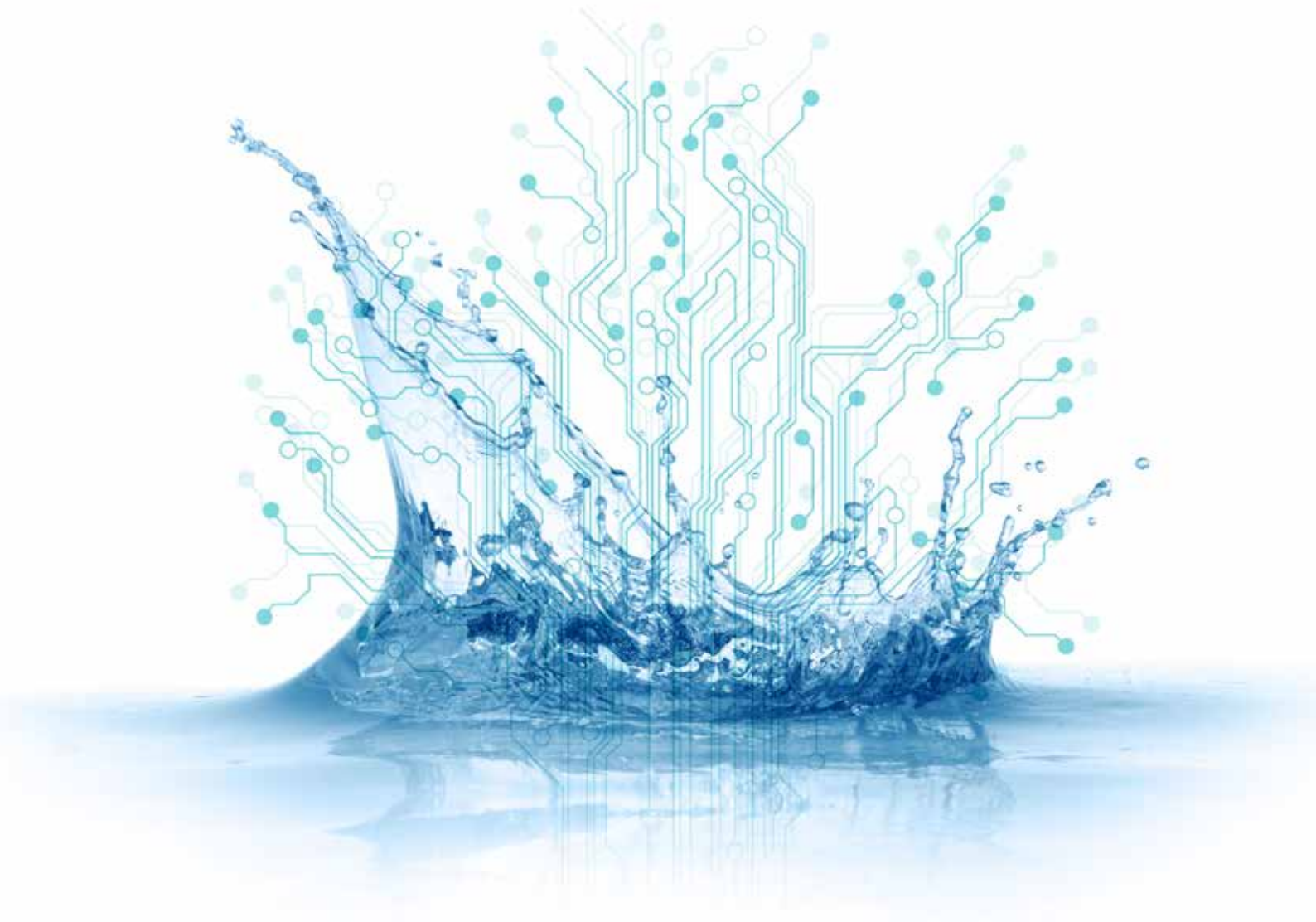
IMPACTS



OXFORD UNIVERSITY INNOVATION

UNIVERSITY OF OXFORD

Contents

Introduction

The University of Oxford generates enormous benefits to the world through its research, education and wider engagement activities. These benefits have social, cultural, policy, commercial and economic impact.

