



Quarterly Journal - December 2017

NEWS COMMENT and ANALYSIS on SPINOUTS from UK HEIs

The spinout spectrum

The reports in this issue of our Quarterly Journal cover the full spectrum of the spinout journey, from pre-incorporation preparation to trade sale or IPO.

An IPO is not the end of the journey, and nor does a trade sale necessarily mean the complete absorption of the spinout business into a larger corporation; the Sonobex sale to Merford gave a “fantastic opportunity for generating routes to market”, and the team which founded and built Puridify remains at its current location to become a BioProcess research hub for acquirer GE Healthcare.

At the other end of the spectrum, much thought and consideration is being applied to preparing companies for successful commercialisation. In Leeds, Redbrick Molecular is pioneering a new approach to the commercialisation of synthetic organic chemistry, working with Sheffield to build a source of chemicals licensed from partner institutions, and using all profits to support future chemistry research. And at Imperial Innovations, the Founders’ Choice programme differentiates between would-be spinout founders who have previous experience of building a new business from scratch, and those who need more support from the TTO. The tables of new spinouts, recent exits, and recent investments on pages 8-9 are not intended to be exhaustive, but rather list the companies and transactions not previously recorded in the Spinouts UK database. For reasons of space, only a selection of these are covered by more detailed reports, and the selection is in part intended to illustrate the considerations surrounding the spinout journey, and the different possible routes. One example is in the funding available, where Rainbow Seed Fund (Cobalt exit) and Parkwalk (First Light Fusion, secondary buyout by OSI) comment on how they see their role in supporting companies through the early stages

We are gradually widening out the scope of this publication, for example to cover spinouts from research institutions outside universities, and companies which are only indirectly based on university owned IP (for example CALCIVIS, and NuCana), in order to give a fuller account of the whole process of commercialisation by way of company formation. For the same reason we will also be introducing a number of features to supplement the news reports; the first of these is our ‘Spotlight on . . .’ feature on p13, which will investigate the different approaches to commercialisation at different universities, the first example this time being the University of Warwick.

- Jonathan Harris, Editor

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New spinouts

Pireta

Pireta was formed to commercialise a patented technology developed at the National Physical Laboratory. The company was founded by Dr Chris Hunt who invented an additive process that can be patterned for metallising a wide range of textile types, adding conductivity to fabrics at any stage, from yarn through to completed garment. Pireta's process ensures best-in-class conductivity with no impact on garment performance, drape or handle.

The company has secured investment from the Rainbow Seed Fund, an early-stage venture capital fund focused on building technology companies from the UK's research base.

Wearable technology is an increasingly significant market, with sensors being woven into fabrics to measure physiological changes and track movement, distance and speed. Smart textiles have applications across a variety of sectors including military, emergency services and defence, healthcare, fashion, athletics and elite sports, and RFID tagging.

Redbrick Molecular

Redbrick Molecular, a spinout from the University of Leeds and University of Sheffield, is pioneering an innovative approach to the commercialisation of synthetic organic chemistry.

The company will sell building block and scaffold chemicals manufactured from synthetic methodologies licensed from partner universities. Redbrick dedicates all profits from sales of these products to support future UK chemistry research through grant funding projects at its member institutions.

Redbrick Molecular's business model was conceived with input from industry leaders and academics alike who wished to improve and secure chemistry research in the UK, and see this research in use in industry to develop life-saving medicines. The venture was conceived with significant input from Professor Simon Jones (University of Sheffield) and industrialist Dr David Lathbury, and is now further supported by the expertise of Professors Joe Harrity (University of Sheffield), and Steve Marsden and Adam Nelson (both of University of Leeds), among others. The company will actively seek to build on this base by forming relationships with other Higher Education Institutions as both licensors and future company members.

Andy Duley, Director of Innovation Services at University of Leeds said "Commercialisation is an essential path to obtaining impact from our research. Our investment in Redbrick Molecular demonstrates Leeds' commitment to identifying innovative routes to achieve research translation and knowledge exchange."

LoMaRe Technologies

LoMaRe Technologies, a spinout from Imperial College London, is focused on developing technology based on the latest

advancements in thin-film technology, using advanced materials and exploring the boundaries of new material classes.

LoMaRe will initially target the development of non-volatile embedded memory devices. The company's first market is memory chips, though its vision is to become the market leader for piezomagnetic based technologies, with a technology platform that will span across all memory and digital storage applications.

GripAble

GripAble, a spinout from Imperial College London, is developing gamified mobile technologies for the assessment and training of hand and arm disabilities.

GripAble has developed the GripAble™ Digital Handgrip, a device which connects to a range of mobile apps allowing for accurate assessment of grip strength and for engaging training options.

The GripAble™ device incorporates a patented force-sensing mechanism, meaning it can be used to assess fine movements and build an accurate picture of a patient's grip strength and how that relates to their ability. The device connects wirelessly to mobile apps, meaning that therapy can be linked to a range of engaging games in which patients can clearly see their progress. In addition to use in therapy clinics, due to its highly portable nature the GripAble™ device is also suitable for home use by patients and may be sold as a consumer product.

GripAble was founded by a unique mix of academic and clinical staff from across Imperial College London, and is headed by Dr Paul Rinne. Its core technology was patented by Imperial Innovations and is licensed to GripAble on a worldwide, exclusive basis. Having recently graduated from the Dubai 100 healthcare accelerator programme, GripAble has secured £600k in funding between Innovate UK and private funding sources.

Oxford Quantum Circuits

Oxford Quantum Circuits, a University of Oxford spinout, was founded by Professor Peter Leek, who is based at the Clarendon Laboratory, and is aiming to build a quantum computer based upon a superconducting circuit approach to forming qubits. The intention is to leverage the latest technology in this field and overcome the key challenge that has confounded researchers to-date: scaling the system up to a large number of qubits. The company has secured £2 million in a seed investment round, backed by Parkwalk Opportunities EIS Fund and others.

6Degrees

Augmented and virtual reality company 6Degrees, which has the distinction of being Oxford University's 150th spinout

company, looks to harness both the ubiquity of smartphone technology and the upcoming rollout of numerous virtual reality headsets and VR-enabled handsets with an app that allows any smartphone user the ability to create virtual worlds. Using technology developed by Professor Victor Adrian Prisacariu, Associate Professor in Information Engineering at Oxford University, 6Degrees users can record any environment for VR simply by scanning their surroundings with their phones.

Royal College of Art (RCA)

The RCA responded to our latest enquiry about recently formed spinouts with details of six companies incorporated this year. Five are described below; RCA reports that all these are spinouts based on IP developed at the RCA, which has been assigned to the companies. They have all raised initial seed funding and are being incubated at InnovationRCA, the Royal College of Art's centre for enterprise, entrepreneurship, incubation and business support, which in 2015 was ranked by HEFCE as having 'the highest number of student spin-outs with university ownership in recent years in the UK'.

The Flomark

Led by Jonathan West, a founder with 13 years' experience in healthcare design, Flomark has developed a new hospital drip that easily, intuitively and reliably shows flow rate.

