

Introduction to Project Management

Elena Andonova 25th January 2011

Introduction

- The process from idea to revenue generation
- Covering
 - Invention disclose
 - Project management
 - Marketing
 - Negotiation
 - Post deal management
 - Licences and spinouts
 - Networks

Invention Disclosure

- A researcher comes to Isis
- Isis Project Manager (PM) is assigned
- Isis gives out the "Patents & Licensing Booklet"*
- Isis gives out IP due diligence forms
- Isis creates new project files and new entries on the Isis database
- Isis PM works with the researcher to refine the invention disclosure

*also available at www.isis-innovation.com

Our Message

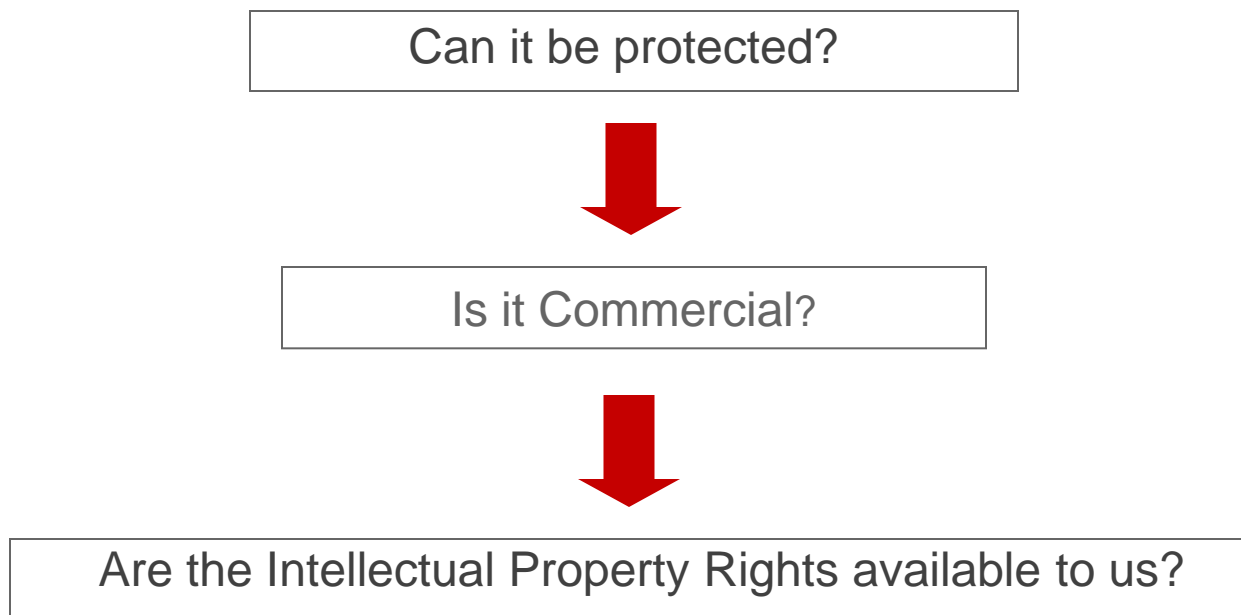
- What we do and how we can help
 - Patenting and Licensing
 - Spin Outs
 - Consultancy
 - Material Sales
- What is an invention
- When to contact us
- You can still publish
- Call us – we don't bite!



Part 2: Developing the ideas

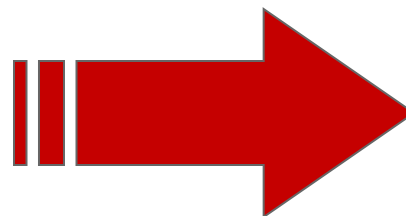
- Developing Ideas
 - Decision Making
 - Protecting the Intellectual Property
 - Commercialising

The Important Questions



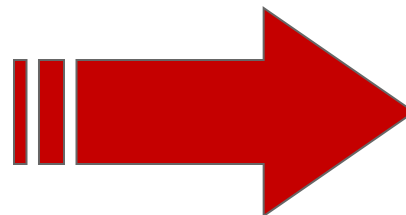
The Idea

- Academic brings idea to project manager (PM)
 - PM gives out document: IP, patents and licenses; Spin-Outs; Consultancy
- PM undertakes initial assessment: 'asking the right questions'
 - Invention record form
 - Meeting with academic
- Initial assessment
 - Is it an invention or just a discovery?
 - Is there a product and a market?
 - Is it likely to belong to Isis?



