

## EYES ON THE FUTURE

Global impact from Oxford's world-leading research

## ANNUAL REPORT 2017

www.annualreport.innovation.ox.ac.uk



	77

A worthy winner that has managed to stand out among a group of highly driven and successful peers.

BOUT US	3
IGHLIGHTS	4
NGAGEMENT	6 8 10 11 12
CCOUNTS	14

OXFORD UNIVERSITY

UNIVERSITY OF



# **ABOUT US**



Oxford University Innovation (OUI) assists the University community in maximising the world-wide impact of Oxford's research and expertise.

This year's Annual Report shows that we have had a successful year. The Report is based on information drawn from our own data. However, over and above these internal metrics, it is particularly gratifying to highlight external recognition of Oxford's achievements during the year.

- Higher Education Statistics Agency (HESA) data showed Oxford to be leading the UK both in the number of spinouts created, and that survive.
- A University-commissioned report on the economic impact of the University found that commercialisation and enterprise activities are a particular source of strength, pumping £1.2 billion into the world economy every year. The report revealed that 136 new spinout companies

   more than any other UK university – contribute a combined global turnover of £600 million, and employ 1,886 people in Oxfordshire.
- Global University Venturing again awarded us the accolade of Technology Transfer Unit of the Year, describing OUI as "...a worthy winner that has managed to stand out among a group of highly driven and successful peers."

We are continually looking at how we can better serve the academic community and are conscious that commercialisation of ideas emanating from the University provides evidence of research impact. Helping to create spinouts is a measure of our success, but far from the only one, as we also have an important role in facilitating academic consultancy, supporting applications for translational funding, and creating innovative partnerships.

One notable event, at the end of this year, was the management buyout of our innovation consultancy division, Oxentia. Having matured and grown since its creation in 2004, Oxentia now has an opportunity for further development and we plan to continue our close working relationship with the company going forward.

I would like to congratulate and thank all the OUI staff, our colleagues in the University and also our external stakeholders for their hard work and achievements this year.



Helping to create impact with the outcomes from university research is very similar to running a marathon. Success is the reward for patient support over a long time; stamina and sustained effort is required to turn academic research outputs into societal benefit with a commercial return. Oxford University Innovation has now been running for 30 years - and is in better shape than ever. In my first year at OUI, my focus has been on renewing the vision, strategy and goals of the company, whilst strengthening engagements with our stakeholders. With a highly expert team, and strong business foundations, we are dedicated to making Oxford a world-leading innovation ecosystem, with the University at its heart.

The team at OUI are eager to work with researchers, investors, industrialists, government and others to ensure that we achieve our vision.

# HIGHLIGHTS

From a secure foundation of licensing, spinout formation and consultancy business, new initiatives this year included Innovation Challenge competitions in the Humanities Division to broaden our support across all disciplines in the University, crowdfunding campaigns as a means of supporting innovations not suited to, or eligible for, traditional translational funding, and the launch of LAB282 - a programme combining funding and industry expertise to accelerate drug discovery.

OUI continues to develop its services to enable the University community to maximise the global impact of Oxford's research and expertise.



2017 2016

**16 MONTHS** 

12 MONTHS

# **OUI BY NUMBERS**

#### **REVENUES**

#### DISTRIBUTIONS

Returned to Oxford University and its researchers

#### TRANSLATIONAL FUNDING

Awarded to Oxford researchers with OUI assistance

#### PATENTS

Patents and applications under OUI management

#### **DEALS** (commercial)

Transactions between OUI and external parties

#### ACADEMIC CONSULTANTS

Number engaged in projects

#### **SPINOUTS**

Formed from Oxford University IP

#### **STARTUPS**

Formed with OUI assistance, no University IP

፠
<b>දිදි</b> දි
ЭЧ LФ
പ്പം
$\wedge$



AUG 16-JUL 17 APR 15-JUL 16 £18.7m £22.2m £8.0m £9.6m £13m <sub>f14m</sub> 3425 2873 **685** 855 339 418 **19** 21

# OXFORD: CITY OF INNOVATION

Oxford is in the midst of an innovation boom.