At Oxford University Innovation we support academics, researchers and students across the University who want to commercialise the outcomes of their research through technology, expertise and venturing. We do this through identifying, protecting and marketing research outputs to existing companies and creating new startup and spinout companies. We support academics who provide their expertise through consulting engagements. These commercial interactions with the University create social, cultural, policy, commercial and economic impact.

Linda Naylor,
Managing Director,
Oxford university Innovation

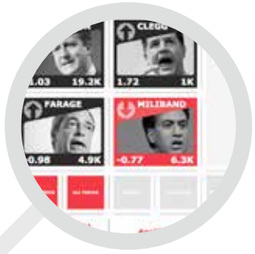
In the following pages we provide a snapshot of the impact of technologies and expertise from the University of Oxford. There are some truly amazing stories here, demonstrating impact in healthcare, disease prevention, energy and climate.

Earlier successes are already inspiring the next generation of entrepreneurs starting in Oxford to aim high and achieve great things.

If you are looking for a way to participate in the next wave of technology innovation from Oxford, consider joining the Oxford Angels Network, investing in the University of Oxford Innovation Funds or joining our open innovation network, the Oxford Innovation Society.

Ones to watch

Oxitec is aiming to control insects that spread disease and damage crops, combating mosquito-borne diseases such as dengue fever by using genetically modified mosquitos to control the insect population. Over 390 million people contract dengue each year according to the World Health Organisation. **www.oxitec.com**



TheySay
Sentiment analysis spinout TheySay can analyse huge amounts of text using computational linguistics expertise from Oxford. It provided real-time graphical information, social media and sentiment scores for each party leader in the UK General Election. **www.theysay.io**

Intelligent implants
Oxtex was set up to develop a self-inflating tissue expander, a device which is ideal for use in surgery, burns and for the veterinary market.
The award-winning company is planning the commercial launch of its veterinary product, having successfully treated its first equine patient. Oxtex is also planning clinical trials.
www.oxtex.com

Ones to watch continued p18-19

Driverless cars

Oxbotica, spun out from Oxford's Mobile Robotics Group with support from Oxford University Innovation in late 2014, is already set to provide control systems for 40 driverless pods which will carry people around Milton Keynes city centre as part of the UK's multi-million pound driverless car challenge.

The company will manage and expand the large and rapidly growing pool of intellectual property created by the Mobile Robotics Group to meet the demand for smart robotics and autonomous systems. Current projects include robotic survey systems for roads and railways, low-speed driverless pods for urban transport, a robot electric car, and robotic rovers for use on Mars.

Oxbotica aims to overcome the limitations of existing navigation technologies such as GPS, which does not work when navigating tunnels, indoor car parks or even forests. GPS is also unable to provide the exact positioning necessary to safely navigate a car through city streets, where mere centimetres can mean the difference between safety and a collision.

Professor Ingmar Posner said: "We believe that Oxford University's robotics expertise can transform a wide spectrum of application domains. Our intended markets range from devices that survey our roads, buildings and chemical plants to autonomous systems for warehouse logistics and, of course, autonomous driving."

"Oxbotica may be one of the few companies in the world to rival Google in driverless cars," said the Wall Street Journal, naming Oxbotica as one of the Top 10 Tech Companies to Watch in 2015.

Photo: John Cairns.

Professor Paul Newman, Oxbotica co-founder

"It's important that the UK invests not only in its research institutions and the technology that underpins autonomous self-driving vehicles but also that it supports and builds companies that can exploit and deliver this technology to the market.

It's time to transition the UK's leading edge intellectual property in mobile autonomy from our research institutions to global markets in a coherent and integrated fashion. We created Oxbotica to accelerate this transition."

Gene therapy within sight

'One night in the summer, my wife called me outside as it was a particularly starry evening. As I looked up, I was amazed that I was able to see a few stars. I hadn't seen stars for a long, long time...For a long time I lived with the certainty of losing vision. Now I have uncertainty of whether the trial will work, but it is worth the risk.'

Wayne Thompson, 43, an IT project manager in Staffordshire, was treated as part of the second phase of the gene therapy trial published in *The Lancet*.

Nightstar was spun out from Oxford University, supported by Oxford University Innovation, in early 2014 and has raised £17 million to develop a gene therapy to treat Choroideremia, an X-linked recessive disorder that leads to progressive blindness.

The company's breakthrough retinal gene therapy was developed by Professor Robert MacLaren at Oxford's Nuffield Laboratory of Ophthalmology. The initial results of the first trial grabbed worldwide media attention when they were published in The Lancet in January 2014.