The traditional drip design has not changed for decades. Currently, nurses measure quantities of hydrating fluids or medicines by manually counting drips; unfortunately, this is rarely done correctly, resulting in patients being given fluids too quickly or too slowly. This poses a serious threat to patient safety and can slow recovery time.

The patent pending Flomark shows a simple fluid level that indicates the flow rate, removing the human component and saving nurses valuable time. The Flomark's simple design means it can be manufactured at the same competitive cost as existing systems.

Pollinator Orchard Management (POM)

POM is an early stage agricultural technology company that enhances pollination rates and crop yields by working with flies and other wild pollinators.

With populations of wild and domesticated pollinators declining worldwide, there is a pressing need to understand and supplement the role that these creatures play in our food systems. Bees have been far more closely studied compared with flies, and syrphid flies in particular are often overlooked and undervalued as pollinators.

POM's product is an internet-of-things system consisting of a network of small nodes spread throughout a farm. The nodes collect data and curate the behaviour of flies in the field using pheromones. The company is currently working towards field tests and has plans to rear certain beneficial fly species for agriculture in the meantime. POM works with natural systems to manage and support rather than exploit local ecosystems.

Matt Perkins, Chief Executive Officer at Oxford University Innovation, said "6Degrees makes an excellent and welcome addition to the Oxford innovation ecosystem as spinout 150. At the present rate, we'll hit spinout 300 in the next seven to eight years. Looking forward, this raises the question of how to turn these spinouts into sustainable, large scale and world leading businesses. We in the Oxford innovation ecosystem invite the wider world to help us rise to that challenge."

Jiva Materials

Led by director Jack Herring, Jiva is developing a water soluble, fully biodegradable non-hazardous flax based board, Soluboard, to replace fibreglass which is currently used as the substrate in Printed Circuit Boards (PCBs).

Fibreglass is extremely hazardous to health and almost always ends up in landfill. Soluboard will act as a direct replacement to it and can be recycled, enabling recyclable PCBs.

Patent-pending Soluboard delaminates when immersed in warm water, allowing PCB components to be recovered safely leaving compostable flax and solution that can be disposed of using standard domestic waste water systems.

Petit Pli

Children grow seven sizes in their first two years. Purchasing clothes that keep pace with their size can be expensive and wasteful as outgrown garments are thrown out.

Petit Pli is producing versatile, waterproof outfits that are designed to stretch and grow bidirectionally to custom fit a range of sizes.

Petit Pli uses technical materials that are ultra-lightweight, waterproof and breathable. Advertising itself as "the most advanced technical children's clothing in the world", Petit Pli's combination of fashion and technology encourages children to play and explore, whatever the weather.

Amy Collins

A highly skilled artist, Amy Collins reinvents 18th century botanical drawings as contemporary luxury goods such as wallets, bags and printed scarves.

By applying her drawings to leather using laser etching, Amy has married the two worlds of art and fashion, producing pieces that capture the romanticism of travel and escapism. Now an established spinout from RCA, Amy Collins Ltd has received seed equity and is based in InnovationRCA.

Recent exits

Sonobex

Loughborough University start-up Sonobex was created by three doctors of physics from Loughborough and a Masters of Acoustics from the Technical University of Wroclaw.

Since incorporation the Sonobex team worked on developing technologies and solutions within the noise control sector, resulting in the patenting of the SonoTEC® technology for acoustic panels. The company subsequently designed and manufactures a complete line of modular engineered systems incorporating SonoTEC® acoustic panels.

Sonobex was acquired in January this year by Merford UK. Joost Vertooren, co-director of Merford, calls the acquisition of Sonobex "the most progressive" in the company's history. "We have made several acquisitions, but these concerned often manufacturing companies or increasing our market share. This acquisition is purely to enhance our research and development function."

The acquisition by Merford offers Sonobex the possibility to go beyond research and development. Dr Daniel Elford, co-founder and Chief Technology Officer of Sonobex, observed "There is a great synergy between Sonobex and Merford with a shared focus on innovation and product development. This presents a fantastic opportunity for generating routes to market for our propriety noise control technology."

Intelligent Ultrasound

Intelligent Ultrasound, a University of Oxford spin-out company that develops image analysis software for ultrasound, has been acquired by MedaPhor Group (AIM: MED), which provides advanced ultrasound skills training simulators for medical professionals, following a placing which raised £5.5 million.

The value of the acquisition of Intelligent Ultrasound is up to £3.6 million, and will allow MedaPhor to expand its existing ultrasound simulator business into the larger ultrasound related software market

Aquila BioMedical

At the end of October Manchester-based integrated drug discovery, development and analytical services company Concept Life Sciences (Concept) announced that it had acquired Aquila BioMedical, a pre-clinical contract research organisation based in Edinburgh, with expertise in immuno-oncology, immunology and multiplex histology. The terms of the acquisition were not disclosed.

Aquila, formed in 2011 by experts from The University of Edinburgh, has developed technologies to help customers to better understand the cellular and molecular events that occur

with compound administration. Bespoke assays allow both phenotypic screening and target based research methods, to enable hit identification and optimisation of compound and target selection, directly increasing the compound success rate and reducing the overall cost associated with drug development.

Puridify

Puridify, a UCL spinout, is developing a nanofibre-based platform purification technology for the biopharmaceutical industry. The company's FibroSelect technology is complementary to the bead resins and chromatography membranes used today in downstream bioprocessing, promising faster mass transfer, scalability and ease of use. The platform offers productivity improvements in the process development (PD) phase and small-scale manufacturing for a wide variety of biopharmaceutical applications, including monoclonal antibodies (mAbs). Puridify's technology was originally developed at the Department of Biochemical Engineering at UCL and supported since 2014 by investment from Touchstone Innovations, SR One and UCLB.

At the end of November it was announced that Puridify had been acquired by GE Healthcare. The terms of the transaction were not disclosed.

GE Healthcare will invest to bring Puridify's platform to commercialisation, fully integrating it within the broad range of bioprocess purification products already available at GE. All 17 of Puridify's employees will join GE Healthcare Life Sciences' BioProcess business. The Puridify team will remain at its current location in Stevenage which will serve as a small research hub for BioProcess.

Cobalt Light Systems

Cobalt develops products and technologies for non-invasive, through-barrier chemical analysis, for applications in airport security, hazardous-chemical identification, and pharmaceutical QC. Cobalt's instruments can rapidly and accurately identify materials hidden inside objects or through opaque barriers such as plastic, coloured glass, paper and skin, or can measure the concentrations of materials in mixtures, with a high degree of accuracy.

With its HQ at the Harwell Science and Innovation Campus in Oxfordshire, and offices in Reston, Virginia, and Hong Kong, Cobalt was founded in 2008 as a spinout from the Science and Technology Facilities Council (STFC) Rutherford Appleton Laboratory, and funded by Rainbow Seed Fund, NESTA, Longwall Ventures, and private investors.