Figures for creation of new companies based on university IP remain consistently high while existing companies are in growth mode. Seed and growth stage investments are in good supply, following a 454% increase in seed stage funding for our spinouts between the calendar years of 2015 and 2016, and Oxford spinouts collectively raising £1.5bn since 2011. Critical infrastructure to support innovation is either being constructed or has already opened its doors.

Already a world-renowned centre for research excellence, the "Oxford Boom" is driving the tech cluster towards becoming one of Europe's leading centres for entrepreneurship and innovation.

One of the major catalysts for this sharp increase in activity is Oxford University. Named the number one university in the world two years running (Times Higher Education), Oxford is throwing its weight behind the innovation mission with construction of key infrastructure around the city. The Saïd Business School has launched The Foundry, a co-working space that acts as a beacon for student entrepreneurial activity. Novo Nordisk is investing £115m into Oxford for a new research hub focused on treating diabetes. The Bioescalator, designed as an innovation hub for all things life sciences at the Old Road Campus in Headington, should open its doors in August 2018.

The vision of Oxford's innovation-led future is shared by a number of key partners in the area, including the Oxfordshire Local Enterprise Partnership, Oxford Brookes University, the Harwell and Culham campuses, knowledge-intensive companies based in Oxfordshire and the business parks which host them, and many others which are collaborating on innovation.

Through its work in the creation of spinout companies, OUI has applied its skills as an architect of creative solutions in the development of the Oxford innovation ecosystem. Some of the biggest high-tech companies in the area – NaturalMotion, Oxford Nanopore, Adaptimmune, to name a few – trace their roots back to research commercialised by OUI.

#### **ECONOMIC IMPACT**

According to a recent report, 'The Economic Impact of the University of Oxford' conducted by BiGGAR Economics, the University is now adding £7.1bn a year to the global economy, £1.2bn of which is a result of its commercialisation and enterprise activities. The report found that over 80 of the spinouts launched by OUI remain active in the Oxfordshire region, providing 1,886 jobs and adding £132m to the local economy.

With the help of OUI, Oxford University has launched 150 spinout companies. In the past year alone OUI has added a further 25 companies to the ecosystem, and spinouts formed in recent years are becoming major names within the ecosystem in their own right.





### With the help of OUI, Oxford University has launched 150 spinouts.

OxStem, which is harnessing stem cell research to treat a number of diseases, has developed rapidly since its £17m seed round in 2016, launching a number of smaller "stem" companies that are targeting neurological, ocular and cardiac conditions, amongst others. Artificial intelligence spinout DiffBlue went from spinout to employer of 50 people in a single year. Nightstar Therapeutics, which is commercialising gene therapies for rare retinal diseases, has gone from spinout to NASDAQ-listed company in just four years.

Building on this success, the recent Science and Innovation Audit for Oxfordshire identified four key innovation focus areas for the region:

#### **AUTONOMOUS VEHICLES**

Oxford's robotics research is leading in the field, exemplified by Oxbotica, a spinout which is leading a consortium trialling driverless cars on the roads between Oxford and London.

#### **DIGITAL HEALTH**

Oxford's Medical Sciences Division and Oxford University Hospitals NHS Foundation Trust (OUH) are world leading, and a key source of health-focused innovation. Three technologies developed at OUH, including the vital signs monitoring programme SEND, were licenced to Drayson Technologies by OUI in a landmark deal to facilitate more effective commercialisation across the NHS.

#### QUANTUM COMPUTING

Home to the Networked Quantum Information Technologies (NQIT) hub, part of the £270m National Quantum Technology Programme, Oxford University is working on the hardware behind quantum technologies. The technology is being rapidly commercialised, with three quantum spinouts launched in the first three months of the 2017/18 year.

#### SPACE AND SATELLITE APPLICATIONS

The Harwell Campus Space Cluster is home to the UK's space industry. Members of the space cluster include the STFC's RAL Space Centre, the Satellite Applications Catapult, and the European Space Agency's satellite applications and tech transfer offices, as well as many other complementary companies and organisations.

Focusing on these areas and other core strengths of the Oxfordshire region (such as robotics, life sciences, machine learning and artificial intelligence, and many more) will ensure that Oxfordshire remains synonymous with innovation.



# GLOBAL IMPACT FROM OXFORD

Throughout its 800 year history, Oxford's innovation story has been one of countless scientific discoveries, technological advancements, and research that has changed the world. In recent years, the rate of progress has escalated as the University has become a world leader in its ability to take discoveries and turn them into companies and technologies that have impact on people's lives around the globe.

