Summer 2014

CAMBRIDGE SCIENCE PARK

CATALYST

Cambridge Science Park Newsletter

IN THIS ISSUE:

Chiral chemistry at Dr Reddy's Chirotech Technology Centre /
A software success story from Brady / Ensuring e-security with Cryptomathic / Parklife News /
Viewpoint from Dr Darrin Disley, Chief Executive Officer and President, Horizon Discovery

PARKLIFE

DEPUTY PRIME MINISTER VISITS CAMBRIDGE SCIENCE PARK

Deputy Prime Minister Nick Clegg visited NAPP Pharmaceuticals on Cambridge Science Park on 3 April, following on from the announcement of the new Greater Cambridge City Deal which aims to ensure the area remains a magnet for hi-tech business through investment in transport and infrastructure.

He said: "Cambridge is a key engine of growth which is known across the globe for its world class university and innovative business and science parks. This £1 billion City Deal will build on your success to create more jobs for local people and help them gain the skills they need to find work. It will also improve your roads and rail links to encourage more investment to the area and build more homes for families across the region. It builds the foundations for long term growth in Cambridge for this generation and the next, building a stronger economy and doing it fairly."

LINGUAMATICS WINS QUEEN'S AWARD

Linguamatics has been named as a winner of the prestigious Queen's Award for Enterprise – the UK's highest accolade for business success. The company, which is headquartered on Cambridge Science Park, was announced as a winner in April in the category of International Trade in recognition of outstanding growth in export sales across USA and Europe for its natural language processing (NLP)-based text analytics software platform. Over the past five years Linguamatics achieved growth in excess of 300 percent in overseas sales and staff growth of almost 200 percent.

Above// **the team at Linguamatics (photo courtesy of Linguamatics)**

Commenting on the award, Executive Chairman John M. Brimacombe said, "Traditionally, the US has been a hard market for British companies to succeed in. But through the strength of our world-class technology and the outstanding team we have built, we have become a market-leader. Cambridge has an international reputation for excellence and we are proud to be a successful Cambridge technology company, flying the flag for innovation in the UK."

www.linguamatics.com

A TASTE OF 'LE TOUR' ON CAMBRIDGE SCIENCE PARK

Featuring baguettes, berets and Bromptons, Le Parc Spoketacular was a unique French-themed bicycle event which took place on Cambridge Science Park to celebrate the imminent arrival of Le Tour de France in Cambridge on 7 July.

Teams from businesses in and around Cambridge Science Park took part in the event, donning striped shirts, garlic garlands and even participating in a blindfolded cycling challenge, helping to raise nearly £500 for Marie Curie Cancer Care, the first official charity partner for Le Tour de France in the UK.

Project Manager Stevie Spencer from Travel Plan Plus, which organised the occasion, said "It was great to see so many businesses get involved in this event. I hope that the historic arrival of Le Tour de France in Cambridge inspires people to cycle to Cambridge Science Park more often. Last year's travel to work survey indicated 21% of employees in the Travel Plan Plus area cycle to work, it would be great to see an even higher level when we repeat the survey in October."

More photos can be found at: www.pinterest.com/travelplanplus

Left// **cyclists take part in the Brompton Challenge**
Left inset// **participants in the Blindfolded Cycling Challenge**

AWARD-WINNING YEAR FOR ENDOMAGNETICS

It's been red-carpet season for Endomagnetics, the medical device technology company which picked up two awards in the first six months of 2014.

The company won the Best New Product or Business Model at the Business Weekly Awards and later was chosen as winner of the Midlands region Best for Innovation award at the BVCA Management Team Awards.