In July Rainbow Seed Fund announced that Cobalt had been acquired by Agilent Technologies Inc. Cobalt's CEO Paul

Loeffen will remain with Agilent as the director of Raman spectroscopy.

Cobalt's customers include 21 of the world's 25 largest pharmaceutical companies, the US Food and Drug Administration, and more than 75 airports across Europe and Asia-Pacific, including eight of the ten largest European airports, with over 500 devices deployed at airport checkpoints. Recently, Cobalt has entered environmental screening markets such as law enforcement, customs and borders, and first responders its handheld platform. "As the first investor, more than a decade ago," said Dr Andrew Muir, Investment Director of the Rainbow Seed Fund, "we are proud of Cobalt's path from research origins at Rainbow partner STFC to a global market, and this successful outcome demonstrates our strategy of providing very early investment to validate and develop research with high-growth potential."

Nightstar Therapeutics

Nightstar Therapeutics, a clinical-stage gene therapy company developing treatments for rare inherited retinal diseases, announced on 2nd October the closing of its initial public offering on the NASDAQ Global Select Market. Aggregate net proceeds to Nightstar were circa \$76.9 million, and the company had a valuation of approximately \$900 million at admission.

Nightstar Therapeutics is a spinout from Oxford University and Imperial College London, with scientists from both institutions contributing to the underlying research upon which Nightstar's product candidates have been developed.

Nightstar's lead gene therapy product candidate is NSR-REP1, which is being developed for the treatment of choroideremia (CHM), a rare, degenerative, X-linked genetic retinal disorder primarily affecting males that is caused by a mutation in the CHM gene. The company plans to initiate a phase 3 registration study of NSR-REP1 for CHM in the first half of 2018.

Professor Miguel Seabra, of the National Heart and Lung Institute, Imperial College London, identified the protein involved in CHM some 20 years ago, and he and his team at the NHLI have conducted extensive pre-clinical work enabling the project to enter the clinic. He was the lead scientist on the phase 1 clinical trial led by Professor Robert MacLaren, of the Nuffield Laboratory of Ophthalmology at the University of Oxford, which led to the development of a gene therapy approach to the treatment of CHM.

Imperial Innovations acquired an equity interest in Nightstar Therapeutics as part of the original intellectual property contributions of Prof. Seabra to Nightstar. Tony Hickson, managing director of Imperial Innovations, said "The Nightstar IPO provides evidence of the strength of the UK's science base and shows the value of academic collaboration within the 'Golden Triangle' of London, Oxford and Cambridge. We are delighted

to see the continuing progress of Nightstar and congratulate the teams at Imperial and Oxford whose scientific research has contributed towards it."

NuCana

NuCana is focused on improving treatment outcomes for cancer patients by transforming some of the most widely prescribed chemotherapy agents into more effective and safer medicines. The company is developing new medicines, ProTides, designed to overcome key cancer resistance mechanisms and generate much higher concentrations of anti-cancer metabolites in cancer cells.

The ProTide technology was invented at Cardiff University by Professor Chris McGuigan. NuCana has exclusive worldwide rights to the ProTide technology in cancer. ProTides are modifications of nucleoside analogues (artificial copies of naturally occurring compounds), which have long been used in anti-viral and anti-cancer treatments, where they act to prevent replication of a virus or cancer cell.

ProTides are in effect a 'pre-activated' form of drug, which are enabled to cross the cell membrane by masking the negative charge of the drug on which they are modelled, prevent breakdown by enzymes, and, by being partly phosphorylated, 'kick-start' the process by which the active part of the drug is released into the cell. The technology was originally applied to anti-viral drugs for the treatment of HIV and hepatitis, and several major pharmaceutical companies commissioned ProTide versions of their drugs from Cardiff which have become very successful.

NuCana was founded by Chris Wood and High Griffith following the sale of their previous business, Bioenvision. This company, which developed a drug for the treatment of acute leukaemia, started in Edinburgh in 2000 and was sold to Genzyme in 2007 for \$345 million.

Early stage funding for NuCana was provided by Alida Capital International, a business angel syndicate set up by Wood and Griffith which with Scottish Enterprise co-investment provided £3 million of capital from 2008 to 2010. At the end of 2011 the company completed a £6.74 million series A round led by Paris-based Sofinnova Partners, joined by Morningside Ventures, Scottish Investment Bank's Scottish Venture Fund, and Alida Capital. A series B round raising \$57 million (£34 million) in April 2014 saw Sofinnova's California-based VC firm join existing investors. This investment was the largest ever biotech investment in Scotland and the 14th largest globally into a private biotechnology company.

On 28 September NuCana plc began trading on the NASDAQ Global Select Market under the ticker symbol NCNA, having raised US\$114 million at IPO, with a valuation of \$463 million.

Lifescience Insurance Lifecycle

Insurance for pharmaceutical products and medical devices requires appropriate review and consideration particularly when you consider the various phases of the development of businesses operating in the sector from pre-commercial activity through to international trading.



The following is a very high level outline of some of the key insurance considerations associated with the supply of your products.

Pre-commercial

Whilst many of the insurable risks remain the same for pre-revenue business against those trading, what is different is the risk profile that a pre-commercial company represents. We would typically recommend that even pre-trading a business puts in to place Product Liability and Professional Liability cover.

It should be appreciated that even if the business does not make commercial sales it is likely that it may have prototypes, samples or compounds that may go outside of the business and would still be considered to be 'products' in insurance terms even if not sold for commercial gain. Similarly, collaborative work and some R&D activity could represent a Professional Liability Insurance risk.

Clinical trials

Clinical Trial Insurance is readily available from specialist insurers however care needs to be taken with overseas trials particularly multi-centre trials across a number of European jurisdictions. The Law in a number of European territories requires a policy to be issued in that specific territory for trials undertaken there. This can add to the costs of running trials where recruitment is difficult and small numbers of participants are in each territory as multiple insurance policies may be required.

Cover should be maintained for a period post the trial to cater for any run off exposure which can potentially be for many years in the case of implantable devices or ingested pharmaceuticals for example.

Commercial sales

Once commercial activity kicks off there are a number of considerations that need to be borne in mind that will affect the pricing and scope of cover selected.

Route to market is a significant one. Supply of physical products as opposed to a licencing model can change how a claim might be framed against the business if something does go wrong ie. whether the claim is brought as a loss arising from a third party bodily injury/damage to third party property or a purely financial claim.

In terms of the product risk and subsequent insurance costs it is reasonable to assume that for medical devices the premium will principally be driven by its device classification; for pharmaceutical products premiums are generally driven by historic loss data that insurers carry related to the constituent components, general toxicology and any adverse effects data.

Looking forward

The pace of change medical technology is astounding and the insurance market is constantly developing to reflect this. Wearable technology, remote data collection and healthcare apps for example all present challenges and new risks that must be correctly assessed to ensure that your business is appropriately protected.

This article is only designed to serve to provide a very high level overview of the risks and exposures faced by lifescience companies at the differing stages of their development. For specific advice we would be very happy to speak with you individually.