The gene therapy uses a small, safe virus to carry the missing CHM gene into the light-sensing cells (photoreceptors) in the retina. In an operation similar to cataract surgery, the patient's retina is first detached and then the virus is injected underneath using a very fine needle.

The Lancet reported that six months after treatment with this therapy, the first six patients showed improvement in their vision in dim light and two of the six were able to read more lines on the eye chart.

The company has since received both US Food and Drug Administration and European Medicines Agency Orphan Drug designation for its lead programme.

Professor MacLaren said: 'The initial clinical results for choroideremia gene therapy are very promising and they give us an indication of what this technology can achieve in the future.'

Nightstar has received funding from Syncona, the venture arm of the Wellcome Trust. 'The investment in Nightstar represents one of the largest in a new academic spin-out in Europe.'

Limitless clean energy

Energy consumption is expected to increase over 50 per cent by 2030. But how will we meet this demand? First Light Fusion, an Oxford University spin-out set up by Oxford University Innovation in 2011, is working to make the dream of limitless clean energy from fusion a reality.

Fusion is the ultimate source of energy in the Universe, powering stars such as our sun.

First Light Fusion was founded by Oxford's Dr Nicholas Hawker and Professor Yiannis Ventikos, now head of the Mechanical Engineering Department at University College London. Dr Hawker, now First Light Fusion's CTO is working on a new method of producing energy by controlling "extreme intensity bubble collapse". The company also has a close collaboration with Ronald Roy, Professor of Mechanical Engineering at Oxford.

First Light Fusion's patented process initiates fusion reactions by heating and compressing a fuel target, typically a pellet made up of deuterium and tritium. It harnesses any instabilities which occur during this process, using advanced implosion processes to generate intense bubble collapse.

By creating enough energy to kick-start the fusion process in this way, the company believes it can achieve fusion in a more robust and practical manner. Ultimately, this could produce cheap, clean and affordable electricity.

Unlike other renewable energy sources, fusion is safe and does not produce any long-lived radioactive waste.

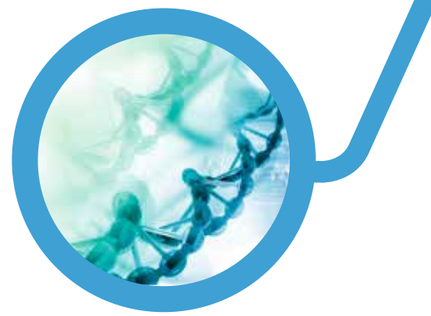
Ultimate energy

The company explains: "We have discovered advanced implosion processes that achieve high temperatures and compressions.

One approach we are studying is the use of intense shock waves to crush gas-filled cavities inducing asymmetric collapses that concentrate energy in space and time.

We have demonstrated the formation of an inertially confined plasma in a completely new and worldwide-unique geometry. We have now backed this up with a cutting-edge experimental effort."

DNA Sequencing



Oxford Nanopore Technologies' flagship gene sequencing device, the MinION, is small enough to plug into a USB port, powerful enough to read out relatively long stretches of genetic sequence and displays data as it is being generated. The MinION has been used to sequence Ebola in Africa, frog genomes in the Tanzanian rainforest and yeast and bacteria strains in the UK.

Spun out from the University in 2005 based on the vision of Professor Hagan Bayley in the Department of Chemistry, Oxford Nanopore Technologies has grown to a 200+ strong company with the ambition of democratising DNA sequencing.

Its nanopore-based systems can also analyse other single biological molecules including RNA and proteins. They sequence by detecting electronic signals generated as molecules move through nanopores – tiny holes – set in arrays on each device.

The company will also provide products for sample preparation, molecular analysis and informatics. Users will be able to extract and stream genetic data from food and agricultural products, as well as scientific and healthcare samples.

CTO Clive Brown told WIRED Health: "Our big dream is to move towards self-quantification, and we're going to make a version [of the MinION] that works on handheld mobile phones. It can measure your blood markers and collate that data to track changes in your daily biology."

"The wealth of information we can intercept can change the way people live."

Saku Saha
Woodford Funds

Risk and reward

"We have become increasingly impressed with the Oxford Nanopore management team, confident in the quality of its technology and... excited by the breadth of the commercial opportunity that its products can address. Amongst other things, its devices may be used in scientific research, personalised medicine, crop science, security and defence, and environmental applications.