Endomagnetics has started to make a real difference to outcomes for breast cancer patients around the world. It developed the SentiMag® probe and Sienna+® tracer as a system to locate lymph nodes as part of cancer staging procedures. The system has been proven clinically to achieve equivalent outcomes to the standard of care, but is more convenient, more efficient and less dependent on specialist facilities.

www.endomagnetics.com

Right// **the SentiMag® system developed by Endomagnetics (photo courtesy of Endomagnetics)**

ENVAL PARTICIPATES IN DEFRA-FUNDED RECYCLING STUDY

Above// **Business Development Director David Boorman (left) and Managing Director Dr Carlos Ludlow-Palafox in front of Enval's microwave-induced pyrolysis plant at its engineering facility in Luton (photo courtesy of Enval)**

Recycling technology specialist Enval, in partnership with LRS Consultancy, SITA UK, Nestlé UK & Ireland, Coca Cola Enterprises and Tesco UK, has received funding from the Department of Environment, Food and Rural Affairs to undertake research to develop and trial new methods of recovering and treating flexible plastic and aluminium laminate packaging.

Flexible laminate packaging, such as toothpaste tubes and pet food sachets, often contains valuable aluminium and various recyclable plastics, which can be difficult to collect and separate for recycling viably.

The initial scoping study will explore ways to increase the amount of flexible laminate packaging that is collected and recycled in England and assess the feasibility of a range of collection and communication approaches for households and commercial premises within different regions of the country.

www.enval.com

WORK BEGINS ON BUSWAY LINK TO NEW STATION

The construction of a link from Cambridgeshire Guided Busway to the new Cambridge Science Park Station begins in July. The works, which should be completed by March 2015, have been planned so that two-way traffic can continue on Milton Road, although the cycleway underpass alongside Milton Road is set to close between Cambridge Business Park and Dencora Business Centre.

The new station, which was officially approved in January this year, is expected to link 3,000 passengers per day to destinations including London, Stansted Airport, Norwich, King's Lynn and Birmingham. Designed by Atkins and delivered by Network Rail, Cambridge Science Park Station is due to open in May 2016.

Helping to improve access to the Station, Cambridgeshire County Council is currently consulting on plans to create a new foot and cycle bridge over the river Cam linking the Abbey and Chesterton areas of the city. Details on plans including locations can be found at www.cambridgeshire.gov.uk/newbridge3.

Above// **A computer-generated image of the proposed Cambridge Science Park Station by night (image courtesy of Atkins)**

A SOCIAL NETWORK FOR CAMBRIDGE SCIENCE PARK

Keep up to date with Cambridge Science Park breaking news and forthcoming events via social networking platforms – find us on Twitter (cambridgesciencepark@camsciencepark), Facebook and LinkedIn. Companies and their employees based on the Park are encouraged to follow the Cambridge Science Park via all three social media outlets and use #CSP for any posts or tweets. Don't forget companies on the Park can also have their individual log-ins so they can post jobs, news and events on the website. To find out more contact Caroline Shutter caroline.shutter@bidwells.co.uk

Reaction times

CHIRAL CHEMISTRY FROM DR REDDY'S CHIROTECH TECHNOLOGY CENTRE MAKES AN IMPACT

Finding ways to make drugs cheaper, safer and more efficient, Dr Reddy's Chirotech Technology Centre is a key research hub for a global pharmaceutical leader. Catalyst spoke to Head of R&D and Site Leader Dr David Chaplin about its technology and the story so far.

Tracing its lineage back to Enzymatics, a Cambridge start-up founded by biotech serial entrepreneur Sir Chris Evans in the late 1980s, the entity now known as Chirotech developed steadily over two decades until its acquisition by the Indian pharmaceutical company Dr Reddy's in 2008. It's been an interesting journey. Indeed David, who joined the company then known as Chiros back in 1992, can perhaps lay claim to having worked on more Cambridge Science park premises than anyone else – seven, to be precise – as the company has evolved into the R&D centre it is today.

"Nearly all the work we do here is about improving the routes to make active pharmaceutical ingredients that are found in drugs," says David. "We don't invent the drugs here, but we do develop better routes which mean you can make your drugs cheaper and more effective."