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Recent investments

This selection of reports from the deals listed on p9 is intended to illustrate the wide range of universities, market sectors, and deal sizes over the past few months

Mind Foundry

Mind Foundry is a University of Oxford spinout company, the result of collaboration between Professors Stephen Roberts and Michael Osborne who lead Machine Learning research at Oxford's Department of Engineering Science. The company intends to productise its extensive knowledge in the application of machine learning and advanced algorithmic modelling techniques to help solve some of the greatest challenges faced by organisations today as data becomes critical to ongoing performance and business success.

Mind Foundry recently secured a follow-on investment from the Parkwalk Opportunities Fund. In a seed funding round in February last year, the company raised £1.2m from Oxford Sciences Innovation and private investors.

Mind Foundry's machine learning techniques have been used by leading firms in the energy, financial services, engineering and manufacturing sectors including BAE Systems, Rolls-Royce and Santos.

Interface Polymers

Interface Polymers is a spinout from the University of Warwick, established in February 2016 to commercialise its Polarfin® plastic additive technology. Polarfin® additives modify the properties of common plastics enabling them to stick to and mix with other materials.

Examples of end-use applications under development include elimination of tielayers in multi-layer packaging, improving paint adhesion, and enabling the recycling of mixed plastic waste.

In September the company announced that it had closed a £2m investment round led by private capital investment group 24Haymarket.

To date the company has benefited from two Innovate UK grants totalling more than £1m and has attracted a total of £2.7m in private equity funding.

Autolus

UCL spinout Autolus is a clinical-stage biopharmaceutical company focused on the development and commercialisation of engineered T-cell therapies.

In September the company closed an US\$80 million (£59 million) Series C investment round. New investors Cormorant Asset Management, Nextech Invest and others joined founding investor Syncona, Woodford Investment Management and Arix Bioscience.

Cormorant Asset Management is a Boston based investment manager with investment focus in various stages of life-science and biotech companies. Nextech is a global oncology investment firm that focuses on early, private-stage cancer companies.

The new funds will enable Autolus to establish clinical proof of concept for three programs: AUTO2 in multiple myeloma, AUTO3 in diffuse large B cell lymphoma and paediatric acute lymphoblastic leukaemia and AUTO4 in T-cell lymphoma.

In addition, building on its advanced cell programming technologies Autolus plans to advance its pre-clinical pipeline products for solid tumour indications, and will set up the infrastructure required for bringing a CAR-T cell therapy rapidly and successfully to market.

Exscientia

Exscientia, a spinout from the University of Dundee, is focused on Artificial Intelligence (AI)-driven drug discovery and design. Novel compounds prioritised for synthesis by Exscientia's AI systems simultaneously balance potency, selectivity and pharmacokinetic criteria in order to deliver successful experimental outcomes.

By applying a rapid design-make-test cycle, the Exscientia AI system actively learns from the preceding experimental results and rapidly evolves compounds towards the desired candidate criteria.

The company has secured an investment of €15 million from Frankfurt-listed Evotec AG, which with more than 1,800 scientists has one of the largest drug discovery platforms in the industry.

Exscientia and Evotec have cooperated since early 2016 to advance small molecules, and bispecific small molecules in immuno-oncology. The ongoing success of this partnership was the basis of this expanded and deepened corporate relationship. This investment will enable Exscientia to drive higher value partner programmes and expand discovery on its automated design platform.

Exscientia is collaborating with several leading pharmaceutical companies. In addition to Evotec, partners include Sanofi (metabolic disease), Sumitomo Dainippon Pharma and Sunovion Pharmaceuticals (CNS), and GSK.

... continued on p10

Recent spinouts

The following companies are new to the Spinouts UK database since the previous issue of our Quarterly Journal

| company | university | sector | incorporated | web |
|--|------------|----------------------------------|--------------|---------------------------|
| Pireta | NPL | manufacturing & materials | 10-Jan-17 | www.pireta.co.uk |
| Cell Lane | Leeds | | 27-Jan-17 | |
| Redbrick Molecular | Leeds | chemicals | 20-Feb-17 | www.redbrickmolecular.com |
| Disonics | Warwick | instrumentation & sensors | 08-Mar-17 | disonics.org |
| Petit Pli | RCA | textiles, clothing | 20-Mar-17 | petitpli.com |
| Echion Technologies | Cambridge | clean energy | 21-Mar-17 | |
| LoMaRe Technologies | Imperial | thin film technology | 12-Apr-17 | lomaretechnologies.com |
| Gripable | Imperial | engineering | 13-Apr-17 | gripable.org |
| Phion Therapeutics | QUB | drug discovery | 08-May-17 | www.phiontx.co.uk |
| AMP Analytics | Leeds | software | 15-May-17 | |
| Oxford Quantum Circuits | Oxford | quantum technology | 05-Jun-17 | |
| Brill Power | Oxford | clean energy | 08-Jun-17 | www.brillpower.com |
| Chromosol | QMUL | materials | 09-Jun-17 | |
| Quantum Motion Technologies | Oxford | digital hardware | 14-Jul-17 | |
| Opsydia | Oxford | engineering | 20-Jul-17 | www.opsydia.com |
| Eddysense | Warwick | engineering | 26-Jul-17 | |
| MoA Technology | Oxford | plant protection | 02-Aug-17 | |
| Subtap | RCA | software B2B | 11-Aug-17 | subtap.co |
| Amy Collins | RCA | textiles | 14-Aug-17 | |
| Pollinator and Orchard Management | RCA | agritech | 24-Aug-17 | |
| Flomark | RCA | life sciences | 29-Aug-17 | |
| PB Spectroscopy | Durham | instrumentation & sensors | 29-Aug-17 | |
| Jiva Materials | RCA | manufacturing & materials | 08-Sep-17 | |
| Societal Innovation & Enterprise Forum (CIC) | Durham | business & professional services | 21-Sep-17 | |
| BreatheOx | Oxford | life sciences | 22-Nov-17 | |
| 6Degrees | Oxford | ICT & digital | 27-Nov-17 | 6d.ai |

Recent exits

| exit date | company | type | incorp | university | value | acquirer/market |
|-----------|------------------------|------------|-----------|--------------------|--------|--------------------------|
| 02-Feb-17 | Sonobex | trade sale | 31-Aug-12 | Loughborough | n/d | Merford UK |
| 03-Feb-17 | Instrumentel | trade sale | 20-Nov-01 | Leeds | n/d | Unipart Rail |
| 07-Jul-17 | Cobalt Light Systems | trade sale | 26-Jun-06 | STFC | £40m | Agilent |
| 01-Aug-17 | York EMC Services | trade sale | 04-Jul-95 | York | n/d | Eurofins Product Testing |
| 19-Sep-17 | Intelligent Ultrasound | trade sale | 15-Jun-12 | Oxford | £3.6m | Medaphor |
| 28-Sep-17 | NuCan | IPO | 28-Jan-97 | Cardiff [indirect] | \$463m | NASDAQ:NCNA |
| 02-Oct-17 | Nightstar Therapeutics | IPO | 31-May-13 | Oxford, Imperial | \$900m | NASDAQ:NITE |
| 30-Oct-17 | Aquila BioMedical | trade sale | 21-Feb-11 | Edinburgh | n/d | Concept Life Sciences |
| 28-Nov-17 | Puridify | trade sale | 02-Jan-15 | UCL | n/d | GE Healthcare |