One example is the work of Oxford engineer and entrepreneur Professor Brian Bellhouse, who invented the PowderJect device to administer vaccinations, providing needle-free delivery of drugs and vaccines in 1993. One of Oxford's earliest commercialisation successes, PowderJect Pharmaceuticals went public in 1997 and was later sold to Chiron Vaccines, a subsidiary of Novartis Vaccines and Diagnostics, for £542m. The sale remains one of the largest exits for an Oxford spinout company.

Ever since, Oxford University has been committed to translating life changing research into real world applications. Oxford University Innovation (OUI) has helped life sciences companies such as OxSyBio, developing synthetic tissue, Osler Diagnostics, which is producing handheld disease diagnosis technologies, and Ufonia, artificial intelligence that monitors patient health and wellbeing.

#### **CHEMICAL COMPOSITION**

Osler and OxStem both emerged from the University's Department of Chemistry, which has provided a consistent stream of innovations over the years. A 2005 spinout from the Department, Oxford Nanopore, is now one of only ten unicorn\* companies in the UK.

Nanopore's first commercially available product, the MinION, is a portable and low cost handheld DNA sequencing device that allows scientists and non-scientists to undertake real time analysis of biological tissue, clinical and environmental samples.

Fluorescent-stained brain cells from an OxStem Neuro experiment. Photo credit: Julie Davies

Scientists from various countries are using the molecular sensing device in many areas of research. In July 2016, a MinION was used to sequence DNA from bacterial changes in a microgravity environment whilst on an International Space Station mission, demonstrating that DNA sequencing is possible in space. Scientists at Kew Gardens used the MinION device to quickly identify and analyse plant species in Snowdonia National Park in northwest Wales.



### This is just the tip of the iceberg when it comes to telling Oxford's innovation story.

OxStem (see p.7) represents one of the most exciting spinouts in the Oxford portfolio. Harnessing stem cell technology, the company is leading the way in developing regenerative health treatments for cancer, neurological, and otherwise untreatable age-related conditions. By creating a number of smaller 'stems' focusing on different parts of the body, the company could eventually pave the way to treatments that will reverse ocular, degenerative, and heart disease.

#### **ALTERNATIVE PATHS TO IMPACT**

Beyond 'classical' spinouts, the University is finding new ways to bring its innovation to the wider world, such as the mobile and virtual reality education platform LIFE (Life-saving Instruction For Emergencies). This compelling, immersive approach teaches healthcare workers in Africa how to manage a number of emergencies, with a focus on teaching the skills to treat seriously ill infants through its virtual reality programme. Over £63,000 was raised for LIFE through a crowdfunding campaign on OxReach, a platform dedicated to philanthropic projects from Oxford. This is being used to build and develop mobile technology-based training tools for low-income countries. The scenario-based game is being tested in the UK and Kenya, and has established a number of high profile relationships with organisations such as HTC and the Bill and Melinda Gates Foundation to bring its platform to a wider audience.

Led by Mike English, Professor at Oxford's Department of Tropical Medicine, and Dr Chris Paton, Group Head of the Global Health Informatics Group, LIFE has received seed funding from the 2016 Saving Lives at Birth Grand Challenge and the project was a finalist in the PraxisUnico Impact awards.

Another example of Oxford VR research driving innovation is Nowican, which is using the technology to better understand and treat mental health problems. Professor Daniel Freeman, from Oxford University's Department of Psychiatry, and his team have developed a series of effective treatments which put individuals in a safe virtual environment to help manage their anxiety disorder.

Oxford's impact can be seen not only in new products and services, but also in the expertise made available to clients. Through Consulting Services, the Driver and Vehicle Standards Agency (DVSA) this year engaged Dr Kathy Parkes, an expert in safety and health in high risk environments, to advise on the optimal scheduling of driving tests through analysis of workload and consequent stress experienced by examiners.

This is just the tip of the iceberg when it comes to telling Oxford's innovation story. As we experience the 'Oxford Boom', with an unprecedented level of spinouts being created and scaled up quickly, perhaps the most exciting chapter in that story is only just being written.



