



Quarterly Journal - March 2018

NEWS COMMENT and ANALYSIS on SPINOUTS from UK HEIs

Increasing diversification

New types of company are originating in universities, and the amounts and sources of investment to support them are growing rapidly.

It has become increasingly more difficult to identify companies as spinouts according to the strict HESA definitions, and it is arguably less important to do so. Companies formed to commercialise intellectual property owned by a university will continue to be the main focus of this publication, but start-ups created by members of university staff have much the same motivation - taking to market technologies which have been developed in the lab, even if the host organisation does not own any relevant IP. Graduate start-ups - officially those companies started by graduates within two years of leaving university - merge fairly seamlessly with those started later than this arbitrary limit, and are likely to result from the graduate's general education at the university rather than from a specific piece of research.

The article by Oxford University Innovation on page 11 explains well why spinouts based on STEM subjects as such are a special case, needing support and investment over a long period, but goes on to introduce a different category of spinout, namely companies originating in humanities and social science departments. Spin-ins, where an external company teams up with a university department to collaborate on the commercialisation of a technology, are another form of company in the mix. Ulster University, featured in our Spotlight article this quarter on page 3, makes a point of creating spin-in companies, and in this issue Edinburgh University gives an example of another (Auris Tech, p2).

We are reporting a much larger number of deals than in previous issues, in part due to the large investment funds focused on the Golden Triangle, but also thanks to the high level of activity by investors such as Mercia, Midven, and Parkwalk outside the South East of England. It is also encouraging to note the number of spinouts in this issue which have secured investment from overseas investors, particularly in the Far East (China, Korea, Singapore), all adding to the increasing diversity of the sector.

- Jonathan Harris, Editor

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New spinouts

The following companies are new to the Spinouts UK database. Further details, including dates of incorporation and websites, are given in the table on p8.

Auris Tech

Auris Tech, a 'spin-in' at the University of Edinburgh (where the company wished to utilise academic research), intends to use proprietary interactive automatic speech recognition (ASR) software to encourage and teach children to read English via *Listening Books*. Auris plans to develop the technology across other sectors using a SAAS business model after the flagship *Listening Bookshop* has been launched. The company has secured seed investment from the University's Old College Capital fund and Velocity Capital Advisors.

Precision Robotics

Imperial Innovations has announced the launch of a new Imperial spinout company, Precision Robotics.

Precision Robotics is focused on developing medical robots initially to conduct colorectal oncology surgeries. The Precision Robotics platform will be expandable in future to conduct oral, gynaecological and certain other types of surgeries.

Modern robotic surgery methods are in high demand due to the improvements they offer over other surgical techniques.

Precision Robotics is addressing this demand through its medical robot platform, which combines a range of patented technologies to deliver advantages to surgeons and patients. The company's first product incorporates flexible and manoeuvrable robotic arms which provide accurate movements and a high level of control to surgeons. The product also includes leading 3-D, AR-based imaging software to enable surgeons to visualise the regions of tissue that require excision, alongside a guidance system to simplify navigation. The robot is compact, easy to handle and can be moved between operating theatres with only a small footprint within the theatre. Precision Robotics plans to develop this platform through regulatory approval and clinical development in the coming years.

Funding for the work underpinning Precision Robotics was provided by the Wellcome Trust, Department of Health and the EPSRC.

The launch of Precision Robotics represents a unique partnership between groups in the UK and China. The company will be headquartered in the UK with offices in Hong Kong and in future a Joint Venture in China. The company has been funded by a syndicate of first tier Chinese and Hong-Kong-based investors, with sector expertise, commercial and industry resources and was supported throughout its formation by Imperial College London and Imperial Innovations.

Chrysalix Technologies

Imperial Innovations also recently announced the launch of Chrysalix Technologies, a company developing processes for cost-effective production of bio-derived chemicals, fuels, and plastics from any type of woody material, including unwanted waste wood.

The company's technology, a proprietary process called Bio Flex, breaks down wood materials to give cellulose and lignin, which can subsequently be used to create bio-fuels, bio-materials, or renewable chemicals. Bio Flex can also be used to recover hemicellulose and heavy metals that are contained in treated wood materials. In this way, Chrysalix will deliver valuable, sustainable resources while simultaneously recycling wood waste and preventing polluting metals from entering ecosystems. The company is actively seeking partners in the wood waste recycling and bio-products industries.

Wood waste that is mixed with foreign matter and that often contains heavy metals, such as copper, lead and even arsenic, is costly to dispose of and has previously not been a viable source of bio-derived products. Bio Flex is robust enough to achieve high glucose yields at low cost from such wood waste, as well as pine, spruce and fir, the main commercial wood biomass grown in countries such as Canada, Scandinavia and Northern Asia.

STAMP (Santé Theatre and Media Productions)

The University of Warwick's Professor Emerita Gillian Hundt and acclaimed theatre director Claudette Bryanston have joined forces with two digital media producers to launch a new company through Warwick Ventures.

STAMP - Santé Theatre and Media Productions will create new, innovative theatre productions alongside digital assets to help academics and others increase the impact of their research.

The digital media partners in STAMP are award-winning former BBC staff Catherine Elliott-Kemp and Ben Robinson, who as Zebra Digital Ltd, have created a diverse array of programming for British and global TV networks as well as producing films for commercial, educational and charity clients.

Professor Hundt, who has been associated with Warwick Medical School and the global Social Sciences community for many years, said "There is a huge opportunity for academics to share their research beyond academic journals, and STAMP will be offering our expertise to those who have ambitions to increase impact."

Digital producer Catherine Elliott-Kemp added "Our team is perfectly placed to take world-class research and to use our

creative, digital and marketing skills in this exciting new venture. With the help of the Warwick Ventures business incubator, we will seek out the most promising new projects to take them to a bigger multiplatform stage and the wider public.”

Oxford Sustainable Fuels

Oxford University Innovation has launched Oxford Sustainable Fuels (OSF), a spinout company founded on technology that can turn waste from plastic, tyres and biomass into transportation fuels and chemicals.

The rate of global plastic production has exploded in recent years, with the total amount of plastic produced annually now roughly the same as the entire weight of humanity. Today, less than 10% of plastic is recycled due to complexity of sorting, separating and cleaning for the recycling process. The mass of plastic waste continues to build at an alarming rate in the global environment, polluting our oceans and entering the food chain.

