



IP and University Technology Transfer

Elena Andonova, MBA

March, 8th 2016, La Paz, Mexico



About Me

- 6 years as a Consultant for Isis Enterprise
- First non Oxford spin out of Isis Innovation - PM
- Work with policy makers as well as research organisations
- In Europe, Latin America and Asia
- Incubators, Seed Funds, Strategy and Capacity Building
- On the Panel of the EP at Said Business School
- Debt structuring experience from Lehman Brothers
- Oxford MBA, BA in business administration and economics (AUBG)



Isis Innovation Ltd

A profitable company 100% owned by the University of Oxford



Oxford Technology Transfer
IP, Patents, Licences, Spin-outs,
Material Sales, Outcome Questionnaires, Seed Funds,
Isis Angels Network, Isis Software Incubator, Oxford
University Hospitals NHS Trust



Oxford Expertise
Consulting, Services



Isis Consulting Business
Technology Transfer and Innovation
Management



THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2015

Winner 'Technology Transfer Unit of the Year'



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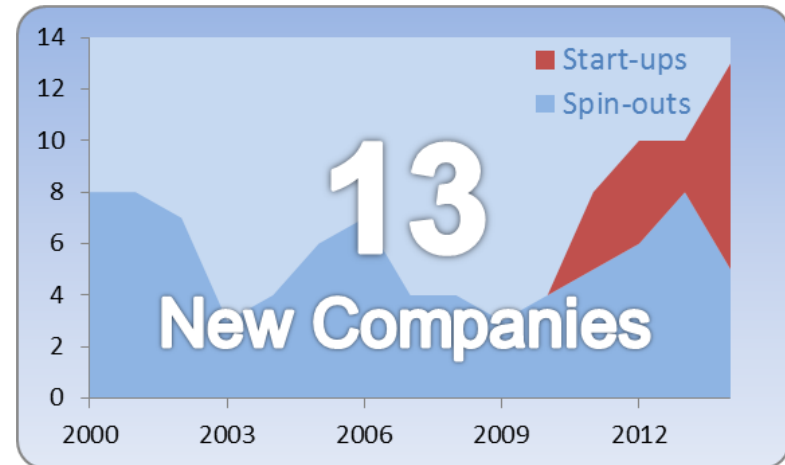
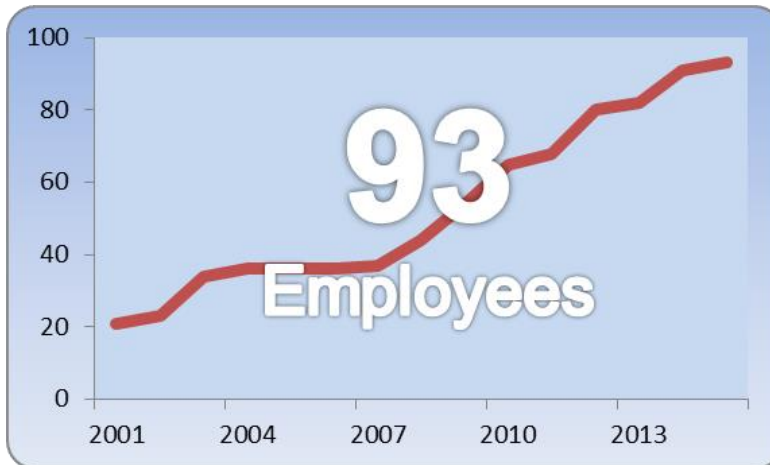
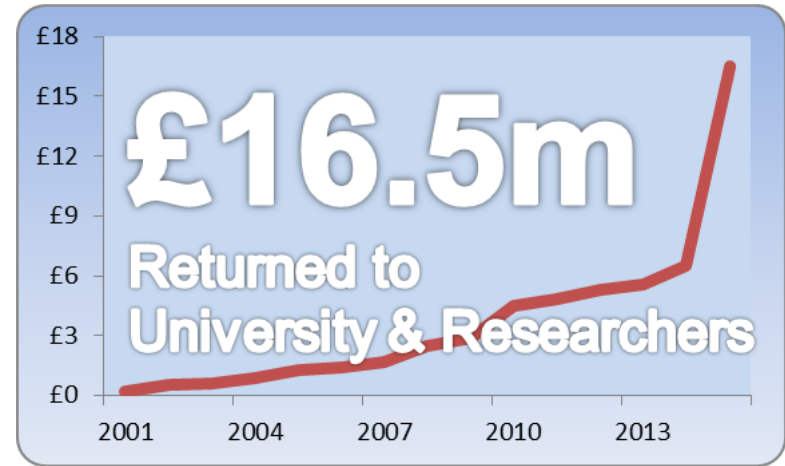
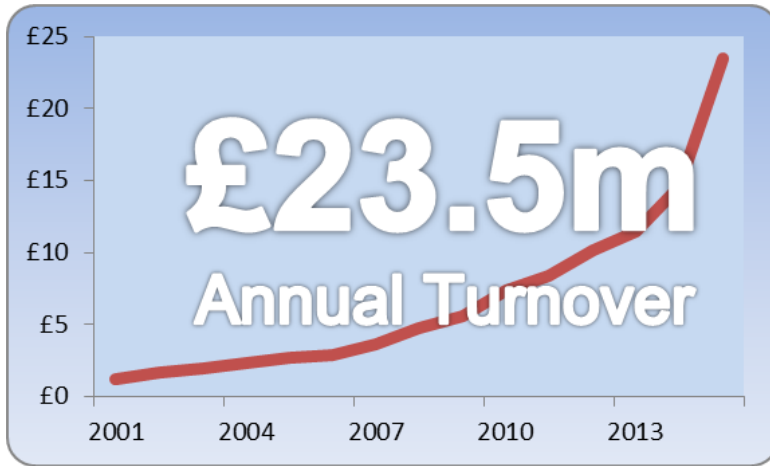