Recent investments

| date | company | university | amount (million) | investors |
|-----------|-----------------------------|-------------|---------------------|--|
| 02-May-17 | NuNano | Bristol | £0.40 | Parkwalk University of Bristol Enterprise Fund I, Bristol Private Equity Club |
| 03-May-17 | Z Factor | Cambridge | £7.00 | Medicxi, Cambridge Innovation Capital |
| 24-May-17 | Linear Diagnostics | Birmingham | £0.30 | Rainbow Seed Fund, U of Birmingham Spinout Investment Fund |
| 21-Jun-17 | Chromacity | Edinburgh | £0.40 | EOS, Kelvin Capital, SIB, management |
| 13-Jul-17 | Global Surface Intelligence | Edinburgh | £0.22 | Par Equity, SIB, others |
| 04-Aug-17 | KEIT Spectrometers | STFC | £1.43 | |
| 01-Sep-17 | Pireta | NPL | n/d | Rainbow Seed Fund |
| 06-Sep-17 | Mind Foundry | Oxford | £2.60 | Parkwalk Opportunities Fund |
| 15-Sep-17 | Interface Polymers | Warwick | £2.00 | 24Haymarket |
| 18-Sep-17 | Cambridge Medical Robotics | Cambridge | £20.26 | Cambridge Innovation Capital, LGT Global Invest, Escala Capital, ABB Technology Ventures, Watrium |
| 19-Sep-17 | Medaphor | Cardiff | £5.50 | placing |
| 22-Sep-17 | Oxford Quantum Circuits | Oxford | £2.00 | Parkwalk Opportunities EIS Fund |
| 22-Sep-17 | Psyomics | Cambridge | £1.30 | Parkwalk Opportunities Fund, UCEF V |
| 27-Sep-17 | Autolus | UCL | £59.00 | Cormorant Asset Management, Nextech Invest, Syncona, Woodford Investment Management, Arix Bioscience |
| 28-Sep-17 | Exscientia | Dundee | £13.18 | Evotec AG |
| 30-Sep-17 | Calcivis | [Dundee] | n/d | Julz Co, Archangel Investors, Scottish Investment Bank |
| 03-Oct-17 | Ionix Advanced Technologies | Leeds | £2.00 | Parkwalk Opportunities EIS Fund, IP Group, U of Leeds, private investors |
| 04-Oct-17 | Inkpath | Oxford | £0.59 | University of Oxford Enterprise Fund III |
| 10-Oct-17 | Applied Graphene Materials | Durham | £9.00 | placing |
| 12-Oct-17 | VirionHealth | Warwick | £13.00 | Abingworth |
| 16-Oct-17 | Paragraf | Cambridge | £2.64 | Parkwalk Opportunities Fund, UCEF V, IQ Capital |
| 01-Nov-17 | XMOS | Bristol | £11.50 | Infineon Technologies, Amadeus Capital Partners, Draper Esprit, Foundation Capital, Robert Bosch Venture Capital |
| 03-Nov-17 | Arvia Technology | Manchester | £6.56 | Parkwalk Opportunities EIS Fund |
| 03-Nov-17 | MoA Technology | Oxford | £0.34 | Parkwalk Opportunities, UOIF III |
| 12-Nov-17 | Animal Dynamics | Oxford | £0.99 | Parkwalk |
| 15-Nov-17 | Quantum Motion Technologies | Oxford, UCL | tba | Parkwalk Opportunities Fund |
| 17-Nov-17 | Aston EyeTech | Aston | £5.00 | Mercia Technologies, Asian investment syndicate |
| 17-Nov-17 | First Light Fusion | Oxford | n/d | Oxford Sciences Innovation, secondary buyout from Parkwalk |
| 21-Nov-17 | Perpetuum | Southampton | tba | Parkwalk Opportunities EIS Fund, IP Group, ETF Partners |
| 27-Nov-17 | Spectral Edge | UEA | £1.05 | IQ Capital, Parkwalk Investors |
| 28-Nov-17 | Opsydia | Oxford | tba | Parkwalk Opportunities Fund |

Recent investments

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CALCIVIS

CALCIVIS, a start-up exploiting technology developed at the University of Dundee, aims to revolutionise the management of dental demineralisation associated with caries and erosion.

The CALCIVIS imaging system utilises a proprietary bioluminescence approach combined with a specialised imaging device which allows visualisation of active, ongoing demineralisation.

CALCIVIS has secured new equity funding from existing investors Archangel Investors and the Scottish Investment Bank, together with Julz Co. US-based Julz is a venture capital firm focused on investments in the healthcare industry with an emphasis on therapeutics, medical devices, digital healthcare, and services.

CALCIVIS began operations in 2012 and has raised equity and grant funding totalling over £9 million since its inception, including funding from the European Union's Horizon 2020 Research and Innovation programme, and Innovate UK's Biomedical Catalyst.

Ionix Advanced Technologies

Ionix was spun out of the University of Leeds in 2011. The company has developed a proprietary device (modifiable to suit different applications), based on its piezoceramic material, which enables the protection of high value industrial assets in extreme temperature conditions.

The Ionix technology is one of the very few high activity piezo technologies capable of operating above 250°C, and company is initially targeting applications where high temperature operation provides a capability not offered by conventional piezoelectric devices. Initial target markets include thickness and crack monitoring, flow monitoring, and position sensing in the oil and gas, refining, energy and nuclear power and industrial plant process sectors.

In October Ionix completed a further £2m funding round with backing from the Parkwalk Opportunities EIS Fund, IP Group, the University of Leeds, and private sources. The funds will accelerate the commercialisation of a range of devices based on its piezoelectric materials technology.

Applied Graphene Materials plc

Durham University spinout Applied Graphene Materials (Durham Graphene Science until its IPO on AIM in November 2013) raised £9 million (before expenses) in October by means of a placing in which IP Group subsidiary IP2IPO, Insight Investment Management, and the company's directors participated.

VirionHealth

Founded on research by Professors Nigel Dimmock and Andrew Easton at the University of Warwick's School of Life Sciences, VirionHealth is developing precisely engineered, non-infectious, defective interfering particles. This new class of biological antiviral acts by outcompeting replication of infectious viruses to both prevent and treat viral infections.

VirionHealth is exploiting this technology to develop the first broad-spectrum therapy, potentially simplifying and accelerating treatment by removing the need for differential diagnosis.

Initially focusing on influenza and respiratory syncytial virus (RSV), the technology combats a range of viruses with a single therapeutic agent. In addition, the technology is far less susceptible to resistance than other approaches due to its viral out-competition abilities and innate immune system stimulation.