OSF plans to reduce the environmental impact of plastics by providing a low energy process to convert it and other solid hydrocarbon waste material into transportation fuels. As its starting point, the company will utilise pyrolysis, a technology that thermally decomposes plastics in absence of oxygen and transforms them into an oil-like substance known as pyrolysis oil.

To date, pyrolysis oil itself has found few uses. However, Dr Tiancun Xiao, Prof Peter Edwards, and Dr Zhaoxi Zhang from Oxford University’s Department of Inorganic Chemistry have discovered highly efficient methods to purify and upgrade this material to gasoline, diesel and jet fuels. The OSF process is able to handle mixed plastic and thus negates the need for sorting and separation, and will be complementary to current recycling methods in the effort to eliminate waste.

OSF has raised £1 million in seed investment from the investment arm of GEM, a Shenzhen-based waste recycling firm, which will be used to develop and scale up the technology to a

pre-pilot plant scale. The company plans to have begun deploying its technology against plastic waste within five years.

IRISi

IRISi Ltd is a not-for-profit company, spun out from Bristol University to deliver evidence based support interventions to benefit survivors of domestic violence and abuse and to help reduce the associated societal burdens. Its first product is the IRIS intervention, a general practice-based domestic violence and abuse training, support and referral programme.

Sensor Driven

Sensor Driven was formed to commercialise patented low power electronics technology developed at the University of Bristol. The company was founded by Dr Bernard Stark, whose research team invented a silicon wake up chip that uses 1,000 times less power than alternatives and is deploying the technology to enable sensors to listen whilst being fully powered down. The technology addresses the two key constraints of growth of the Internet of Things, namely power consumption and data generation.

The company has secured angel investment and two Innovate UK grants to support development and commercialisation of its technology.

The Sensor Driven technology revolutionises power budgeting by conserving power resources for relevant events. Battery lifetimes can be extended to the self-discharge limit and battery sizes can be reduced over 100 fold. Applications include both sensors and remote control of devices. The technology works with a wide range of standard transducers, including sound, radio, vibration, light and many more. The company is targeting large global markets including consumer, medical and defence. The wake up chip is the first in a new line of electronic components that can be powered from standard sensor signals.



Spotlight on . . . Ulster University

Continuing our new series looking at the UK’s most innovative universities

Placed within the top 10% of UK universities for graduate entrepreneurship, Ulster University boasts a strong record on spinout creation. The second biggest university on the island of Ireland, and the larger of Northern Ireland’s two higher academic institutions, the civic university bolsters its entrepreneurial efforts by cultivating particularly close ties with local industry and business. This strategy stems both from Northern Ireland’s long history as a key centre of UK industry, and from

the small and intimate nature of the country’s commercial sector.

“If you look across the 400 or so research active companies in Northern Ireland, every single one of them will have a partnership with one of the two universities here,” said Timothy Brundle, director of research and impact at Innovation Ulster. This represents a conscious strategy by Ulster, which more than

any other university on the island of Ireland seeks out working partnerships with the business sector.

The university has a broad range of spinouts from different technology arenas, with three taking centre stage. Firstly, medical device innovation, in the form of companies like mobile defibrillator maker **Heartsine**, has seen some of the university's greatest successes. Secondly, with one in ten Northern Irish workers being employed in the tech sector, the majority in software, this industry is also a key area for university spinouts, especially in the areas of cyber security and data analytics. Lastly, with the rich landscape and natural resources of the Ulster countryside, research into sustainable technologies in the form of wind, tidal, and energy storage techniques have made up an important contingent of Ulster spinouts.

As well as the standard spinouts and start-up companies favoured by many universities, Ulster focuses on spin-in activity, a direct result of its desire to seek close ties with industry. Rather than simply pushing its own internally generated IP, the university sets up mutually beneficial partnerships with business-people with strong ideas and business plans – who themselves benefit from many of the connections and resources that the university has to offer.

A successful example of this spin-in work can be seen in the drug delivery technology company **Sisaf**, led by Dr Suzanne Saffie-Siebert. The company, which over the last five years has secured multi million pounds in venture capital, has such a close relationship with the University that it conducts research out of Ulster's own academic labs.

Spinout, start-up, or spin-in, the different ventures are engineered to be mutually supportive. "Therein lies a big part of the value and the competitive advantage – there is great interplay between those different types of businesses," Brundle explained. Once a business exits, its proceeds can be fed back into the system to push forward further graduate projects. In 2018 Ulster aims to launch two spinouts, two start-ups and two spin-ins, consistent with its recent history of launching an average of six ventures each year.

While spin-ins represent a direct result of Ulster's aim to work closely with local industry, the small nature of Northern Ireland's tech sector can be seen as a cause. As well as encouraging close cooperation with local businesses and Queen's University Belfast, it forces new companies to look overseas

early on. "We do not have a domestic market that is going to sustain any technology-based business so it is important that any businesses go international from the beginning," Brundle said.

Often this is in the form of VC money which has proven difficult to come by within Northern Ireland. Over the last ten years Innovation Ulster noticed that only a single of its ventures was able to raise Series A capital domestically, over a time frame when it never failed to find financial backing for its companies – demonstrating the importance of overseas money. Often Dublin and London have proven useful destinations for Ulster companies seeking investment, but it is in the US that most found their luck.

It is natural for Ulster companies to look towards United States' markets, which Brundle finds to be "very welcoming of Irish innovation". Partly this is simply due to the strong pull of Silicon Valley and New York City but it is also down to the ongoing ties present in the Irish diaspora, with Boston also an important city for Ulster University companies. Brundle noted that diaspora angel groups in the US have played an important role in finding Ulster ventures access to first time investment and early customers.

Back home in Northern Ireland, the advantages to Ulster's industrial partnership strategy are felt by more than just the University and its commercial ventures. For the local businesses that make up the other half of this partnership there are plenty of positives, as Professor James McLaughlin, the Director of the Nanotechnology and Integrated BioEngineering Centre, observed. "Sometimes companies are after the quality of staff that we have and sometimes they are after the quality of the expertise – in terms of equipment or ideas," he said. Networking opportunities, particularly in the MedTech sector where the university has close ties with local hospitals, are also a desirable trait for partner companies.

But it is possibly the competitive nature of business that makes local companies so keen to work with the University and its research. When it comes to areas like innovative materials, industry understands that the university sector can't be beaten on its ability to measure and test the properties of emerging technologies. As McLaughlin put it, "companies are often worried about missing out."