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Isis Innovation, year-ending March 2015



NB Unaudited figures

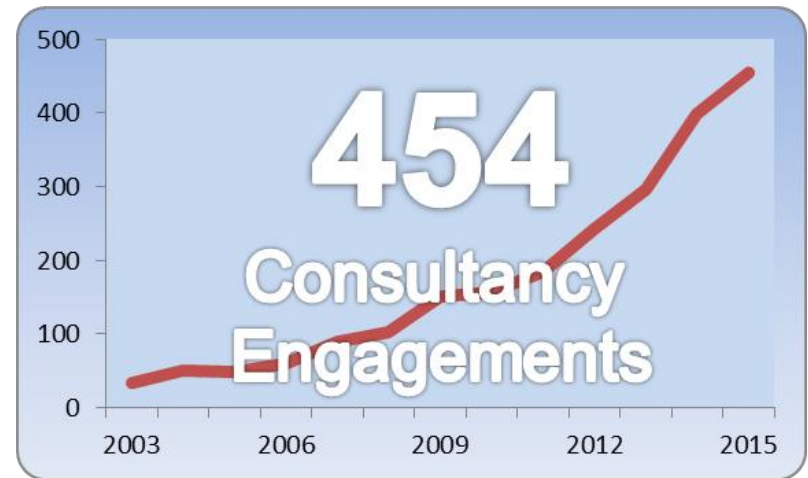
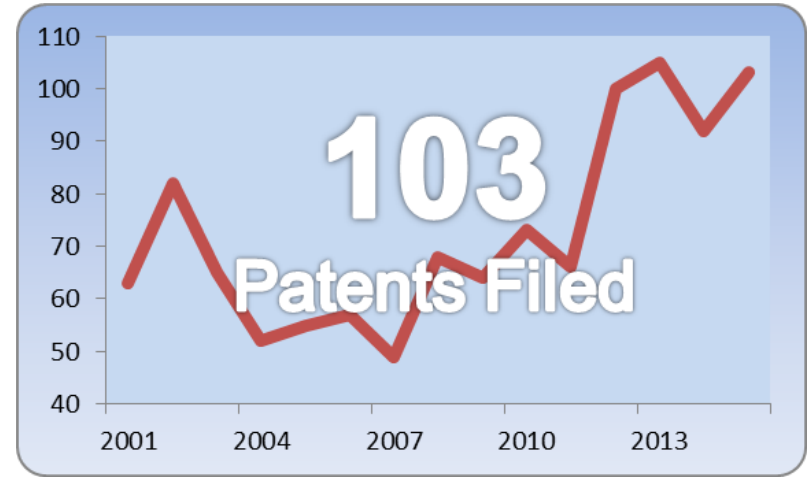
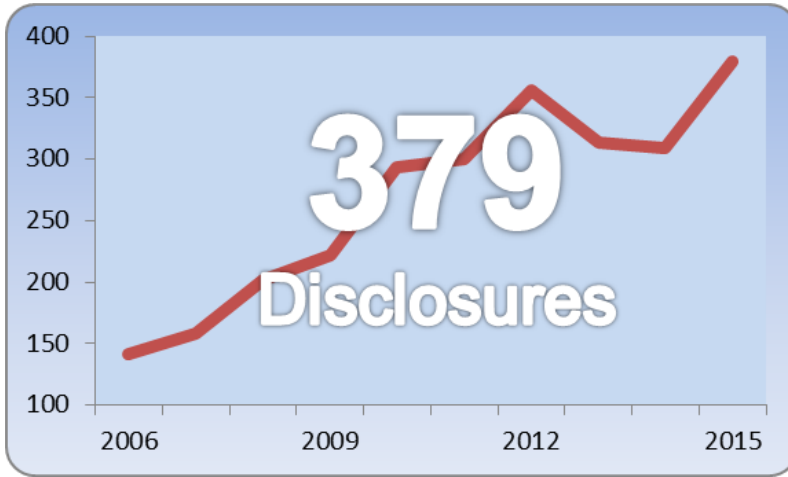