Above// **Laboratory, Dr Reddy's Chirotech Technology Centre (image courtesy of Dr Reddy's Chirotech Technology Centre)**

In particular, Chirotech has built its reputation on – and derived its name from – one key area of expertise. While in many respects your hands may look almost identical, trying to put a right-handed glove onto your left hand soon highlights one key variance: their chirality. The term, which derives from the Greek word for hand, describes the difference in symmetry which means that while a pair of objects are made up of the same parts, they can't be superimposed upon each other – just as your own hands do not match

"We don't invent the drugs here, but we do develop better routes which mean you can make your drugs cheaper and more effective"

Above// **Scientist at work in Dr Reddy's Chirotech Technology Centre (image courtesy of Dr Reddy's Chirotech Technology Centre)**

if placed one on top of the other. It is a concept that has important ramifications in chemistry and the development of pharmaceuticals, as David explains.

"A lot of molecules you find in nature, and that particularly includes pharmaceuticals but it also goes beyond that, are what is known as 'chiral' molecules," he says. "That means they have two 'hands' – or enantiomers – which are made up of exactly the same constituents but they are mirror images of each other, so they are nonsuperimposable.

"When a molecule is structured in this way, the two different parts are mirror images of each other. They usually have very similar properties to each other such as the same melting points, they'll do the same chemistry. But if you ask them to interact with other chiral molecules then the different hands may have very different fits. That becomes very important when you are developing drugs because while one of the hands may interact with the receptor or protein you are trying to modify in the way you desire, the other may not. Sometimes the other hand will do nothing, in which case it's just unwanted ballast; other times it will do things which are more destructive and potentially harmful."

As this process became better understood in the 1990s, the US Food and Drug Administration declared that, apart from certain designated exceptions, any new drugs which were chiral should only have a structure containing one enantiomer unless both parts were proven to be therapeutically beneficial. Clearly this would mark an important change in how drugs were manufactured for the world's most lucrative pharmaceuticals market and beyond.

"In the early days, quite often the response was just to separate the enantiomers and throw half of the active ingredient away," says David. "If you're making 100 tonnes of active ingredient a year, that means discarding 50 tonnes – that's pretty wasteful and obviously adds to the cost of manufacture.

"We've developed technology that helps make this separation process more efficient. But, more interestingly, we've also devised innovative technologies which control the chemistry so that you only make the enantiomer you want, a process known as asymmetric synthesis. Obviously there are lots of different aspects to this, but this is at the core of a lot of what we do.

"There are still quite a few of these drugs being produced where both enantiomers are made and then separated; then either one is thrown away or is put through a complicated recycling process. So our technology to just make the single enantiomer will save a manufacturer both money and time because it makes better use of materials and is a faster, less complicated process.

"In other cases where the chemistry is a bit slicker than that but is still not as selective as it might be, we can come in and come up with a shorter route, more selectivity, maybe using cheaper materials. It's about finding new routes to make the drug more effectively."

Its expertise in chiral technologies was one of the key reasons for the company's acquisition in 2008 by Dr Reddy's Laboratories, a global pharmaceutical company founded in India in 1984 which has grown to employ more than 18,000 people worldwide with an annual revenue of more than $2 billion.

"Our Chief Executive Officer, G V Prasad, was instrumental in the acquisition," explains David. "He saw back in 2008 that it was really important to build on some of the company's key strengths in order that Dr Reddy's could continue to grow and compete on a world stage. He believed that the company needed to bring in innovative technology to help it maintain a cutting edge and to differentiate itself from all the other companies working in the same area."

A leading global supplier of active pharmaceutical ingredients and generic medicines, Dr Reddy's Laboratories saw the Cambridge-based Chirotech as an ideal fit for its long-term aspirations. Since becoming an R&D hub for Dr Reddy's in 2008, the Chirotech Technology Centre has doubled in size to employ a total of 65 people, including around 45 PhD-level scientists working on site at Cambridge Science Park.