- Robert Swift

Recent exits

KWS BioTest

KWS BioTest (kwsbiotest.com), a spinout company from the University of Bristol, has been acquired by US-based Charles River Laboratories.

The purchase price was approximately £15 million in cash, subject to certain post-closing adjustments. In addition to

the initial purchase price, the transaction includes a potential additional payment of up to £3 million based on future performance.

KWS BioTest is a contract research organisation that works with biotechnology and pharmaceutical companies to help them develop new drugs for immuno-oncology and inflammatory and

infectious diseases. It was established in 2003 by Professor Neil Williams from the University of Bristol's School of Cellular and Molecular Medicine.

Charles River (www.criver.com), listed on the New York Stock Exchange, provides essential products and services to help pharmaceutical and biotechnology companies, government agencies and leading academic institutions around the globe accelerate their research and drug development efforts.

Professor Williams, who will retain his position as Chief Scientific Officer of KWS Biotest, commented on the acquisition: "We believe that Charles River is an excellent home for KWS. Our unique combination of in vitro and in vivo discovery services for immunology, inflammatory and infectious diseases coupled with Charles River's existing discovery capabilities, will greatly enhance our ability to understand and develop new therapies in the therapeutic areas of immunology, immunoncology, inflammation and infection.

"Importantly, all members of the KWS team remain engaged in the business - a testament to the value of the commercial ecosystem here at the University and in Bristol."

Science Warehouse

University of Leeds spinout Science Warehouse has been acquired by Advanced Business Software and Solutions Limited (Advanced), for a total cash consideration of £16.9 million.

Science Warehouse (www.sciencewarehouse.com) is a provider of spend management and eMarketplace systems to commercial, government, higher education, NHS and housing customers. Its cloud-based, software-as-a-service technology drives efficiencies through the procurement process for both buyers and suppliers, and the company also offers wider support for source-to-settle solutions such as analytics, contract and tender management.

Advanced (www.oneadvanced.com) is the third largest UK headquartered provider of enterprise software and IT services to

both the public and private sectors in the United Kingdom, with clients including Harvey Nichols, NHS Scotland, Sheffield Hallam University and Dart Group Plc.

Science Warehouse was the Mercia Technologies' largest original direct investment ('Emerging Star') at the time of Mercia's IPO in December 2014. In March 2015 Mercia made a further investment, increasing its equity stake from 45.0% to 62.6%. Mercia will receive proceeds of £10.5 million (net of transaction expenses), and the sale represents a return to Mercia of 14.2% on its total investment cost of £9.2 million.

Mirriad Advertising

Surrey University spinout Mirriad (www.mirriadplc.com) joined the London Stock Exchange's AIM market on 19 December, having raised £26.2 million gross proceeds through a conditional placing of new ordinary shares. The company's valuation on admission to AIM was £63.2 million, but the share price has declined since that date, and the company has a valuation at the time of writing of a little under £50 million.

Mirriad is a global video technology company engaged in the development of native in-video advertising (NIVA). NIVA enables brands and advertisers to plan and run multi-title campaigns across all three screens - on TV, online and on mobile.

Mirriad uses Marketplace, its IP-protected proprietary technology and associated methodologies, such as machine learning, to create advertising inventory from eligible video content and then digitally embeds branded advertising packages into the content. This content is then delivered to the target audience on the chosen platform(s) such as TV and digital distribution over the internet, with the process managed using Mirriad's platform.

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

Base4 Innovation

Founded in 2007 with support from Warwick Ventures and the University of Warwick, Base4 Innovation is developing a microdroplet based sequencing method that generates long reads from a single molecule of DNA, without the need for initial amplification.

As each base is released, it is encapsulated in its own aqueous microdroplet, where it is identified using fluorescence detection.

Base4's proprietary chemistry has demonstrated better than 99.5% per base single pass accuracy and with continued development is targeting even faster, higher signal to noise reactions.

Base4 recently closed a £5 million funding round, led by Longwall Ventures - the company's largest to date with a total of £21.3 million raised since 2009. The funds will be used to expand the current team and increase lab space.

Shot Scope

Shot Scope, a University of Edinburgh spinout, has developed a wearable performance-tracking device for golfers, which automatically collects data as the golfer plays shots, allowing Tour-level performance analysis. The device can be used on any course, worldwide, without any subscription.

An investment round in December raised £1.6 million from high-net-worth individuals, Scottish Investment Bank, Equity Gap, and Old College Capital (the investment fund of University of Edinburgh). This was the company's third funding round, following a £1.6m round in 2016 and a £400k fundraise in 2015, and bringing the total equity raised by the company to date to £4.5 million.

Following a sold-out pre-sale campaign, Shot Scope V2 went on general sale from the 19th of January 2018.

Carbon Air

Carbon Air has developed technology, stemming from research by the University of Salford, which uses activated carbon, whose structure enables it to absorb large quantities of air. The material, also known as activated charcoal, is widely used for water filtration but Carbon Air has found innovative ways to use it for other purposes, ranging from acoustic panels and loud-speaker housings to vehicle suspension parts.

Carbon Air is currently working with original equipment manufacturers in the automotive sector and generating income by licensing its technology for use in air springs.

Carbon Air has closed a £635k investment round led by Mercia Fund Managers. The funding will allow it to expand its activities to include manufacturing and will create around five new jobs.

Robotical

Robotical makes robots to educate, engage, and inspire the next generation of engineers and scientists. The Marty robot can be built at home or in school and then programmed with a number of languages, from Scratch, the graphical language designed at MIT for young programmers, to professional languages such as Python, C++, and JavaScript.

Following a successful Indiegogo crowdfunding campaign using pre-sales, the company has now started shipping its second batch of robots. Robotical secured £285k investment from a Scottish angel group in December.

CorrosionRADAR

CorrosionRADAR, a spinout from Cranfield University, is seeking to address the problem of monitoring corrosion in pipelines, particularly in Corrosion Under Insulation (CUI) or buried pipes. CorrosionRADAR technology is permanently

embedded and can accurately pinpoint the location of corrosion at any point along the full length of a pipeline.

The company has secured £250k of investment from Mercia Fund Managers, supplemented by a further £104k from Innovate UK through its investment accelerator pilot programme.

The investment will support CorrosionRADAR with developing its technology to secure commercial partners for initial field tests.

Medherant

Medherant, a spinout company from the University of Warwick which is developing transdermal drug delivery patch technology, has raised £3.8 million in its latest funding round.

