

Isis Innovation

- Its business and working mechanisms

Dr Stuart Wilkinson
Universidad Miguel Hernández de Elche
19th October 2011

Agenda

University of Oxford

Isis Innovation

Isis Enterprise

Isis Enterprise activities

Conclusion

Oxford University & Isis Innovation Ltd

- Oxford University is the oldest university in the English-speaking world (founded c.1188), and a leader in learning, teaching and research
- Today - Most Powerful UK Research University
 - Research Fortnight, December 2008 Research Assessment Exercise
- Highest University Research Spend in UK
 - £486 million (2009/2010)
- Isis Innovation Ltd is a company 100% owned by the University of Oxford, established in 1987
- Isis *helps* researchers *who wish to* commercialise the results of their research
- A world-class Technology Innovation business
- Isis 5th highest British PCT patent applicant
 - WIPO Data, 1999-2009 composite; behind Unilever, GSK, BT, Qinetiq



Christ Church, Oxford



Ewert House, Oxford

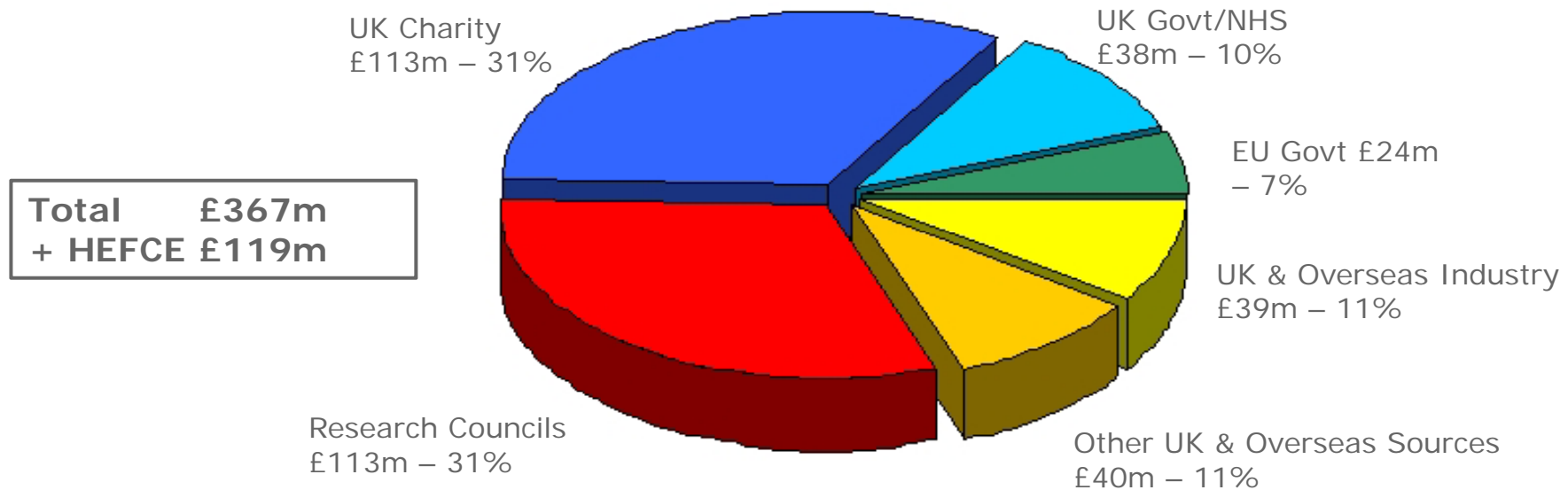
University of Oxford: Research Themes

Medical Sciences	Maths, Physical & Life Sciences	Social Sciences	Humanities
Cancer	Chemistry for Biomedicine	Global Governance	World Religion
Infectious Diseases, Immunology, Pathogens	Computational Biology	Global Public Health Issues	Applied Ethics
Diabetes, Endocrinology, Metabolism	Climate Prediction, Science of Energy & Environment	Energy: Policy and Society	Post-Colonial Literature
Cardiovascular Disease	Biomedical Engineering	Environment and Business	Latin America: Culture, Language and Literature
Genomics	E-Science	Politics & International Relations	Oriental Studies: Korea, Japan, India, Middle East
Musculo-skeletal Science (joint & bone)	Bio-Nanotechnology	Area Studies: China, South Asia, India	Modern Chinese & South Asian Studies
Neuroscience	Quantative Finance	Evolutionary & Cognitive Anthropology	Philosophy of Cognitive Science & Neuroscience
Reproduction & Development	Quantum Information Processing	Poverty & Refugee Studies	Ethnomusicology

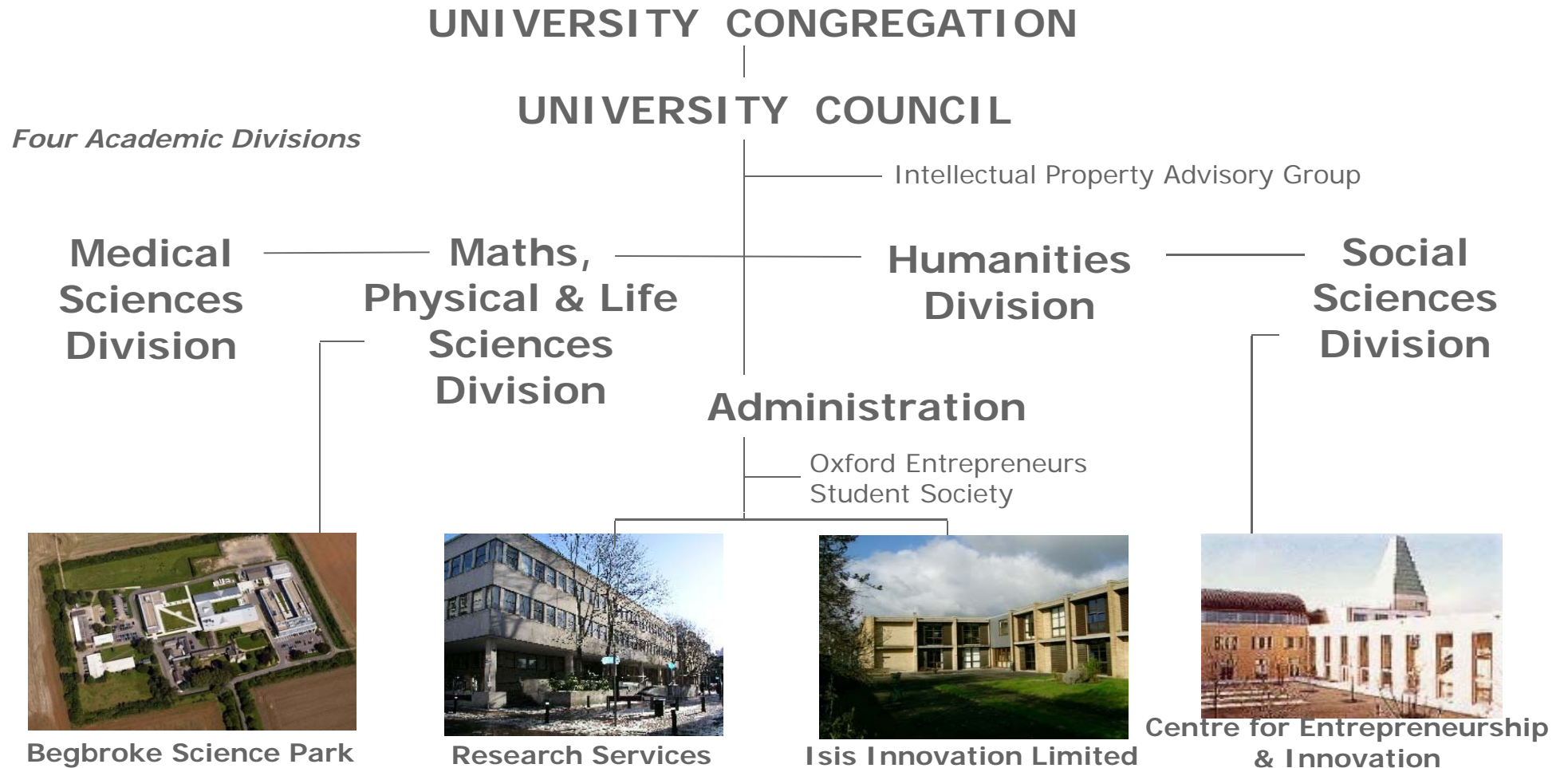


Oxford Research Funding 2009-2010 £486million

- Highest University Research Spend in UK
- 4,700 researchers and 8,700 postgraduate students
- R & D Spend by UK Companies, Oxford would be ranked 9th
2009 EU Industrial R&D Investment Scoreboard
- Most Powerful UK Research University - 2008 Research Assessment Exercise
Research Fortnight