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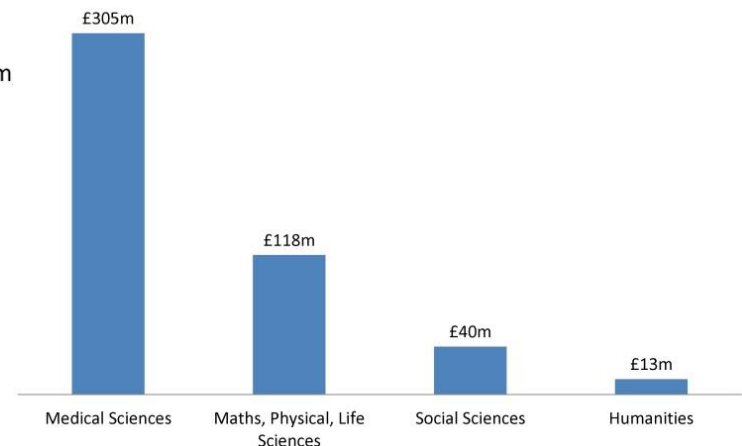
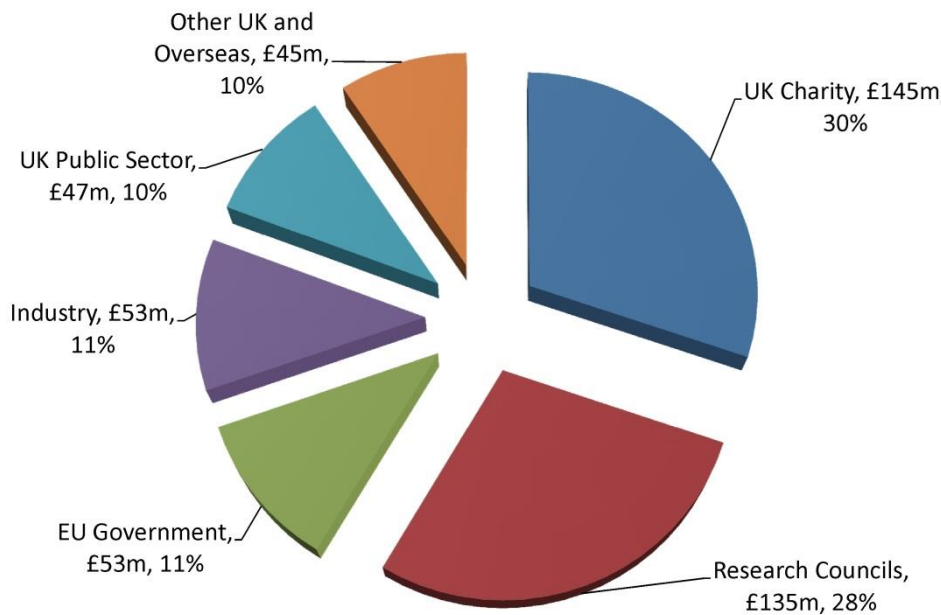
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Oxford Research Funding 2013-14 : £612million