Above// **Reception area, Dr Reddy's Chirotech Technology Centre (image courtesy of Dr Reddy's Chirotech Technology Centre)**

Above// **Laboratory equipment at Dr Reddy's Chirotech Technology Centre (image courtesy of Dr Reddy's Chirotech Technology Centre)**

"We work both internally for Dr Reddy's on ways to make its active pharmaceutical ingredients and generic pharmaceuticals more effective, and also with external drug companies who come to us at different stages in the drug development lifecycle," says David.

"We're always on the lookout for new interesting technologies that could help Dr Reddy's in its aim of making more affordable and more innovative medicines"

"A more recent area of activity which we find really exciting is flow chemistry. Classic chemistry is done in a batch process, in which chemicals are mixed together in a vessel, a reaction takes place and the batch is eventually completed. A lot of other industries use a flow process and the pharmaceutical industry is beginning to wake up to its benefits. It means ingredients are fed in via tubes on a continuous basis and there is an unbroken output. Not only can it be more efficient, it also has potential advantages in terms of controlling variables such as temperatures and reaction times. So we're looking at how flow chemistry can be applied to our chiral technology."

Looking forward, the focus is on consolidation while remaining alert to future opportunities, as David concludes. "We've been through quite a big expansion recently, so we want to ensure that is really bedded in," he says. "But we're always on the lookout for new interesting technologies that could help Dr Reddy's in its aim of making more affordable and more innovative medicines. We've definitely got our eyes open."

Closing the deal

NEARLY 30 YEARS OF SOFTWARE SUCCESS FOR BRADY

A global leader in commodity trading software solutions, Brady is a Cambridge-born hi-tech success story – Catalyst meets Chief Executive Officer Gavin Lavelle to find out more.

Above// **Chief Executive Officer Gavin Lavelle (photo courtesy of Brady)**

Despite the complexity of software solutions that run into millions of lines of code, there is a simple and fundamental reality that lies at the heart of Brady's upward trajectory. "Everybody on the planet needs food, energy and metal," says Gavin. "That means these commodities will always be traded and we provide software solutions that facilitate this process right around the world."

With more than 300 clients across five continents, Brady employs around 220 people worldwide, of whom 60 are based at its global headquarters on Cambridge Science Park. It's been a long journey since the company was founded back in 1985 by Dr Robert Brady, then a mathematician at the University of Cambridge and still a non-executive director of the company.

"Something like 57% of our revenue is recurrent. That means we have very high visibility on the business"

Dr Brady had been approached by various London banks to work on mathematical modelling for high-end risk and derivative products. From this initial consultancy work, he started to build trading software products and in particular developed a presence at the London Metal Exchange, which was and still is the world's leading metals market.

"That was really the genesis," explains Gavin. "The company began in base metals, then it moved into precious metals and more latterly it has expanded into concentrates – or the raw materials – and scrap metal. We are the number one provider of software solutions to the metals trading sector, including metal derivative trading, hedging and risk management.

"Over time we also moved into other key sectors: energy, soft commodities (things that are grown such as cocoa, coffee and sugar) and recycling. We're now the leading provider of software solutions to the recycling sector in the US and the largest European-headquartered supplier of energy and commodity trading and risk management software solutions."

Across this breadth of industry sectors, Brady has established an impressive client base which includes not only trading companies, banks, brokers and traders but also fabricators, utility providers, retailers and recyclers. So what is it exactly that keeps this diverse group buying Brady products and has powered the company to a £30 million annual turnover?

"I think it's because, whatever the sector, we specialise in the complete software solution," says Gavin. "We're a one-stop shop and our clients know that we deliver. For anybody who is interested in buying food, metal or energy, our software allows them to book the transaction, generate invoices, make payments, calculate their risk exposure and deal with any compliance or financing aspects.

"Our solutions also provide modelling capabilities which can be extremely complex when you are dealing with a large portfolio of transactions with derivative or non-standard products in them. For example, our energy software allows you to take your portfolio of hundreds of thousands of electricity transactions and run a Monte Carlo simulation. That involves taking maybe 50,000 random scenarios and predicting the outcome of each. This kind of modelling requires very intensive mathematical and computational capabilities, which is something our people are expert at."