Resources to Support Commercialisation

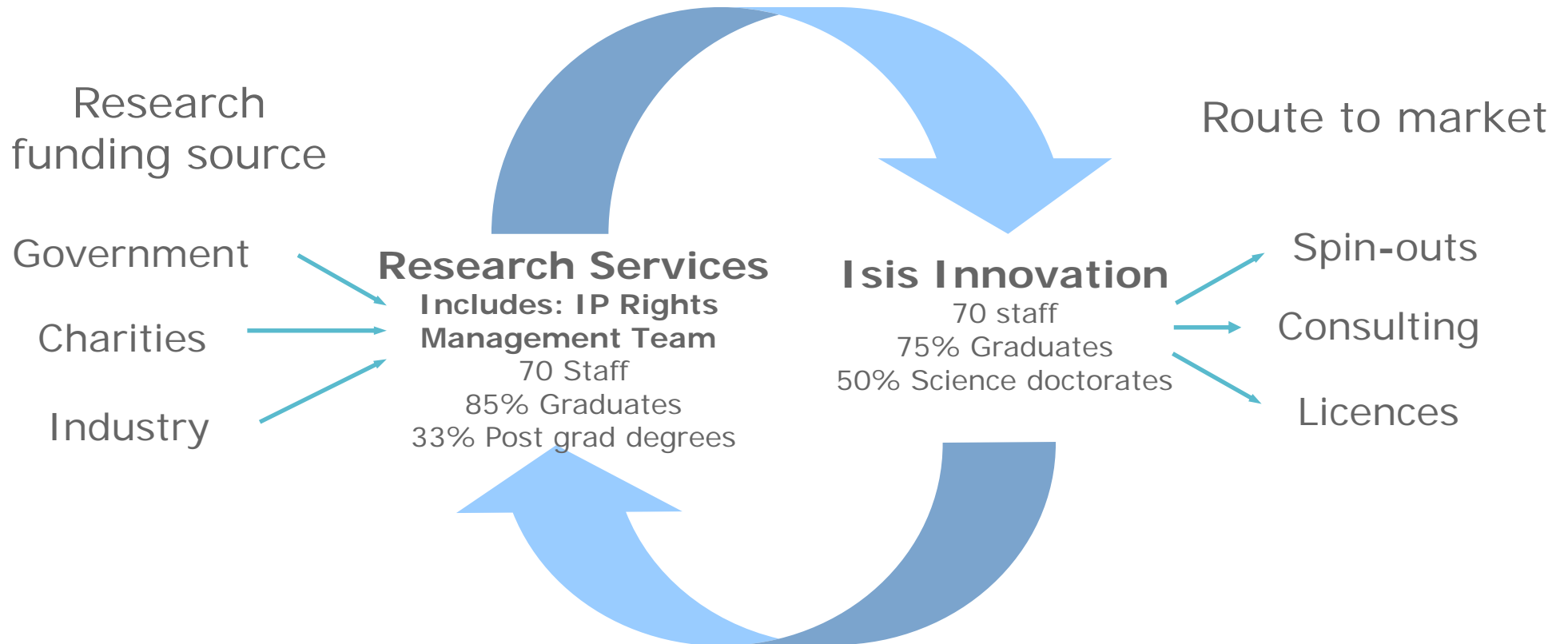


Transfer of Intellectual Property

Assignment of intellectual property rights

Inside the University

Outside the University



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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



Oxford Expertise
Consulting, Services



Isis Consulting Business
Technology Transfer and Innovation
Management

Isis Innovation Staff

Managing Director
Tom Hockaday

Administration (13)
Business Support

Marketing
Simon Gray
Barney Cullum
Renate Krelle
Dr Fiona Story
Dr Lianne Leith
Accounts
Gemma Allnutt
Legal
Paresh Jasani

Central Administration

Office Manager
Jenny Bailey
Systems Administrator
Nelson Sa
HR
Alex Allan
Viv Parry
Facilities
Jane Tarry
Reception
Isabel Lavis

**Technology Transfer
Group (34)**
Head of Group
Linda Naylor

**Technology Transfer
Teams**

Evert Geurtsen
Roy Azoulay
Dr Manjari Ramesh
Chim Chu
Dr David Churchman
Dr Jamie Ferguson
Dr Andy Robertson
Brendan Spillane
Dr Paul Ashley
Dr Angela Calvert
Dr Matthew Carpenter
Dr Sarah Deakin
Andy Self
Dr Weng Sie Wong

**Seed Investment
Manager**

Andrea Alunni
Operations Manager
Dr Mairi Gibbs
Administrator
Jan Newell

**Technology Transfer
Teams**

Dr Susan Gale
Dr Ruth Barrett
Dr Nikolaos Chalkias
Dr Alex Marshall
Dr Brijesh Roy
Dr Natasha Tian
Dr Rakesh Roshan
Dr Jon Carr
Dr Mark Gostock
Dr Martin Procter
Dr Bharti Ranavaya
Dr Christine Whyte
Dr Carolyn Porter

**Patent & Licence Admin
Manager**

Steven Bayliss
Post-Deal Admin
Patent Administrator
Zuzana Weberova

**Oxford University
Consulting (5)**
Head of Group
Andrew Goff

Project Managers

Susan Clark
Gurinder Punn
Dr Josef Walker
Administrator
Kerry Antcliffe

Isis Enterprise (21)
Head of Group

Dr David Baghurst (Asia)
Steve Lee (UK)

Consultants

Ya-hsin Shen (HK)
Terry Pollard
Kenji Aiba (Japan)
Dr Chris Moody
Robert Swerdlow

Dr Costas Chryssou

Dr Roger Welch
Dr Giles Kimminau
Gaurav Misra
Dr Wenming Ji

Dr Steve Cleverley

Dr Sarah Macnaughton
Elena Andonova
Dr Viraj Perera
Dr Stuart Wilkinson
Eva Baltar (Spain)

Administrators

Shelagh Harrison
Kristina Gren

Staff: 74

PhD's: 37

MBA's: 18

Isis Innovation 2000 - 2011

Year Ending Mar:	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
University Investment £m	£1m	£1m	£1m	£1m	£1m	£1.2m	£1.2m	£1.2m	£1.2m	£2.5m	£2.5m	£2.5m
Staff	17	21	23	34	36	36	36	37	44	54	65	68
Open Projects	319	415	476	629	725	764	784	841	978	1112	1182	1321
Patents filed (pa)	55	63	82	65	52	55	57	49	68	64	73	66
Licence Deals (pa)	21	36	42	37	31	38	45	50	74	69	93	107
Consultancy (pa)				34	50	48	59	89	102	151	157	185
Spin-outs (pa)	6	8	8	7	3	4	6	7	4	4	3	4
Annual T/O £	£0.9m	1.2m	1.7m	2.0m	2.3m	2.7m	2.9m	3.6m	4.8m	5.6m	7.4m	8.4m

Intellectual Property Policy (from October 2000)

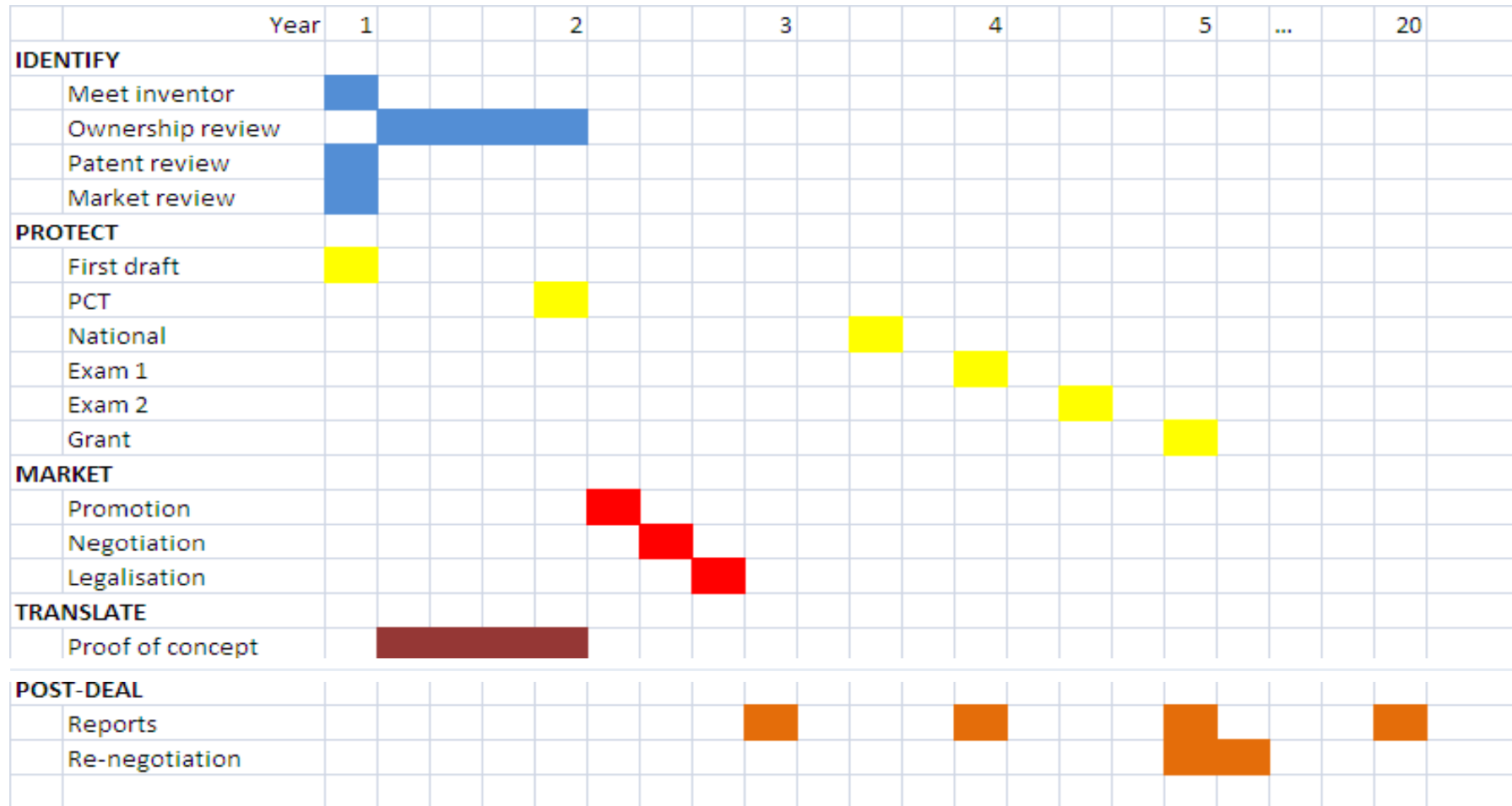
- University claims ownership of all employees' and students' IP rights resulting from University research activities
- The University *assists* those researchers *who wish to* commercialise their research
 - by patenting, licences, spinout companies & consultancy
- Researchers share the benefits
 -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