"The risks [associated with unlisted technology companies] are higher than in the more mainstream investment universe, but when adjusted for these additional risks, the potential rewards look extremely attractive."

Going global

Achieving the possible

Dr Peter Wrighton-Smith studied engineering, economics and management at Oxford and worked at PowderJect Pharmaceuticals before starting Oxford Immunotec based "out of his attic".

"It's intensely satisfying to look back and see what the company has achieved," he said.

"When I joined PowderJect, it was instead of becoming a banker or management consultant like most of my peers were doing.

What I learned was that you don't have to be limited by the degree you take at university in terms of what you can do in life.

What we all need are role models to open our eyes to the possibilities out there."

As told to The Oxford Mail

Founded in 2002 to commercialise science originating from tuberculosis research at Oxford's John Radcliffe hospital, Oxford Immunotec has grown to become a global, commercial-stage diagnostics company providing tests for the management of immune-regulated conditions.

From 2007 to 2012, Oxford Immunotec grew its overseas earnings by over 1300 per cent through expansion into markets worldwide including the United States, Japan and China. The company's 200 staff are based in Oxford, America and Japan.

Oxford Immunotec's first product was the T-SPOT.TB test, which helps to diagnose tuberculosis infection before it has progressed to full-blown disease, allowing treatment of carriers to prevent further spread of infection. The test has been approved for sale in over 50 countries including the US, Europe, Japan and China and included in clinical guidelines for screening in 17 countries.

In 2013 the company became the first Oxford spinout to list on New York's NASDAQ stock exchange, raising $74 million.

Oxford Immunotec is also developing tests to assist clinicians in monitoring patients undergoing stem cell and organ transplants.

Dr Peter-Wrighton Smith, Oxford Immunotec's CEO, has been with the company since its launch, having been brought in as a manager by Oxford University Innovation.

Aiming high

#StartedinOxford

"Starting a tech business in Oxford has two great advantages: support infrastructure and access to talent," says Onfido CEO Hussayn Kassai.

"Oxford University Innovation has been a tremendous source of support from the outset both in terms of commercial contacts and also with regard to advice around developing and scaling our technology.

If you're a tech business you have to be ambitious and global. US companies do this very well, they think global and UK and European ones should do the same. The technology in Europe is just as good – if not better."

Oxford Entrepreneurs, the Said Business School Entrepreneurship Centre and Seed Fund, the Startup Incubator and the Student Entrepreneur Network all provided support for Onfido.

As told to Techcityinsider.com

In early 2015, Startup Incubator graduate company Onfido made the front page of tech news site Techcrunch.com when it closed a $4.5m Series A round. Investors included the founders of lastminute.com, One Fine Stay, BlaBlaCar, former managing directors of Google UK and Waterstone's, and institutional investor Wellington Partners.

Onfido is the first venture for Oxford graduates Hussayn Kassai, Eamon Jubbawy and Ruhul Amin, all in their mid-20s. They took the idea for a web-based employment checking system from inception to incorporation in three months with the help of the Startup Incubator's intensive summer incubator programme.

The Startup Incubator programme provided commercial mentoring, intellectual property advice, assistance in identifying potential customers, enquiry handling and advice on formation of a limited company.
The team built systems to synchronise with official databases and data sources worldwide, enabling automated, real-time, online checks. This ultimately allows companies to hire faster.

Demand for the service grew quickly and Onfido built an international client base of over 300 clients in eighteen months simply from referrals.

Onfido has successfully introduced technology into an industry which has been heavily reliant on manual checks, opening the door for employers in sectors such as childcare, cleaning, and retail to conduct fast, inexpensive checks on right-to-work, ID verification and global criminal record checks.

It currently carries out checks in the US and 28 other countries, with plans for further expansion.

Solar flair

Oxford Photovoltaics was spun out of the University in 2010 based on solar cell technology developed by Professor Henry Snaith and his team from Oxford's Department of Physics.

In 2012, Snaith's paper on high efficiency solid-state photovoltaics based on a chemical structure called perovskite was hailed as one of the top ten breakthroughs of the year by Science magazine. The following year he was named one of ten people who mattered by Nature magazine.

The perovskite photovoltaics act as a low-cost, highly efficient solar cell absorber material to convert sunlight into electricity. "They're incredibly cheap to make, have proven high efficiencies and are also semi-transparent. We can tune the colour too, so you could install them in aesthetically-pleasing ways in office windows," said Sam Stranks from Snaith's team at the time.

