HQ

Lucideon, the international materials technology company, opened its Cambridge Science Park office, the headquarters of its healthcare materials technologies business, during the first quarter of 2015. The location was chosen due to the proximity of the large number of innovative and growing healthcare companies, and of course the University, a key focus for Lucideon as it continues to marry its platform technologies with the needs of industry.

While analysis and development will continue to be carried out at its Stoke-on-Trent site, the Cambridge office will be a base for research and development into more leading-edge technologies.

Lucideon has a number of proprietary technologies, including inorganic controlled release, using novel glass and ceramic delivery platforms, and field enhanced sintering, a world-first low-energy ceramic processing technology.

Tony Kinsella, Chief Executive at Lucideon, said: "We already have a strong relationship with the area as Dr Xiang Zhang, our healthcare principal consultant, is a Royal Society Industrial Fellow at the University of Cambridge. The opening of our new office signifies our commitment to working with local companies, providing both product and process support and R&D and innovation."

www.lucideon.com

HEALTH AND FITNESS CLUB REOPENS AFTER REFURBISHMENT

The newly refurbished Revolution Health & Fitness Club reopened at the Trinity Centre on Cambridge Science Park on 9 June 2015.

Trinity College has made a significant investment in the facility including a range of all new Life Fitness gym equipment and with Revolution Health & Fitness Club there is a new studio class timetable with online booking system, new air conditioning, a fully refurbished gym and décor, a new website and new treatment rooms.

Club Manager Mark Freeman said: "Revolution Health & Fitness Club is delighted to be back running the health club on Cambridge Science Park again. Having previously run the business here five years ago we look forward to once again offering a first-class facility in a superb location. We are keen to improve the facility and what we have to offer over the coming months to ensure employees on the science park receive the best workout and relaxation experience."

www.revolutionhealthfitness.co.uk

Above// **equipment at the newly refurbished Revolution Health & Fitness Club facilities (photo courtesy of Revolution Health & Fitness Club)**

2015 FARADAY MEDAL FOR PHYSICS AWARDED TO FLEXENABLE CHIEF SCIENTIST

Professor Herring Sirringhaus, Chief Scientist at FlexEnable, has been awarded the 2015 Faraday medal, which celebrates outstanding contributions to experimental physics.

The award, presented by the Institute of Physics, recognised his work in "transforming our knowledge of charge transport phenomena in organic semiconductors as well as our ability to exploit them".

Indro Mukerjee, Chairman of FlexEnable, said: "I'm very pleased that Henning's work has been recognised in this way. This award confirms the value of the technology leadership which Henning has created, and the exciting future for powerful, organic-based flexible electronics that FlexEnable has developed."

Professor Sirringhaus is also Hitachi Professor of Electron Device Physics, Head of Microelectronics and Optoelectronics Group at the Cavendish Lab, Cambridge University.

www.flexenable.com

Right// **Professor Herring Sirringhaus, Chief Scientist at FlexEnable**

ROYAL SOCIETY OF CHEMISTRY JOURNALS MAKE AN IMPACT

Above// **journals from the Royal Society of Chemistry (image courtesy of the Royal Society of Chemistry)**

Journals published by the Royal Society of Chemistry are performing well within their specialist sectors according to data published in the 2014 Journal Citation Report Science Edition (Thomson Reuters, 2015). In particular, the journals *Chemical Science*, *Chemical Society Reviews* and *Energy and Environmental Science* recorded substantial rises in their Impact Factors.

Emma Wilson, Director of Publishing at the Royal Society of Chemistry, said: "We are committed to publishing the highest quality research across our journal portfolio and providing a world–class service to our authors – these results are a testament to these aims."

She added: "We are delighted that authors are choosing to publish their best work with us. The results are also a great reflection of the dedication from our journal editors, editorial boards, referees and authors, and we would like to thank them all for their continued support."

www.rsc.org

LINGUAMATICS EXPANDS TEXT-MINING TECHNOLOGY PLATFORM TO INCLUDE FULL-TEXT ARTICLES

Linguamatics has announced the expansion of its I2E text-mining platform to include easier access to full-text articles.

Following the integration of the RightFind™ XML for Mining solution developed by the Copyright Clearance Center, the newly enhanced platform allows researchers to create sets of full-text XML articles from more than 4,000 peer-reviewed journals produced by over 25 scientific, technical, and medical publishers, and automatically make them available for text mining in I2E.