Technology Licensing

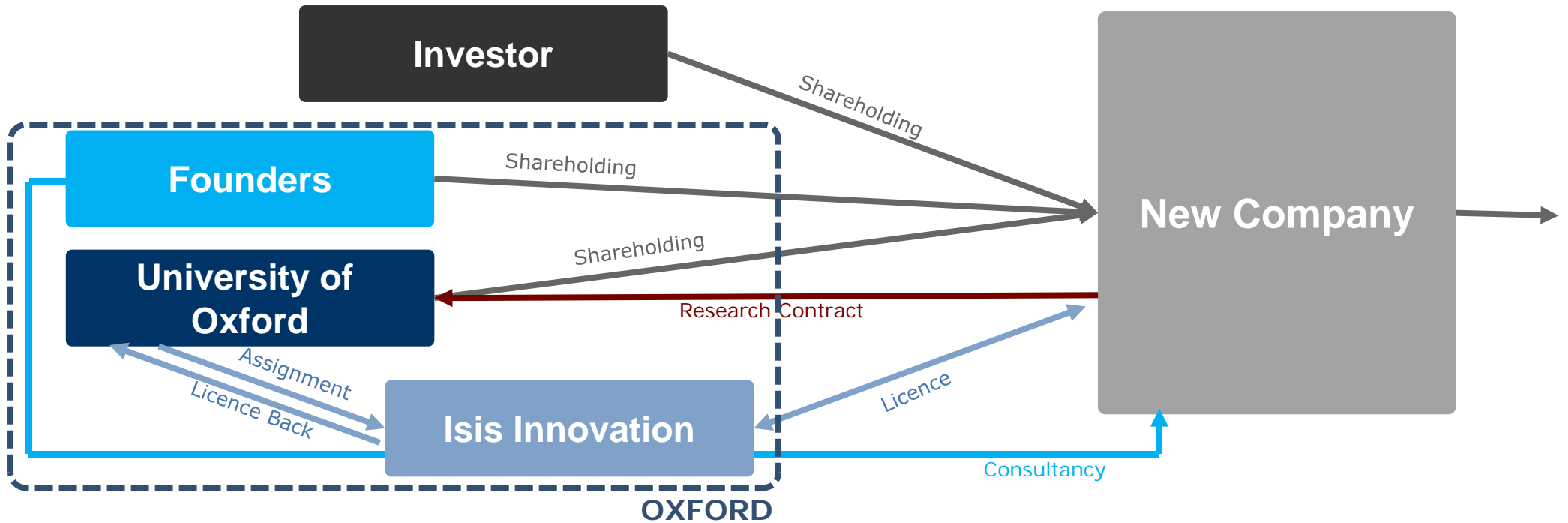


- Isis currently manages 1,320 Patents & Patent Applications
330 active licensing deals
- Licence partners selected on
 - Resources and intent to develop technology to market
 - In healthcare, awareness of access of final products to developing countries
- Fees, milestones, running royalties appropriate to technology and marketplace
- Royalties (after past patent costs), divided between:
 - Researchers
 - University
 - Department
 - Isis