In October the company raised up to £13 million in Series A funding from Abingworth, the international investment group dedicated to life sciences.

Paragraf

Paragraf is a spinout from the Centre for Gallium Nitride group of Professor Sir Colin Humphreys in the Department of Materials Science at the University of Cambridge. Paragraf will develop atom-layer thick two-dimensional materials, starting with graphene. Through its growing IP portfolio Paragraf will apply these to a range of advanced electronic, energy, and medical devices.

The technique developed by Paragraf finally enables graphene technologies to be realised on a large scale; Paragraf will be able to deliver the highest quality graphene material, in large area configurations, in formats directly compatible with standard device processing mechanisms and properties that can be tuned to suit a myriad of applications, for example electrical characteristics tuned to deliver high sensitivity sensors..

The University of Cambridge Enterprise Fund V (managed by Parkwalk) and the Parkwalk Opportunities Fund have invested in a £2.64 million seed round in Paragraf.

XMOS

University of Bristol spinout XMOS completed in September a \$15 million Series-E funding round, led by Infineon Technologies with additional funding from existing investors Amadeus Capital Partners, Draper Esprit, Foundation Capital and Robert Bosch Venture Capital.

Commenting on the funding, Mark Lippett, President and CEO at XMOS said "The conclusion of our Series-E funding is a significant milestone for the business. XMOS is ideally positioned at the crossover between embedded voice processing, biometrics and artificial intelligence, and the funds will enable

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Funding innovation in Oxford

Oxford University Innovation's early-stage fund returns for its fourth iteration.

Meet the companies it has helped launch so far.

Since its launch three years ago, the University of Oxford Innovation Fund (UOIF) has established itself as a critical catalyst for stimulating growth in companies coming out of the University.

UOIF utilises the Enterprise Investment Scheme (EIS) and Seed Enterprise Investment Scheme (SEIS) established by the UK Government in 2012. Backed by alumni, friends and supporters of the Oxford University ecosystem, the UOIF takes advantage of the generous tax breaks offered in the EIS/SEIS programmes, and leverages investment into the University's rapidly growing portfolio of high tech spinout and startup companies. In this year's budget, the UK Government doubled down on its support of EIS funding, increasing the maximum tax break a single investor can receive from £300,000 to £600,000, so long as the EIS fund targets knowledge-intensive companies.

To date, UOIF has invested £4.3m into 18 companies over the lifetime of its three funds. In total, UOIF's portfolio companies have raised £30.3m in external funding, leveraging UOIF's contribution by a factor of seven.

The fourth iteration of the fund, managed by veteran university investor Parkwalk Advisors, has now been launched. To demonstrate the sort of companies UOIF IV will be investing in, here's three companies from the fund's previous three iterations:

Bodle



*Co-founders
Peiman Hosseini, CTO, (L)
Harish Bhaskaran, CSO, (R)*

Over 90% of a phone's energy is used powering a screen. While many companies are looking to compensate for this by increasing battery power, Oxford University spinout Bodle is instead focusing its efforts on the screen.

Bodle has developed display technology that significantly reduces the amount of power needed used in a smartphone by utilising electrical pulses for the screen that need next to no power. The technology can also be used in smartwatches, currently hampered by the need for nightly charging, and smart windows, which can be used to keep buildings cool without air conditioning.

Covatic

Mobile technology combined with the rise in streaming services are changing the way we interact with television and other media. Increasingly, more people are engaging with content on the move.

Covatic is aiming to take this relationship to the next level. Its core product can create a personalised television channel for the user that is based around their routine. For example, a user takes two tubes to work, one lasting ten minutes and the next fifteen, with a few minutes' walk either side and between. Covatic will pull content from their favourite shows and other TV they might enjoy, download and break it up overnight, and wrap it around their journey to work the next day.

The company has already agreed contracts with a number of major broadcast companies, and will begin rolling out its platform over the coming months.

Zegami

With the rise of smartphones, more pictures are being captured than ever before. One estimate puts 2016's haul of photos at 1.1 trillion, and the number of digital pictures stored is predicted to hit 4.7 trillion by the end of the year. As our digital photo libraries grow, there's a strong need for a dynamic way of managing them, from the general public and amateur photographers all the way to scientific photo libraries and image databases.

Enter Zegami, an Oxford spinout from 2016. The company has developed a platform that offers smart photo management. The platform can pull and sort pictures according to any parameters you set from your collection. For example, a nature photographer can pull all the insects from Normandy they took while on a wildlife hunt through France, or a curator can pull all the red paintings from their gallery's collection, or HR can identify all male employees at a company born in Wales between 1960 and 1980.

At present, the company is developing its business to business offering, but plans to incorporate business to consumer in the coming months.



*Co-founders
Samuel Conway, CEO (R)
Roger Noble, CTO (L)*



Recent investments

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us to execute our ambitious product development plans. I am particularly delighted to welcome Infineon Technologies as a strategic investor in the business. We have worked closely with the Infineon team on groundbreaking sensor fusion technologies; the investment really strengthens our strategic partnership."

Arvia Technology

Arvia Technology is exploiting a new technology for the treatment of organic and microbial wastes in water. Invented and spun-out in 2007 from the University of Manchester, Arvia has 21 full-time employees at its laboratories in Daresbury. Arvia is now gaining the attention of a number of the global water technology players and momentum with customer site trials in the nuclear sector.

The company recently completed a funding round led by a new investor, together with follow-on investment by Parkwalk from the Parkwalk Technology EIS Funds.

Arvia has proved its technology in the nuclear industry, and according to Parkwalk has projects under discussion worth millions of dollars of revenue. However, because of the difficulties in concluding contracts in this sector which is dominated by Government controls and funding, the company is stepping up its commercial engagement in the water industry.

Aston EyeTech

Aston EyeTech, a spinout from the School of Optometry at Aston University in Birmingham, has developed a range of proprietary hardware and software products in ocular care.

The company is already revenue generating and aims to disrupt the optometry industry by combining high quality portable and digital eye tests with artificial intelligence driven software platforms.

Mercia Technologies has made an investment of £1.8 million in

Aston EyeTech, which gives it a direct equity stake of 19.4%. The Mercia investment is part of a £5 million Series A funding round, alongside an Asian-based investment syndicate. The funding will be used to accelerate product development and launch Aston EyeTech's latest product range.

First Light Fusion

First Light Fusion was spun out from the University of Oxford in July 2011, with seed capital from the IP Group, Parkwalk Advisors, and a number of angel investors. Until May 2014, the company was named Oxyntix.

The company was founded by Professor Yiannis Ventikos, who is currently the Head of the Mechanical Engineering Department at University College, London, and Dr Nicholas Hawker, formerly an Engineering lecturer at Lady Margaret Hall, Oxford. First Light Fusion is researching energy generation via inertial confinement fusion. The technology, which is safe, clean, and virtually limitless, has the potential to transform the world's energy supply if it can be applied successfully to power generation. Unlike existing nuclear power, there is no long-life waste and raw materials can be found in abundance.