"While text mining scientific abstracts can provide many benefits to scientific research, a huge amount of value is also locked away in full text articles," said Dr David Milward, co-founder and Chief Technical Officer at Linguamatics.

"For many years, we've seen the need to provide easier access to full-text. We've received positive feedback from our pharma customers who have trialed the service and we're excited about the benefits the integration of Linguamatics I2E with RightFind™ XML for Mining will bring to our customers and the scientific community."

www.linguamatics.com

Above// **Dr David Milward, co-founder and CTO, Linguamatics (photo courtesy of Linguamatics)**

NEW CEO APPOINTED AT XAAR

Dr Doug Edwards was appointed in May as the new Chief Executive Officer (CEO) for Xaar plc. The company, which develops world-leading piezoelectric drop-on-demand inkjet technologies, made the announcement Doug Edwards would succeed Ian Dinwoodie, who stepped down from the role after serving as CEO since 2003

Doug Edwards joined Xaar from Kodak (Eastman Kodak Company) where most recently he was President, Digital Printing and Enterprise and had been a member of the Executive Board since 2006.

Doug Edwards commented: "It is a privilege to be asked to lead Xaar through this next phase of the Company's development. Excellent progress has been made by the Company over the last decade but the future opportunities ahead of the Company in the world of digital printing are substantial, and I am pleased to return to the UK to take up this challenge."

www.xaar.com

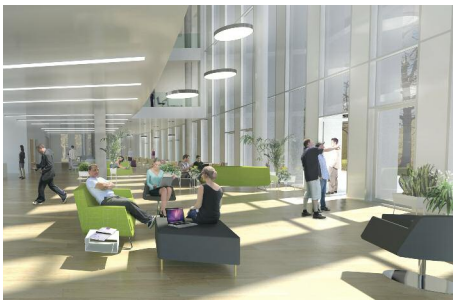
Right// **Dr Doug Edwards, CEO, Xaar plc (photo courtesy of Xaar)**

NEW TECHNOLOGY CENTRE ANNOUNCED ON CAMBRIDGE SCIENCE PARK

Trinity College has announced that in partnership with the Department of Business, Innovation and Skills it plans to build the Sir John Bradfield Centre, a new Technology Centre in the heart of the Cambridge Science Park.

The College would like to do more to translate Cambridge research into companies and products; particularly in the very early stage companies. It is known that science incubators can help in these early stages, in particular by providing teams and start-up companies with flexible and affordable space, education, mentoring and finance.

Sir Gregory Winter, Master of Trinity College said: "Trinity College is pleased to help on all these fronts by providing a highly flexible building at the heart of the Science Park, and working with other partners to help with education, mentoring and seed financing. We hope to promote a culture in which we not only help to develop technologies and companies, but also the entrepreneurs who will build the industries of the future. We are particularly pleased to associate this building with Sir John Bradfield, former Senior Bursar of the College, who was instrumental in the creation of the Cambridge Science Park."



Left// **CGi of Sir John Bradfield Centre**
Right// **CGi Ground floor internal view**

Above// **Cambridge Guided Busway near to the Milton Road entrance for Cambridge Science Park (photo courtesy of Travel Plan Plus)**

NEW LIGHTING FOR GUIDED BUSWAY

New street lamps are being installed for previously unlit sections of the foot and cycle paths of the Guided Busway.

Newly lit areas will include sections between Milton Road and the A14 underpass, from the Milton Road junction to Cambridge Science Park Station, along the new pedestrian and cycle access adjacent to the Nuffield Road allotment, and between Cambridge railway station and Trumpington Park & Ride. Existing lighting at the Milton Road junction with the busway is also being enhanced.

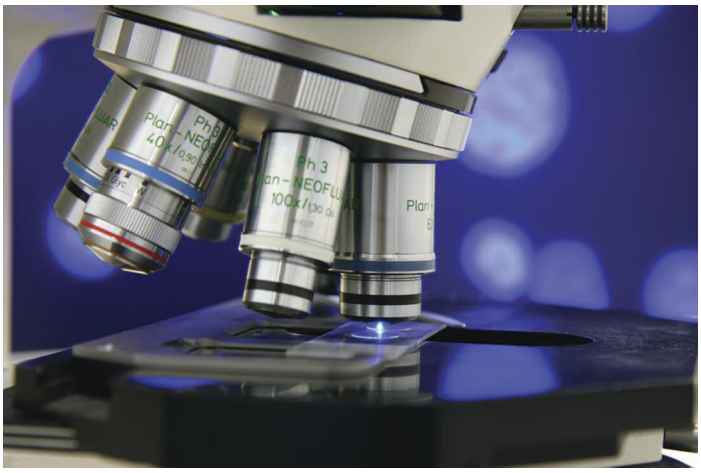
The project is due to for completion by the end of August, subject to potential delays which could result from adverse weather or difficult ground conditions.