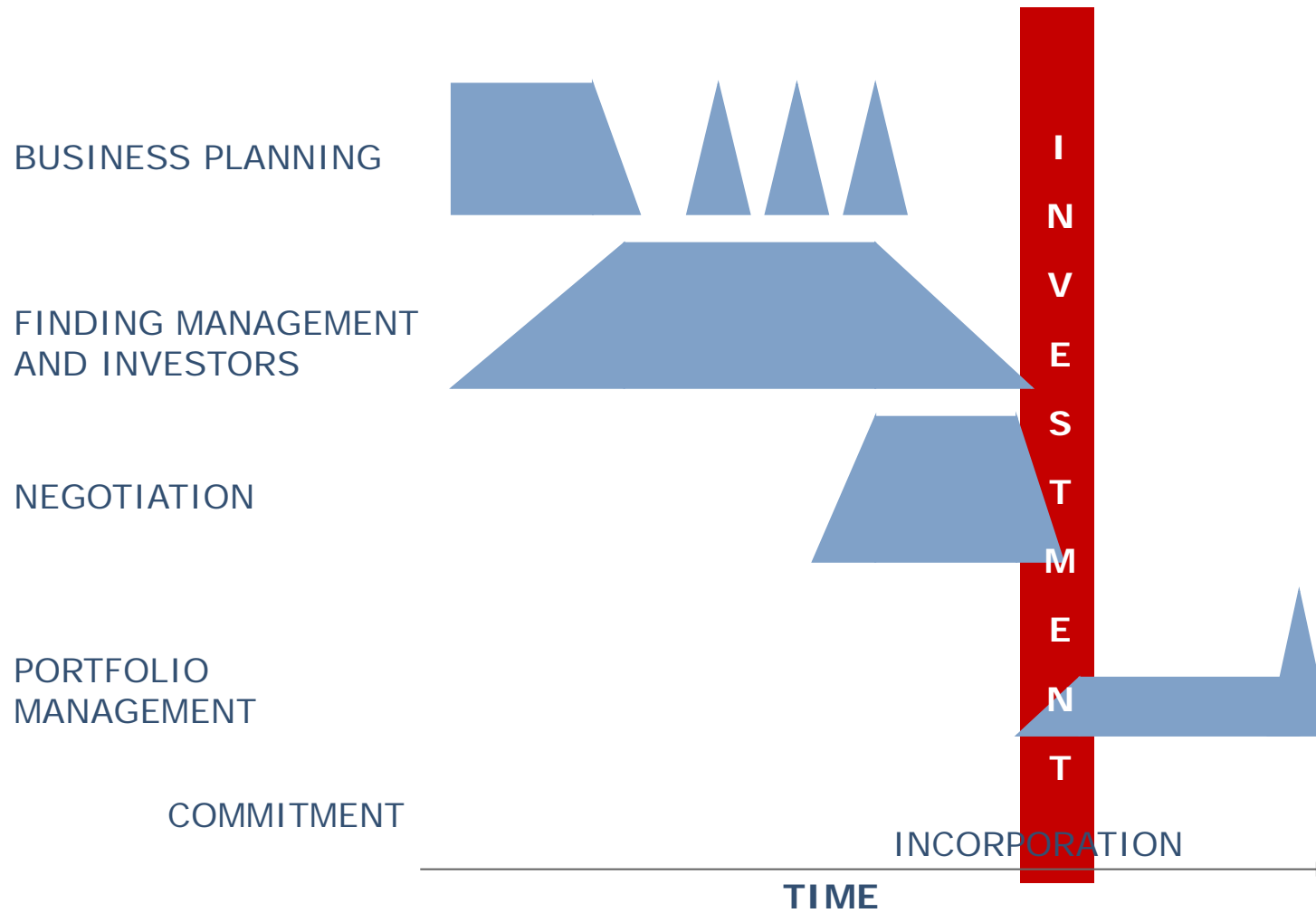
Licensing timeline and tasks



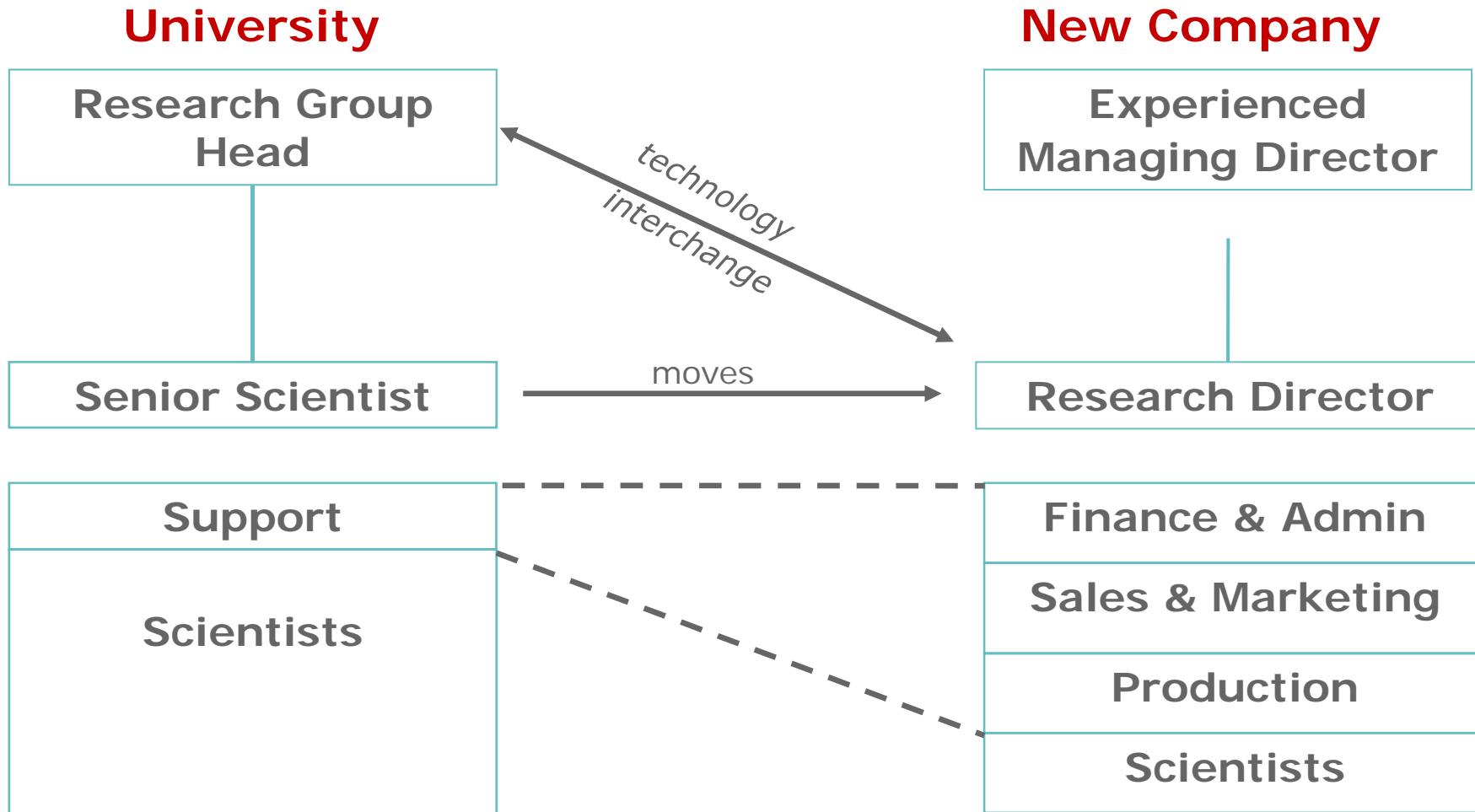
Spinning-out



Spinout Project Activity Timeline



Spin-out Strategy



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

Oxford Spin-outs (post 2000)

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, Crysalin
2008	4	Semmler, Oxford-Emergent TB Consortium, Navetas(ISE), Organox
2009	3	Oxford Financial Computing, Zyoxel, Oxford Yasa Motors
2010	4	OxEms, Kepler Energy, IXO, Oxford PhotoVoltaic
2011	[3]	Oxyntix, Oxtexs, OMS,

Total external investment to date in 60 spin-outs since 2000: **£326m**

£41m 1st round Seed/Business Angels – average amount invested £850k; 1/3rd > £1m invested.

£285m follow-on Venture/Institution Capital

* stock exchange listing

Investment Sources

Oxford University Challenge Seed Fund

- Launched with £4m in 1999
- University provided £1m; HM Treasury, Wellcome, Gatsby £3m
- £5.7m invested in 102 projects – development, seed equity
- Resulting in Equity stakes in 31 spin-outs, 4 completed licensing deals & 33 active technology projects. These 31 spin-outs have attracted £80m seed/venture investment



Isis Angels Network

- Business Angels, Seed/Venture Capital
- 100 members
- Events, No Charges

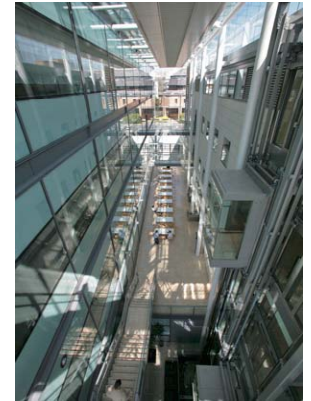
Oxford Invention Fund

- Donations to the University of Oxford as part of Oxford Thinking, the University's overall fund raising Campaign
- Invest in development of new technologies and innovation from Oxford



Isis Return on Investment to the University

- University Investment in Isis for Protecting Oxford IP
- Financial Returns
 - Distributions back to University
 - Research Funding from spin-outs to University
 - Research Funding from Translation Awards to University
 - Hefce Third Stream Government Funding
 - Spin-outs Cash
 - Spin-outs Value
 - Oxford University Challenge Seed Fund
 - New Patents
 - Strategic IP Deals eg: Chemistry, IBME
- Other, non-financial, benefits to the University
 - Transferring technologies to improve lives
 - Promoting good news stories from University
 - Contributing to the 'Impact' of the University
 - University staff recruitment & retention
 - Managing Oxford Innovation Society
 - "Oxford again way out at the top for spin-outs" – UK Life Science Report 2010




Isis Impacts


- The impact of Isis activities is seen through the take-up of new technologies and ideas that form the basis for new products and services.

Isis Success Stories – Outcomes Questionnaires

- 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.



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Isis Success Stories – Spin out

- OXFORD IMMUNOTEC
- 2002 – Spun out by Isis
- Developing new ways to diagnose and monitor infection and disease
- Lead product is a TB diagnostic, T-SPOT.TB
 - In August 2008 successfully gained pre-market approval from the United States Food and Drug Administration
 - Also able to track the change in a person's immune status over time, and can be used to monitor disease progression.




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Isis Success Stories – Consulting

- The NAO is a long term strategic customer of Oxford University Consulting (OUC)
- The relationship has developed since 2004 and has had two main facets:
 - Reviewing NAO Value For Money (VFM)
 - Conducting specific investigations commissioned by the NAO as one of its strategic partners
- The review of VFM reports, which assess how well Government departments and other public bodies have spent their resources, commenced in 2004. Since that time OUC has quality assured over 180 such reports, leading the NAO to comment – "...OUC has impressed us with its efficiency and high professional standards. We value the access to a wide range of expertise..."
- Specific investigations conducted under the strategic partnership, which started in 2006, have focused on social and user issues relating to internet use in the public sector, e.g.:
 - Assessing the user experience of the DWP website
 - Reporting on the social impact of digital exclusion

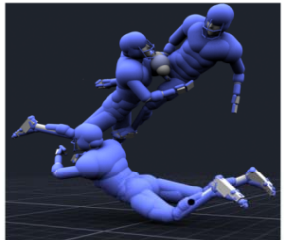


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Isis Success Stories – Spin Out

- NATURAL MOTION
- *Euphoria* software enables characters to interact and respond to their virtual environment
 - Used in films including *Poseidon* and *Troy*
 - Video games *Grand Theft Auto IV* and *Star Wars: Force Unleashed*
- Based on algorithms developed by founder & CEO, Torsten Reil and Colm Massey
- University Challenge Seed Fund grant in 2000 provided funding to get first programme started
- Spun out from Isis in 2001
- Based in Oxford and San Francisco



