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NEWS COMMENT and ANALYSIS on SPINOUTS from UK HEIs

PraxisUnico and Young Company Finance join forces

On 20 October PraxisUnico became the lead partner in Young Company Finance's *Spinouts UK* project - a listing of all spinouts from UK universities since 2000, with information about their origins, their activity, their growth, and their current status.

The project output - *The PraxisUnico Spinouts UK Survey* - will, for the first time, provide a continuous series of data which will be updated regularly to give the most comprehensive and reliable source of information about this important sector. The extensive database includes 1,500 spinout and start-up companies. This is the first survey to investigate this sector by taking a cumulative 'bottom up' approach, compiling data company by company and updating it regularly. The annual reports will analyse and comment on trends in the data, and highlight successful outcomes for spinout companies as possible exemplars or case studies for improving success rates overall.

The first analysis of this data has already provided data to dispel some myths about spinout companies. For example, it is widely believed in some quarters that most spinouts are very short-lived - this is mistaken; the Survey shows that spinouts fare as well as

most other early stage companies in this regard with 73% of the companies in the survey over five years old. Many spinouts grow into successful businesses with around 10% achieving stock market flotation or trade sale. The results are impressive - we have price data for only 50% of spinouts achieving trade sales, but the figures we do have, plus the valuations of spinouts floating on stock markets, amount to a conservative total of just short of £5 billion.

Dr Douglas Robertson, Chair of PraxisUnico and Director of Research and Enterprise Services, Newcastle University, said "It is clear that spin-out companies are only part of the technology transfer portfolio; but in my view an important part. Spinning out a company is a real challenge, particularly in the present financial environment. However, between 2003 and 2010 PraxisUnico data produced for the Department of Business

Organisations mentioned in this issue

| | | | | | |
|-------------------------------|------|----------------------------|----|----------------------------|----|
| Birmingham Science Park Aston | 10 | Imperial Innovations Group | 3 | Oxford Invention Fund | 10 |
| Cherry Plastics Group | 6 | Innovate11/TSB | 6 | Phase Focus | 5 |
| Cisco | 10 | Isis Innovation | 3 | Plaxica | 5 |
| Clarizon | 4 | Keiretsu Forum | 10 | Queen's University Belfast | 6 |
| Endomagnetics | 11 | MedaPhor | 9 | Sentient Medical | 4 |
| Finance Wales | 9 | MGB Biopharma | 5 | SETsquared | 6 |
| Fusion IP | 3, 9 | MISSION Therapeutics | 7 | UCLB | 11 |
| HESA | 2 | Nexxon | 4 | Warwick Ventures | 10 |

Innovation and Skills shows spinouts going to trade sale and public offerings had a combined capital value of £4.8 billion. Clearly only a small part of that value will end up as a financial return to the university concerned, but the activity contributes employment and economic value to UK plc. “

The link with PraxisUnico will enable Spinouts UK to build the database and keep it updated much more effectively. Both

partners share the goal of communicating the successes of the university commercialisation sector more widely.

For more about Spinouts UK, see the website www.spinoutsuk.co.uk

HE-BCI results

The results of the 2009/10 Higher Education Business Community and Interaction Survey (HE-BCI) were published in May by HESA, the Higher Education Statistics Agency.

The HE-BCI Survey monitors a wide range of parameters showing how academia connects with business and the wider community. The figures relating to company formation by HEIs are of particular interest in relation to our own PraxisUnico Spinouts UK Survey, which takes a ‘bottom-up’ approach, collecting data about individual companies in order to track growth and observe trends and patterns in a different way from HE-BCI, and in particular focuses on how spinouts achieve successful exits .

The HE-BCI figures are available given in a press release on the HESA website, and paint an interesting picture. According to HE-BCI, a total of 273 formal spin-offs (the term used by HE-BCI) were formed in 2009/2010, a 27% increase on the previous year. There is a total of 6,690 active companies formed as spin-offs or start-ups (formal spin-offs account for 1,340, or 20%, of these), which employ some 28,000 people on a FTE basis (formal spin-offs 16,942, or over 60%).

HE-BCI categorises companies formed by HEIs into four groups (we have used the same categorisation in the PraxisUnico Spinouts UK Survey):

- Spin-offs with some HEI ownership
- Formal spin-offs based on IP from the HEI, but not HEI owned
- Staff start-ups, not based on IP from the HEI
- Graduate start-ups, ditto

The following table shows for the two years in the latest report that formal spin-offs, although only a small proportion of the total companies formed, are by far the most important group in terms of employment, turnover, and fundraising. There is no doubt some undercounting for start-ups, which are inherently more difficult for HEI technology transfer offices to track, but the overall picture is clear.

Spin-offs as proportion of all HEI company formation

| | 2008/09 | 2009/10 |
|------------|---------|---------|
| new | 9% | 10% |
| active | 22% | 20% |
| employment | 57% | 61% |
| turnover | 82% | 84% |
| investment | 96% | 98% |

The figures for formal spin-offs in the two years covered by the HESA Press release show a relatively unchanged number of active companies, but strong advances in commercial activity, particularly in the level of investment raised.