The fundraising was led by majority shareholder Mercia Technologies who invested £2.5 million, with the balance coming from other existing shareholders as well as new private investors.

Medherant's TEPI Patch® overcomes many of the limitations of patches currently on the market, and can deliver drugs to act locally or systemically. It is compatible with a wider range of drugs and has a greater loading capacity than other drug-in-adhesive patch technologies. The novel adhesive used by Medherant gives a thin and comfortable patch with strong adhesion and painless removal, without leaving any residues.

The company has completed non-clinical work on its lead product, ibuprofen TEPI Patch®, and is currently working with AdhexPharma to manufacture product for clinical trials which are due to start in spring 2018.

Orchard Therapeutics

Orchard Therapeutics, a biotechnology company dedicated to transforming the lives of patients with rare disorders through innovative gene therapies, in December announced the completion of an oversubscribed £85 million Series B financing.

Baillie Gifford and ORI Capital co-led the financing with significant new investments from Temasek and Cowen Healthcare Investments, alongside Juda Capital, Pavilion Capital, RTW Investments, Agent Capital, 4BIO Capital and existing investors F-Prime Capital and UCL Technology Fund.

Proceeds of the Series B round will be used to progress Orchard's pipeline, including the global launch of its lead product OTL-101 (an autologous ex-vivo lentiviral gene therapy) and to expand its manufacturing infrastructure and business development activity.

Orchard Therapeutics works in partnership with some of the world's leading centres in gene therapy, including University College London, Great Ormond Street Hospital for Children NHS Foundation Trust, the University of Manchester and Central Manchester University Hospitals NHS Foundation Trust, the University of California Los Angeles and Boston Children's Hospital.

Sofant Technologies

Edinburgh spinout Sofant has developed technology that will be key in the introduction of 5G mobile data and satellite markets. Mobile data traffic is exploding and current mmWave antennas are expensive, power hungry and difficult to integrate. Sofant has patented low power, high performance RF MEMS based smart antenna technology. The company raised a further £798k in December from Kelvin Capital, Newable Fund, Investing Women, Scottish Enterprise, and Old College Capital.

MicroBioSensor

Through its 'iPad mini sized device' University of Manchester spinout MicroBioSensor aims to help people with kidney failure undergoing peritoneal dialysis.

Based at UMIC (The University of Manchester's Innovation Centre), MicroBioSensor recently secured £1.4 million equity finance from the Northern Powerhouse Investment Fund (NPIF) and Catapult Ventures.

MicroBioSensor CEO Dr Gordon Barker said "2018 is going to be a very important year for our 11-strong team as we look to successfully run our first clinical trial which will last through to the second quarter of 2019. Our device plugs into the equipment that dialysis patients use every day and detects emerging infections in this space, which potentially means keeping people on peritoneal dialysis for longer which is a good thing."

MicroBioSensor has so far been funded through transitional funding and grants including £125k from UMIP, £100k from Spark Impact and £983k from Innovate UK.

STORM Therapeutics

Cambridge spinout STORM Therapeutics has raised an additional £4 million of funding from Taiho Ventures LLC, the strategic corporate venture capital arm of Taiho Pharmaceutical Co Ltd. This is an addition to the £12 million Series A Financing announced in June 2016 (see QJ20). Taiho Ventures joins the existing investor syndicate of Cambridge Innovation Capital, Merck Ventures, Pfizer Venture Investments, and Touchstone Innovations.

Commenting on the fundraising, Keith Blundy, CEO of STORM Therapeutics, said "This extended investment represents further validation and support of our strategy to harness the power of RNA epigenetics as a new area of important biology. As the first company tackling disease through modulating RNA modifying enzymes, we believe we are well positioned to build a world leading company."

GeoSpock

GeoSpock, a spinout from the University of Cambridge, is marketing an extreme-scale, geo-location database product that provides real-time capture, storage, access and analysis for the rapidly increasing amount of dynamic data being generated by

mobile devices and the Internet of Things. GeoSpock intends its product to be at the heart of next-generation infrastructure, including smart cities and internet of everything (IoE), as well as powering future mobility applications, including the management of autonomous vehicle fleets.

In February Cambridge Innovation Capital (CIC) led a £5 million Series A funding round in GeoSpock. Japanese strategic investors Global Brain and 31 Ventures also invested in this round, alongside other existing investors including Parkwalk.

Anon AI

Anon AI is developing software to automate data anonymisation and help developers and data scientists share data securely.

The UCL Technology Fund has invested in the company, as part of a £340k pre-seed round in partnership with the London Co-Investment Fund (LCIF), AI Seed, and Ascension Ventures.

The investment will enable Anon AI to enhance its prototype model and build a 'best in class' developer tool, in partnership with the UCL community.

Anon AI is the fourth AI business the UCL Technology Fund has invested in to date, and the first in partnership with LCIF. The fund is managed by Albion Capital in collaboration with UCL Business and is dedicated to bringing UCL's research in life and physical sciences to commercial reality.

Vaccitech

Vaccitech, an Oxford University spinout company developing a universal flu vaccine, has secured £20m in Series A financing led by new investors GV (Google's corporate venture arm) and Sequoia China, together with Oxford Sciences Innovation and Neptune Funds. In total, Vaccitech has now raised £30m since inception in 2016.

The vaccine, which is already in human trials and active against all influenza A strains including avian ones, was developed at Oxford's Jenner Institute by vaccine specialists Adrian Hill and Sarah Gilbert. The underpinning T-cell technology could also be used for treating cancer, MERS, HPV and Hep B - all of which are currently being investigated by Vaccitech.

Dynamic Vision Systems

Parkwalk Advisors has announced an investment of an undisclosed amount into the University of Manchester spinout Dynamic Vision Systems (DVS) from the Parkwalk Opportunities Fund. The company is built on collaborative efforts at the University of Manchester and the University of Leeds in the field of smart contact lenses.