www.travelplanplus.org.uk

A hive of activity

A ONE-STOP SHOP FOR THE LIFE SCIENCE RESEARCH SECTOR WITH ABBEXA

A supplier of high-quality proteins, antibodies and ELISA kits to the life science research sector, Abbexa is a young company that has come a long way in just a few years. Catalyst spoke to Manager and Co-founder Sabrina Calabressi to uncover the story so far.



"The idea for the company came about after working as a research scientist and afterwards in a biotech firm – I really felt there wasn't just one place where one could get affordable and quality guaranteed proteins and antibodies from a single supplier," explains Sabrina.

"Always using different suppliers, constantly checking if the quality is high enough, making sure it's affordable, and hoping that the service is reliable and consistent is not ideal. In a time where efficiency is everything, offering researchers the products they need all from one platform at a price they can work with is a recipe for success."

As well as primary and secondary antibodies, proteins and peptides, Abbexa now supplies an extensive range of ELISA kits which provide the busy research scientist with the complete set of materials necessary to carry out analyte testing on cell lysate, cell culture supernatant, serum and plasma as well as other biological fluids.

"In a time where efficiency is everything, offering researchers the products they need all from one platform at a price they can work with is a recipe for success"

Having built an efficient team, Abbexa is now distributing to universities and hospitals all around the world including Europe, the US, Canada, Asia and Africa. "It can be a challenge to ensure the cold chain for the supply of our products to remote countries in Africa and some regions in Asia, for example," says Sabrina, "but that's why we are here – to deliver the products that researchers need to do their work effectively. But we learn from experience what works in different parts of the world and we have built up distribution networks that we can rely on."

Abbexa has differentiated itself from other potential suppliers of antibodies and proteins and built a diverse and large client base in a short time. This is achieved by always being focused on the quality and range of the products offered whilst making them really affordable.

Abbexa also offers custom antibody production for both rabbit polyclonal antibodies and mouse monoclonal antibodies, even though this is not currently being advertised on the official website.

Looking at the future, one of the main aims is to achieve ISO accreditation that will allow the company to grow. The company is looking to expand into the diagnostics market by offering its products for use as diagnostic tools in hospitals and not just for research use.

"We have had interest from a few international bodies," says Sabrina, "especially within Europe and also in South America, to provide kits for diagnostic use, so getting the relevant ISO accreditation is key for us at the moment. It can be a lengthy process to achieve, but it will certainly open new doors once we have it.

"We also want to expand the number of tested applications for our large antibody portfolio. For example, an antibody may have been only validated in Western Blot, but we would like to test and validate it for immunofluorescence, immunohistochemistry or other applications."

"Being here at the Cambridge Science Park feels like being part of a community and that is very important to us"

Abbexa is just about to relaunch its website so that it has more functionality and better search and filtering capabilities. Ultimately, it is all about making it easier for the user to find exactly what they need.

Located at the Cambridge Science Park Innovation Centre, Sabrina says this is the right place to be at this stage in the company's evolution. "Being here at the Cambridge Science Park feels like being part of a community and that is very important to us," she says. "I've been talking to people from different companies at the Innovation Centre and they've been very helpful. It is very valuable to meet people who aren't necessarily working in the same field – a lot can be learnt from them."

www.abbexa.com

Special delivery

INHALED DRUG DELIVERY TECHNOLOGY FROM VECTURA

Taking any product from concept through to market is a milestone for any medical device or pharmaceutical company. So when Sandoz (the generics arm of Novartis) launched its product AirFluSal® Forspiro® the first inhaler device of its kind for two decades in 2013, it was a special moment for Vectura Group plc. The Forspiro® device is Vectura's GryroHaler® device branded by Sandoz. Catalyst spoke to Stephen Eason, Senior Director, Device & Development, to find out more.

Above// **dry powder inhaler (DPI) products**

With the growth in prevalence of respiratory conditions such as asthma and COPD in the industrialised world, the need for and value of effective inhaled therapies has never been greater For Vectura, the UK product development company that focuses on the development of pharmaceutical therapies for the treatment of airway diseases, the launch of Sandoz's AirFluSal®Forspiro® product in 2013 marked a key transition point for the Company, as Stephen explains.