- Highest University Research Spend in UK
- 5,809 academics and researchers, and 10,173 postgraduate students
- Submitted the largest volume of world-leading (4*) research and impact in the UK – REF 2014
- Charts show £478m grants and contracts by source, and University Division



Total £478m
+ HEFCE £134m

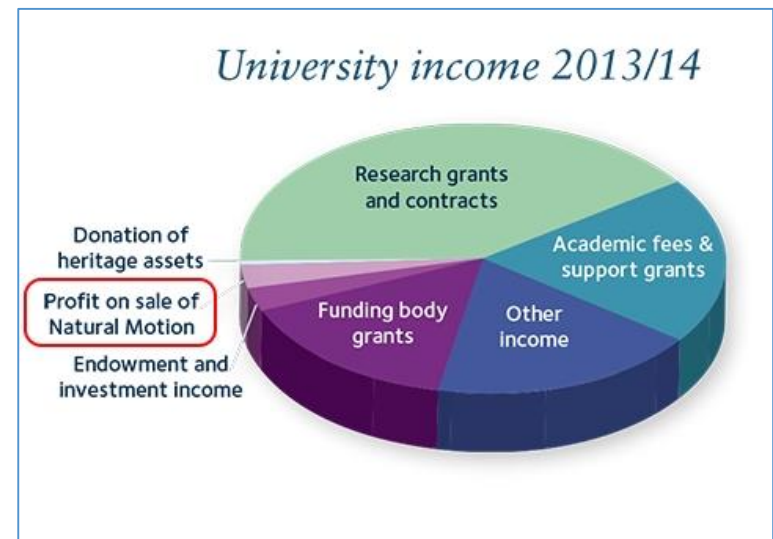
Tech Transfer Unit of the Year



- 22 October 2014: Technology Transfer Unit of the Year (2014-15)
- Exit of the Year 2014: NaturalMotion
Oxford spin-out NaturalMotion picks up Exit of the Year for its \$527m cash sale to Zynga.
- Sequenom licensing deal: £15 million

Largest Exit Recorded

- **NaturalMotion**, an Isis Innovation spin-out from 2001, was bought by Zynga for **\$527m** in February 2014.
- Technology came from **Torsten Reil**, a researcher in Zoology Department, offering real-time simulation of nervous systems and biomechanics. Used in films and games.
- **Isis worked with Reil** to protect his IP, develop a business plan, and introduce 1st round investors
- **£33.6m** profit returned to the University from the sale, with reinvestment into seed funds.



Economic Impact

“Commercialisation activity undertaken by Isis Innovation contributed more than **£0.4 billion GVA¹** to the global economy in 2012/13 and supported almost **5,000 jobs**. This includes:

- £264m GVA and almost 3,400 jobs in the UK (of which £129m GVA and around 1,630 jobs were estimated to be in Oxfordshire);
 - £9.9m GVA and 150 jobs elsewhere in Europe;
 - £109m GVA and around 1,200 jobs in the USA; and
 - £25.7m GVA and almost 240 jobs in the rest of the world.”

See summary flyer and full report at - www.isis-innovation.com/about/index.html

¹ : Gross Value Added

Source: Evaluation by BiGGAR, an independent economics consultancy, for Isis in February 2014