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Agenda

University of Oxford

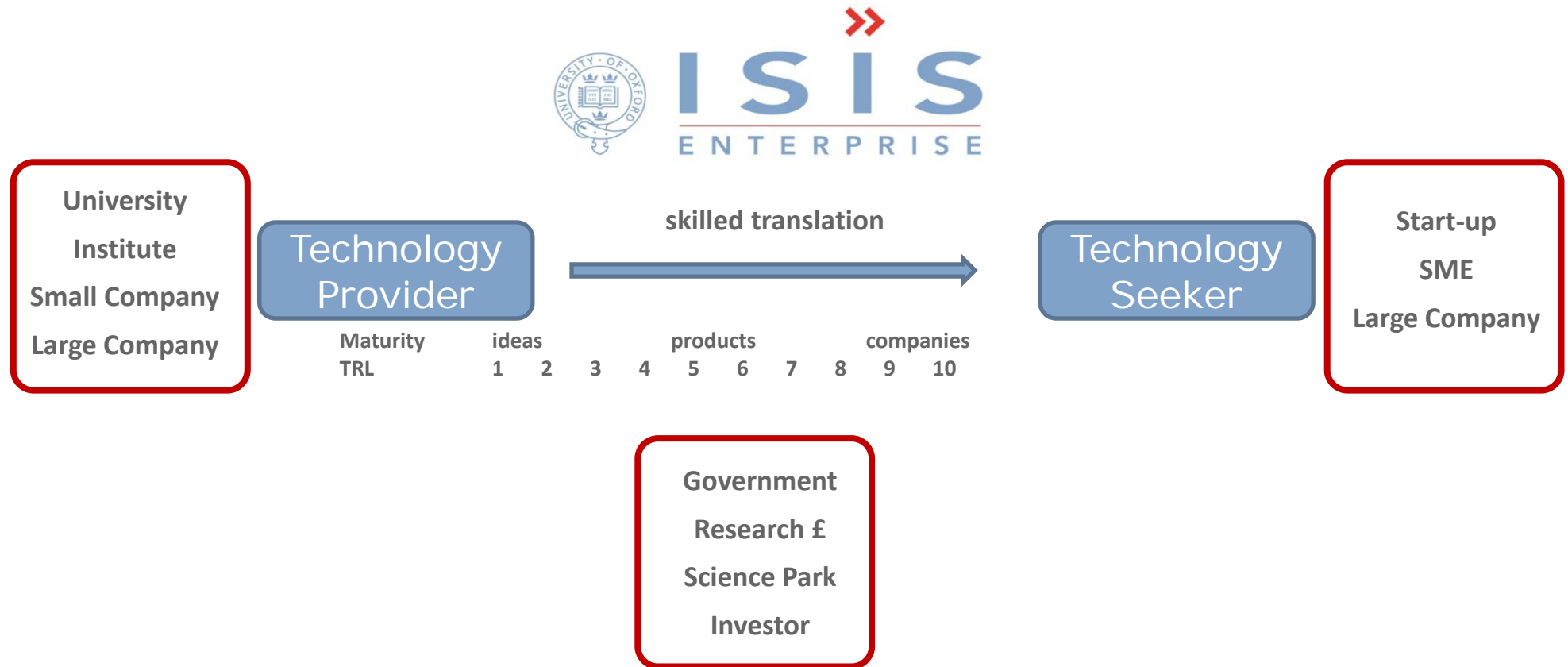
Isis Innovation

Isis Enterprise

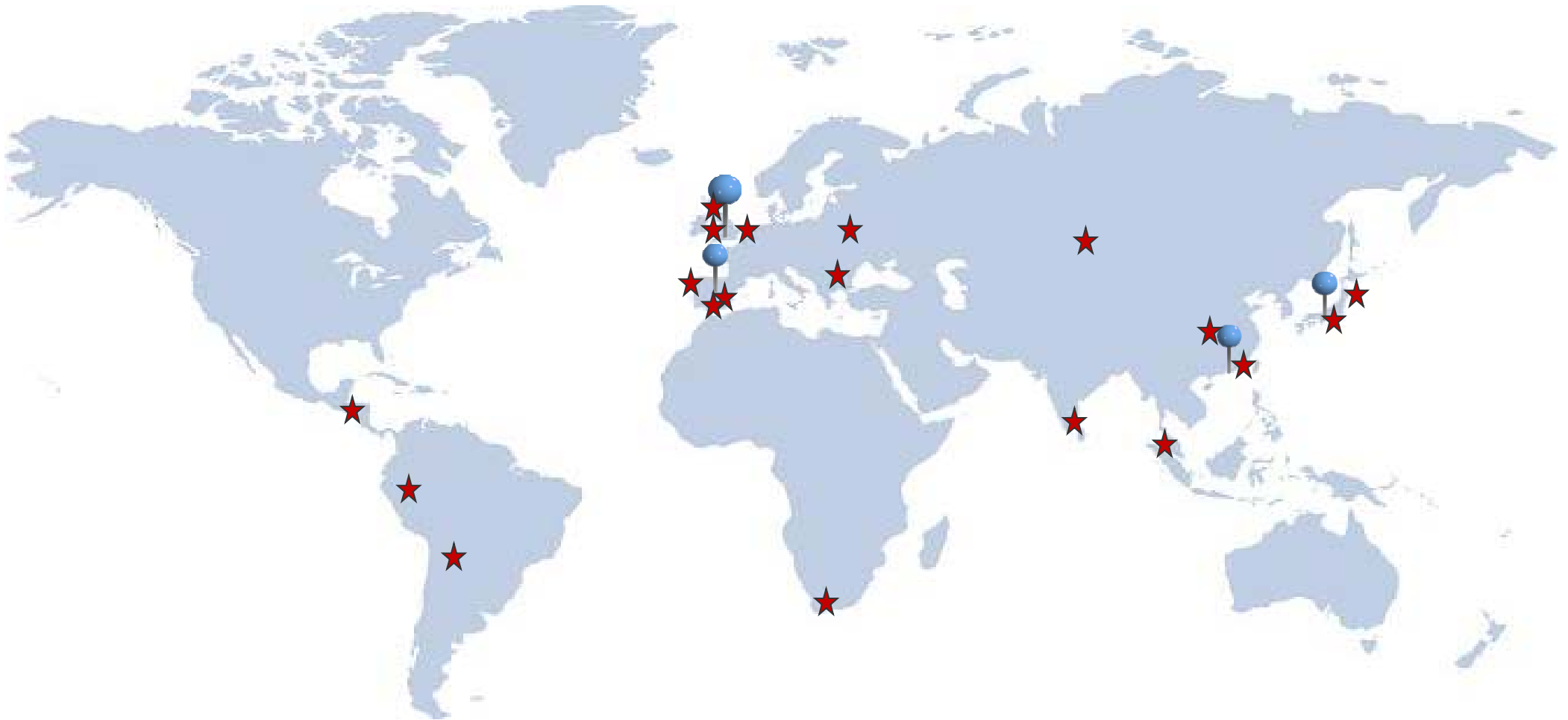
Isis Enterprise activities

Conclusion

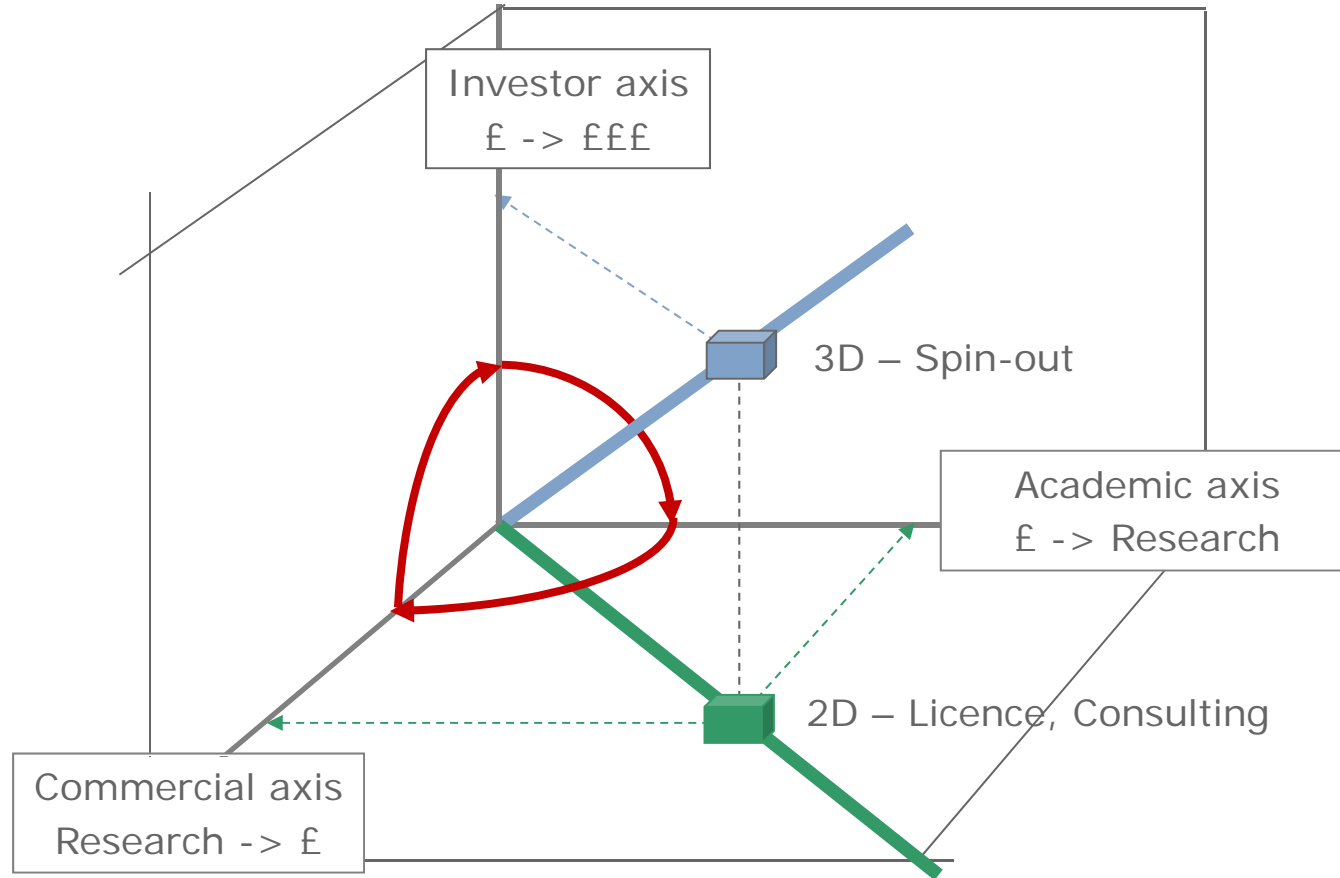
Isis Enterprise: What do we do?



Isis Enterprise: Where in the world?