In November Oxford Sciences Innovation acquired a stake in the business, via a secondary buyout from Parkwalk Advisors. Parkwalk was one of the initial investors in the company when it was formed in June 2011 and has invested in subsequent funding rounds. The sale will give Parkwalk's EIS investors a significant, double digit multiple return on their investment. Alastair Kilgour, Parkwalk Chief Investment Officer, commented "This has been a model EIS investment where early stage investors have backed leading UK academics to develop a high risk technology with global impact. They have exited the company, with a return commensurate with the risk taken, when the quantum of investment required to take the company to the next level requires Investors with much larger resources. These EIS investors can now recycle these returns into new projects if they wish."

Investor news

IP Group and Touchstone Innovations

IP Group's offer to the shareholders of Touchstone Innovations plc became unconditional on 18 October, and the Group has subsequently proceeded with the takeover of Touchstone and its subsidiaries, including Imperial Innovations, Imperial's TTO.

Professor David Begg (Professor of Economics at Imperial, principal of the Business School from 2003 until 2011) has been appointed non-executive director of the combined group, and Russ Cummings, Tony Hickson, and Nigel Pitchford (respectively CEO, managing director, and chief investment officer of Touchstone) have all joined the executive committee of the combined group for the duration of the integration period. In addition, Russ Cummings will, together with IP Group's COO, David Baynes, lead an integration team to identify, retain and build on the best of both companies.

Northern Triangle Initiative

The University of Manchester is to lead a £5 million project which aims to transform the process of turning research into businesses across the North of England. The funding will see Manchester work with the Universities of Leeds and Sheffield to develop a Northern Triangle Initiative (NTI).

The NTI will support the growth of a significantly enhanced, shared intellectual property pipeline, set up a unique regionally-focused finance vehicle, seek to raise £350 million in private finance to support university commercialisation, and strengthen the entrepreneurial eco-system of the North of England.

In particular the award will allow the partners to collaborate in developing intellectual property projects into business propositions in areas of common strength such as advanced materials, medical technologies, and computer science.

Mercia Technologies and University of Edinburgh

Mercia Technologies plc has signed a partnership agreement with the University of Edinburgh. This non-exclusive partnership with the UoE provides access to Edinburgh Innovations, which has established 189 new spinout/start-up businesses in the past five years. Mercia anticipates a significant number of new Scottish investment opportunities as a result of this partnership, over the medium term. Mercia will establish a team of up to four people initially on the UoE campus and has the funds available to deploy specifically for opportunities developed at the UoE.



Spotlight on . . . University of Warwick



With three companies spun out each year for the last three years - including VirionHealth, a 2015 therapeutics venture that recently landed £13m in its first round of investment - the University of Warwick is an institution with an enviable record on innovation. A further five companies launched in 2014, showing that this is no flash-in-the-pan phenomenon - and that is just counting spinout companies, not start-ups. In order to find out what is behind this success story, Spinouts UK set out to see the systems in place at Warwick Innovations that are capitalising on the university's IP.

Warwick's spinouts come from a variety of sectors, with around half originating in the chemistry, physics and engineering departments. Life sciences and medical innovation makes up another quarter, with the remainder of companies focused on maths, computer science, and statistics. Warwick Ventures own software incubator also contributes to the university's innovation output, though generally in the form of start-ups rather than spinouts.

When asked what makes Warwick Innovation's approach different, Quentin Compton-Bishop, the group's CEO, suggested that a long-term approach to the innovation value chain was key. "Contrast it with the simple transactional route where you go in, get an innovation disclosure, apply some proof of concept money, file a patent, license and spin out." Instead Quentin and his team aim to invest in the academic, developing the early

career researchers' capacity to operate in the entrepreneurial sector.

This involves Warwick's Innovation to Impact (i2i) programme where academics are placed in an entrepreneurial 'boot camp', develop a value proposition, and are sent out to speak to a number of companies to receive feedback on their product offering - with the aim of either validating or disproving certain market segments. "[The] process is good whether it is a success or a failure in terms of a spinout, because the academic gets experience, gains confidence and builds a list of external, mainly industrial, contacts," Quentin said.

It is a system similar to SETsquared and Innovate UK's Innovation to Commercialisation of University Research (ICURE) scheme - a programme from which Warwick did well. The scheme is funded by the government's Department for Business, Energy and Industrial Strategy, Quentin's team jumped on the opportunity early - in late 2015 - and saw its first three spinouts each receive Innovate UK Aid for Start Ups grants worth £500,000. "[This was] great for proof of concept development, much greater than the budgets we have internally," Quentin noted, adding that Warwick i2i provides a qualified pipeline for the ICURE programme.

A second strategy behind Warwick Ventures' operation is its willingness to invest significant staff time in making prospective spinout technologies investment-ready, with Warwick Ventures' managers spending up to a third of their work time on an

individual project. Sometimes that deep understanding of a technology and its market results in staff leaving the team to join the company. This has happened twice in the last two years and Quentin sees it as being both positive and negative. While it requires him to replace the turnover of staff, the advantage is – besides the close relationship that it fosters – that Warwick Ventures is able to attract new staff with solid entrepreneurial experience on salaries reasonable to the academic sector. “It gives them an opportunity to come in, share their expertise, but also after two, three, maybe five years to find a technology which is their ticket to the next stage of their career. And that works for us.”

Where Warwick Ventures does not have its own expertise in a market or technology, it will hire a commercial consultant to develop the prospective spinout’s business plan. Sometimes they end up joining the early management team once the company is set up.



MEDHERANT®

This was the case with Nigel Davis – formerly a contractor with Warwick Ventures, now CEO of **Medherant**. “Having been involved in its gestation the whole way through, and with my

experience and background, they said ‘why don’t you run it?’” he recalled.

Incorporated in 2014, the spinout produces novel drug-delivering patches for application through the skin, similar in appearance to a plaster or a nicotine patch. With investment from Mercia VC group and a licensing agreement with adhesives manufacturer Bostik, Medherant is one of Warwick’s recent success stories.

The company is based at the University of Warwick Science Park, and this proximity is an important relationship for the company. Not only has Medherant recruited its technical team from the institution, but it has some staff conducting research in its labs as part of their university studies – a win for the company, the university, and the student involved. “It gives us the advantage of having a pool of talent to recruit from but it also means that we are in touch with the cutting edge of polymer chemistry,” Nigel said.

Next on Warwick Ventures agenda is a move to capture academic potential at the university that is so far slipping through the net. Potential future exists are present in the arts and social science fields which Quentin believes could be helped to generate greater economic and social impact through, projects such as surveys, databases, and software solutions. “We know that we are not yet reaching a lot of our academics so we know that we are not realising the full potential of Warwick’s research – that is one of our challenges and a significant opportunity for the future,” he concluded.

PraxisUnico and AURIL join forces

After just over a year and a half of discussions, consultations and planning PraxisUnico and Auril formally announced the launch of the new organisation PraxisAuril at the annual Auril conference in Bristol in October.