Above// **Brady CTRM menu gives users a easily navigable system overview (image courtesy of Brady)**

Above// **Brady Energy Data Management solution offers power utilities a view of actual versus planned power generation (image courtesy of Brady)**

Nearly 20 years after its inception, Brady floated on the London Stock Exchange Alternative Investment Market (AIM) in 2004. Three years later, a new management team came on board, since which time growth has averaged almost 50% per annum over the last seven years. Two fundraisings in 2010 and 2012 raised a total of £30 million and resulted in fundamental change in the company's ownership, which was previously nearly 50% privately held and is now 80% institutionally held.

"We're in a very good position right now," says Gavin. "We have a very strong balance sheet with more than £7 million in cash, we're profitable and we have no debt. We've also worked very hard on our revenue stream. Something like 57% of our revenue is recurrent, so it comes in automatically at the beginning of each year. That means we have very high visibility on the business which is important for any company, but particularly so for a technology company."

Above// **screenshot highlighting profit and loss views of a company's trading position (image courtesy of Brady)**

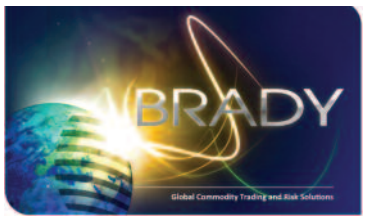
Although its global workforce is spread across offices in the US, Switzerland, Norway, Scotland and Singapore, Brady places significant value on its Cambridge home, as Gavin goes on to explain.

"As a technology place, it's really important. Cambridge is a fabulous place to employ people, not least because it's home to one of the truly great universities in the world. Also to be only an hour away from London where so many of the big companies are represented is a tremendous benefit, especially if you're dealing with trading-type organisations. I always draw a comparison with Silicon Valley, which seems quite disconnected to trading centres such as Wall Street and Chicago.

"This really is a global business. Two thirds of our revenue comes from Europe and a further 23% comes from the Americas. It's an exciting area of expansion for us; last year, for example, we signed more new business in the US than our total turnover in 2009. And only a few years after making our first sale in Asia, now nearly 10% of our business comes from that region.

"We now have clients on all five continents which is a great achievement for us and there's still lots of room for us to grow. That's one of the exciting things for us, we know our product can travel. And as our brand gets stronger and our name gets better known, we're tapping an increasingly large marketplace. For example, we acquired a US company at the end of 2012 which is an absolute leader in software for the recycling space. We've now got six of the top ten US recycling companies using that software and we're starting to internationalise that solution, bringing it to Europe and to Asia Pacific."

Brady has been at the forefront of the switch taking place at trading exchanges over the last 20 years from the traditional system of open outcry, where traders used gestures and verbal communication to make deals, to electronic trading. It's a radical shift if you consider that some trading floors such as those on the London Metals Exchange have been in operation for more than 140 years.



Above// **Brady is the largest European-headquartered provider of ECTRM solutions**

"It's a very different way of processing transactions and as a consequence people have needed new software to deal with that," explains Gavin. "Obviously, as a software developer, that's something that's good for us. We always work to stay innovative. Increasingly, for example, we're hosting our software in our cloud environment, which means that clients don't even need to install it – they can simply log on to our remote servers to use it and make use of updates automatically.

"For example, we have a very high-profile South American client which is an absolute leader in its market and accesses our software via the cloud; the software itself actually resides here on our UK server file. It works perfectly well for them to run their business on the other side of the world. That's a major achievement for us and very exciting from a product perspective.

"Although we have offices around the world, we're very proud to be a UK software company and a leader in this sector. I think it is an industry that this country is very good at – in fact we export as much software as we import. We're proud to be British in terms of creating a global business and exporting a lot of technology in a very competitive marketplace. I think a lot of that's due to the skillsets of people coming out of our universities. We need to stay at the forefront of attracting the brightest and the best to our universities and Brady is very supportive of that."

www.bradyplc.com

"We now have clients on all five continents which is a great achievement for us and there's still lots of room for us to grow"

The keys to success

E-SECURITY INNOVATIONS FROM CRYPTOMATHIC

In 2014, an estimated one in four of all credit or debit cards globally secures transactions by means of Cryptomathic's security software solutions. It's been quite a journey for the company which began back in 1986, as founder and Executive Chairman Peter Landrock explains.