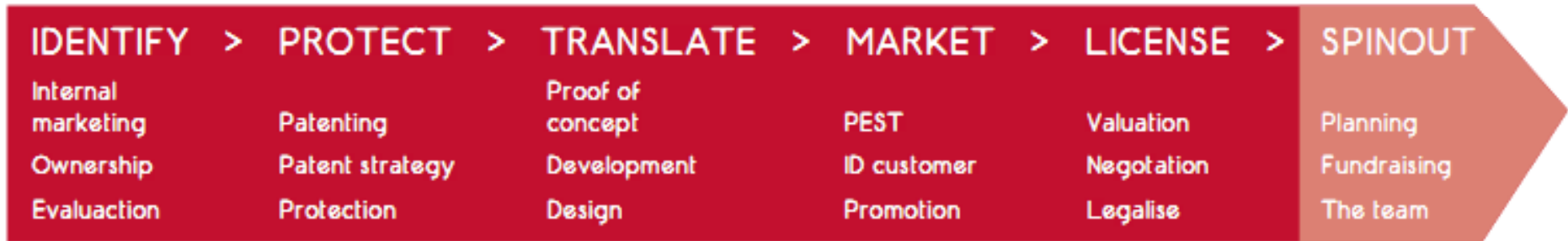


Acting as Multi-dimensional Intermediaries



What is Technology Transfer?

- Core Activities

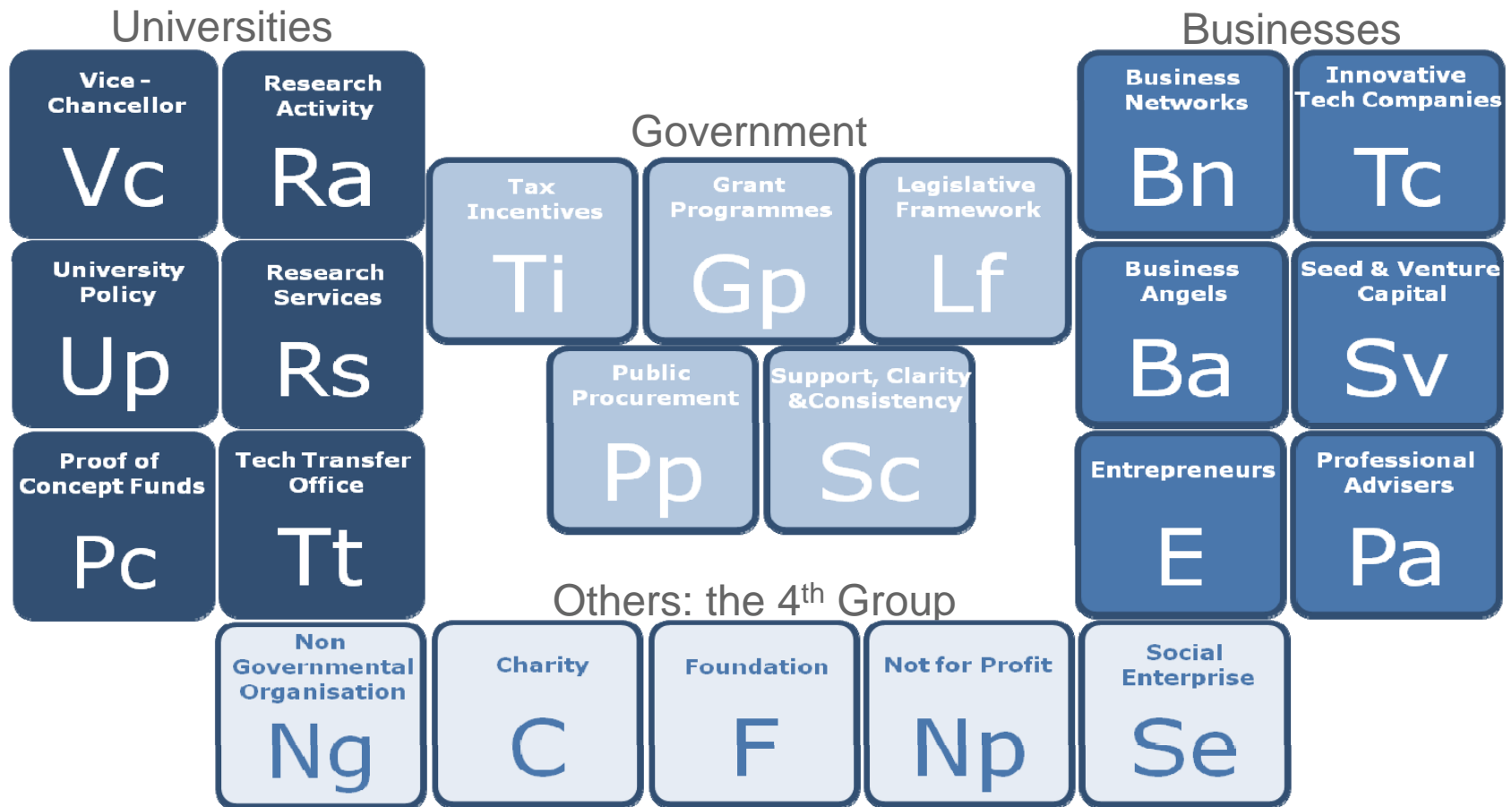


Actual Transfer = **Doing deals**

- Other Activities

- Managing research grants
- Managing contract research
- Managing consultancy undertaken by researchers
- Training students and entrepreneurs
- Managing business incubation programmes including premises
- Managing science parks
- Running the University hotel

The elements



Agenda

University of Oxford

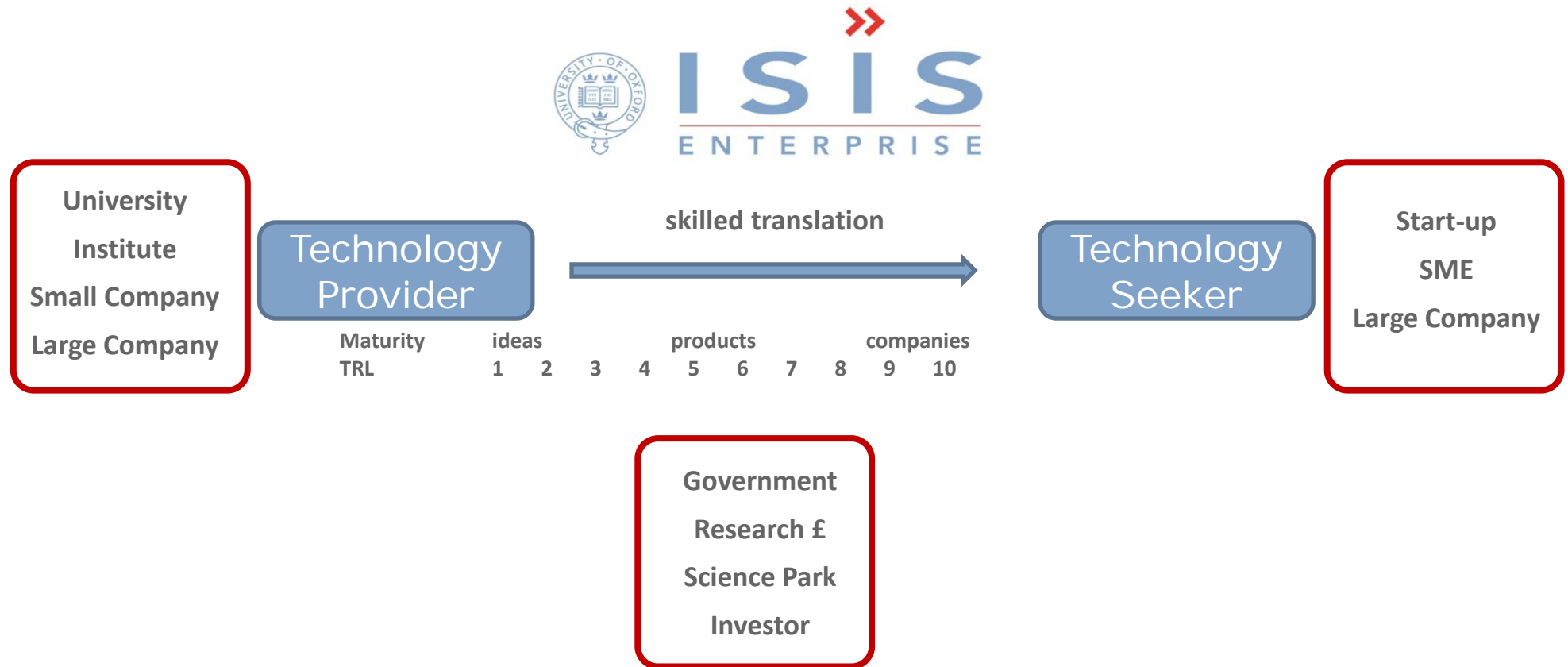
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Isis Enterprise: What do we do?