# WORKING WITH INVESTORS

Fostering strong bonds with the investment community in order to give spinouts the funding required to both get off the ground and effectively scale up is a central focus for Oxford University Innovation (OUI).

Through the networks of OUI staff, the Oxford Angels Network, the Oxford Innovation Society, and more, OUI facilitates interactions with the increasingly vibrant investment community around Oxford.

Since 2011, the University's spinouts have collectively raised £1.5bn in external fundraising. £377.1m of this total has been raised in the 2016/17 period alone, of which £105.9m has been in critical early-stage and development investments, providing initial funding that allows spinouts to get off the ground.

OUI supports proof-of-concept and seed stage investment activity through its bespoke early-stage funds, such as the University Challenge Seed Fund, the Oxford Invention Fund, and the Oxford University Innovation Fund. In 2016, OUI pioneered the creation of a new fund, LAB282, which offers support at an even earlier stage. A £13m drug discovery partnership between Oxford University, OUI, Evotec and Oxford Sciences Innovation (OSI), LAB282 is making translational funding available to researchers developing promising drug discovery projects that are ripe for rapid commercial development. Oxford Sciences Innovation (OSI), which manages a £600m fund for Oxford University spinouts, has continued to be an important catalyst for OUI's commercialisation work throughout 2016/17. OSI invested £24.6m in 29 companies during the past financial year, and has invested a total of £57.9m in 40 companies since its creation in 2015.

OSI has had a sizeable impact on the amount of early-stage funding for Oxford University spinouts. In its first year of operation, a combination of investment from OSI and other sources attracted to Oxford by OSI led to a fivefold increase of seed-stage investment. This is beginning to translate into large Series A rounds, led by AI spinout DiffBlue's £17.5m Series A with OSI and Goldman Sachs in 2016/17, with a number to be announced in 2017/18.

The enduring performance of Oxford University Innovation Spinout Equity Management further underlines the strength of investing in spinouts. The OUISEM team now have a portfolio of 104 companies worth £114.3m, which saw an annual growth rate of 17.19% between 2015/16 and 2016/17. In addition, the OUISEM portfolio has seen 11 flotations and trade sales since 2011, worth £1.52bn.

#### FUND PERFORMANCE 2016/17

	UNIVERSITY CHALLENGE SEED FUND	OXFORD INVENTION FUND	OXFORD UNIVERSITY INNOVATION FUND	LAB282
APPLICATIONS:	11	5	8	11
AWARDS:	7	4	7	9
TOTAL AWARDED:	£318,901	£227,633	£1,381,641	£1,575,000

## OXENTIA INNOVATION MANAGEMENT CONSULTANCY

Oxentia, which is now a separate company, underwent significant change and development over the past year, with brand transformation and subsequent spinning out from Oxford University Innovation allowing for expansion of its presence in the UK and globally. During this transition, Oxentia has become further embedded in the UK innovation ecosystem, continuing its Knowledge Exchange and Commercialisation (KEC) Partnerships with Cranfield University, the University of Westminster, and the Open University, and developing new collaborations with the University of Hull and Sheffield Hallam University.

In Oxford, Oxentia completed a project with the Oxford University Social Sciences Division to undertake an analysis that scoped out the opportunities and barriers for university-business engagement in the social sciences. This analysis identified potential areas for improved engagement, greater impact and income generation that will be used by the Division to inform its business engagement strategy and the scope of a potential support offering for the sector.

Oxentia consultants, working with environment innovation experts Keith Binding and Richard Blackmore, supported the Natural Environment Research Council (NERC) in a strategic review of the Innovation Programme (IP) mechanism in terms of its design and delivery. With the findings from this review, NERC is equipped with a comprehensive understanding of academic and industry partner perspectives on the IP mechanism, programme impacts for those partners and academics, and operational recommendations for programme improvement.

In March 2017, Oxentia held its inaugural University Enterprise Forum event in London, hosting 22 Pro Vice Chancellors from across the UK. Attendees discussed university innovation, focussing on opportunities and challenges in engaging funders, investment, entrepreneurs and industry. In bringing the Pro Vice Chancellor community together, Oxentia staff were able to foster collaboration and the sharing of current good practice that is critical to stay ahead of the changing university innovation environment and to support the convergence of knowledge exchange and technology transfer.