Growth in spin-off activity

| spin-offs | 2008/09 | 2009/10 | growth |
|-----------------|---------|---------|--------|
| new | 215 | 273 | 27% |
| active | 1,311 | 1,340 | 2% |
| employment, FTE | 14,180 | 16,942 | 19% |
| turnover, £m | £1,511 | £1,762 | 17% |
| investment, £m | £700 | £1,139 | 63% |

The HE-BCI figures include a breakdown by region. Although England as expected dominates the absolute numbers, with 70% of the active spin-offs, the HE-BCI figures for employment, turnover, and investment can be computed with the numbers of active firms to give some interesting averages.

Note that these are averages, and can hide a wide variation; indeed, if there are any major ‘outliers’ a median measure could

Regional differences

| | 2008/09 | 2009/10 |
|----------------------------------|---------|---------|
| average employment, FTE | | |
| England | 11 | 13 |
| Wales | 4 | 5 |
| Scotland | 13 | 13 |
| N Ireland | 20 | 20 |
| ALL UK | 11 | 13 |
| average turnover, £'000 | | |
| England | £1,233 | £1,440 |
| Wales | £237 | £326 |
| Scotland | £1,143 | £1,006 |
| N Ireland | £1,994 | £2,135 |
| ALL UK | £1,153 | £1,315 |
| average investment, £'000 | | |
| England | £682 | £1,089 |
| Wales | £76 | £112 |
| Scotland | £94 | £172 |
| N Ireland | £1,135 | £1,079 |
| ALL UK | £534 | £850 |

have been more appropriate, but this level of detail is not

available in the figures reported.

This table shows that although Northern Ireland has relatively few active spin-off companies (60 in 2009/10, or under 5% of the total) these companies have stronger employment, turnover, and investment averages than the rest of the UK, possibly implying that they are a little more established, which is consistent with the low level of new spin-offs formed.

There has been a considerable increase in the formation of new spin-offs between the years reported, and yet the increase in these commercial parameters indicates a 'maturing' of the group of active companies. The turnover figures for Wales, and the investment figures for Wales and Scotland, look unrealistically low, but could be affected by the number of pre-revenue and pre-investment companies included in the group.

If you would like a copy of the full spreadsheet on which this analysis is based, please email research@ycf.co.uk

Commercialisation firms – annual reports

Three technology commercialisation firms have recently announced annual results. Some of the highlights are as follows.

Imperial Innovations Group

- Completed £140 million equity raise in January 2011, to accelerate investment in existing ICL portfolio, and to invest in companies from Cambridge University, Oxford University and University College London as well as Imperial College London
- The Group's first investment in a Cambridge spinout, MISSION Therapeutics, is reported on page 7
- Led £60m funding round in Circassia – third largest financing of private European biotech company for 15 years
- £35.1m (FY 2010: £14m) invested in 23 companies
- Since 31 July 2011, invested £6.3m in nine companies, including £1.2m in Mission Therapeutics and committed £5m to Autifony (UCL)
- Gross realisations £2.4m (FY 2010: £10.4m)
- Total revenues at £4.5m (FY 2010: £4.3m)

Isis Innovation

- Revenue £8.4m (increase of 12.5%)
- Spinout share portfolio valued at £35m (31 July 2011)
- £435k invested in 11 projects by Oxford University Challenge Seed Fund

Fusion IP

- Revenue £5.9m (2010: £4.4m) increased by 35%
- One new portfolio company started and funded in the year (Perlemax)
- 6 portfolio companies in trading phase of growth, three of which are trading profitably
- £1.6m invested in portfolio companies by Fusion (2010: £1.8m), and £6.1m invested by third parties (2010: £6.9m)
- 15 funding rounds completed by portfolio companies (2010: 20)

Recent investment deals

Nexeon scales up its silicon anode technology

Imperial Innovations Group has led a £40m investment in Nexeon (www.nexeon.co.uk), a battery materials and licensing company which is developing silicon anodes for the next generation of lithium-ion (Li-ion) batteries.

Li-ion batteries are widely used in consumer electronic applications such as laptops, mobile phones, and tablet computers, and in electric and hybrid vehicles. The global market for Li-ion batteries is currently \$10bn, but estimates have suggested that will increase to between \$40bn and \$60bn over the next decade. Nexeon's patented silicon anode technology increases a battery's energy density, creating longer lasting batteries for the same size of battery or smaller batteries for the same performance. In December 2010, Nexeon announced it had developed Li-ion cells containing its silicon materials that had the world's highest capacity for their size.

Currently, Nexeon has the capability to produce 2,500 kg per year at its Abingdon facility. The new funding will be used to scale up the production of silicon anode materials to commercial levels and to provide application development and support to customers. The new manufacturing facility is expected to be on stream in 2013. Nexeon has signed Material Evaluation Agreements with a number of leading battery manufacturers. Innovations invested £15m and now holds a 40% (33.5% fully diluted) stake in the business. Existing Nexeon shareholder Invesco Perpetual also invested in this round. To date, Nexeon has raised £55m over four funding rounds since formation in 2005.

Russ Cummings, Innovations' Chief Investment Officer, led the fund raising and is on Nexeon's board, whilst Paul Atherton, a non-executive director of Innovations, is chairman of Nexeon.