Taking on the Project: IP Issues

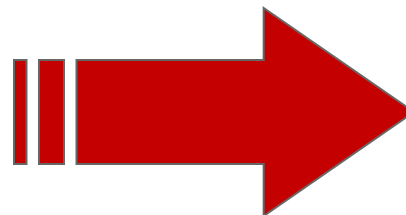
- Can we protect the IP?
 - Is it: Novel? Inventive? Useful?
 - Prior Art Search
- Would a patent be useful?
 - Could you defend it?
 - Territories – US and/or Europe? Japan? Others?
- What about a design right, copyright etc?



Taking on the Project: Commercial Value

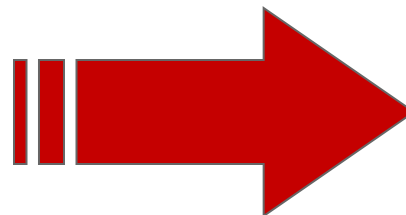
Before patenting:

- Does it have commercial value?
 - Stage of invention
 - Market size and need
 - Freedom to operate
 - Competition
- Can you really sell it?



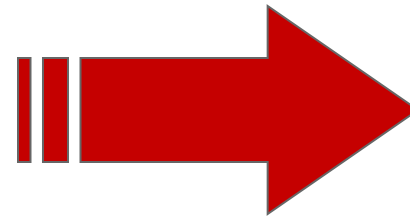
Taking on the Project: Ownership Issues

- Do we own the IP?
 - Collaborators
 - Funders
 - Material Transfer Agreements
 - Equipment
- Due diligence process
 - IP1 form (inventor's details)
 - IP2 form (contribution)



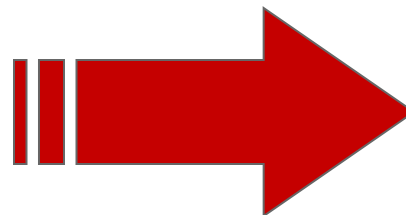
Analysing the Opportunity

- Interrogate the idea with Project Team
 - Devil's Advocate function
 - Ideas for licensees, partners etc
 - Fresh and alternative view
- Do sensible things