Fast-forward to 2015, and Oxford PV have built a team of over 30 people focused on developing these low-cost, printable solar cells. To do this, they have raised over £15 million through 4 rounds of funding, including an £8 million B round in 2015. Oxford University Innovation and Oxford PV have continued to work together to license the rapidly growing portfolio of fundamental intellectual property developed by Prof Snaith and his team.

The company believes that its technology will improve solar cell performance by up to 20 per cent.

The Oxford PV technology can be coated on architectural glass to allow large buildings to generate electricity, effectively turning them into vertical solar farms.

It can also boost the performance of silicon and other solar cells.

Kevin Arthur, Oxford PV's CEO from 2009-2015, was brought in by Oxford University Innovation to work with Prof Henry Snaith to commercialise his work. He has been involved with spinouts from three universities and has over 30 years' experience in the semiconductor industry.

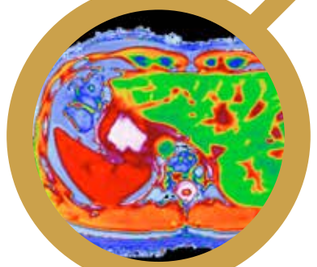
Q: What do you like about being an entrepreneur in Oxford?

A: The depth of support in Oxford is fantastic. There are lots of networks and people willing to help.

Q: What suggestions would you give to someone who wanted to get involved in entrepreneurship?

A: Go and work for a startup, do whatever you can to help out, be an intern or even get paid. They will be your best way to find out what it is really like. And they will also be able to help you get networked in.

Diagnosing liver disease early

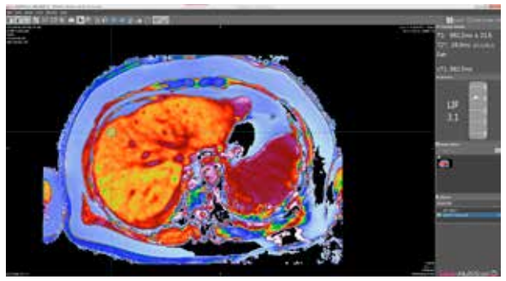


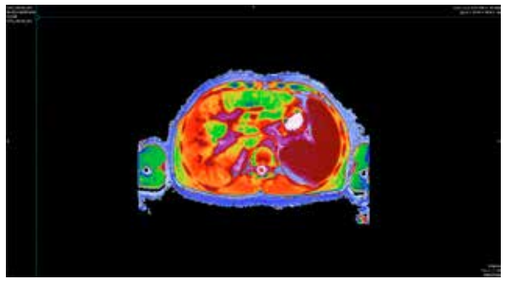
Spun out in 2012, Perspectum Diagnostics was founded by a team from Oxford's Radcliffe Department of Medicine. The company is aiming to provide earlier, less invasive tests to diagnose liver, gallbladder and pancreatic disease.

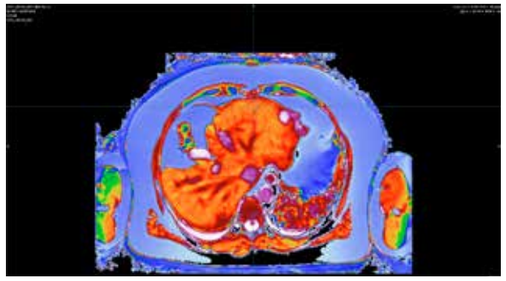
Although the benefits of early diagnosis of liver disease greatly outweigh the risks, many patients and doctors are reluctant to turn to intrusive and often painful biopsies to detect disease. Needle biopsies are also costly, have a high risk of bleeding and a 0.1 per cent risk of death.

Perspectum is developing software which will allow non-invasive MRI scans to provide a detailed picture of tissue characteristics and changes. The company's "Liver MultiScan" test takes 10 minutes and provides detailed images that measure liver inflammation, fibrosis and iron build-up, producing a score that can guide the need for medical intervention.

Perspectum is running clinical trials in Birmingham and Edinburgh for the Liver MultiScan, which can detect both cancerous and pre-cancerous liver disease.
Liver disease affects more than 10 per cent of the UK population and 15 per cent of the population in the US. A fundamental challenge faced by doctors is early diagnosis as symptoms often appear only after damage has become irreversible.