Newcastle spinout Clarizon is backed by North East Technology Fund

Clarizon (www.clarizon.co.uk) has developed an electrochemical cell technology that generates ozone directly into water – a technology that has the potential to be used commercially within 12 months, and could eventually be used in large-scale water treatment and industrial cleaning processes.

Clarizon has secured a £615k phased investment from the Finance for Business North East Technology Fund, managed by IP Group plc, with the initial funding of £115k to be followed in two tranches upon the attainment of certain milestones.

Clarizon's electrochemical technology, which took five years in research and development, could change the industry by replacing the use of CCD (cold corona discharge), the current dominant method used. CCD requires a supply of very cold, dry

oxygen to produce even low concentrations of ozone, which, once produced, then has to be dissolved in the water to be treated. By contrast, Clarizon has devised a way of generating ozone directly into water. Its novel method has low capital and running costs, and produces no pollution.

Ozone sterilises water and deactivates chemical pollutants such as pesticides, providing purified water. Ozonated water can be used in a range of other applications, including sterilising and cleaning surfaces (for example in food preparation, in hospitals and in drinks lines), sterilising food, and cleaning clothing.

The company is initially looking for its patented technology to be used in small applications, in white goods, drinks line cleaning and sterilisation, surface and water sanitisation for the food and medical industries, white goods applications such as ice-making machines, and other domestic and defence applications. Clive Dyson, managing director of Clarizon, said the potential for this invention is significant. "Clarizon's technical director Paul Christensen and I recognised that there is a commercial opportunity for a more compelling technology, based on our research and development carried out to date, and the effectiveness of our technology.

"After five years of background work, we intend to reach market in the next 12 months. We are very grateful for the support from the IP Group team, who have provided management support, as well as funding through the Finance for Business North East Technology Fund."

Sentient Medical prepares for trials

Dundee spinout Sentient Medical is developing a miniature Middle Ear Implant (MEI) for the relief of moderate to severe sensori-neural hearing loss. This is the type of hearing loss which affects about 90% of all hearing impaired persons.

A very large number of people suffer from deafness of this type (perhaps 10% of the population of the western world). The Sentient team believes that its MEI will overcome the technical inadequacies of previous systems, and will result in a product that will be affordable to many members of the general public in a private market. The market for the developed MEI is estimated at US\$1.8 - US\$2.7 billion per year.

The management team are Eric Abel, Professor of Biomedical Engineering at Dundee University, and investor chairman David Campbell. Archangel Informal Investment together with the Scottish Co-Investment Fund has recently provided equity funding of £100k, together with R&D project funding from a leading European hearing devices company.

Hearing aids are limited in the amplitude they can generate and therefore the hearing loss they can make good. The Sentient MEI is designed to operate by direct vibration of the bones of the middle ear in response to sound, or the round window of

the middle ear, and so can pass much more energy (with high fidelity) to the inner ear than a hearing aid, which must transmit sound through the air of the ear canal.

Sentient will develop the MEI in Dundee, and aims to develop the products through regulatory clearance and readiness for clinical trials with its industry partner.

Plaxica progresses towards commercial implementation and licensing

Plaxica (www.plaxica.com) announced last month that it has raised a further £5 million in a Series B financing from Imperial Innovations, Invesco Perpetual, and NESTA Investments.

Plaxica is developing new types of polylactic acid, a biopolymer made from renewable and sustainable resources.

The current biopolymer market has previously been limited in size due to price and performance limitations. Plaxica is addressing this by developing a range of next generation polylactic acid materials. These are expected to have cost and property characteristics which will allow them to compete directly with today's high volume petrochemical based polymers. Plaxica's biopolymers are aimed at applications as diverse as packaging, electronic goods, automotive parts and textiles.

Innovations and Invesco Perpetual each invested £2.24 million, and NESTA committed £0.52m in the round. Following the new investment, Innovations will hold 36.5% of the company post-financing on a fully diluted basis. To date, Plaxica has raised around £10 million from its investors.

Philip Holbeche, chairman of Plaxica commented "Since the Series A financing a year ago, Plaxica has made significant progress, including growing the company's technical and commercial teams, expanding its intellectual property portfolio and establishing a second UK site in Wilton on Teesside that is focused on process development, scale-up and demonstration. This additional funding will allow Plaxica to advance key aspects of its technology towards commercial implementation and licensing."

Phase Focus expands its operations

Sheffield-based Phase Focus (www.phasefocus.com) is commercialising a disruptive lensless imaging technology (the Phase Focus Virtual Lens®) which uses a proprietary mathematical algorithm to generate images from the diffraction pattern generated by an illuminated beam on transmission through or reflection from a specimen.

Applicable to the full electromagnetic spectrum as well as to electron and other particle waves, the Virtual Lens has been demonstrated in a broad range of applications in markets as diverse as the cellular assay market (worth \$700 million per year); the semiconductor metrology market (\$4 billion); the contact lens market (\$5 billion); and the electron microscopy market (\$1.5 billion).

Phase Focus recently raised £865k in equity investment to expand its operations, to grow sales, and to conclude commercial deals with its commercial partners.