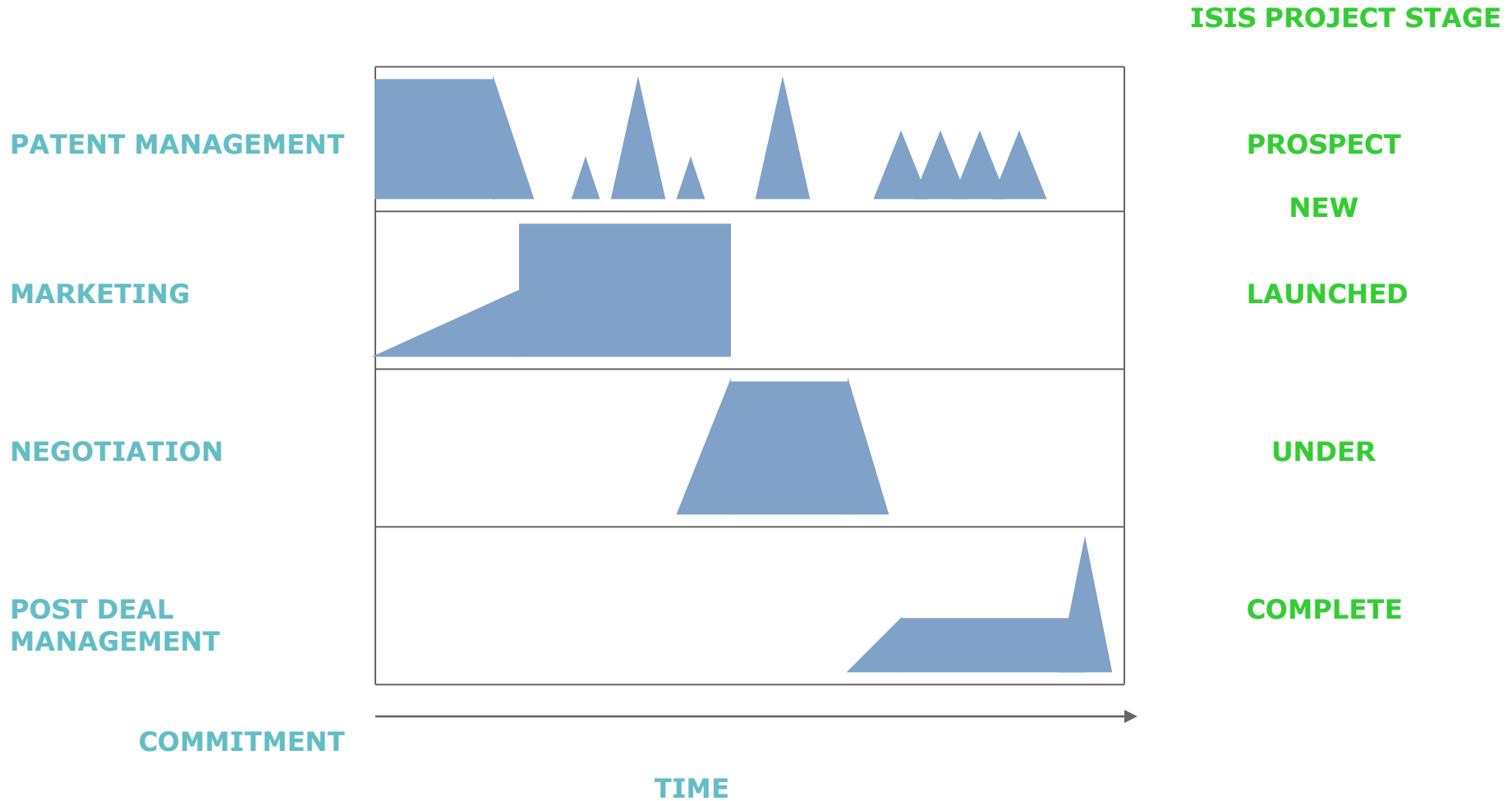


Managing the Project

- Start patent process - timing
 - Is the academic about to publish?
 - Is it a highly competitive market?
- Make initial contact with potential licensees
- Assignment of IP from University to Isis
- Review regularly to check that resources are not being wasted