"Fatty liver disease is a looming epidemic worldwide, mainly due to rising obesity rates."

"Treating patients in the early stages of liver disease will save lives and our health care system considerable expense."

"The best advice I'd give to a scientist looking to set up a spin-out company would be to ask the experts for help early, and choose the right people for your core team. Their vision and enthusiasm is as least as important as the actual idea and the intellectual property."

Cardiologist Professor Stefan Neubauer is non-executive director of Perspectum and director of the Oxford Centre for Clinical Magnetic Resonance Research.

Vital signs

The brainchild of Professor Lionel Tarassenko and his team at Oxford's Institute of Biomedical Engineering, Oxehealth is set to make contactless health monitoring a reality.

It could transform products as diverse as baby monitors and security technologies, but we're most likely to encounter it first at hospitals and other clinical sites.

OxeHealth, spun out from Oxford's Institute of Biomedical Engineering in 2012, allows patients' vital signs – heartbeat, breathing rate, blood oxygen and pressure, and temperature – to be monitored using software and digital camera technology.

The "Oxecam" uses sophisticated algorithms which process video images to produce estimates of these vital signs on a continuous basis.

The technology has been successfully trialled at the Churchill's Oxford Kidney Unit and at the Neonatal Intensive Care Unit at the John Radcliffe Hospital. It has also been tested for remote secure-room patient monitoring at Broadmoor psychiatric hospital.

Oxehealth CEO Jonathan Chevallier said: "We believe that the cameras will revolutionise the future of health monitoring, providing a technology that can unobtrusively monitor patients for long periods of time in a range of different environments."

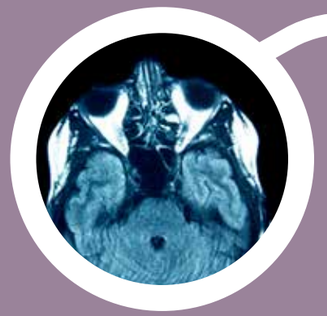
Another benefit will be getting rid of the wires and devices needed for continuous monitoring. Oxehealth is the first joint spin-out from the University of Oxford and Oxford University Hospitals NHS Trust.

Monitoring round the clock

"Nurses currently complete their routine monitoring for most hospital patients every 4-6 hours. Oxecam has the potential to help support hospital staff and greatly improve patient safety by providing round the clock monitoring of all five essential vital signs, thus allowing sudden and unexpected deterioration to be recognised early, and treated quickly.'

Catherine Stoddart, Chief Nurse at Oxford University Hospitals NHS Trust

Automating stroke detection



Brainomix – which graduated from the Startup Incubator in 2014 – is pioneering a system which puts the expertise of the best stroke physicians into the hands of frontline medical staff.

The company's flagship product is the e-ASPECTS software – a programme which automatically implements the Alberta Stroke Program Early CT Score (ASPECTS) clinical scoring methodology.

The Brainomix technology allows doctors to evaluate signs of a stroke on a CT scan. The scan acts as a guide to the damage caused by a stroke, providing an accurate evaluation which helps doctors decide the most appropriate and potentially lifesaving treatment for the patient.

Brainomix CEO Dr Michalis Papadakis said: "Currently up to half of the patients who should be treated for stroke are not, because of difficulty in reading CT scan images accurately. We are developing the first imaging software which can automatically interpret CT scans of stroke patients. This enables hospitals to improve their existing treatment, leading to better outcomes for patients."

e-ASPECTS technology was invented by Professor Alastair Buchan, Professor of Stroke Medicine at the University of Oxford and co-founder of Brainomix.

Brainomix has received funding from the University of Oxford Isis Fund, Chimera Partners and Parkwalk Advisors and won numerous grants and awards. It has also received ISO 9001 and ISO 13485 certification.

Dr Michalis Papadakis, CEO of Brainomix

Q: What do you like about being an entrepreneur in Oxford?

A: Oxford has such a great mix of outstanding academic research and startup community, plus Oxford University Innovation, with their established experience and guidance, is a great support.

Q: What would be your advice to anyone looking to get involved in entrepreneurship?

A: Do not hesitate to do it. Even if you fail, it's okay. Work hard, and face obstacles and failure head on. Don't be afraid to ask for advice. Believe in yourself. It is all well worth it!