The Credit Protection Association (CPA) led a syndicate of investors that contributed £550k, with Fusion IP plc and the White Rose Technology Seedcorn Fund following on their prior investments with contributions of £90k and £75k respectively. Fusion IP plc simultaneously converted a £150k loan.

Throgmorton Street Capital and Equity Development acted as Placement Agents in this transaction.

Sales of products incorporating the Phase Focus Virtual Lens® have commenced for life science and ophthalmic metrology applications, and evaluations are being conducted with potential OEM partners in markets including semiconductor process control and analytical electron microscopy.

The technology is also increasingly being applied in X-ray microscopy applications.

Ian Pykett, CEO of Phase Focus, said "Our technology continues to fulfil its promise with product sales having now commenced in multiple sectors, and with potentially market-changing capabilities in electron microscopy.

"This new investment will enable us to consolidate these opportunities and develop further applications from stain-free live cell imaging to semiconductor metrology."

David Baynes, chairman of Phase Focus and CEO of Fusion IP plc, added "This fundraising is particularly pleasing, with the company on the verge of signing commercial deals which this money will enable it to conclude."

Technical milestone triggers £800k for MGB

MGB Biopharma (www.mgb-biopharma.com) has received a second tranche of financing from existing investors Archangel Informal Investment with TRI Cap and the Scottish Co-investment Fund.

The second tranche was initiated in direct response to the company's meeting the technology milestone of preclinical proof of concept for its lead compound MGB BP-3.

CEO Dr Miroslav Ravic noted "We have been able to demonstrate clear efficacy in the preclinical stage for the technology and have confirmed MGB BP-3 as our adopted lead compound for further development. The acceptance of our abstract studying effects in *C. difficile*, as a late breaker for the recent ICAAC conference and the reception we had from the media from that underlines just what we have achieved in such a short time from starting work on this new class of antibiotic."

Raymond Spencer, CFO, added "We are pleased to have secured the funding necessary to advance MGB BP-3 towards human clinical testing. *C. difficile* remains a significant health-care problem, particularly with the emergence of hyper-virulent strains. MGB BP-3 offers some hope for hospitalised patients that are vulnerable to attack from this pathogen."

Other news

SETsquared Investment Showcase

At the eighth annual SETsquared Partnership Investment Showcase, eighteen high-tech early stage UK companies from across many technology sectors demonstrated their businesses to potential investors.

The Investment Showcase attracted over 120 venture capitalists, angel investors and high net-worth individuals, the largest draw of investors for an event of this type in the UK.

The SETsquared Partnership combines the resources of the Universities of Bath, Bristol, Exeter, Southampton, and Surrey to incubate early-stage technology businesses. The Partnership supports the growth and success of new business opportunities through spin-outs, licensing and incubation. It also works with industry through research collaboration and consultancy.

The Partnership originated in a bid by Bath and Bristol universities to establish the Sulis Seedcorn fund in 1999, one of the original University Challenge Funds. The Fund was extended in 2001 to bring Southampton into the limited partnership. In 2002 Southampton bid with Bath, Bristol, and Surrey for funding from the Higher Education Innovation Fund (HEIF 1) to establish SETsquared to provide incubation facilities for early stage companies, and HEIF has continued to support the programme through several further rounds. Exeter joined the Partnership earlier this year.

Sarah De'Lacy, Incubation Director for SETsquared at the University of Surrey, explained the reasons for the success of the Partnership. The provision of physical incubation space, the guidance and advice from experienced technology transfer professionals, and from mentors with proven commercial success, and good working relationships with academics, have together proven to be a winning combination. This 'holistic' approach helps young companies with the full range of issues they face, accepting that at the early stages of development business growth issues are often intermingled and cannot be tackled effectively in isolation. The SETsquared service is available to all spinouts from the five universities in the Partnership, but is also available to suitable early stage businesses from outside these universities if the SETsquared team believes it can help them grow.

The programme has been a demonstrable success, claiming:

- 37 spinouts in last four years;
- 6 IPO's in last five years in excess of £250m in value;
- over £450m of capital raised.
- £30m of captive seed funding awarded.

The businesses at this year's Investment Showcase were pitching for investment of between £150,000 and £4 million each. Over the past seven years participants have raised over £100 million

in investment, with £9 million raised from last year's event alone.

The event was hosted by Graham Harrison, SETsquared's newly appointed Partnership Director. Graham's most recent role was as International Business Director at the South West of England Regional Development Agency, where he worked with academia, industry and government to develop and lead partnerships, and to create innovative support for SMEs. He has worked in senior roles in both the public and private sectors over nearly three decades.

KTP winners announced at Innovate11

Among the many displays, presentations, discussions, and other events at the Technology Strategy Board's Innovate11 conference and exhibition this month, the announcement of awards to Knowledge Transfer Partnerships in various categories gave recognition to one of the longest running and most effective commercialisation programmes in the sector.

KTP partnerships work by employing a high-calibre graduate in a business to help address a specific needs-based project, with an academic institution acting as a 'knowledge base' to support the project's development.

The Knowledge Transfer Partnerships National Award Winner was a partnership between **Cherry Plastics Group** of Dunganon in Northern Ireland, **Queen's University Belfast**, and graduate associate **Justyna Grabowska**.