> "We're looking at how we can use our technology to treat some niche disease areas, particularly using some of the new biologic drugs that are coming on to the market"

"A lot of people have spent a lifetime working in pharmaceutical industry and never see a product launch," he says. "The fall-out rates of drugs in development are so great and the challenges of getting a new product on the market are so significant, it's very common not to make it. So actually to have been involved in a product that has launched is quite unusual and something we are very proud of.

"The AirFluSal® Forspiro® product using our GyroHaler® technology has now been launched by Sandoz in 12 European countries as well as South Korea and Mexico and approved for use in approximately 30 countries and the roll-out by Sandoz continues. It's a great achievement for us and for the Company and it de-risked our high-value respiratory generic portfolio. The innovative device is a further validation of our capabilities in respiratory drug development– we think it's something to celebrate."

The product was in fact the first pre-metered dose dry-powder multidose inhaler asthma to be launched since 1996. Targeted for asthma and COPD therapy, it is manufactured and marketed by Sandoz as AirFluSal® Forspiro®. It works very differently to the more familiar aerosol inhalers for asthma which are more commonly used in the UK, offering considerable benefits.

"With aerosol inhalers – the 'puffers' that most people think of as an asthma inhaler – you are working with a suspension of the drug in a propellant," says Stephen. "The issue there is that you need to inhale and press the aerosol can at the same time. If that's not properly synchronised you get all of the drug landing on the back of your throat rather than in the lung where it's needed.

"In dry powder inhalers such as our GyroHaler®, the drug is in dry form and each dose is safely stored on a blister strip – each GyroHaler® stores 60 doses. The patient gets the dose ready by operating the lever, and then the inhalation actually brings the drug out of the device – so there's no issue about synchronisation and only getting a partial dosage.

"Inhaled drugs can also be delivered as a liquid aerosol using a nebuliser. Last year Vectura acquired a German respiratory specialist company

Right// **the 'FOX™' smart nebuliser system**

Activaero GmbH which had smart nebuliser technology capable of precise and targeted delivery. These devices are generally used for more severe cases of asthma and COPD but also other airways related diseases such as cystic fibrosis and pulmonary arterial hypertension, so it's a very interesting addition to our portfolio.

Above// **the 'AKITA®2APIXNEB®' smart nebuliser system**

"If you're developing a drug for inhalation you essentially have to create an aerosol first of the right particle size so it can be inhaled and brought into the lung; you have to do that very precisely packaged in a device which is very low cost and easy to use. Vectura has extensive expertise on the development of inhaled therapies – and we also worked with Sandoz on the generic drug used for asthma therapies for use in the AirFluSal® Forspiro® product

"So in tandem with the drug development process, you've got to create a device that can deliver the drugs efficiently, safely and precisely, but also that is low cost and easy to use. The GyroHaler® is a significantly simpler device than what was previously on offer, while in terms of performance, robustness and everything else it's as good as all the other devices that are out there. It's got fewer components, it's about half the weight, so it's cheaper to produce – that's why it's particularly relevant for use with generics – so it's been really exciting to actually enter the market over the last 18 months."

The origins of Vectura itself began after the founder Merlin acquired operations from Bath University through issue of shares and also acquired Coordinated Drug Development Ltd and The Centre for Drug Formulation Studies providing formulation expertise, an IP property estate, a development services business and a team of research scientists. Stephen and a number of colleagues had been working on drug delivery devices at Cambridge Consultants and by 2002 a deal was reached whereby this group would become Vectura Delivery Devices, a wholly owned subsidiary of Vectura. "It made sense to bring the two parties together," he explains, "so we then had a business that could develop a complete inhalation product, both the device and the formulation that went in it."

Since those early days, growth has been rapid. In 2002 Vectura moved its headquarters from Bath to Chippenham followed by an initial public offering in 2004 which saw the company listed on the London Stock Exchange on AIM. In 2005, Vectura signed a global commercialisation and development agreement with pharma giant Novartis, owners of Sandoz (its generics arm) and in 2007 Vectura acquired Innovata plc and moved from AIM to the Official List on the London Stock Exchange.