"I was an academic and a mathematician originally, for many years I just did pure research," says Peter. "Then I got interested in cryptography through my teaching at the University of Aarhus in Denmark. At around this point a number of banks in Copenhagen asked if we could help them with data security based on cryptography.

"There was enough interest for me to form a consulting company called Cryptomathic in 1986 with two other colleagues – it was really just as a small-scale thing to supplement our university salaries. But over the years more and more potential customers contacted us and it got more and more serious. I started to think that there was maybe more in this business than I had originally anticipated."

A decade after he had founded Cryptomathic as a consulting company, Peter was asked to help organise a programme entitled *Computer Security, Cryptology and Coding Theory* at the Isaac Newton Institute for Mathematical Sciences in Cambridge. Still living in the city some 18 years later, it was to prove a pivotal moment in his professional life, as he goes on to explain.

"It was a great experience to come to Cambridge and participate in this programme," says Peter. "The Internet as a global phenomenon was really taking off and it started to become apparent how much this would affect so many aspects of our day to day lives. The importance of cryptography was also becoming increasingly clear and I had built up a strong network of contacts in the field during my time here. At the end of the programme in 1997 I was invited to join the Technical Advisory Board of the new Microsoft Research Laboratory in Cambridge, which I accepted. I also decided to quit my academic role at the University of Aarhus and focus on building the company full time."

"I was transforming from a mathematician into a businessman and I started realising how you run a business"

Cryptomathic opened its Cambridge division at St John's Innovation Centre before taking on investment from Danish business conglomerate Maersk and German semiconductor manufacturer Infinion Technologies. Expansion saw the company move onto Cambridge Science Park in January 2001 and hire a new sales force in Denmark, but the early years of the new millennium were not all plain sailing.

"To start with it was basically a disaster," says Peter. "We didn't make any money. We had been successful in the past and we had virtually all the banks in Denmark as customers. But at that point I think our products were too advanced for the market and the sales people didn't have a clue what they were trying to sell.

Above// **Cryptomathic security conference, co-hosted with long-standing customer, Barclays Bank, at its global headquarters in Canary Wharf (photo courtesy of Cryptomathic)**

"But then things started to change. At the end 2002, just when the rest of the company was not faring very well, we finally landed our first very important customer in the UK: Lloyds Banking Group. I was also transforming from a mathematician into a businessman and I started realising how you run a business.

"So I fired all the sales people that had been hired in Denmark and started again from scratch. We bought out Maersk as investors in 2004, although Infinion are still with us. It was around this time that a lot of things started to change for us."

As the innovative nature of its work gradually became recognised by a wider audience, in 2003 Cryptomathic was listed as one of world's the top forty Technology Pioneers by the World Economic Forum for its electronic signature solution using virtual smart cards. The following year, the company was presented with the VISA Smart Star Award for its technology related to credit and debit card security. More importantly, Cryptomathic began securing some major contracts including working with Barclays from 2006 and with the UK Government to deliver the solution for electronic passports from 2007.

"One of our core areas of expertise is what is known as digital signatures," says Peter. "If you have some information that you want to secure, a digital signature collects all that information together and applies a mathematical function to it so you can't change any of it without being detected. Then only someone with the relevant cryptographic key can access this information.

Above// **Peter Landrock at Cryptomathic's Cambridge office (photo courtesy of Cryptomathic)**

"This has got lots of applications in digital security, but there are lots of things you need to think about. For example, how do you make sure both parties have the same key at the same point in time at different ends? If you need to replace the key, how do you distribute it? And how does the system work across multiple endpoints, such as with an ATM card? Our key management solution handles all of these different issues – we delivered it for the MasterCard ATM network across Europe in 1998 and it's still the system they use."