The KTP project, part-funded by Invest Northern Ireland and the Technology Strategy Board, led to Cherry's recycling division becoming one of the UK's ten largest plastic reproducers. As a result of the winning collaboration, the Cherry Plastics Group workforce has risen from 20 to over 60, turnover has risen from £2.5 million to £13.5 million during the project, and research and development spend has increased from zero to £200,000 per annum. The company now leads an EU project which could fundamentally change the technology associated with plastics reprocessing and has set up an in-house design facility to focus on ongoing research and development.

Other finalists for the award were:

- Aurora Medical Limited, University of Southampton and Alex Dickinson (this project won the Award for Engineering Excellence)
- Joseph Rhodes Ltd, Sheffield Hallam University and Karthik Ramakrishnan
- Logical Glue, University of Essex and Faiyaz Doctor
- Risktec Solutions Limited, Liverpool John Moores University and Roisin Gray

Recent investments

| date | company | university | amount | investors |
|-----------|----------------------|-------------|--------|---|
| 07-Jul-11 | Oxyntix | Oxford | £1m | IP Group, Parkwalk Advisors, angels |
| 11-Jul-11 | Amantys | Cambridge | US\$7m | Moonray Investors (Fidelity International), ARM Holdings plc |
| 15-Jul-11 | Sentient Medical | Dundee | £100k | Archangel Informal Investments, Scottish Co-Investment Fund |
| 20-Jul-11 | Atlas Genetics | Bath | £16.9m | Novartis Venture Funds, BB Biotech Ventures, Johnson & Johnson Development Corporation |
| 01-Aug-11 | PneumaCare | Cambridge | £2m | Sud Investments, Cambridge Enterprise, Cambridge Capital Group, Cambridge Angels |
| 05-Aug-11 | Endomagnetics | UCL | £1.2m | Sarum Capital, UCL Business, Bloomsbury Bioseed Fund, Sussex Place Ventures |
| 05-Aug-11 | Nexeon | ICL | £40m | Imperial Innovations, Invesco Perpetual |
| 24-Aug-11 | MISSION Therapeutics | Cambridge | £6m | Sofinnova Partners, Imperial Innovations Group, SR One, Roche Venture Fund |
| 30-Aug-11 | Diurnal | Cardiff | £335k | Fusion IP |
| 05-Sep-11 | Phase Focus | Sheffield | £865k | Credit Protection Association, Fusion IP, White Rose Technology Seedcorn Fund |
| 07-Sep-11 | Polytherics | Pharma, ICL | £2.15m | Imperial Innovations Group, The Capital Fund (YFM Equity Partners), Proven Health VCT PLC |
| 15-Sep-11 | Horizon Discovery | Cambridge | £11.3m | MVM Life Sciences LLP, DFJ Esprit LLP, Roche Venture Fund, Providence Investment Company, individuals |
| 15-Sep-11 | MGB Biopharma | Strathclyde | £798k | Archangel Informal Investments, TRI Capital, Scottish Co-Investment Fund |
| 26-Sep-11 | Plaxica | ICL | £5m | Imperial Innovations, Invesco Perpetual, NESTA Investments |
| 30-Sep-11 | Clarizon | Newcastle | £615k | North East Technology Fund (IP Group) |

New spinouts

We have little information about new spinouts this quarter, but take opportunity to profile a new business which thanks to the credentials of its academic founders was able to start life with a substantial investment.

MISSION Therapeutics spins out with £6 million investment

Cambridge spinout MISSION Therapeutics Ltd (<http://missiontherapeutics.com>) was launched on 24 August by a team led by Professor Stephen Jackson together with Cancer Research Technology (Cancer Research UK's commercial arm) and the University of Cambridge.

Professor Jackson is Head of Cancer Research UK Laboratories at The Gurdon Institute at the University. He is an expert on cellular responses to DNA damage and previously founded KuDOS Pharmaceuticals, which was acquired by AstraZeneca in 2006 for \$210m. He will become Chief Scientific Officer of MISSION, and the company will be led by Dr Niall Martin,

previously head of KuDOS. Dr Xavier Jacq and Dr Keith Menear will also join the founding team, having both previously held key scientific roles at KuDOS.

The new company will translate cell biology research on DNA repair from Professor Jackson's laboratory into a broad platform of technologies for the discovery and development of first-in-class drugs targeting enzymes involved in cancer and other diseases. The company will predominantly exploit new research on ubiquitin pathways that control cellular responses to DNA damage. MISSION Therapeutics will be based on the Babraham Research Campus in Cambridge.

The company has raised £6 million in Series A funding from a venture capital syndicate led by Sofinnova Partners of Paris, and comprising Imperial Innovations, SR One (the corporate

venture capital arm of GlaxoSmithKline) and Roche Venture Fund.

This is the first investment by Imperial Innovations in a Cambridge company, and Susan Searle, Innovations' CEO, said "This is a significant step for Innovations. We are delivering on

our objective of broadening our portfolio to include technology from Oxford, Cambridge and University College London. We are excited by this opportunity and to be working with such a strong team under the leadership of Professor Jackson and Niall Martin."