Over the years Vectura has established development collaborations, joint ventures and licence agreements with several pharmaceutical and biotech companies. Partnered assets that have started to generate meaningful royalties that, together with important development and regulatory milestones, helped Vectura achieve a maiden profit after tax in the financial year ended March 2015. It's been a period of remarkable growth, as Stephen outlines: in the eleven years since floating on AIM, the company now has a market capitalisation of more than £720 million and recently entered the FTSE250 Index.

"What makes it exciting for me is working with a great team of people who have an enthusiasm for the technology and a passion for the field we work in, and ultimately improving the lives of patients."

"There are lots of opportunities we're looking to engage with. We're working on extensions of our GyroHaler® technology platform to suit new market needs, improve performance and suit different patient interfaces," he says. "We're also looking at how we can use our technology to treat some niche disease areas, particularly using some of the new biologic drugs that are coming on to the market. These are expensive drugs to use, so it's critical for any inhaler device to get as much of the drug into the lung as possible. But if an inhaled drug can help someone avoid a costly stay in hospital, it can also be a very cost-effective form of treatment.

"Ultimately it is always a process of moving from one transition to the next and it can be a long road before you see the reward of a product coming on to the market – which is obviously never a foregone conclusion. What makes it exciting for me is working with a great team of people who have an enthusiasm for the technology and a passion for the field we work in, and ultimately improving the lives of patients. It makes for a pretty interesting life."

www.vectura.com

Above// **single-unit dose dry powder inhaler**
(all imagery © Vectura group plc)

A shining light

WORLD-BEATING MANUFACTURING TECHNOLOGY FROM HERAEUS NOBLELIGHT LTD, WINNERS OF THE QUEEN'S AWARD FOR ENTERPRISE IN INNOVATION 2015

With a track record in arc and flash lamp technology stretching back more than three decades, Heraeus Noblelight Ltd has just been recognised with one of the UK's most prestigious technology business awards. Catalyst spoke to Technical Director Jeremy Woffendin to find out why.

In 1978 two Cambridge-based brothers decided to set up a business to supply components for the rapidly emerging sector of laser technology. Noblelight was the brainchild of John and David Littlechild, a small company designing and manufacturing xenon flash lamps and krypton arc lamps which were used to pump energy into the crystals used in solid state industrial lasers.

"They were a very entrepreneurial, intelligent and practical team who started the business right at the beginning of the product technology when the first industrial laser cavities were being developed," says Jeremy.

"John Littlechild actually came from a scientific glassblowing background with a hobby in electronics, so that was his area of expertise, whereas David was more on the engineering/commercial side. Noblelight first moved on to the Cambridge Science Park in 1984 and we've been manufacturing arc and flash lamps here ever since."

The business grew to employ around 25 employees, when in 1985 John Littlechild decided to leave Noblelight and form his own arc and flash lamp company in nearby Bar Hill. Meanwhile, Noblelight's reputation for excellence and expertise in this niche market eventually led to its acquisition by Heraeus in 1987, a German precious metals and technology group. The speciality flash lamp group which originated here in Cambridge is now called Heraeus Noblelight Ltd (part of Heraeus Noblelight, based in Germany), employing over 100 people and a key element in a global business with its own history stretching back more than 150 years.

Nearly 40 years after it was first established, Heraeus Noblelight Ltd has been awarded the 2015 Queen's Award for Enterprise in Innovation in recognition of the groundbreaking manufacturing technology which has been at the heart of the company's ongoing global competitiveness.

> "Automating processes for this kind of manufacturing is very difficult and nobody else in the world does it for this kind of product"

"We still produce many of the similar products as we did at the beginning," explains Jeremy, "arc and flash lamps – they are our core business. But as a manual process carried out by skilled glassblowers, it is very labour intensive and would have been difficult for us to compete with manufacturers from other parts of the world with lower labour costs.

Above// **typical flashlamps from Heraeus**

"What's more, if you need to respond to flexible demand in your marketplaces where there's boom and bust as there has been over the years, then it's very difficult to flex your capacity because glassblowers need two or three years training to get to the basic level. These people, you just don't find on the street waiting to be recruited, and likewise you don't want to lay people off if you have invested a lot in their training.