Indeed Peter estimates that about a quarter of all debit and credit cards in the world are produced using encryption technology from Cryptomathic servers, including 70% of the market in France and all of the Swiss market. But the company's encryption expertise is far from confined to the credit/debit card market.

"In a number of countries such as Denmark, Norway, Austria, Luxembourg and Qatar, there is a system in place so that all citizens and companies communicate entirely electronically with governments and with banks, unless you are granted an exception," says Peter.

"Obviously securing this information is of paramount importance, so we deliver an e-security system known as Public Key Infrastructure [PKI] to the Danish authorities, among others. In fact we've delivered the largest PKI solution in the world which is focused on digital rights management. It helps to prevent piracy; basically it means that if you download a film or song on your mobile phone, you can't just copy it and give it to somebody else. This solution generates more than one billion keys, each based on two large prime numbers, per year – that's over 60 primes of many hundred digits every second– so it's pretty high powered."

Above// **live demo of one of Cryptomathic's market-leading products, the Crypto Service Gateway (photo courtesy of Cryptomathic)**

Having grown by an average of 25% per year since 2009, Cryptomathic has thrived in spite of the economic downturn. The 60-strong global company now has offices in Denmark, France, Germany, the UK and San Jose in the US, and plans to open a new office in Dubai to service the growing Middle East market.

"The main role of the UK office is innovation," explains Peter. "We have 12 people here, some very bright people with PhDs or other impressive qualifications. We develop prototypes then once we've done that we try to find the first customer. If we do that and it's successful, we turn it into a product via our product division, which is over in Denmark. It's a system that seems to work.

"We file all our patents here and this is the office from which we have our largest amount of sales. It is very valuable to us to be located on Cambridge Science Park – it's sort of a blue stamp that you are innovative. Cambridge as a whole is an excellent place to be because of the talent pool you can draw on and because it's attractive to people wanting to move here. And it's also much easier to do international business here from England than from Denmark, for example, because English law is accepted in so many more places. All in all, it's a great place for us to be."

www.cryptomathic.com

"We file all our patents here and this is the office from which we have our largest amount of sales"

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

Management:
Jeremy Tuck
Email Jeremy.tuck@bidwells.co.uk
Tel: 01223 559333

PR & Marketing:
Julie Bushell
Email: Julie.Bushell@bidwells.co.uk
Tel: 01223 559331

Front cover// **image courtesy of Dr Reddy's Chirotech Technology Centre**

Companies based on Cambridge Science Park

Abcam plc 330

Accelrys Ltd 334

Advanced Technologies Ltd 210

Amgen Ltd 240

ANT Software Ltd 335

Arecor 2

Arthur D Little Ltd 18

Astex Therapeutics Ltd 436

AstraZeneca 310

Bayer CropScience Ltd 230

Biochrom Ltd 22

Brady plc 281

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

Domantis 315

Dr Reddy's Chirotech Technology 410

Eight19 9a

Ember Europe Ltd 300

Esaote 14

ESRI (UK) Ltd 302

Frontier Developments Ltd 306/321/323

GHX UK 320

Grant Thornton 101

Hawkins & Associates Ltd 25/120-126

Heraeus Noblelight Ltd 161

Jagex 220

Johnson Matthey Catalysts 28

kidsunlimited Day Nursery 319

Linguamatics 324

Mundipharma International Ltd 194-198

Mundipharma Research Ltd 194-198

Napp Pharmaceutical Holdings Ltd 196

Novus Biologicals 12

Oakland Innovation Ltd 328

Owlstone Ltd 9B/127

Pharmorphix Ltd 250

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

Science Recruitment Group 11

Spiral Software 101

Takeda Cambridge Ltd 418

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 DARRIN DISLEY – CHIEF EXECUTIVE OFFICER AND PRESIDENT, HORIZON DISCOVERY

Coming to Cambridge changed my life. I came from a poor background in the East End of London and I wasn't even 16 when I first left school. After an abortive attempt to become a professional footballer, by the time I had returned into education and come to Cambridge, I was already around 24 or 25 years old.