Exits

We are not aware of any recent exits (IPOs or trade sales) to report in this Quarterly Journal, but instead would like to emphasise a point made in the PraxisUnico announcement on page 1, namely that although not all spinouts make successful exits, those that do can produce excellent results.

The table below is an extract from the online Spinouts UK database, and shows the trade sales of spinout companies in 2010.

There are several things to say about this list. The first is that it may be incomplete; we have taken plenty of trouble to try and find details of trade sales, but can easily have missed one or two. One of the features of The PraxisUnico Spinouts UK Survey is that it is designed to build up a reliable information resource, and will help to fill any gaps in this listing. If as you read this you are aware of trade sales that are missing from the list, or you have corrections to any of the information shown, do please let us know (email research@ycf.co.uk).

The second point is that some exits have spectacular returns for their early stage supporters—usually the university of origin and the venture capital or angel investors who have backed the company, plus we trust a good reward for the academics who

conceived the business and got it started. ApaTech with a value of \$330 million at the time of sale is the prime example here, and RespiVert made a very satisfactory sale (£70 million) in a relatively short time.

The third and very important point to be made is that details of the price paid (or the value put on the business) when it changes hands often remain confidential, for understandable commercial reasons. So when we say that IPOs and trade sales over the past ten years taken together "amount to a conservative total of just short of £5 billion", we have in mind the large proportion of deals for which we have no figures.

In the table below for example, the known values for trade sales in 2010 amount to some £300 million (much influenced by the special case of ApaTech), but we have details for only 4 of the 13 transactions. Some of remainder could have been for very significant amounts, which would radically alter our "conservative estimate".

Note also that this success usually takes time to achieve—the average time for spinouts in this list from start-up to exit is 8 years, with a very wide spread from ReactivLab (under 3 years) to Lagan Technologies (over 15 years).

Exits by trade sale in 2010

| company | university | exit date | years to exit | value on exit | acquired by |
|--------------------------------|-----------------|-----------|---------------|---------------|-----------------------------|
| ApaTech | QMUL, Cambridge | Mar-10 | 9.0 | \$330m | Baxter International Inc |
| Membrane Extraction Technology | ICL | Mar-10 | 14.6 | n/d | Evonik Industries AG |
| Reactiv Lab | Glasgow | Mar-10 | 2.6 | £5m | Avacta |
| VetCell Bioscience | RVC | Apr-10 | 7.6 | n/d | Quy Bioscience |
| RespiVert | ICL | Jun-10 | 3.5 | £70m | Centocor Ortho Biotech Inc. |
| Lagan Technologies | QUB | Jun-10 | 15.7 | n/d | KANA Software Inc |
| Surface Innovations | Durham | Jul-10 | 9.2 | n/d | P2i Ltd |
| APT Licensing | QUB | Jul-10 | 5.4 | n/d | CSR plc |
| Simulstrat | KCL | Oct-10 | 4.2 | n/d | Deloitte |
| Water Innovate | Cranfield | Oct-10 | 5.5 | n/d | Bluewater Bio International |
| Acrobot | ICL | Oct-10 | 11.0 | n/d | Stanmore Implants Worldwide |
| Axordia | Sheffield | Nov-10 | 11.1 | \$2.6m | Intercytex |
| Nano ePrint | Manchester | Dec-10 | 4.5 | n/d | PragmatIC Printing |

Co-investing in success



A collaboration between Finance Wales and Fusion IP, the company which commercialises university-generated intellectual property or IP, has already seen Finance Wales invest £3.8 million in seven spinouts.

Ann Casey of Finance Wales reflects on the benefits the relationship is delivering for the spinouts the companies are investing in.

“When we signed the memorandum of understanding with **Fusion IP** back in 2007, Cardiff University had been identified as one of the UK universities most likely to generate commercially viable IP and Fusion IP had signed an exclusive agreement for the rights to Cardiff’s IP,” Casey explains. “We were excited by the pipeline of potential investment opportunities a strong relationship could bring.”

Now, seven co-investments later, Finance Wales and Fusion IP have invested in hi-tech spinouts commercialising a diverse range of IP. The companies have also developed a strong relationship along the way and Casey believes this relationship offers real benefits for investor and investee-company alike:

“Finance Wales and Fusion IP obviously benefit from working together - we can spread the risk, share diligence costs, for instance,” Casey continues. “But the spinouts also benefit. Co-investment increases the availability of investment capital and in a number of deals, our involvement has also attracted other co-investors with additional funding or sector specialisms, including ERA, Disruptive Capital Finance and Longbow.”

The backing of strong investors also helps spinouts as they commercialise their ideas and bring them to market because they often require follow-on investment. Both Finance Wales and Fusion IP are able to follow their investments to ensure that spinouts achieve their potential.

In any potential investment, valuable IP is important, but so too is a realistic exit strategy and a strong management team with a commercial focus.

As Casey explains: “Spinouts need to develop a commercial focus from the outset as this can mean the difference between success and failure. Fusion IP will often second staff to a pre-revenue academic spinout in the early days to help its management team develop its commercial focus and plan for exit.”