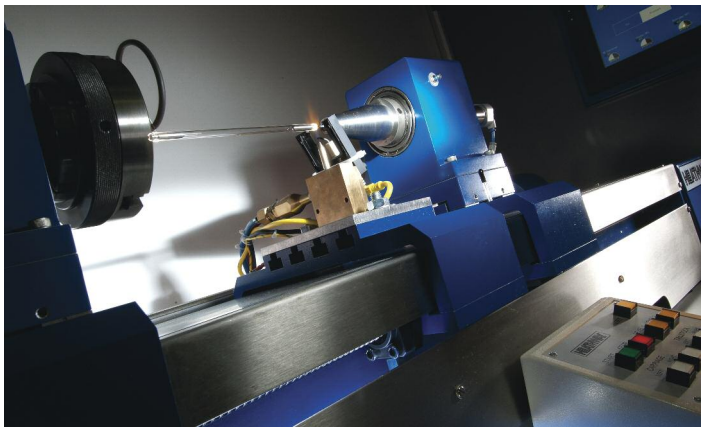
"So you have to constantly evolve your approach to manufacturing – I think that's the reason why we've been successful. In the early 2000s we started to invest in automation technologies and developed an automated flash lamp technology that is the key to the innovation award. Automating processes for this kind of manufacturing is very difficult and nobody else in the world does it for this kind of product.

Above// **The Management and Sales team at Heraeus (from left to right) Abby Littlechild, Jeremy Woffendin, Michael Bennett, Martin Brown, Debbie Playle, Mark Bartlett, John Littlechild, Ian Green (images courtesy of Heraeus Noblelight Ltd)**

"It means we have a consistency and repeatability of product which is unique and world class. We've also got the world experts in cathode technology here at Heraeus Noblelight Ltd, including the founder John Littlechild, the technical expert behind the lamps, came back to the company in 2003, joined in 2012 by Mike Garner, the third employee of the original Noblelight company. This cathode technology extends the lifetimes of our products, making us more competitive."

Originally, most of the company's arc and flash lamp products were used as part of the laser pumping process in industrial applications for welding, cutting, drilling and marking. However, over the last 20 years, this laser pumping process has seen the emergence of LEDs to rival the use of arc and flash lamps. "The laser pumping business is now quite flat," says Jeremy, "we've got a significant proportion of the market and growing our market share all the time, but in the long term it's a flat or declining market."

Due to this, the company has developed a major new market for its arc and flash lamps in medical or cosmetic hair removal. Flashed directly onto the skin, the flash lamps are a highly effective way of removing unwanted hair and this sector has come to represent an increasingly important sales channel. But the latest new market entry for Heraeus Noblelight Ltd also signifies an important shift in approach, as Jeremy goes on to outline.



Above// **automated flashlamp production at Heraeus**

"We're very excited about getting into the printed electronics market and the role that our technology can play in that," he says. "The inks that are used in printed electronics need high temperature to sinter them and make them conductive – that's where you can use our flash lamps.

"To get into this emerging market, we've had to look at transforming from a components manufacturer to a systems supplier. It's important not to underestimate how difficult that is to achieve. It's about integrating our technology further down the product line. We've got the core competence to build systems here because we've always designed and built our own equipment. Now we're working on converting that core competence into systems that add value to our customers' processes."

"It's been fantastically exciting to be here in recent years and to help apply these lean and modern manufacturing technologies – and to have some recognition for what we've achieved"

Currently working on this technology in partnership with a variety of research and commercial institutions, Heraeus Noblelight Ltd hopes to be selling integrated systems for sintering printed electronics within 18 months, even at an initially low level.

"We know the technology works but we're working with our partners to see if we can demonstrate that this is the best solution for printed electronics," says Jeremy. "That's why we've opened our photonics application centre right here on Cambridge Science Park. It's a lab in our manufacturing facility where companies involved in printed electronics can bring their products, their inks or their plastic substrates and test how they work with our flash lamp sintering process. We can do small production runs with them if they want to create some prototypes, but it's mainly about process development. We can also go out to companies with our equipment and work on site with them."

At a time of new partnerships and new developments in its business model, the Queen's Award for Enterprise in Innovation represents a milestone in the ongoing evolution of Heraeus Noblelight Ltd. "We're incredibly proud to win it, particularly because our products are quite industrial and perhaps not particularly fashionable – we're a little bit under the radar," he says.

"But it's been fantastically exciting to be here in recent years and to help apply these lean and modern manufacturing technologies – and to have some recognition for what we've achieved. We're always trying to map out the future and we talk to a lot of companies at events in the Cambridge technology cluster to find out about new ideas and approaches. Of course you don't know exactly what will happen, but that's what makes it fascinating."

www.heraeus-noblelight.com

PARKLIFE connections

Cambridge AWiSE (Association for Women in Science & Engineering) is a multidisciplinary membership networking organisation composed of individuals from institutions, businesses, associations and other organisations all of whom share the common goal of advancing the interests of women in science, engineering, technology, maths and medicine. Cambridge AWiSE holds regular meetings and events; for details see the website or get in touch.