The DVS technology arose from discussions between Professor Philip Morgan, Professor Helen Gleeson and Professor Cliff Jones, who have expertise across ophthalmology/optometry,

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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
Auris Tech	Edinburgh	software B2B & e-business	17-Feb-15	www.auris.tech
Precision Robotics	Imperial	medical devices	24-Apr-17	
Chrysalix Technologies	Imperial	environmental technologies	28-Jun-17	www.chrysalixtechnologies.com
STAMP (Santé Theatre and Media Productions)	Warwick	creative media	07-Jul-17	www.stamproductions.co.uk
Oxford Sustainable Fuels	Oxford	environmental technologies	15-Sep-17	osfuels.com
IRISi	Bristol	healthcare products & services	23-Feb-18	www.iris.org
SensorDriven	Bristol	instrumentation & sensors	13-Jul-18	www.sensordriven.com

Recent exits

exit date	company	type	incorp	university	value	acquirer/market
19-Dec-17	Mirriad	IPO	20-Apr-15	Surrey	£63m	AIM:MIRI
19-Feb-18	KWS BioTest	trade sale	01-Dec-03	Bristol	£18m	Charles River Laboratories
02-Mar-18	Science Warehouse	trade sale	25-Jan-94	Leeds	£16.9m	Advanced Business Software and Solutions

Turn your spinout model into a success!

Gain valuable sector insights at PraxisAuril spring conference

The PraxisAuril spring conference will take place in Telford this May, bringing together more than 300 delegates over two days, to share knowledge and expertise through a varied programme.

The conference has an excellent reputation for bringing together experts from across the Knowledge Exchange community, and is a key event within the KE calendar.

One of the themes for this year's conference will focus on Commercialisation Routes – always a hot topic for the KE community!

A parallel session, run by Tony Hickson, MD of Imperial Innovations Ltd, will give delegates an excellent opportunity to explore the world of spinouts. Although a relatively minor component of the complete KE tapestry, spinouts generate more 'heat and light' than almost any other KE topic.

The *'Spinouts and start-up formation & support'* session will focus on common issues with spinouts and explore how attitudes are changing. Come and hear from experts in the field and consider whether your current spinout/start-up model is fit for purpose in a changing ecosystem.

Join your peers in Telford, 16-18 May.

For further details visit www.praxisauril.org.uk

Recent investments

date	company	university	amount (million)	investors
02-Aug-17	PBD Biotech	Nottingham	£0.22	Cambridge Agritech, Anglia Capital Group
22-Nov-17	Base4 Innovation	Warwick	£5.00	Longwall Ventures, others
08-Dec-17	Shot Scope	Edinburgh	£1.60	Equity Gap, Old College Capital, SIB, private investors
14-Dec-17	Carbon Air	Salford	£0.64	Mercia Fund Managers
15-Dec-17	Robotical	Edinburgh	£0.29	private investors
19-Dec-17	CorrosionRADAR	Cranfield	£0.35	Mercia Fund Managers, InnovateUK grant
19-Dec-17	Medherant	Warwick	£3.80	Mercia Technologies, new & existing investors
20-Dec-17	Orchard Therapeutics	UCL, Manchester	£85.00	Baillie Gifford, ORI Capital, Temasek, Cowen Healthcare Investments, Juda Capital, Pavilion Capital, RTW Investments, Agent Capital, 4BIO Capital, F-Prime Capital, UCL Technology Fund
22-Dec-17	Sofant Technologies	Edinburgh	£0.80	Kelvin Capital, Newable Fund, Investing Women, Scottish Enterprise, Old College Capital
08-Jan-18	MicroBioSensor	Manchester	£1.40	Catapult Ventures, NPIF (Mercia)
08-Jan-18	STORM Therapeutics	Cambridge	£4.00	Taiho Ventures LLC
10-Jan-18	GeoSpock	Cambridge	£5.00	Cambridge Innovation Capital
11-Jan-18	Anon AI	UCL	£0.34	UCL Technology Fund, London Co-Investment Fund, AI Seed, Ascension Ventures
15-Jan-18	Vaccitech	Oxford	£20.00	GV (Googel Ventures), OSI, Sequoia China
16-Jan-18	Dynamic Vision Systems	Manchester	n/d	Parkwalk
26-Jan-18	Microtech Ceramics	Imperial	£1.25	Kero Group
01-Feb-18	Manchester Imaging	Manchester	£0.60	GM&C Life Sciences Fund (Catapult Ventures), NPIF (Mercia)
01-Feb-18	YASA Motors	Oxford	£15.00	Universal Partners, Parkwalk Opportunities Fund
05-Feb-18	Bodle Technologies	Oxford	£6.00	Parkwalk Opportunities, Woodford Patient Capital Trust, Oxford Sciences Innovation, Oxford Technology and Innovations Fund
05-Feb-18	Zilico	Sheffield	£5.00	Deepbridge Capita, MaxHealth Medicine Group (China)
06-Feb-18	Cytora	Cambridge	£4.40	QBE Ventures, Starr Global, Cambridge Innovation Capital, Cambridge Enterprise, Parkwalk, private investors
08-Feb-18	Arkivum	Southampton	n/d	Parkwalk
09-Feb-18	NuVision Biotherapies	Nottingham	£0.50	Mercia Fund Managers, angel investors, University of Nottingham
19-Feb-18	Molendotech	Plymouth	£0.50	Frontier IP
19-Feb-18	Re:infer	UCL	£2.50	Touchstone Innovations, Crane Ventures, Seedcamp, private investor
21-Feb-18	Econic Technologies	Imperial	£7.00	OGCI Climate Investments, IP Group, Woodford Investment Management
27-Feb-18	MediaGamma	UCL	£2.00	UCL Technology Fund, Parkwalk Advisors, London Co-Investment Fund
06-Mar-18	Oxford Vacmedix UK	Oxford	£9.00	Cancer ROP (Korea), existing shareholders in China

Recent investments

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liquid crystals and novel manufacturing. The initial concept was that a switchable contact lens could be developed for sufferers of presbyopia (the natural age-related failure of the eye's focusing system), which is most commonly managed by spectacles. This affects everybody from age 45 and can be an issue from as young as 35.

Parkwalk reports that the DVS technology could have a significant impact on the management of this condition, as well as enabling applications more widely both in healthcare and augmented reality.

Microtech Ceramics

Imperial College London spinout company Microtech Ceramics, which is developing ceramic substrates for the automotive emissions control market, has closed a £1.25m investment deal. The funds come from Kero, an investment company founded in 2017 to invest in dynamic early stage engineering and technology businesses.

The investment will enable the company to optimise the substrate design and develop the manufacturing process, in close cooperation with key automotive industry partners. The company will be relocating to new facilities in the Loughborough University Science and Enterprise Park (LUSEP) for this next phase.

Microtech Ceramics was formed in 2014, based on the research by Prof Kang Li, Dr Benjamin Kingsbury and Dr Zhentao Wu from Imperial's Department of Chemical Engineering.