Facilitating Impact



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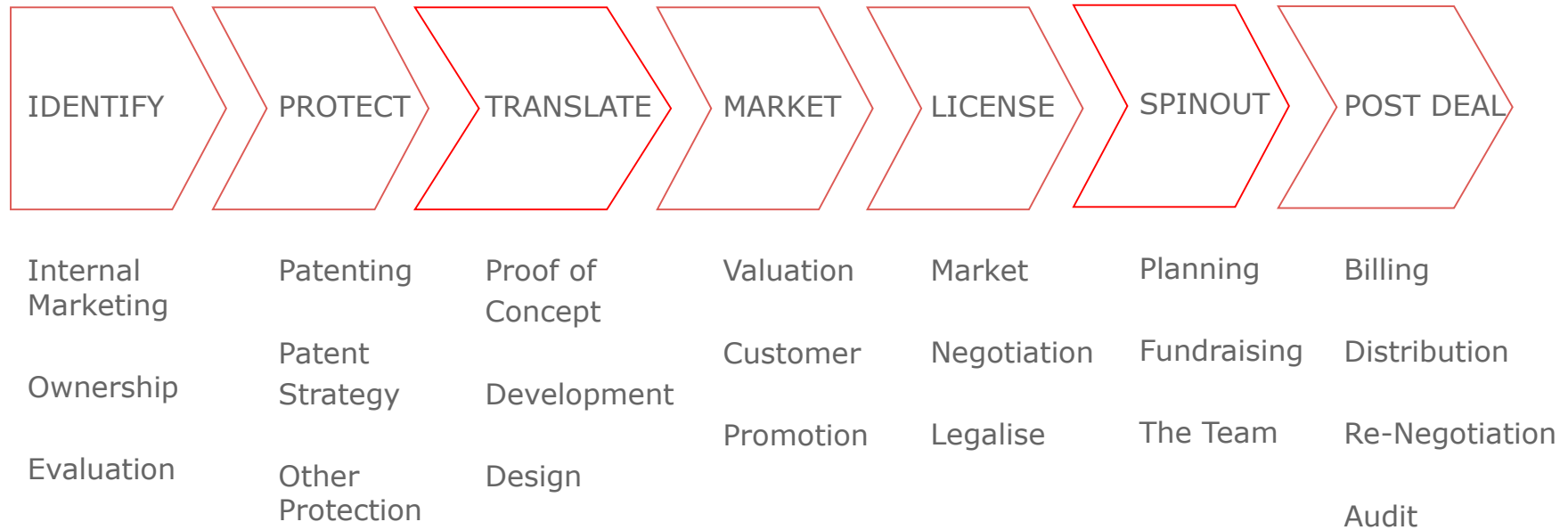
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Methods & Resources

Delivering Technology Transfer



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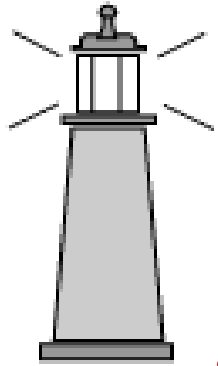


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Identifying IP - Models



Lighthouse Model

- - continuously raise awareness; encourage researchers to come to you

vs.

Technology Audit

- - a formal systematic review involving interviews with all academics

- Disadvantages of Technology Audit

- Researchers feel obliged to disclose: but have little desire to participate later
- A snapshot - researchers have a really good idea the week after the audit

- All Isis Projects start with an approach from an academic

- We make them welcome and they participate in all decisions but **they** have to decide to start any new project
- We devote much effort to **internal marketing** to researchers

Transfer of Intellectual Property Rights

Assignment of intellectual property rights

Inside the University

Outside the University

Research funding source

Government

Charities

Industry

Research Services

Includes: IP Rights Management Team
80 Staff
85% Graduates
33% Post grad degrees

Isis Innovation

>90 staff
75% Graduates
49% Science doctorates

Route to market

Spin-outs

Consulting

Licences

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Intellectual Property Policy (from October 2000)

- University claims ownership of all employees' and students' IP rights resulting from University research activities
- The University **helps** researchers **who wish to** commercialise their research
 - by patenting, licences, spinout companies & consultancy
- Researchers share the benefits
 - Royalty shares from licences
 - Equity in spinout companies
 - Income from personal consultancy

Commercial Routes for Researchers

Licensing

Creating a company using a research organisation's intellectual property (spin-out)

Creating a company where there is no organisational intellectual property, or the academic owns it (start-up)

Consultancy



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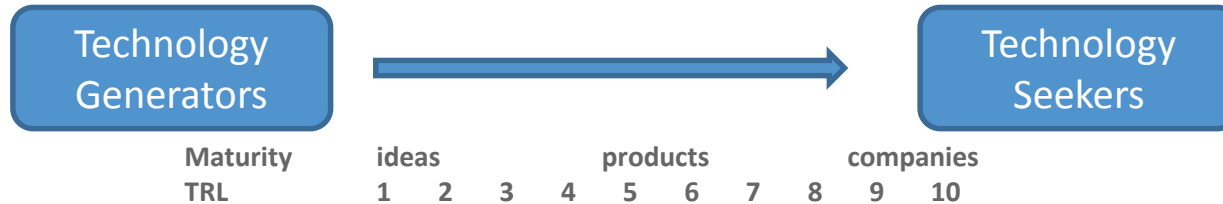