A precious resource

OrganOx's metra device is designed to keep donated livers "alive" before they are transplanted, and trials are already showing that it could greatly improve the number of successful liver transplants.

Professors Peter Friend and Constantin Coussios from Oxford's Department of Biomedical Engineering worked with Oxford University Innovation to spin the company out in 2008. Since then, the team has developed the device with every step of the organ retrieval, transport and transplant process in mind.

The device keeps livers at body temperature and pumps oxygenated blood through the organs to maintain them. It is housed in a rugged unit designed to be transported, and also allows surgeons to assess the condition of the organ before an operation.

In early 2015, the first liver transplants using the OrganOx device took place in North America and Europe.

"It was astounding to see an initially cold grey liver flushing with colour once hooked up to our machine and performing as it would within the body," said Prof Coussios. "What was even more amazing was to see the same liver transplanted into a patient who is now walking around."

"The device is the very first completely automated liver perfusion device of its kind...and can for example be observed making bile, which makes it an extraordinary feat of engineering."

OrganOx is also planning to use its core technology in devices for the preservation of other organs.

Game changer

"Despite all the advances in modern medicine, the fundamentals of liver transplantation have not changed in decades. This is why the device is so exciting. If we can introduce technology like this into everyday practice, it could be a real, bona fide game changer for transplantation as we know it. Buying the surgeon extra time extends the options open to our patients, many of whom would otherwise die waiting for an organ to become available."

Professor Nigel Heaton is Consultant Liver Transplant Surgeon and Director of Transplant Surgery at King's College Hospital which undertook the first human transplant with the device.

Setting the standard

Every expectant mother is familiar with the "Sonicaid" – a hand-held monitor used to "hear" the foetal heartbeat, monitoring the baby's health and detecting any early signs of distress in pregnancy.

What many don't realise is that the technology being used includes comprehensive heartbeat and foetal movement analytics developed and refined by University of Oxford Professors Geoffrey Dawes and Christopher Redman of the Nuffield's Department of Obstetrics and Gynaecology.

"Professors Dawes and Redman built up the world's largest database of over 100,000 CTG traces matched with clinical outcomes"

Oxford University Innovation manages the exclusive licence of this Dawes-Redman CTG Analysis system to Cardiff-based Huntleigh Healthcare.

First licensed to Sonicaid in 1980, the Dawes-Redman CTG Analysis system represents one of Oxford's most successful and long-standing clinical advances, and is widely recognised as the reference standard for the assessment of foetal health during pregnancy.

The system has undergone continual refinement over the last 35 years and is supported by over 70 peer-reviewed articles.

Traditionally, CTG trace interpretation relied on highly subjective opinion-based processes which were shown to be associated with poor foetal outcomes. To address this, Dawes and Redman built up the world's largest database of over 100,000 CTG traces matched with clinical outcomes.

Analysis of this unique dataset has allowed the team to incorporate many new features, such as to avoid misreading of unusual or rare patterns, which might

The Government's watchdog

For more than a decade, Oxford University Innovation's Consulting Services has worked with the National Audit Office – often called the 'Government's watchdog' – to scrutinise spending and find opportunities for savings. It is estimated that the National Audit Office saved taxpayers at least £1.1 billion in 2013.

Consulting Services has arranged more than 200 independent academic reviews of the reports that hold government to account for how it spends public money. The aim of these Value for Money audits is to promote beneficial change through improvements to public service delivery, governance and savings, and efficiencies.

The reports cover topics such as the NHS, major defence projects and local services. They assess whether value for money has been achieved, considering Economy, Efficiency and Effectiveness of spending.

Consulting Services has undertaken full 'Value for Money' studies for the NAO using staff based in the Oxford Internet Institute. They have set up training with experts at the Saïd Business School and the Departments of Economics and Sociology.

Consulting Services has enabled more than 50 Oxford academics to contribute to ensuring that the Value for Money audits are robustly analytical, evidence-based and evaluative with clear conclusions and recommendations for stimulating change.

Academics often relish the opportunity to carry out this type of consultancy because they see their academic expertise having real world impact.

"...we have had various beneficial effects on the National Audit Office itself, and its methods for conducting Value for Money reports. Of all the government work that I have done, this is probably the work that has had the most direct positive impact."

Professor Anthony Heath, Emeritus Professor of Sociology.