Manchester Imaging

Manchester Imaging, which develops dental diagnostic software, is based on more than a decade of academic collaboration between Professor Hugh Devlin, Professor of Restorative Dentistry, and Dr Jim Graham, Honorary Reader in the Centre for Imaging Science at the University of Manchester.

The company has raised a £600k investment from the GM&C Life Sciences Fund, managed by Catapult Ventures, and NPIF - Mercia Equity Finance, which is managed by Mercia Fund Managers, part of the Northern Powerhouse Investment Fund. The investment will support the development and commercial launch of CARIESDENT, the company's first suite of software products that use machine learning and computer vision processes to automatically detect the very early signs of tooth decay, which can go unseen by dentists.

Bodle Technologies

Bodle Technologies is an Oxford University spinout that develops reflective display technology for applications that include wearables, Internet-of-Things (IoT) displays and

eReaders. In due course, the technology could turn commonplace static printed materials, such as posters and packaging into low-cost dynamic displays.

Parkwalk's Opportunities fund has led a £6m Series A funding with participation from new investor Woodford Patient Capital Trust, and existing investors Oxford Sciences Innovation and the Oxford Technology and Innovations Fund.

Cytora

Cytora is an artificial intelligence risk analytics spinout from the University of Cambridge. The company has raised £4.4 million in a financing round in which insurance companies QBE Ventures and Starr Global Holding participated, together with Cambridge Innovation Capital, Cambridge Enterprise and Parkwalk. Other investors who committed funding include Finnish software developer Ilkka Paananen, CEO of gaming studio Supercell, and Paul Foster, a co-founder of Indeed.com, an employment-related search engine.

Cytora has taken natural language processing techniques and machine learning technology developed at the University of Cambridge and applied them to commercially relevant applications for the insurance industry. The Cytora Risk Engine identifies patterns of good and bad risks over time, allowing commercial insurers to target, select and price risk more accurately. It removes friction associated with the insurance buying process by replacing questions with thousands of data inputs.

Arkivum

Arkivum, a Southampton University spinout, provides compliance-driven, long-term data safeguarding and usability solutions serving regulated, data intensive markets worldwide. Arkivum's solution helps organisations safeguard and preserve their most valuable digital content to the highest level, meet intensified regulation of digital records management, cope with increasing data volumes, and make archived data usable and accessible.

In February Parkwalk made a follow-on investment into Arkivum of an undisclosed amount from its Parkwalk Opportunities EIS Fund. The company has previously raised over £5m equity investment from IP Group, Oxford Capital, and Parkwalk Advisors.

NuVision Biotherapies

NuVision Biotherapies, a regenerative medicine company which has developed a therapy that can help prevent sight loss, has completed a £500k funding round backed by Mercia Fund Managers, angel investors, and the University of Nottingham.

NuVision was set up in 2015 with funding from Mercia to commercialise research work carried out at the University by Dr

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Innovating in humanities and social sciences



Since its inception, tech transfer – or university innovation – has long been a field dominated by the STEM sciences.

There are a number of good reasons for this. First and foremost is the level of support it requires for a physical or life sciences-based spinout company to go from incorporation to market. Compared to a regular startup company, which can take anywhere between a couple of months to three to five years before it is making money, the development cycle for a spinout can be up to ten years and beyond.

There's also patenting, which is typically focused on technological innovation – a core activity of a university innovation office such as Oxford University Innovation (OUI). While there's nothing set in stone about how to catalyse innovative ideas, the general rule of thumb will involve patenting the ideas OUI deals with first before developing them further. While this works fine for areas such as engineering or drug discovery, it's a different story for ideas from humanities and social sciences (SSH).

OUI has made some in-roads to challenging this STEM bias and supporting the wider University, punctuated by the OUI Incubator. Since its inception in 2011, the OUI Incubator has helped incorporate nearly 30 startups, over half of which emerged from social sciences. And yet, for academics in SSH wishing to pursue spinouts, university innovation has been largely off limits.

Until now.

OUI is responding to increasing demand for innovation support from the SSH community and is developing a number of different products to support academics looking to create greater impact from their ideas.

First is the social enterprise, or social venture, model. Sitting in the overlap between a charity and a for-profit company, social enterprises come in a few different flavours. The general idea is that all profits from the company are considered 'evergreen' – that is, they are continually funnelled back into the company to create sustainable growth. While these companies do remain profit making organisations, the focus isn't "for-profit", but "for-impact".

We feel that the social ventures model is more in line with SSH's ethical, moral and impact-driven motivations for engaging with innovation. Consequently, OUI is conducting research into social enterprise programmes at peer institutions; it has taken on staff focused on SSH, and it is currently leading discussions with the wider University to design and deploy Oxford's social enterprise offer.

Most importantly, OUI is busy developing strategies and initiatives that ensure the successful launch, growth and sustainability of social enterprise. At present, OUI-backed spinouts have a survival rate (ie. they are still in business or have successfully sold after their initial three years) of 87%, compared to a national average of 54%. Bringing the same level of high-quality support our spinout body benefits from to social enterprise will be mission critical for OUI.

We're yet to formally roll out the social enterprise offer, but already have over twenty projects in our pipeline from word of mouth alone. In fact, there's actually a race on to see which will be our first, **sOPHia** from SSH, and **LIFE** (Life-saving Instructions For Emergencies) from international development.

LIFE, which is using mobile and virtual reality to medically train people in developing countries, was the first beneficiary of another key vehicle for SSH-related innovation at Oxford: **OxReach**. A crowdfunding platform developed by OUI in partnership with the development office, OxReach has now raised around £200,000 for four projects by harnessing Oxford's extensive network for support. The latest, **Greater Change**, is looking to rethink how we help the homeless. The GC team successfully raised £33,000 in December and are currently using the funds to develop an app that facilitates secure, cashless donations to the homeless.

We've also been busy getting SSH ideas out into the wider world through what we know best: spinouts. We completed **InkPath**, a Humanities spinout offering career support for academics, in 2017, and we'll be announcing our first social sciences spinout in a decade and a half in the coming weeks.

This is just the beginning. The work innovators in SSH have done so far, and what we're hoping to achieve together with SSH in the future, will be the focus of our next Oxford Innovation Society meeting later this month. In the long term, we're hoping that our work with SSH will open up a new chapter in university innovation.