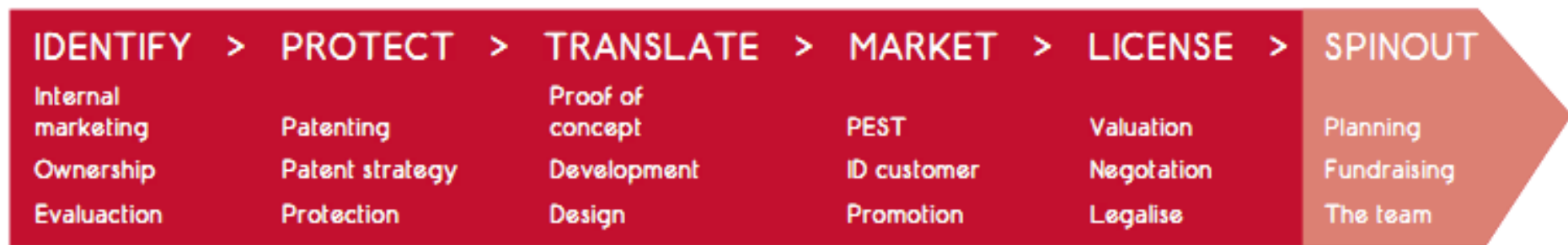
Provider Products

Brief description of product types

Products	TT Review	Review of organisation: includes research, TTO, Translation funding, Ecosystem
	TT strategy development	Developing an organisations policy or operations, arising from a review
	Training	Training TTO staff or researchers in the TT process
	Secondment	Time in Isis office looking at Oxford ecosystem and working on some projects
	Project Mentoring	Providing specific support on projects in conjunction with the TTO
	Project Marketing	Publicising and promoting technologies through Isis website and network
	Investment raising	Raising investment for Tech funds, New Co's or Commercialisation opportunities
	TT Partnership	A package of some of the above products but working across a number of projects

Isis Enterprise - Technology Transfer Training

- We deliver *practical*, bespoke training in all aspects of technology transfer and innovation management
- Our technology transfer process:



Multilingual Training Programme Taiwan

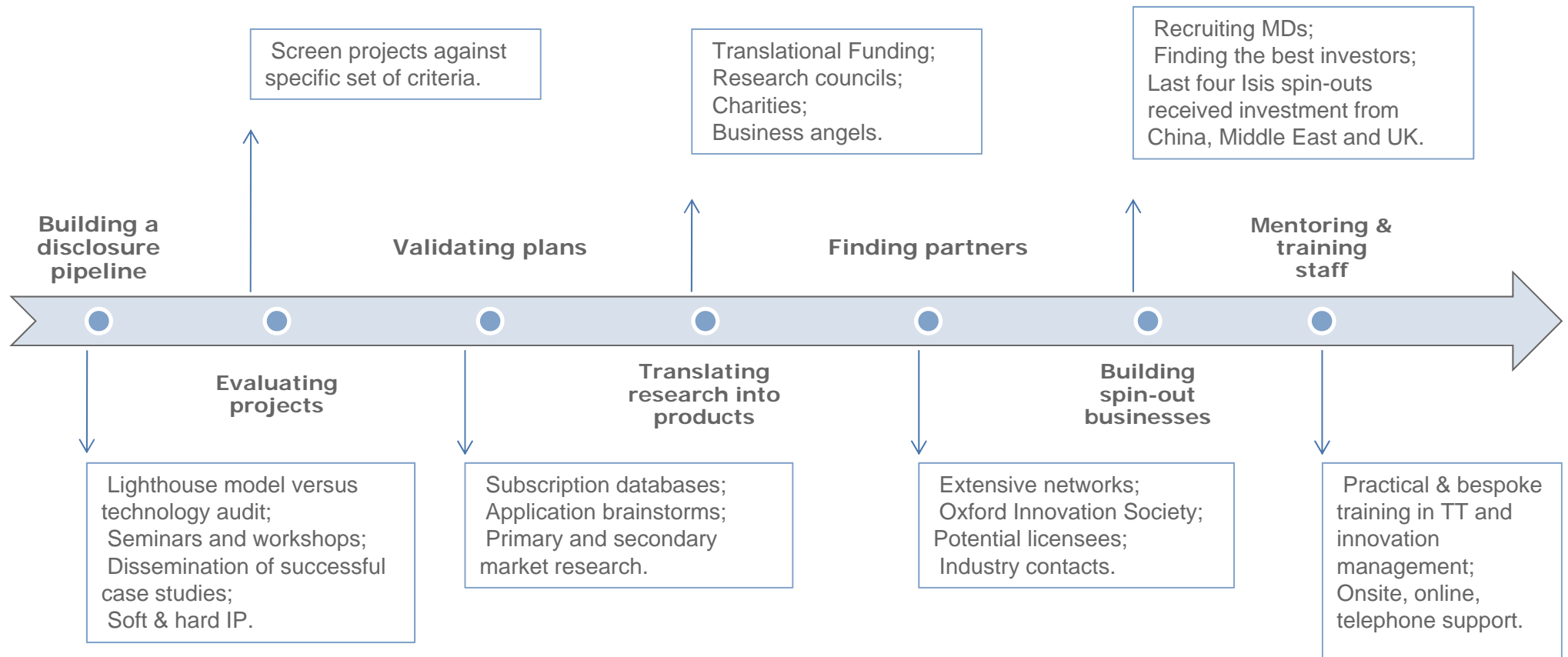
Isis Enterprise - Internship Programme

- We regularly host visitors and groups in our Oxford premises
- Visitors receive technology transfer training and technology transfer support from Isis's 60+ core staff team
- Visits last for between a few days and 12 months
- We can accommodate groups of approx. 1-7 individuals
- Isis Enterprise 'alumni' are based in technology transfer offices in many countries around the world including as Brazil, Italy, Japan, Malaysia, Portugal, Saudi Arabia, South Africa, Spain, Ukraine and the US



Visitors from South African universities

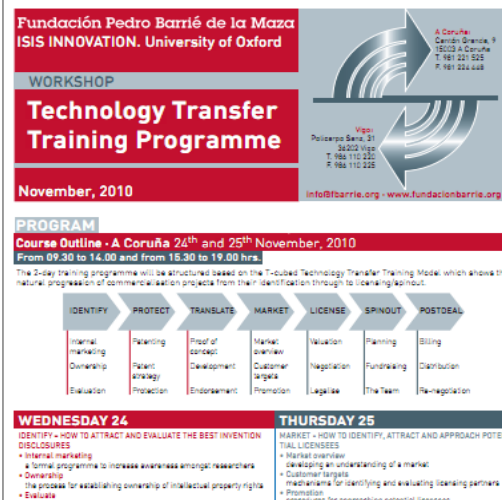
Isis Enterprise – Technology Transfer Partnership



...maximising the potential of commercialisation pipelines

Isis Enterprise – Technology Fund

- Fundación Barrié is a charitable foundation whose mission includes the support of scientific research
- For the last 10 years Isis has run a successful fund investing in the earliest stages of technology projects
- Together Fundación Barrié and Isis have created a Technology Fund designed to build on the work of researchers based in Galicia, Spain
- The Fund will support promising projects in diverse fields of study including aquaculture, biotechnology, energy and nanotechnology
- The Fund seeks to generate returns as a share of licensing revenues or spinout shareholdings



Fundación Pedro Barrié de la Maza
ISIS INNOVATION. University of Oxford

WORKSHOP
Technology Transfer Training Programme

November, 2010

PROGRAM
Course Outline - A Coruña 24th and 25th November, 2010
From 09.30 to 14.00 and from 16.30 to 19.00 hrs

The 2-day training programme will be structured based on the Tru-coded Technology Transfer Training Model which shows the natural progression of commercialisation projects from their identification through to licensing/spinout.

IDENTIFY	PROTECT	TRANSLATE	MARKET	LICENSE	SPINOUT	POSTDEAL
Internal marketing Ownership Evaluation	Patenting Patent strategy Protection	Proof of concept Development Endorsement	Market overview Customer target Promotion	Valuation Negotiation Legalise	Planning Fundraising The Team	Bidding Distribution Re-negotiation

WEDNESDAY 24
IDENTIFY + HOW TO ATTRACT AND EVALUATE THE BEST INVENTION DISCLOSURES
+ Internal marketing
+ Formal programme to increase awareness amongst researchers
+ Ownership
the process for establishing ownership of intellectual property rights
+ Evaluate
mechanisms for assessing the market potential of a new discovery

THURSDAY 25
MARKET + HOW TO IDENTIFY, ATTRACT AND APPROACH POTENTIAL LICENSEES
+ Market overview
+ developing an understanding of a market
+ Customer targets
mechanisms for identifying and evaluating licensing partners
+ Promotion
procedures for approaching potential licensees

In addition to money the fund offers training and support for tech transfer

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A story of Commercialisation – Oxford YASA Motors