The mission statement of the merged organisation is “To deliver the world’s most effective practitioner-led, professional development training, tools and services for KEC practitioners.”

PraxisAuril CEO Maxine Ficarra commented “It has been a real privilege and a pleasure for both the PraxisUnico and Auril teams to work with the dedicated directors, boards, committees and working groups of two such committed organisations to create PraxisAuril. We all firmly believe this important step forward will truly benefit the sector as a whole.”

As one organisation PraxisAuril now has a stronger single voice representing more than 5,000 university business collaboration and commercialisation specialists working in more than 200

universities and stakeholder organisations. Members benefit from a unique and comprehensive range of training programmes, practical tools, advocacy and connectivity.

Alasdair Cameron, PraxisAuril’s Director of Strategic Engagement, observed “For a number of years’ AURIL and PraxisUnico have been working closely together to champion the knowledge exchange and commercialisation communities in the UK. I’m delighted that both organisations have now agreed to formalise this relationship with the creation of PraxisAuril. Reaching out to our communities wherever they might be is central to the new organisation and I’m excited about the plans we are developing.

Founders Choice®

The academic community at Imperial College London has been developing its world-leading research into spinout companies for more than two decades.

The academic community at Imperial College London has been developing its world-leading research into spinout companies for more than two decades, with over 150 spinouts created which between them have raised hundreds of millions of pounds. During this time, individual researchers have developed business skills, created high quality networks, and gained experience in manage-

ment of high technology businesses. Imperial's entrepreneurial culture means that there are a number of second- and third-time company founders who have the experience to take on a great deal of the effort and responsibility required to build a new company.

Founders Choice® is an 18-month pilot programme launched in August 2017 to address this group at Imperial. In a first for any UK university, the programme gives Founders two routes to choose between when founding a spinout company.

These choices – Founder Driven or Jointly Driven – impact on the level of founding equity received by founders, the level of support they receive from Imperial Innovations and the level of responsibility for spinout development they must take on.

The Founder Driven route, which is similar to the process used by a number of successful US technology transfer offices, offers academics a much greater share of founding equity in their spinouts – up to 95%. Founders who choose this route will receive a basic level of support from Imperial Innovations, including the provision of training, template legal documents and access to professional advisers. Imperial Innovations will also maintain any patents on the founding technology to an agreed level and for a set period.

For its part, Imperial Innovations will receive a smaller initial equity share protected by a non-dilution clause up to a pre-agreed level of investment. These details are negotiated based on the nature of the company – quick-to-revenue software companies which are likely to require lower investment will have a lower non-dilute threshold than, say, pharma businesses.

The Jointly Driven route maintains the current service level and equity arrangements for Imperial spinouts – founders will receive an enhanced support package from Imperial Innovations but receive a smaller share of the initial equity (with negotiations beginning at 50%).

This dual-route approach is designed to stimulate the creation of new spinouts through recognising the knowledge and expertise in innovation and entrepreneurship that has developed among academics at Imperial.

Since its launch, Imperial Innovations has entered into discussions around the formation of nine new spinouts under the Founder Driven route of Founders Choice®. The programme was rolled out through departmental meetings across the College, and the reception so far has been positive. Experienced academic entrepreneurs recognise the enhanced responsibility and freedom that the Founder Driven route gives them. Professor Andrew Livingston, Professor of Chemical Engineering at Imperial, who previously established Membrane Extraction Technologies, a chemicals separation company which sold to Evonik Industries AG in 2010, said:

“The Founders Choice® initiative is an exciting opportunity for people like myself who have already successfully created and exited a spinout with the support of Imperial in the past. The Founder driven route recognises the skills and contacts I gained from my previous entrepreneurial experience as I plan to launch and progress my next spinout.”

Note: In October 2017, Imperial Innovations and its parent company, Touchstone Innovations plc, were acquired by IP Group plc. This combination creates a £1.5 billion FTSE 250-listed patient capital investor. IP Group and its subsidiaries between them invested in 40 spinout companies during 2016 – more than any other investor.

For further information, contact:

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Project partners

We are very grateful to the following organisations for their support

Alta Innovations

is the commercial arm of the University of Birmingham. The company develops, promotes and commercialises the University's IP through licensing and the creation of spin out companies. It has recently secured a £5 million investment from the University to co-invest in spinouts and early stage companies.

www.birmingham.ac.uk/generic/alta-innovations



Imperial Innovations is focused on commercialising the best in UK academic research, drawn from academic centres within the 'golden triangle' formed by Cambridge, Oxford and London. We have end-to-end capability, taking research at the earliest stage and working with it right through to commercialisation.

www.imperialinnovations.co.uk

IP Group works with leading universities to develop and commercialise some of the world's most exciting technology innovations. Offering more than traditional venture capital, IP Group provides its companies with business building expertise, networks, recruitment and business support.

The Group's portfolio includes early stage to mature businesses across the biotech, healthcare, technology and cleantech sectors.

www.ipgroupplc.com



Oxford University Innovation (OUI) is the research

commercialisation company of the University of Oxford, managing technology transfer and consulting activities.

Having created more than 150 spinouts, Oxford is first

in the UK for number of spinouts, the number that survive, and jobs created. In the 2016~17 financial year OUI completed more than 50 licenses and consulting agreements every month.

innovation.ox.ac.uk



The University of Manchester Intellectual Property UMIP®

UMIP, a division of The University of Manchester I³ Ltd, is the University's agent for IP commercialisation. UMIP brings the University's groundbreaking inventions and software into the commercial world by attracting entrepreneurs, investors and corporate venture partners to our campus and engaging with academic colleagues to license or spin out companies.

umi3.com

Marks & Clerk is the UK's largest firm of patent and trade mark attorneys and advises companies on their intellectual property across a full range of sectors worldwide.

www.marks-clerk.com



Mercia Technologies is a leading UK technology investor with a particular emphasis on the Midlands, North of England and Scotland. We focus on high growth sectors leveraging the team's deep expertise across four fields including digital & digital entertainment; software & the internet; electronics, materials, manufacturing & engineering; and life sciences & biosciences.

www.merciatech.co.uk



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



In partnership with



www.m-fl.co.uk



Scottish Enterprise helps translate ideas and research into more spinout and start-up companies, and encourages Scottish companies to make use of technology and research being developed.

www.scottish-enterprise.com



PraxisAuril provides a single voice for 5,000+ university business collaboration specialists working in 200+ universities and stakeholder organisations around the world.

Our members benefit from a unique and comprehensive range of training programmes, practical tools, advocacy and connectivity. PraxisAuril operates in the best interests of the sector, driving consistent professional standards, development, and recognition of the KE profession.

www.praxisunico.org.uk



UCLB is a technology transfer company commercialising on the research and innovations developed by UCL. Offering world-class expertise in areas from life sciences to engineering and from the arts to the built environment, we work to make commercial connections between the expertise and innovations of UCL's academics and the needs of industry and the wider marketplace.

www.uclb.com