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Translate - Proof of Concept



- Some (but not all) university inventions are early
- Publications are typically the focus of academic research
 - Sufficient results for a paper
 - Maybe enough data for a patent application

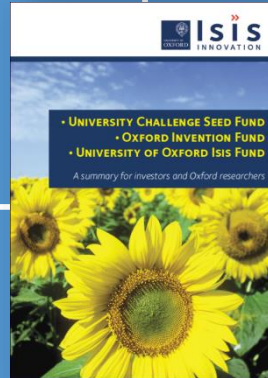
However...

- Potential 'customers' often want more evidence
- Maybe require more data to support a patent application
- Translational funding is often required to bridge the 'technology readiness gap'
 - Proof-of-concept, translation or early-stage seed funding

Investment, Donations and Funds

Oxford University Challenge Seed Fund (UCSF)

- Launched 1999 with £4m (£1m OU)
- Over £7.5m invested in 143 projects
- One of the few UCSF funds still running in its original form



Oxford Invention Fund (OIF)



- Donate to support development of new technologies from Oxford
- Part of Oxford Thinking, the University's fund raising Campaign
- £1.5m raised to date

University of Oxford Isis Fund (UOIF)



- EIS/SEIS funds for investors managed by Parkwalk Advisors
- Isis Innovation is Portfolio Advisor
- 1st fund £1.25m fully committed, 2nd closed

Isis Angels Network (IAN)



- For Business Angels and early-stage VCs
- 216 registered members
- No membership fee
- Twice-yearly meetings, newsletters

£320m Spin-Out Investment Fund

- **Oxford Sciences Innovation** formed to invest in spin-outs from Oxford (MPLS & Medical Sciences Divisions), Harwell & Culham laboratories
- Investing in **new and existing** spin-out companies, working **inclusively with other investors**
- **Investors** : Invesco, IP Group, Lansdowne Partners, Oxford University Endowment Fund, the Wellcome Trust, Woodford Investment Management, Google Ventures and Sir Charles Dunstone

ft.com > companies >

Technology

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May 14, 2015 12:09 am

University of Oxford receives backing for £300m science venture

Harriet Agnew



The University of Oxford has lined up a roster of high-profile investors to back a £300m joint venture that will develop science and technology businesses, one of the largest attempts to commercialise intellectual property in the UK.

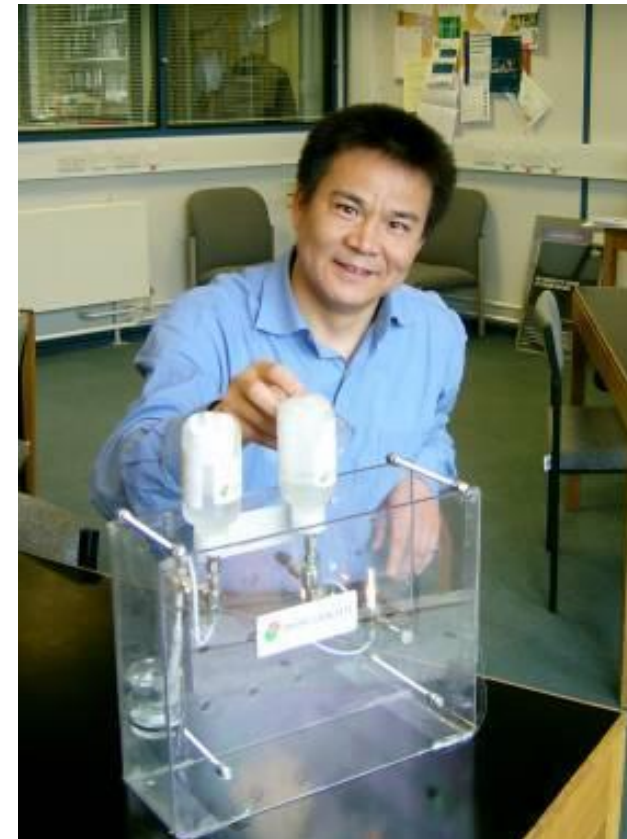
The University and Isis Innovation, its technology commercialisation subsidiary, are partnering with a new company, Oxford Sciences Innovation, to develop research from the university's mathematical, physical, life sciences and medical sciences divisions, and commercialise their ideas into companies. The divisions will also advise companies as they grow.