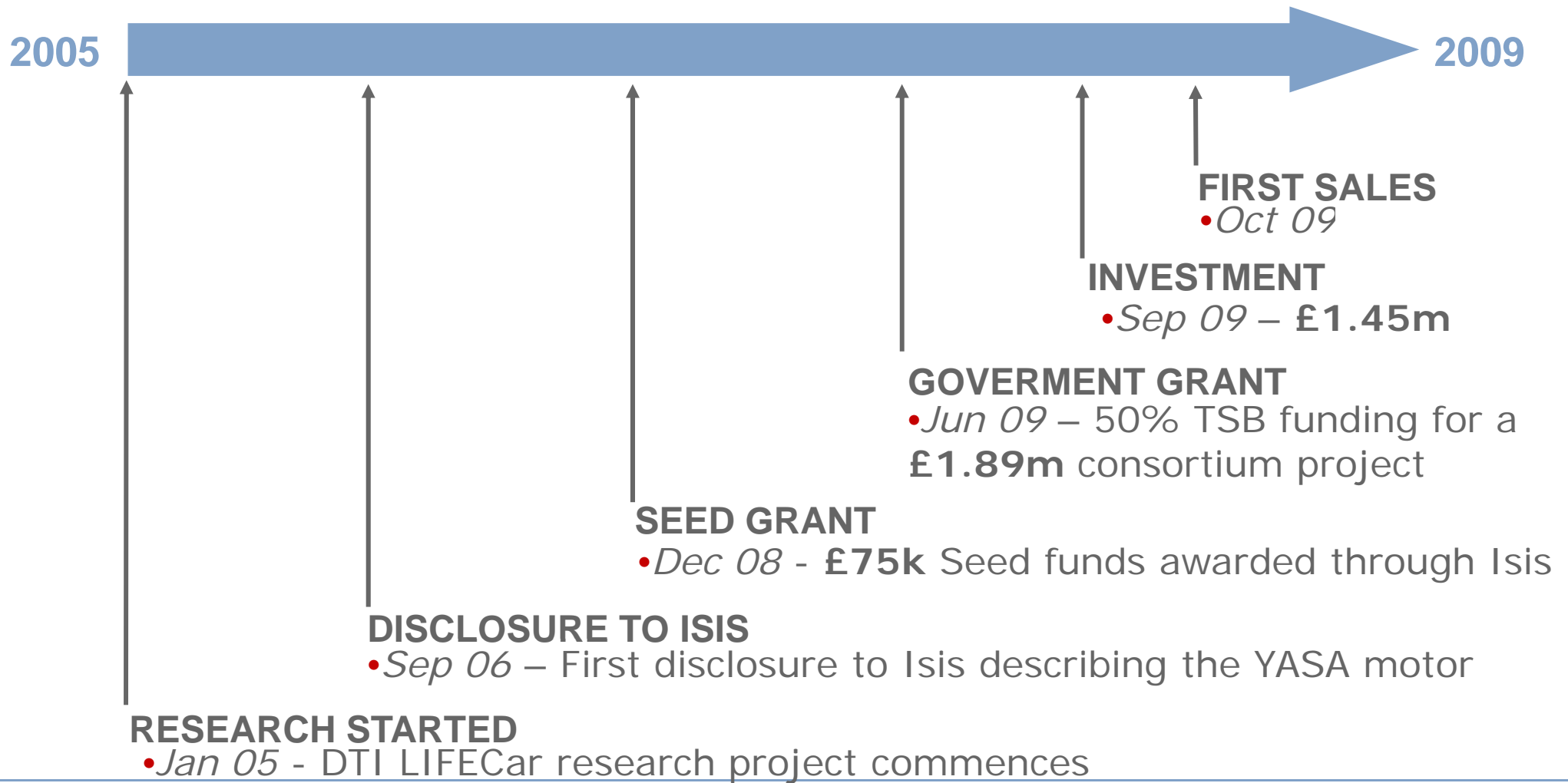
- DTI funded Morgan LIFECar
 - world's first hydrogen sports car
 - 0.7g of regenerative braking (emergency stop)
 - 20kg/motor weight budget
- No available off-the-shelf electric motor with:
 - High torque to weight ratio
 - Compact and Lightweight
 - Robust and reliable
- University of Oxford Electric Power Group involved in “blank sheet of paper design” to meet the specification resulting in the the **YASA** (Yokeless and Segmented Armature) motor



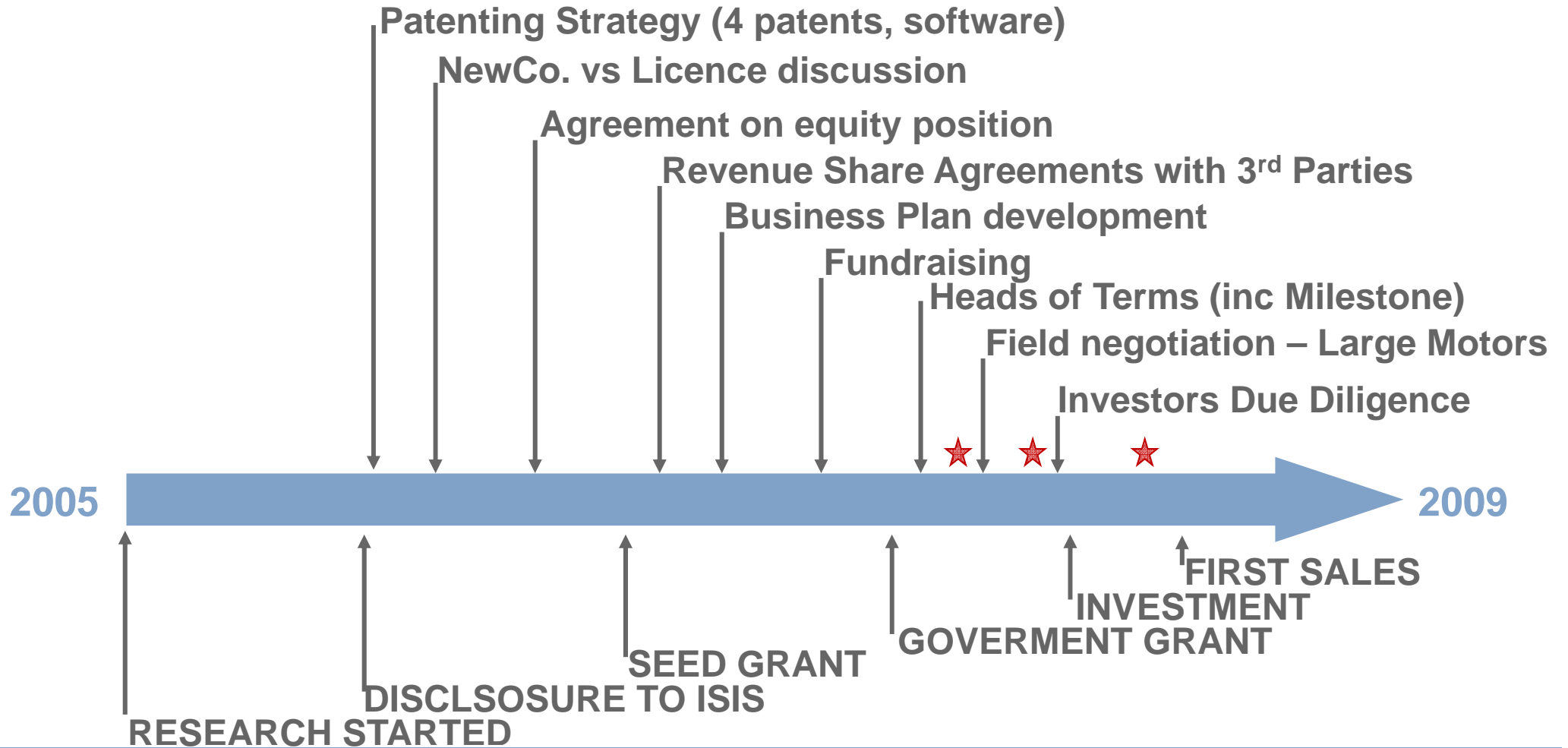
MORGAN MOTOR COMPANY

dti

Oxford YASA™ Motors timeline



Oxford YASA™ Motors events

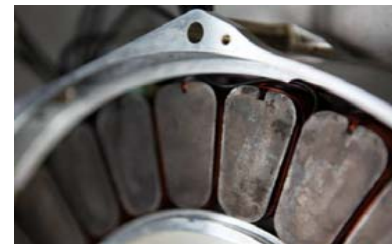


Oxford electric motors turn heads as well as wheels

Attach two Oxford Yasa Motors to the chassis of a family saloon car, rip out most of the heavy stuff from under the bonnet and add a rechargeable electric battery and you'll have Jeremy Clarkson drooling all the way to his local dealership. These tiny, lightweight motors, really pack a punch

By Richard Tyler

Published: 7:15PM GMT 21 Dec 2009



Conclusions

- For Universities
 - Technology Transfer is a good thing
 - Part of University purpose; may make money for University and researchers
 - It does not happen on its own
 - You need to invest resources in People, Patent budget, Proof-of-Concept
 - You need a policy framework
 - Who owns the inventions; who shares the rewards
 - It takes a long time ... So start and do not stop.
- But Technology Transfer requires an ecosystem, also including
 - Business
 - Investors
 - Government

Vision for Isis

- Technology
- Innovation
- For People
- From Oxford and elsewhere
- Successful exploitation of new ideas
- Health & Wealth of Society



Greener Emission Fuels

Silent & Clean Power

Energy from Waste

A New Steam Revolution



A Gambian infant is inoculated as part of a previous MRC study with the MVA85A vaccine.





Search:



- About Isis
- Isis News
- Technology Transfer
- Isis Outcomes
- Spin-out Companies
- Oxford University Consulting
- Isis Enterprise

Information for Oxford Researchers

Managing the commercialisation of IP developed in Oxford - licensing, spin-outs and material sales.

[Find out more >>](#)

Providing access to academic consultancy and services from the University of Oxford.

[Find out more >>](#)

Delivering consultancy to companies, governments, and technology transfer organisations worldwide.

[Find out more >>](#)

Isis News

Technology from Oxford will provide environmentally friendly replacement for lithium batteries

Milestone in clinical trial of improved TB vaccine developed in Oxford

Oxford Nanopore Technologies Announce £25m Fundraising

Delivering complex drugs directly to

Links

Jobs at Isis

Isis has a number of interesting and challenging jobs available for suitable candidates; please click here.

Comments & Feedback

Let us know what you think of Isis Innovation

Features



Isis Insights

Isis Insights is published four times a year reviewing the latest innovations, collaborations, and technology transfer activities of Isis Innovation.

Isis eNews

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