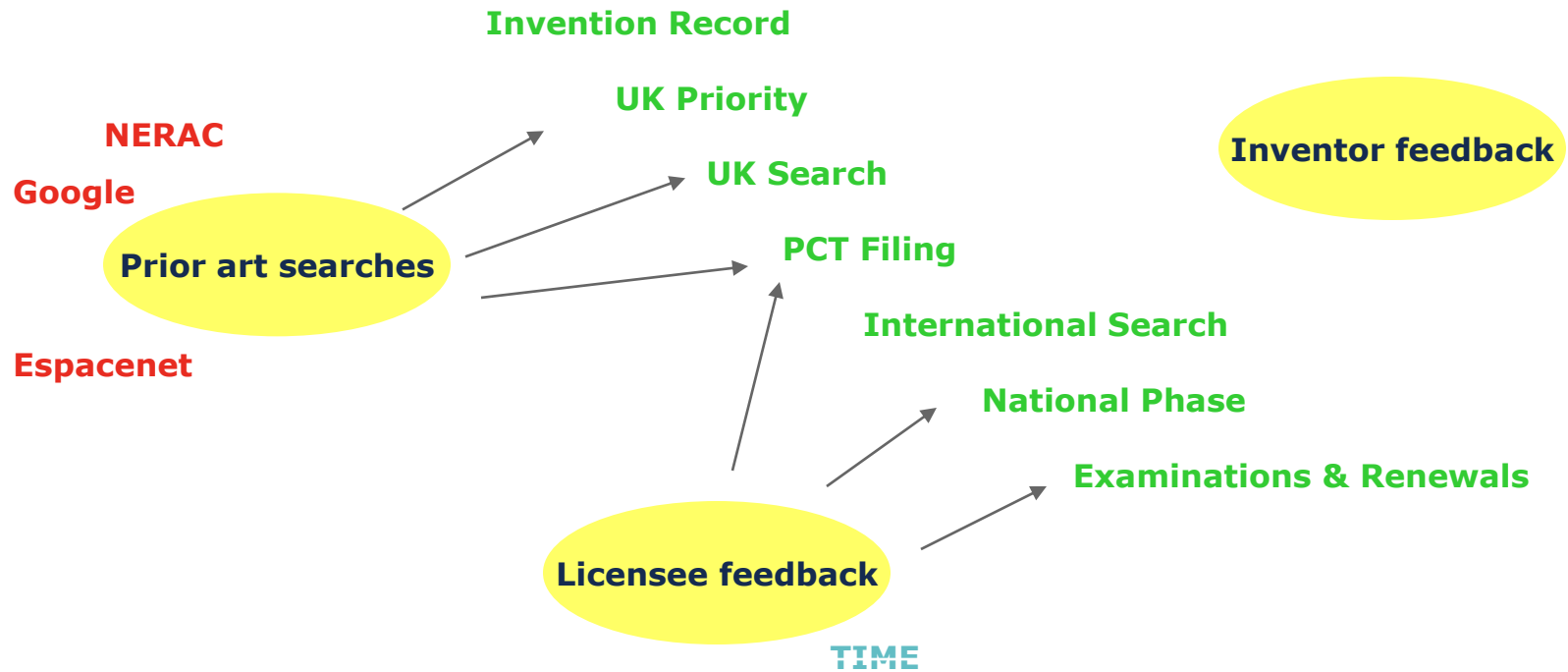


Licensing Project Activity Timeline



Patent Management

PATENT MANAGEMENT



Marketing

MARKETING



Informal Soundings

Confidential Discussions

Market Research

Marketing Plan

Confidentiality Agreements

Confidential Meetings

TIME

Market Research Tools

- PEST Analysis
 - Political, environmental, socio-economic, technological
- Porters 5 Forces
 - Barriers to entry, supplier power, customer power, internal rivalry, threat of substitutes
- 5 P's
 - People
 - Promotion
 - Profit
 - Product
 - Planning

Marketing Plan

- Launch Profile – one page summary in standard format
 - OIS members (30 days advance notice)
 - Other sales leads
 - Website
 - [Technology Exchanges]

- Project Presentations
- Document Package
- Press Release
- Partnership Introductions

Studio quality surround sound in the home, home-studio, or on the move



Enhanced quality, portable surround sound
Isis Project Number 1553

A unique approach to reproducing surround-sound has been developed, that combines the advantages of both conventional loudspeakers and headphones into a single device

MARKET OPPORTUNITY
Traditional loudspeakers suffer from a number of practical problems when used. Reflections from walls, floors, furniture etc, and the excitation of resonances in a room all reduce sound quality. The placement of speakers must be carefully controlled, and the sweet spot is always limited in size. This is a particular problem when reproducing **high-quality surround sound** in the home, or (home-)studio environment.

Headphones address some of these issues, but suffer from other problems inherent to their design. Normally sound from one direction is received by both ears and is also modified by the unique shape of each person's head. The lack of these effects when using headphones means that music is perceived as playing "inside" a person's head; spatial information is poorly conveyed. Mixing music is also difficult, as music sounds different when using headphones compared to loudspeakers.

Traditional loudspeakers and stereo headphones suffer from limitations when reproducing surround sound. There is demand for portable, high-quality surround sound.

THE OXFORD INVENTION
A new approach to reproducing surround-sound has been developed, that has advantages over both traditional loudspeakers and headphones for accurately reproducing surround sound in a portable unit. Advantages include:

- **high quality sound** is reliably reproduced, with accurate bass and treble effects
- **the** natural effect of a listener's head/ears on sound localisation is used
- **room** reflections and resonances are avoided
- **less** amplification of sound is needed, reducing power requirements and sound distortion
- **the** system is **portable** and requires minimal effort to set-up

Cold Calling

- Avoid – Try and Get a Referral
- Script the Conversation
 - Opening Line – who you are and ask for their help
 - Ask general open questions
 - Follow any sensible lines of discussion
 - Ask for implications, options and implied needs
 - Identify sales hooks
 - Follow through with agreed next step
- Don't Waste Time
 - Kill dead conversations
 - Get better referrals

Pole position for versatile sensor

Existing proximity sensors tend to rely on magnetic induction, reluctance or Hall effect devices for their performance characteristics, which in applications such as automotive ignition sensors can lead to poor running performance. Now, researchers at Oxford University's Physics Department have developed an extraordinarily versatile proximity sensor that can detect the motion of a wide variety of metals and non-metals and has a wealth of potential applications from position or speed sensors in automotive suspension, gearbox and engine management systems, to detecting changes in the flow of heterogeneous liquids, such as blood/vulcanizate or oil-in-water mixtures.

Most types of proximity sensor used for position sensing in the automotive

industry use either optical or magnetic fields for operation, explains Dr Robert Adams, Physical Science Project Manager for Isis Innovation Limited, Oxford University's technology transfer company. 'Over time wear products such as dust, grease, or dirt can cover the sensor, degrading its performance. If wear products cover part of our sensor they should not degrade its performance as they will produce a static background signal, which will be ignored by the electronics – it is only changing parameters that cause a signal.'