*Written by Mark Mann,
Innovation Lead for Humanities and Social Sciences,
and Gregg Bayes-Brown,
Communications Manager, Oxford University Innovation.*

Recent investments

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Andy Hopkinson, who is now the company's CEO. Its wound healing therapy harnesses the regenerative properties of amniotic tissue.

NuVision's first product Omnigen® is designed for use in eye surgery and provides a 'biological bandage' for the treatment and surgical reconstruction of wounds. More than 2,400 treatments have been distributed since the product was approved for human and veterinary use in April 2016.

NuVisions' latest innovation OmniLenz®, a bespoke contact lens, allows the simple delivery of Omnigen regeneration without the need for complex and costly surgery.

The company has signed agreements with distribution partners in Ireland and Finland and is in talks with distributors in other countries.

Molendotech

Frontier IP, which specialises in the commercialisation of intellectual property, has announced the completion of a first fundraising for portfolio company Molendotech, a spinout from Plymouth University. Molendotech has received a commitment totalling £0.5 million which will be invested in three tranches.

Molendotech's rapid, point-of-use test to identify the concentration of faecal bacteria in water enables more informed decision-making about the use of water and significantly improves the ability to identify and track any pollution source. The company recently entered into a collaboration agreement with Palintest, a subsidiary of FTSE-100 company Halma plc, for the development and licensing of water testing products.

Re:infer

Re:infer, a spinout from UCL's AI lab, has raised £2.5m in a round led by Touchstone Innovations. The artificial intelli-

gence start-up, which delivers cognitive automation, was also supported by Crane Ventures alongside existing backers Seedcamp and Dr Jason Kingdon, an AI pioneer.

Re:infer's deep learning tech automates the interpretation of communications data and bridges the gap between humans and information technology, making human conversations understandable at scale and actionable to machines. The product is a B2B SaaS machine learning and analytics platform controlled and monitored via a web UI, which is already used by e-commerce firms including UK tech unicorn Farfetch, and some major banks and insurance firms.

MediaGamma

UCL spinout MediaGamma has developed a reinforcement machine learning (self-learning) platform, delivering decisions in under five milliseconds. It has proven its technology in programmatic advertising, building and training more accurate user-profiling and bidding algorithms that vastly reduce customer acquisition costs for their clients.

The company has secured £2m from the UCL Technology Fund, managed by Albion Capital, in partnership with Parkwalk Advisors and the London Co-Investment Fund (LCIF). This is the second investment the UCL Technology Fund has completed in partnership with LCIF.

MediaGamma was spun out by UCL Business in 2014 to commercialise research developed by Professor Jun Wang. In 2016, the company became one of the early recipients of funding from the UCL Technology Fund which was used to engineer MediaGamma's product to deliver lightning quick response times and secure initial commercial traction for its adtech platform.

Midlands Engine Investment Fund

Mercia Fund Managers has been awarded the £23 million Proof-of-Concept and Early Stage Equity Fund, part of the Midlands Engine Investment Fund.

The Fund will be investing up to £750k in rounds of up to £2 million with additional funding potentially coming from Mercia's EIS Funds into early-stage and growth companies.

This is now the third new fund management contract which the British Business Bank has awarded Mercia in the past 12 months as it follows two Northern Powerhouse Investment Fund contracts, which the Group secured in February 2017.

Venture capital firm **Midven** has been appointed to manage the £35 million equity finance portion of the Midlands Engine Investment Fund. Midven will invest all of the funds into high-growth businesses across the West Midlands over the next five years. This new fund now takes Midven's funds under management to over £100 million.



2018 marks 25 years since UCL's first technology transfer company, UCL Business (UCLB), was launched.

We are proud at UCLB to have spent a quarter of a century providing a link between the University's academics, entrepreneurs and beyond. We've become renowned for aiding the development of commercially valuable technologies arising from UCL's faculties, particularly in the field of biomedical research.

Our vision is 'to help support and commercialise research from UCL and NHS trusts associated with UCL for the benefit of humankind in its widest sense'.

Incorporated in 1993, we changed our name to UCL Bio Medica in 2003 and finally became UCL Business in 2006. In 1995, PolyMASC Pharmaceuticals PLC was the first university spinout to list on AIM.

Over the years we've helped many of the innovators at UCL and our partner NHS Trusts to successfully create and spin out companies – the majority being from our various faculties including those in biomedical, biotechnology, engineering, mathematics, physical sciences and the built environment.

We provide expertise to help and support a wide range of capabilities, from sourcing funding and investment, building teams and finding workspace, to providing links to experts, such as mentors and other entrepreneurs.

UCLB helps UCL academics to discover various funds that can be applied for growth and commercialisation. This includes the UCL Technology Fund – a £53 million fund, created by UCLB and Albion Capital, and the Apollo Therapeutics Fund, which is a unique collaboration between three global pharmaceutical companies (AstraZeneca, GlaxoSmithKline and Johnson & Johnson).

We're committed to supporting and nurturing our start-ups and spinouts, as we tend to retain an equity stake in all the companies we help create.

For businesses seeking specific technology solutions, UCLB provides the commercial expertise, legal advice and administrative support required to broker licensing agreements, allowing companies to fully exploit unique technologies with the knowledge that exclusivity and market advantage is preserved.

UCLB currently has 67 active companies in its portfolio, however we have created many hundreds of companies over the years. Successes include:

Chirp

chirp.io

a UCLB spinout company that came from work originating in the Department of Computer Science through the development of a protocol and set of applications which support peer to peer and online sharing of small amounts of information over audio through the use of sound strings / audio tags (called 'Chirps'). The company's 'data over sound' protocol is finding application in areas ranging from payments and the Internet of Things to interactive toys. Chirp recently partnered with Chicago-based toy company Hijinx to create toys based on the Netflix original and popular series, Beat Bugs. The toy company uses Hijinx Alive, powered by Chirp, to create products that are inspired by and react to music in the series;

Endomagetics (Endomag)

endomag.com

a UCLB spinout which has been pushing the boundaries of medical science. This innovative medical device company developed from the London Centre for Nanotechnology at UCL and the University of Houston. The company's products provide surgical guidance solutions for clinicians working in breast cancer management in Europe and North America, with emerging applications in areas such as prostate and lung cancer. Its ground-breaking Magseed technology, which is aiding doctors in the treatment of breast cancer patients, recently featured on the BBC's *Trust Me I'm A Doctor*. Endomag's Magseed technology helps surgeons to precisely remove breast tumours in patients. The minimally invasive breast marker is smaller than a grain of rice and allows radiologists to mark the tumour site, up to 30 days before surgery.