Now, as the relationship between Finance Wales and Fusion IP enters its fifth year, Casey is pleased with the investment opportunities that have resulted from the tie up as well as the other benefits it has brought for the two investors and the spinouts they have invested in:

“Not only have we invested £3.8 million since signing the memorandum of understanding, but we’ve developed a strong relationship which has benefited the spinouts we’ve co-invested in. Co-investment can pay real dividends and I’m convinced that we’ll be able to achieve even more in future.”

Ann Casey, Investment Executive, Finance Wales specialises in early stage technology-based investments and has worked with spin-outs investment for over a decade.

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MedaPhor’s ScanTrainer simulator

Case study – MedaPhor

Cardiff-based university spin-out **MedaPhor** develops market-leading medical ultrasound training products. The company successfully launched its unique ScanTrainer simulator in the UK in 2010 and is currently expanding internationally. Targeted at the expanding the medical simulation training market, the ScanTrainer combines the latest animation and ‘real-feel’ haptic simulation techniques, with curriculum-based interactive learning modules to teach key ultrasound examination skills, as well as advanced diagnostic and image interpretation skills. MedaPhor has received a number of funding rounds from Finance Wales and Fusion IP to develop and commercialise its ScanTrainer. Visit www.medaphor.com and www.scantrainer.com for more information.

Other news

Oxford launches proof of concept fund

The Oxford Invention Fund, launched in June, is designed to bridge the 'innovation gap', supporting University of Oxford inventors in proof of concept and prototyping work. The Fund reached its first close in August and made its first investment in a new class of antibiotics discovered in a natural product library at the University's Department of Chemistry.

The Oxford Invention Fund has received donations totalling £500,000 since it opened from four individuals including Sir Douglas Hague and Dr Tim Cook. The Fund is managed by the University's technology transfer company Isis Innovation.

Professor Mark Moloney, whose group mined natural product libraries to identify the next generation antibiotics, said the early stage funding provided by the Oxford Invention Fund would be used to determine which of the compounds are most likely to be clinically effective drugs. "The discovery of new antibiotics has become critically important because of the emergence of bacteria resistant to current drugs. The urgency of the task is underlined by the recent *E. coli* outbreak in Germany in June 2011."

"This project will test the antibacterial activity of new chemicals we have designed and synthesised, to build up enough data to gain interest from a commercial partner such as a biotech or pharmaceutical company to take the work further."

The Oxford Invention Fund is modelled after the successful Oxford University Challenge Seed Fund (UCSF), also managed by Isis, which has awarded £6 million, financing 115 projects and prompting the formation of 33 spin-out companies and the completion of 51 commercial deals.

All students, researchers and professors from the University of Oxford are eligible to apply to the new Fund through Isis Innovation.

Cisco launches International Investment Forum

This month Cisco, in partnership with Birmingham Science Park Aston (BSPA) and Keiretsu Forum (KF), launched the International Investment Forum (IIF). The IIF will, for the first time, enable international investors to be able to see, discuss and evaluate new companies with serious growth potential in multiple markets face-to-face, without the need to travel.

The IIF is built on Cisco's Global Exchange for Growth (GXG) initiative, BSPA's iCentrum™ concept of the 'science park without walls' and Keiretsu Forum's international network. It utilises the latest collaborative technologies, including video communications platforms such as Cisco's TelePresence.

The IIF has been developed to connect entrepreneurs looking for funds to a global network of investors. The model will help to pioneer cross-border and intercontinental investment opportunities.

The inaugural IIF demonstration event enabled investors around the world to hear early stage investment pitches from entrepreneurs based in Birmingham and London. The KF, BSPA and tech City Investment Organisation had previously collaborated to identify, pre-screen and select these entrepreneurs. The meeting was extended to a variety of global locations including London, Birmingham, Paris, San Francisco, Seattle, Pleasanton, and San Jose.

Phil Smith, CEO Cisco UK&I, said "Through advances in the internet and ICT, opportunities now exist to bring multiple parties together via different forms of video collaboration and enable them to engage and do business. Alongside our partners BSPA and KF, Cisco is pioneering a model of 'innovation hubs without walls' that supports cities and regions as the nucleus for economic growth and impacts growth acceleration."

David Hardman, CEO Birmingham Science Park Aston (BSPA), said "We believe that cooperation and collaboration across administrative and national boundaries promotes successful translation of technologies from concepts to commercial reality. By creating an offering that combines the virtual and the physical, we can bring this collaboration to a global level, so enhancing the chances of British entrepreneurs and innovators delivering their aspirations."

Randy Williams, founder & CEO Keiretsu Forum (KF), concludes "When I started Keiretsu Forum ten years ago, it was my dream to create a cross-border investment model to benefit entrepreneurs and investors. Today, with the creation of our partnership with Cisco and Birmingham, we can connect investors and entrepreneurs via the internet accessing intellectual capital and financial capital in key markets."

New CEO for Warwick Ventures

Warwick Ventures announced in August the appointment of Quentin Compton-Bishop as its new CEO. Quentin, who joined Warwick Ventures on 1st August 2011, replaces Ederyn Williams who, having led Warwick Ventures since its inception in 2000, retired in September.