OSI is raising £300m, of which £210m has been committed by six cornerstone investors. These include hedge fund Lansdowne Partners; Woodford Investment Management, an asset manager and the Wellcome Trust.

[IP Group](#), a London-listed intellectual property business that invests in technology companies, is also backing the venture. David Norwood, who founded IP Group is

(e.g. Oxford Catalysts)

- Researchers awarded £124,500 in June 2001 from the UCSF
 - Led to equity in the Co. in Dec 2005
 - A patent
 - Significant value back to fund – an **evergreen fund (£1m to date)**
- Proof of concept award September 2004
 - £24,500 for building a prototype – impressing potential investors
 - The power of the prototype was immense



Route to Market: Licensing

- Isis currently manages 2,333 Patents & Patent Applications; and 432 active licensing deals
- Technologies marketed to Oxford Innovation Society Members and then other companies
- License partners selected on:
 - Resources and intent to develop technology to market
 - In healthcare, awareness of access of final products to developing countries
- Exclusive & Non-exclusive, Geographical Territory and Technology Field controls
- Fees, milestones, running royalties appropriate to technology and marketplace
- Royalties:
 - Patent budget £3.1m per annum
 - Isis pays patent costs & recovers these from royalties

Total net revenue	Researchers personally	University General Fund	Department Funds	Isis Innovation
To £72K	60%	10%*	0%	30%
£72K to £720K	31.5%	21%	17.5%	30%
Over £720K	15.75%	28%	26.25%	30%

* pays National Insurance employment tax

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Non-Patent IP – Isis Outcomes

- PDQ-39
- Oxford Health Outcomes Questionnaires developed at the University's Health Services Research Unit
- PDQ-39 is a “Gold-standard” measure of health status for Parkinson's Disease
 - Widely validated and translated into over fifty languages
 - Isis has licensed the questionnaire to 17 pharmaceutical companies for use in clinical trials
- Knee, Hip, Shoulder and Elbow scores also licensed



ISIS OUTCOMES PATIENT REPORTED OUTCOME MEASURES FROM THE UNIVERSITY OF OXFORD

ISIS OUTCOMES an activity within Technology Transfer at Isis Innovation Ltd the technology transfer company of the University of Oxford

PATIENT REPORTED OUTCOME MEASURES FROM THE UNIVERSITY OF OXFORD

Isis Outcomes provides access to high quality Patient Reported Outcome (PRO) measures developed at the University of Oxford. We provide licences for some of the most respected and widely deployed PROs used by the Pharmaceutical Industry and healthcare providers. Isis Outcomes can also provide expert consultancy advice on the development and psychometric validation of new PROs, as well as the use of our own and other PROs.

Using the PROs available from Isis Licences to use these PROs can be obtained by contacting Isis Innovation at:

- Web: Licence Request Form »
- Email: healthoutcomes@isis.ox.ac.uk
- Tel: +44 (0)1865 280857

Advice on the use of, or interpretation of data from the PROs is available on request. Alternatively, if you have a requirement for a PRO not covered by our current portfolio, then please do ask the Isis Outcomes team for advice.

PROs Available	Latest News
Cardiology <ul style="list-style-type: none">Myocardial Infarction Dimensional Assessment Scale (MIDAS)	New User Manual for the Myocardial Infarction Dimensional Assessment Scale (MIDAS)
Central Nervous System <ul style="list-style-type: none">Parkinson's Disease (PDQ-39 & PDQ-8)Asymptomatic Lateral Sclerosis / Motor Neuron (ALSAQ-48 & ALSAQ-8)	New User Manuals for the Oxford Hip and Knee Score PDQ recommended in a Review of Parkinson's Disease Health-Related Quality-Of-Life Measures
Orthopaedics <ul style="list-style-type: none">Oxford Knee Score (OKS)Oxford Hip Score (OHS)Oxford Shoulder Score (OSS)Oxford Shoulder Instability Score (OSIS)Oxford Elbow Score (OES)Oxford Ankle Foot Questionnaire for Children (OxAFQ-C)	Subscribe to Isis Outcomes News with our RSS feed Organisations Using Isis Outcomes PROs NHS NOVARTIS gsk Boehringer Ingelheim
Psychiatry <ul style="list-style-type: none">Oxford Depression Questionnaire (ODQ)	
Women's Health	