Web: www.camawise.org.uk
Email: info@camawise.org.uk
Twitter: @camawise
Linkedin: http://www.linkedin.com/groups?gid=43043

Cambridge Enterprise exists to help University of Cambridge inventors, innovators and entrepreneurs make their ideas and concepts more commercially successful for the benefit of society, the UK economy, the inventors and the University.

Web: www.enterprise.cam.ac.uk
Email: enquiries@enterprise.cam.ac.uk

Cambridge Network is a membership organisation. We bring people together – from business and academia – to meet each other and share ideas, encouraging collaboration and partnership for shared success. With over 1,200 corporate members, including start-ups, SMEs and global corporations, Cambridge Network represents the majority of the technology businesses in Cambridge.

Web: www.cambridgenetwork.co.uk
Email: Claire.Ruskin@cambridgenetwork.co.uk
Tel: 01223 300148

Cambridge University Technology and Enterprise Club (CUTEC) is a leading student-run organisation that seeks to nurture and enhance the entrepreneurial spirit amongst academics and students. The club is mainly run by students who are passionate about science and entrepreneurship, supported by advisors drawn from the local business community.

Web: www.cutec.org
Email: info@cutec.org

CHASE (formerly the Cambridge Hi-Tech Association of Small Enterprises) is a lively networking group for entrepreneurs, start-ups, small firms and people interested in business and hi-tech, based in Cambridge.

Web: www.chase.org.uk

One Nucleus is the largest membership organisation for life science and healthcare companies in Europe. A not-for-profit company with more than 470 member organisations across the world (mainly Cambridge and London based), its mission is to maximise the global competitiveness of its members. Its core activities include networking events (from eight to 800 delegates), training, a Group Purchasing Consortium which saves its members £4 million per annum, special interest groups and an international strategy.

Web: www.onenucleus.com
Email: info@onenucleus.com

Science Technology Network (STN) is an online database service that provides global access to an integrated network of the most important and comprehensive chemistry, sci-tech and patent databases from the world's most respected producers.

Web: www.stn-international.com

The Cambridge Science Park
is managed by Bidwells on behalf of Trinity College.
Cambridge Science Park tenants can post news, events and jobs free on www.cambridgesciencepark.co.uk
Twitter: cambridgesciencepark@camsciencepark

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Jeremy Tuck
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Companies based on Cambridge Science Park