Quentin brings more than 17 years' expertise in technology commercialisation to the role, including 11 years as a company CEO. During this time he has raised over £5 million in seed and early-stage investment funding.

In recent years Quentin has focused on the renewable energy and cleantech sectors, both as a CEO and a consultant, and later went on to establish the National Energy Foundation's Communities Fund, which provides finance to community-owned organisations setting up large-scale sustainable energy projects. Previously, he was CEO of two materials technology companies, P2i and RolaTube Technology (now RTL Materials) and has also spent time in the United States, working for two California-based software businesses.



UCLB is a leading technology transfer company that supports and commercialises research and innovations arising from UCL, one of the UK's top research-led universities.

UCLB has a successful track record and a strong reputation for identifying and protecting promising new technologies and innovations from UCL academics. It invests directly in development projects to maximise the potential of the research and manages the commercialisation process of technologies from the laboratory to market.

UCLB supports UCL's Grand Challenges of increasing UCL's positive

impact on and contribution to Global Health, Sustainable Cities, Intercultural Interaction and Human Wellbeing.

For further information, please visit the website: www.uclb.com

Case Study—Endomagnetics

addressing cancer staging and healthcare challenges through the application of advanced magnetic sensing technology and nanotechnology

Globally, 1.6 million new cases of breast cancer are diagnosed each year. In practically all of these cases, surgery is required to remove the tumour. In addition to this surgery, the current standard of care involves 'sentinel lymph node biopsy' (SLNB) to determine the stage of the cancer and allow informed decisions to be taken regarding post-operative care.

This procedure spares the patient unnecessary pain, and the hospital unnecessary expense, by eliminating the over-treatment of patients. While the incidence of cancer is increasing, the growth of the sentinel lymph node biopsy procedure has plateaued in part due to issues with the required radioactive tracer. Only around 50% of the over 500,000 patients in the West that could benefit from the procedure have access, whilst this figure drops to 5% in China, and is minimal in most of the rest of the world.

Endomagnetics, a spinout company from UCL, has developed a novel magnetics based solution that overcomes the issues that are impacting on the adoption of sentinel lymph node biopsy. Through use of the company's innovative SentiMag™ magnetic detection system and a proprietary magnetic tracer consumable, Sienna-T™, breast cancer surgeons can easily identify the sentinel lymph node(s) for excision and subsequent histology to determine whether cancer has spread from a nearby tumour site without the use of nuclear medicine.

Other advantages of the Endomagnetics solution over existing nuclear medicine based staging solutions include:

- allows best practice SLNB to be performed anywhere, by any trained practitioner
- builds on established working practice
- Sienna-T™ tracer is safe, easily transported and has a long shelf life
- eliminates workflow and scheduling issues as clinicians can make the injections
- Delivers ultrasensitive detection and location of lymph nodes

By resolving the traditional barriers to adoption, a global £310m annual opportunity is opened for Endomagnetics' system in the treatment of breast cancer, whilst there is also significant upside opportunity for the treatment of other cancers such as colorectal.

Endomagnetics Ltd was established by UCL Business PLC in 2008 to capitalise on research led by Professor Quentin Pankhurst which arose from an initial proof of concept project funded by the Department of Trade and Industry under their UK/Texas Initiative. Since formation, the company has raised over £2.6 million of investment across three funding rounds, with investors including UCL Business PLC, New Wave Ventures, Sarum Capital, Bloomsbury BioSeed Fund and Sussex Place Ventures. The company has offices in London and Cambridge and has been widely recognised as one of the UK's most promising med-tech early stage companies, with significant potential to deliver substantive societal and economic benefits within the UK and overseas. The management team led by Dr Eric Mayes brings significant experience spanning advanced materials and electronic devices to healthcare and life sciences which complements the expertise of the academic founders and UCL Business PLC.

Dr Steven Schooling from UCL Business PLC, who has worked with the team since the initial proof of concept project, commented "UCLB are pleased with recent progress that the company has made in tackling clinical, regulatory and business development challenges and we look forward to continuing to work with the management team as Endomagnetics seeks to establish itself as a leading player in oncology markets".



END  MAGNETICS

Project partners

We are very grateful to the following organisations for their support

Lead partner

PraxisUnico.

Commercialising research

the interaction between the public sector research base, business and government. PraxisUnico provides a forum for best practice exchange, underpinned by first-class training and development programmes. www.praxisunico.org.uk

PraxisUnico is the UK's leading research commercialisation association. It is a not-for-profit educational organisation set up to support innovation and commercialisation of public sector and charity research for social and economic impact. PraxisUnico encourages innovation and acts as a voice for the research commercialisation profession, facilitating



Finance Wales is one of the UK's largest SME investment companies and provides growth capital to help businesses realise their potential for innovation and growth.

www.financewales.co.uk/earlystage



Helping translate ideas and research into more spin-out and start-up companies, and encouraging Scottish companies to make use of technology and research being developed.

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UCLB is the technology transfer office of UCL, one of the UK's leading research-led universities. UCLB is responsible for commercialising innovations arising from the university.

www.uclb.com



MFL Science & Technology is a specialist insurance broker risk management adviser to many of the UK's leading 'spin out' businesses. www.m-fl.co.uk



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