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Oxford Spin-outs (pre 2000)

1959	Oxford Instruments *
1977	Oxford Lasers
1988	Oxford Glycosciences *
1989	Oxford Molecular *
1992	Oxford Asymmetry *
1994	PowderJect *
1995	Oxford Gene Technology
1996	Oxford Biomedica *
1997	Oxagen
1998	5 Opsys, Synaptica, Prolysis, Celoxica*, Sense Therapeutic
1999	6 Medigene(Avidex)*, Oxxon Pharmaccines, Dash, Oxonica*, AuC Sensing, OMIA

*Stock Exchange Listing



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Oxford University Technology Spin-outs (2000-2010)

2000	7	Third Phase, Mindweavers, Oxford BioSignals, Oxford BioSensors, TolerRx, OXIVA, Pharma DM	
2001	7	OxLoc, Oxford Bee Co, Oxford Ancestors, Novarc, Oxford ArchDigital, Natural Motion, Inhibox	
2002	9	Pharminox, Minervation, Oxford Biomaterials(Spinox), Zyentia, Oxitec, Oxford Immunotec, Oxford Risk, GlycoForm, BioAnalab	
2003	4	Summit(Vastox)*, ReOx, Riotech, OCSI	
2004	4	Avacta(OMD)*, G-Nostics, Surface Therapeutics, EKB Technology	
2005	5	Oxford Nanopore Technologies, Oxford RF Sensors, Oxbridge Pulsars, Celleron, Oxford Catalysts*	
2006	7	TDeltaS, Oxford Medistress, Particle Therapeutic, Aurox, Oxford Advanced Surfaces*, Cyttox, OxTox	
2007	4	Eykona Technologies, Clinox, Oxford Biodynamics, Crystalin	
2008	4	Semmler, Oxford-Emergent TB Consortium, Navetas(ISE), Organox	
2009	3	Oxford Financial Computing, Zyoxel, Oxford Yasa Motors	* Stock exchange listing



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Oxford University Technology Spin-outs (post 2010)

2011	5	Oxyntix, Oxtex, Oxford Multi Spectral, Oxford Imaging Detectors, OCB
2012	4	Intelligent Ultrasound, OxEHealth, Oxford Vacmedix, Run3D
2013	4	Perspectum Diagnostics, MuOx, Oxford Mestar, Oxford Biotrans
2014	8	Oxsonics, Oxcept, NightstaRx, Genomics, Designer Carbon Materials, OxSyBio, Oxford Deontics, Oxbotica
2015	[3]	Diadem, Animal Dynamics, Mixergy

Total external investment to date in **84** spin-outs since 2000: **£535m**

£67m 1st round Seed/Business Angels – **£468m** follow-on Investment Capital



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Post-Deal Support

- Signing the agreement is only the beginning of the partnership
- Regular communication and review
 - Technical support requirements?
 - Development milestones being achieved?
 - Patent maintenance costs covered?
 - Is sales revenue being generated?
- Both parties need to work to ensure success



Why audit?

- Mistakes are made more often in royalty reports than you may think:
 - incorrect royalty rate and deductions
 - under-reported revenue/products/sales in specific territories
 - new products
- Enhances relationship with licensee
- Tool to identify weaknesses/ambiguity in agreement
- Increased knowledge and information flow to both parties
- Creates stronger internal controls for licensor and licensee

Desk audit good method to check whether wish to commit to full audit
- check whether basic provisions of licence being followed

Isis Enterprise – A Global Innovation Management Consultancy

Providing expertise and advice since 2004

Policy and
benchmarking studies

Innovation
Management

Technology
Commercialisation

Translational Funding
Impact Reviews

Commercialisation
Training

Innovation Ecosystem
Development

Technology & Market
Due Diligence

Technology Scouting



Elena Andonova, MBA
Isis Enterprise
T: +44 (0)1865 280 821
M: +44 (0)7538 670 573
E: elena.andonova@isis.ox.ac.uk

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