I came here in 1991 to do my PhD at the Institute of Biotechnology, followed by my postdoctoral research. It was the early days of the Cambridge biotech scene and I was fortunate to have Professor Chris Lowe as my mentor, a true pioneer in the field of technology entrepreneurship.

Because of my experiences here, education will always be a driving force in my life. That manifests itself in a number of ways. For example, along with Horizon Discovery, I am one of the main funders of the Cambridge University Entrepreneurs Business Plan Competition. Originally I got involved because I saw that there were no life science people entering these competitions; in the three years since we've been involved, it's gone from 10% life science entries to 50%.

> **"By being entrepreneurial, you don't need millions and millions of dollars to build a good business"**

I also fund a number of studentships on the Masters in Bioscience course at the Institute of Biotechnology. These are aimed at students who might otherwise struggle to pay the fees, with three or four funded each year by the programme. It's a course I have a passion for; these students are being trained to be not just scientists but also life science entrepreneurs.

My purpose in supporting these programmes is to show life scientists that, by being entrepreneurial, you don't need millions and millions of dollars to build a good business. I know this from personal experience: Horizon Discovery went from having £9,000 in the bank on 26th March 2008 to a public listing of $113 million on 27th March 2014 – the biggest life science float ever from the Cambridge cluster.

I try to get young people to understand that there's a big difference between technology transfer or university spin-outs and being an entrepreneur. As an entrepreneur, you may use finance, venture capital, technology transfer, but these are all just tools to create value from technology. I try to encourage young entrepreneurs to build companies so that they retain enterprise control and align the interests of all the stakeholders. You need to be pragmatic about how you build your business: you may want to cure cancer, but if you're in the middle of a recession and money's hard to come by, no one's going to fund that kind of business.

At Horizon, for example, we started by importing technology from the US and doing lots of deals so we could generate revenues and profits early on. That generated confidence in the investor community and investors then came in on our terms. It was then that we started evolving the business to do the things we wanted to do like drug discovery. That's what I try to teach: think of it as a business. Business is about customers, it's not about you. There's no such thing as a lifestyle business. If you can't pay the bills on Monday morning, there's no lifestyle in that.

In the UK we now have a really strong framework that encourages the development of new hi-tech businesses. Through the Enterprise Investment Scheme (EIS) and Seed Enterprise Investment Scheme (SEIS), tax breaks mean investors can significantly reduce their risks and new businesses don't necessarily have to rely on venture capital to get their companies moving. You've also got very generous R&D tax credits – up to 25% of your qualified research spend back in cash – and schemes such as the patent box, whereby any product or service designated to this is only liable to 10% corporation tax on related revenues.

> **"That's what I try to teach: think of it as a business. Business is about customers, it's not about you"**

There's also a fantastic eco-system building up in Cambridge. There's always been great science and technology coming out of the city, but now you have the means of making it very attractive for people to invest in the sector. We're fortunate to have a network of angels and super-angels who are not only investing, but also mentoring and advising.

Having been here for a while, I definitely notice a change in mind-set. There are many more people trying to set up companies now. The enterprise environment is getting greater and greater and people are looking more globally at how to grow their businesses.

But I still think we need to nurture a culture of greater ambition. Ultimately, if the next generation of entrepreneurs only want to get rich or the scientists just want to discover something new, you're never going to build those big companies that we need. I think we have the capacity to look beyond that and grow.

www.horizondiscovery.com

Darrin is a life scientist who has been involved in the start-up and growth of a number of business ventures. He has a track record of raising $190 million business financing from grant, angel, corporate, venture capital and public market sources as well as closing over $300 million of product, service, and licensing deals. In 2012, he was named Business Leader of the Year at the European Life Science Awards and in 2014 listed Horizon Discovery Group plc on the AIM market of the London Stock Exchange achieving a placement of $113 million.