Abcam plc 300/200/204

Accelrys Ltd 334

Amgen Ltd 240

ANT Software Ltd 335

Arecor 2

Arthur D Little Ltd 18

Astex Therapeutics Ltd 436

AstraZeneca 310

Aveillant 29

Bayer CropScience Ltd 230

Beko plc 12

Biochrom Ltd 22

Brady plc 281

British American Tobacco 210

Broadcom 406

Cambridge Assessment 332

Cambridge Business Travel 325

Cambridge Consultants Ltd 29

Cambridge Electronic Design Ltd 4

Cambridge Online Systems Ltd 163

Cantab Biopharmaceuticals Ltd 155

Citrix Systems UK Ltd 101

Cryptomathic Ltd 327

CSR plc 400

Domainex 162

Dr Reddy's Chirotech Technology 410

Eight19 9a

Ember Europe Ltd 300

Esaote 14

Espial Ltd 334

Frontier Developments Ltd 306/321/323

GHX 326

Grant Thornton 101

Hawkins & Associates Ltd 120-126

Heraesus Noblelight ltd 161/6-8

Huawei Technologies Company Ltd 302

Jagex 220

Johnson Matthey Catalysts 28/260

kidsunlimited Day Nursery 319

Linguamatics 324

Modern Water Monitoring 15-17

Mundipharma International Ltd 194-198

Mundipharma Research Ltd 194-198

Napp Pharmaceutical Holdings Ltd 196

Owlstone Ltd 9B/127

Philips Research 101

Plastic Logic 31-35

Polatis Ltd 332

QUALCOMM Cambridge Ltd 335

Ricardo UK Ltd 400

Royal Society of Chemistry 290

Sigma Aldrich 250

Spiral Software 101

SRG 11

Takeda Cambridge Ltd 418

The Innovation Centre 23

The Trinity Centre 24

The Trinity Health Club 24

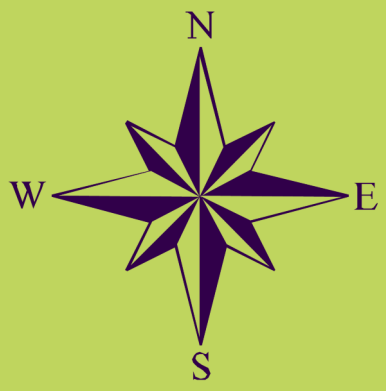
Toshiba Research Europe Ltd 208

Twist DX 181

Vectura Delivery Devices Ltd 21

WorldPay Ltd 270

Xaar plc 316



Innovation Centre, unit 23, home to over 30 companies, for a full list of occupants go to www.cambridgesciencepark.co.uk

VIEWPOINT

DR TONY RAVEN, CHIEF EXECUTIVE, CAMBRIDGE ENTERPRISE

Cambridge Enterprise was formed by the University to help staff and students commercialise their expertise and ideas. Its central mission is to support the academic community as it contributes to society through the commercialisation of research and scholarship.

Our work has three distinct components, starting with consultancy support. Our academics have a depth and breadth of expertise and knowledge that is in demand from government, industry and the public sector. It is through Cambridge Enterprise's Consultancy Services that we provide staff, researchers and students support to market their expertise and know-how, and handle for them the negotiations, contracts (268 signed last year) and other administrative tasks that can otherwise distract from their focus on providing advice.

A second, and one of our biggest tasks, is helping academics develop their ideas and inventions into opportunities through new and existing businesses. We protect and manage intellectual property, in many cases seeking to license it to existing companies. In 2014 alone, we were responsible for the signing of 130 licenses and the filing of 239 patent applications.

> "Taking a broad look at the Cambridge high-tech cluster, it's my view that we're entering a golden age."

Cambridge is also adept at coming up with disruptive science and innovative ideas. At Cambridge Enterprise, we help academics build the teams and provide the investment they need to set up new companies and take those ideas forward. Our portfolio companies have raised £1.3 billion in follow-on funding to grow their businesses, creating jobs and strengthening the economy. Horizon Discovery, BlueGnome, XO1 and Astex Pharmaceuticals are just a few of the highly successful companies started with the support of Cambridge Enterprise.

Taking a broad look at the Cambridge high-tech cluster, it's my view that we're entering a golden age. It's been 50 years since the Cambridge Phenomenon began, but I think we're still in the process of realising how important it is. There is a growing recognition of just how big the Cambridge cluster has become with a £13 billion annual turnover, 57,000 employees and 1,500 companies in the high-tech centre. As Europe's leading technology cluster, Cambridge has been described as the only place that can rival Boston and Silicon Valley in scientific research and development.

In the last 20 years we've seen the pace of change dramatically increase. In 1995 we were asking where the first billion dollar company was going to come from. Now we've had 14. Two achieved $10 billion status: ARM and Autonomy.

Growth has been successful but the other important factor has been the emergence of a new breed of investor offering what's called 'patient capital'. That's important because a lot of what we do doesn't happen in the five- to seven-year investment horizon of a venture capital fund.

> "Growth has been successful but the other important factor has been the emergence of a new breed of investor offering what's called 'patient capital'."

Typically it takes 10 to 20 years to commercialise some of the ideas that emerge here. So we have our own funds – a £15 million Cambridge Enterprise Seed Fund and a £50 million sister fund through Cambridge Innovation Capital to support emerging and growing knowledge based companies. We've also partnered with Imperial Innovations, Syncona Partners and IP Group. Like us, they are backed by big City investors who see a long-term approach as essential to building really big companies.

In this context, Cambridge Enterprise recently set up Cambridge Innovation Capital with the help of big investors such as Lansdowne, Invesco and ARM. The fund is designed to pick up the best of our seed-funded opportunities and provide the funding to take them all the way through to exit. The money is available to any suitable high-tech business in the Cambridge cluster, not just University spin-outs.

Cambridge technology is everywhere and continues to change the world – six of the top ten selling drugs on the market are based on technology developed by Sir Greg Winter here in Cambridge. CSR is the world-leader in Bluetooth® chips and ARM technology is used in 95% of smartphones and tablets.

There are many more inspiring ideas being developed by our academic partners, ideas that Cambridge Enterprise will be there to support.

www.enterprise.cam.ac.uk

www.cambridgeinnovationcapital.com