Queens Award accolade for Enterprise

Technology and innovation management consultancy Enterprise won a 2015 Queens Award for its success in providing training and technology commercialisation advice to university researchers, corporates, investors and governments worldwide.

The Queens Awards are the UK's highest accolade for business success.

Isis Enterprise has grown from a small specialist service, based in Oxford, to provide expert consulting in more than 50 countries.

There is a real need for programmes which assist high growth countries and institutions with quality research to find the best path to market.

Enterprise's success is built on experience with long term clients in the UK, including Acorn and Cranfield Universities.

In China Enterprise has struck a successful strategy of forming joint venture companies, securing investment from Chinese regional governments and private investors to identify and license technologies and products that they can further develop and make available to Asian markets.

Malaysia was the largest export market for Enterprise in 2014 at 36 per cent of sales, followed by China at 32 per cent. Enterprise also has offices or expert local consultants in Hong Kong, Spain, Japan, UAE, Oman and Australia and has provided expert consulting to Colombia, Argentina, France, Chile, Mexico, South Africa and Thailand.

"We have seen a real need for programmes which assist high growth countries and institutions with quality research to find the best path to market."

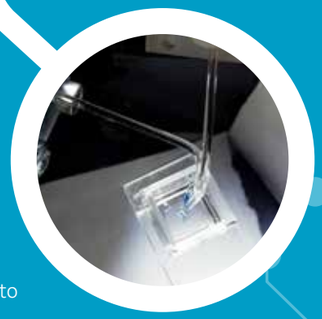
Elena Andonova and Mireya McKee of Enterprise at the Technology Transfer Offices' Network Congress in Mexico.

Enterprise has helped the Mexican Council of Science and Technology with funding programmes related to scientific and technological development and innovation. With the help of Enterprise, the network of technology transfer offices in Mexico has grown to include 135 Technology Transfer offices.

Oxford University Innovation has trained the leadership teams at many of the offices and has provided detailed guidance on the commercialisation process and strategy.

Ones to watch

Safer helmet
Sport enthusiast James Cook and his team created a significantly safer helmet through innovation of the structure. The proposed project addressed the issue through an engineered lattice structure that prevents brain injury by dramatically increasing the energy absorbed from both linear and angular forces. The structure also has the potential for directing energy to prevent movement in movement in directions particularly vulnerable to the brain.



3D printing of tissues, organs
OxSyBio is developing 3D printing techniques to produce tissue-like and functional tissues for research and clinical applications. Based on the work of Professor Hagan Bayley and his team in the Department of Chemistry, the company ultimately aims to print synthetic tissues for organ repair and replacement.

Protecting crops
Seed funds are being used to support Oxford's Plant Sciences department in developing a high throughput, genome based screening system to identify new crop protection chemicals.

Flexible displays
The Department of Materials' Prof Harish Bhaskaran and his team have developed new materials which will make it possible to create pixels just a few hundred nanometres across. Applications for these extremely high-resolution and low-energy thin, flexible displays include 'smart' glasses, synthetic retinas, and foldable screens.

Fuels from waste
Velocys, a Department of Chemistry spin-out, has secured orders worth millions of dollars for its reactors which convert low-value and waste gas or municipal waste into high-grade liquid hydrocarbon fuels. Velocys is listed on AIM and employs over 100 people worldwide.

Diagnosing multiple sclerosis
Oxford researchers have identified a blood test to diagnose and track the progress of multiple sclerosis, a disease for which there is no reliable biomarker. Isis seed funds are being used to generate the clinical evidence needed to secure commercial investment.

High-torque electric motors
Light, powerful, efficient electric motors are critical for high-performance vehicles. Yasa Motors, a 2009 Oxford University Innovation spinout, has set up facilities for producing many thousand of its electric motors by 2018. The motors are already being used in the record-breaking Regera car, Jaguar C-X75 and Drayson racing prototype B12/69EV, the Jaguar C-X75 and many industrial applications.

Learning through gaming
Oxford University Innovation and Oxford clinicians are raising crowdfunding to develop a "learning through gaming" platform. The mobile-based training aims to improve clinical decision making for up to 2.5 million healthcare workers in sub-Saharan Africa, and save the lives of over 670,000 mothers and babies.

Oxford University Innovation Ltd
The technology transfer company of the University of Oxford

Buxton Court, 3 Westway, Oxford, OX2 0SZ
T 01865 280830 W www.innovation.ox.ac.uk

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