These are just two examples of the innovative and ground-breaking work that we are privileged to help support and nurture through the process to commercial success. Throughout our 25th year we will share more news as we bring new spinouts to market and continue the journey of those already in operation.

For more information, visit: uclb.com

Rainbow Seed Fund renames as UK Innovation & Science Seed Fund

Midven's Rainbow Seed Fund has been renamed UK Innovation & Science Seed Fund (UKI2S) as of January 2018, in recognition of the Fund's widening reach to build world-leading companies from world-leading UK science

The £27.1 million early-stage venture capital fund has leveraged £330 million private investment to date, invested in 37 companies, and achieved four successful exits: Orbital Optics (spinout from STFC), SALT (spinout from Dstl), P2i (spinout from Dstl) and Cobalt (spinout from STFC, see QJ 25)

The Fund works closely with partners led by STFC, BBSRC, NERC, Dstl, with the National Research and Innovation Campuses they support, and with entrepreneurial science-led teams.

UKI2S (ukinnovationscienceseedfund.co.uk) also remains closely aligned with the Catapults, InnovateUK, and the developing UK Research & Innovation (UKRI) to create the best environment for innovation to flourish and in turn, boost the UK's competitiveness and productivity by commercialising key technological advances in industrial biotech, ag tech, healthcare, medicine, clean energy, materials, artificial intelligence, software and space.

The Fund has stated that it will soon announce a number of newly-funded portfolio companies as part of InnovateUK's £8.5 million investment accelerator pilot, a pivotal partnership that joins InnovateUK grants with venture capital to help bridge the gap between R&D and commercialisation.

SETsquared ranked as the world's top business incubator

SETsquared, the enterprise partnership between the universities of Bath, Bristol, Exeter, Southampton and Surrey, nurtures technology-based businesses throughout their lifecycle from idea through to investment and scale-up.

The SETsquared partnership has been ranked as the world's leading business incubator for its outstanding contribution to developing the next generation of UK tech entrepreneurs.

The announcement was made at the World Incubation Summit in Toronto, Canada. This confirmed SETsquared's pre-eminence as 'number one' in its field, having maintained its world-leading position since 2015.

SETsquared's ranking comes as a result of the world's most extensive benchmark study of university-linked business incubators and accelerators, conducted by UBI Global, and has recognised SETsquared as the World's Top Business Incubator - Managed by University.

With bespoke entrepreneur training programmes and access to a network of mentors, alumni, investors, corporate partners and the knowledge base of the five universities, SETsquared has helped over 2,500 UK high-tech start-ups raise more than £1.5bn of investment and contributed over £3.8bn to the UK economy. Last year over 880 entrepreneurs participated in SETsquared programmes and it incubated 381 companies which raised a record £218m investment - the highest ever annual investment raise from the SETsquared portfolio.

Alta Innovations changes name



UNIVERSITY OF
BIRMINGHAM

ENTERPRISE

Alta Innovations Ltd, the 100%-owned technology transfer company for the University of Birmingham, announced at the beginning of January that it has changed its name to University of Birmingham Enterprise Ltd.

Under the new name, University of Birmingham Enterprise Ltd will carry on the operations of Alta Innovations, including IP, licensing, and the Academic Consultancy Service.

The new name will also be used as the name of the University directorate which provides end to end support for academic innovators, enterprise training and spinout development, and manages the incubation services and facilities at the Birmingham Research Park.

The directorate also manages the University funds that bridge the gap between research funding and commercial investment, and provides start-up incubation services that are available to both academics and SMEs in the Birmingham area.

University of Birmingham Enterprise has shown consistent high performance in identifying and commercialising intellectual property.

- In the 2016-7 year the company filed 70 patents, and signed 20 commercial licenses.

This performance has been matched in spinout development.

- The University now has 36 spinout companies, which attracted £10.2m investment in 2016-7.

Dr James Wilkie, CEO of University of Birmingham Enterprise commented: "In practice the wholly-owned trading company and the departments within the directorate have been working in close collaboration for many years.

"We have had a great deal of success and felt it was the right time to change the name and make it clear we operate on behalf of an educational charity, the University of Birmingham.

"Matching the name of the company to the name of the directorate will also ensure we have a consistent profile to external stakeholders including funders and commercial partners."

www.birmingham.ac.uk/enterprise



IRRESISTIBLE MATERIALS

Irresistible Materials

One of the University's 36 spinout companies is Irresistible Materials, created in 2010 to develop and commercialise the University's lithographic materials technology for the next generation of microchips.

Since launch, IM has developed an extensive patent portfolio covering innovative resist (EUV and E-beam) and hard-mask materials. In February the company announced the final stages of testing for a novel material used for manufacturing microchips with features smaller than 18 nanometers (nm) – 4,000 times smaller than a human hair – which will enable electronic device manufacturers to make smaller, lighter devices.

The new materials incorporate small molecules, developed at and patented by the University of Birmingham, which are part of a 'multi-trigger resist' (MTR) solution. The MTR is part of a photoresist that coats the silicon chip before it is etched, and is activated by exposure to extreme ultraviolet (EUV) light, which has a wavelength of just 13.5nm.

Light is used to etch grooves onto the surface of silicon microchips, and these grooves define the wires on the semi-conductor

base. Current manufacturing techniques use light with a much larger wavelength of 193nm, and this has limited the size of the features that can be etched onto a micro-chip.

The testing will take place at the University's Nano-Physics, Chemistry and Engineering Research Laboratory, under the auspices of Dr Alex Robinson, one of the inventors of MTR technology, who is also a founding director of Irresistible Materials.

These final stages of testing are part funded by a grant from the UK's innovation agency Innovate UK, and part funded by private investment funds raised by Irresistible Materials, from investors including Mercia Fund Management.

www.irresistiblematerials.com

Project partners

We are very grateful to the following organisations for their support



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



UMIP, a division of The University of Manchester IP 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.



www.m-fl.co.uk

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



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



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



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

University of Birmingham Enterprise supports academics who want to innovate, take their ideas to market, work with businesses and social enterprises, or enrich their professional lives by doing academic consultancy projects. We do this by providing enterprise training, funding, office and laboratory space, and a full technology transfer service. University of Birmingham Enterprise also manages investment funds and the incubation services and facilities at the Birmingham Research Park. www.birmingham.ac.uk/enterprise