Looking ahead, Oxentia plans to develop its training and service offerings to satisfy global demand for technology transfer and innovation. 2018 will see an expansion in Oxentia's accredited technology transfer course offerings, to include new courses; 'The Commercialisation of Digital Knowhow' and 'Marketing & Valuation of Technology'.

# NETWORKS: IT'S NOT WHAT YOU KNOW...

....It's who you know. But in fact, here, it's both. We set the scenes, add the lighting and create opportunities to bring people together who want to develop ideas.

Introducing people, making connections and encouraging relationship building is part of how innovation and new enterprises get underway. We run networking events throughout the year both within the University and externally, sometimes partnering with other organisations to raise awareness about innovation, investment and opportunities to collaborate with Oxford.

The Oxford Innovation Society (OIS) has been facilitating relationship building on an international scale for over 25 years. This year our meetings and dinners, held once a term, focussed on themes including equality and diversity in the University and commercial settings, work funded by the STFC around Oxford and the Harwell campus, and successful collaborations with Japan. At this particular meeting the Ambassador of Japan to the UK, H.E. Mr Koji Tsuruoka, gave an inspiring talk on how increased interactions can stimulate creative innovation for all parties.



## The Oxford Innovation Society (OIS) has been facilitating relationship building on an international scale for over 25 years.

Newly introduced in 2017, the Oxford Innovation Society Fellowship (OISF) offers Oxford researchers and members from the business world a chance to build closer links and learn more about intellectual property, technology commercialisation and spinout formation through a series of masterclass sessions. This year the group of 14 Fellows heard from spinout CEOs, patent attorneys, investors, entrepreneurial researchers, senior OUI staff and others from our innovation ecosystem. The sessions encourage discussions and exchange of ideas, and provide extended opportunities for the Fellows, presenters and guests to network and build relationships. This year's Technology Showcase, held at the Saïd Business School in June, looked at how precision medicine and digital health are changing healthcare, and how these approaches are already contributing to healthcare systems and the treatment of diseases. It was a lively and packed programme with around 250 delegates through the day and over 20 presentations of different technologies and projects. This year the event was led by the NIHR Oxford Biomedical Research Centre in partnership with OUI, the Oxford AHSN and Oxford AHSC. This event is a popular networking event for the region and guests come from many institutes and businesses both regional and national. Attendees included a great mix of researchers, clinicians, representatives from pharma and biotech companies, investors, innovation support professionals and others.

Internally in the University we continue to provide regular and bespoke seminars and training sessions to researchers and staff along with weekly drop-ins in 16 different locations. In May an internal technology showcase brought an array of spinouts and startups into the University at an event jointly hosted with MPLS Enterprise Programme, the Launchpad and Enterprising Oxford.

The Oxford Angels Network, managed by OUI, brings private and company investors regular investment opportunities in spinout and startup companies. One meeting, held at Corpus Christi College in April, highlighted Inkpath, Brightlylit, Redacto, Oxford Safety Solutions and Stealth Pharmaceuticals. Later on in July OUI held a very successful joint event with Cambridge Enterprise at the London Stock Exchange. Opportunities presented included Polypharmakos, PervasID and 8Power from Cambridge, and Oxford Endovascular, Oxford HighQ and Verivin from Oxford.

ANNUAL REPORT 2017 13

**N** 

# ACCOUNTS



#### INCOME

Oxford University Innovation Ltd's total income for the 12 month period comes from sales turnover of £18.7m and the University subvention of £3.3m. Turnover is made up of Licensing & Ventures licensing income, Consulting Services income, Oxentia consulting income and Oxford Innovation Society membership subscriptions. The subvention of £3.3m was received for Licensing and Ventures project costs, invested primarily in the external costs of patenting inventions made by Oxford researchers. Other operating income includes an allocation of the University's Higher Education Innovation Fund award to support Consulting Services and the Startup Incubator.



#### EXPENDITURE

The University subvention, invested in external patents and other project costs incurred on Oxford technology transfer projects, does not support Oxford University Innovation staff costs. Administrative expenses are the costs of running Oxford University Innovation, including our staff costs, marketing and office expenses. Oxford University Innovation distributes income from Licensing & Ventures and Consulting Services to the University and its researchers according to the University's rules; these outgoings are both included in 'Cost of sales' in the accounts. Oxford University Innovation pays a portion of its taxable profit to the University under gift aid.

Oxford University Innovation Ltd is wholly owned by the University of Oxford. Oxford University Innovation (Hong Kong) Ltd is a wholly owned subsidiary of Oxford University Innovation Ltd.

The comparative Group accounts for 2016 are for a 16 month period to 31 July 2016 as part of the adoption of FRS 102.



#### **PERFORMANCE FROM 2000**

Note\*: Oxford University Innovation distributes these sums to the University and individuals. The University in turn distributes these sums to individuals, departments, and central accounts according to its standard procedures.

The directors are responsible for the maintenance and integrity of the corporate and financial information included in the company's website. Legislation in the United Kingdom governing the preparation and dissemination of financial information differs from legislation in other jurisdictions.



#### SPINOUT COMPANY SHAREHOLDINGS

Shares in Oxford University spinout companies established by Oxford University Innovation Ltd are owned by the University of Oxford, and not by Oxford University Innovation Ltd. They do not therefore appear in the Oxford University Innovation Ltd accounts either as assets on the balance sheet or as income from realisations of shares or the payment of dividends from shares. The total value of the University's shares in its spinout companies at 31 July 2017 was £114m.

Oxford University Innovation Ltd owns minority shareholdings in startup companies which have been supported by the Oxford University Innovation Startup Incubator, valued at £3.1m in accordance with the International Private Equity and Venture Capital Guidelines.

#### **INCOME & EXPENDITURE**

£23m				
	OXFORD INNOVATION SOCIETY, OTHER	CORPORATION TAX		
£18m	OXENTIA	PAYMENTS TO UNIVERSITY		
£13m	CONSULTING SERVICES	& RESEARCHERS		
£8m	LICENSING & VENTURES	ADMINISTRATIVE EXPENSES		
2011		LICENSING & VENTURES		
£3m	UNIVERSITY SUBVENTION	PROJECT SUPPORT		
£2m				

INCOME

**EXPENDITURE** 

PROFIT & LOSS ACCOUNT	12 Months to 31 July	16 Months to 31 July	BALANCE SHEET	12 Months to 31 July	16 Months to 31 July
Year to 31 July	2017	2016		2017	2016
	£ '000	£ '000		£ '000	£ '000
	12 Months	16 Months	Fixed Assets		
Turnover	£18,688	£22,193	Tangible Assets	£293	£330
Cost of Sales	-£13,125	-£16,376	Investments	£3,126	£2,432
Gross Profit	£5,563	£5,817		£3,419	£2,762
			Current Assets		
Administrative Expenses	-£7,603	-£9,832	Debtors	£6,669	£6,708
Other operating income	£3,744	£4,735	Cash at bank and in hand	£3,296	£2,068
Share of losses in Joint Ventures	-£195	-£107		£9,965	£8,776
Operating profit / loss	£1,509	£613			
Other interest receivable	£6	£21	Creditors	-£7,360	-£7,147
Profit on ordinary activities before					
gift aid and taxation	£1,515	£634	Net Assets	£6,024	£4,391
Gift aid payable to University of Oxford	-£299	-£902	Capital & Reserves		
			Called up Share Capital	£1,750	£1,750
Profit / loss on ordinary activities after gift aid donation and before taxation	£1,216	-£268	Revaluation Reserve	£2,480	£1,740
Taxation	-£323	-£21	Profit & Loss account	£1,794	E901
Profit / loss on ordinary activities after					
gift aid donation and after taxation	£893	-£289	<b>Total Capital Employed</b>	£6,024	£4,391

Note: Oxford University Innovation's board approved changes to the funding model in June 2017. These changes included granting the ability to retain profits in order to build up reserves of the greater of £1m or 5% of income, enabling Oxford University Innovation to better plan for future investment in infrastructure and capabilities.



Oxford University Innovation Ltd Registered Address : University Offices, Wellington Square, Oxford OX1 2JD Company Number : 2199542 VAT Number : 490798885

Oxford University Innovation Ltd, Buxton Court, 3 West Way, Oxford OX2 0JB T 01865 280830 E enquiries@innovation.ox.ac.uk www.innovation.ox.ac.uk

Please see the Oxford University Innovation website for locations and details of our global associates.