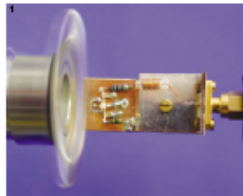
The RF position sensor consists of three principal parts encapsulated into a single compact unit – a coil shaped radio frequency antenna, an RF oscillator circuit, which drives the antenna, and a monitoring circuit, which determines whether a change has occurred in the behaviour of the coupled antenna and oscillator. A prototype of the sensor is shown in figure 1. While the sensor did not require the use of any special materials for its initial 'proof of concept' application, Adams points out that if it was used purely to measure magnetic field strength in an area, then a piece of magnetic material would need to be placed adjacent to the coil. 'The only other instance in which special materials may be required is if the sensor is used to measure

Researchers at Oxford University, UK, have developed an extremely versatile proximity sensor capable of detecting the presence of ferrous and non-ferrous metals, ceramics, glasses, and plastics. Sarah Thomas Cleveley talks to Robert Adams about the Oxford invention and its potential applications.

motion in extremely hot environments, at 1,000°C, in which case the RF antenna coil is mounted remotely to the electronics and the coil is made of some high-temperature tolerant metal,' he says.

The sensor functions by detecting a change in the electromagnetic properties of the volume forming its 'sensitive region', which is located just outside the mouth of the coil and forms an approximate cube with sides of a similar diameter to the antenna coil. An object moving through the sensitive region, or the presence of a different material can cause such a change. 'Because the sensor uses an electromagnetic field rather than either a purely magnetic or electric field,' explains Adams, 'it is sensitive to both magnetic and electric properties of materials intruding into the sensitive volume at the same time. For example, the tooth of a rotating metallic cog moving through the sensitive region.' Other examples include heterogeneous liquid flowing within a pipe located in the sensitive region, which contains small bubbles or pieces of solid debris carried along in the flow. As the liquid passes through the sensor a signal is produced that is proportional to the size or mass of the debris and for which the signal type is characteristic of that particular material.

The characteristics of the electronic signal output from the sensor can be used to discriminate between different types of materials depending on their magnetic or electric permeability characteristics. 'In



Close-up of the RF sensor being used to detect a metal bolt head/wheel.

Materials World October 2002



Isis Project 818: RF Sensor

Article in Materials World, October 2002

Negotiation

NEGOTIATION



Draft Terms

Agree Price

Licence/Option/Material Sales Agreement



Iterations

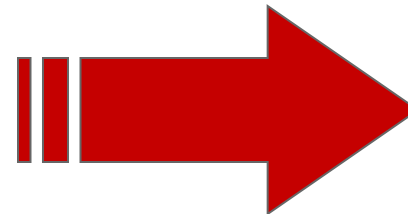
Signatures

Database Entry

TIME

Patent Management

- UK Priority Application
 - Is further supporting work required and feasible within 12 months
 - Work towards strong patent including reduction to practise
 - Decision rests with individual PM
- International PCT Application
 - Is the patent strong enough
 - Maybe drop and re-file
 - Decision by project team
- Publication and Search
 - Redefine prior art
- National Phase Applications
 - Is the patent licensed?
 - Decision by all team leaders and group head
- Renewal Fees
 - Refer to licence deal

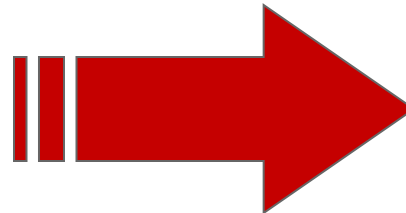


Time and Cost of Patenting

Activity	Timescale	Cumulative Cost (approx.)
Application filed in UK; further work must be done within 12 months	Start	£2,500
Updated international application filed	12 months	£7,000
Application published with search report	18 months	£7,500
National Phase applications in individual countries	30 months	£16,500
Examiner report received; negotiate and agree claims	3 – 5 years	£31,000
Patent granted/refused in each country	5 – 7 years	£53,000
Annual renewal fees payable	5 – 20 years	£63,000

Deal Management

- Are the patent costs covered?
 - Is the licensee paying for ongoing patent bills?
 - Have back patent costs been paid?
 - Is Isis in the black?
- Is the licensee keeping to the deal?
 - Are they exploiting the technology and keeping to development plan?
 - Are they making money and paying royalties?
 - Are there any research agreements or consultancy projects tied in?
 - Are there any alternative licensees?
 - Does the deal need to be renegotiated?
- Is the technology still useful?
 - Has the technology been superseded?



Post Deal Management

**POST DEAL
MANAGEMENT**



Chase Reports

Chase Payments

Check Progress

Create New Sales

Renegotiate!

TIME

Non-Patent Projects

- Some IP Cannot be Patented
- Some IP is Not Worth Patenting
 - Projected revenues are small
 - Potential customers don't want patents
- The Alternatives
 - Other formal protection: copyright, design rights, trademarks
 - Embodied know-how: software applications, protocols, drawings, procedures, recipes
- Marketing, Negotiation and Post Deal Management is the Same

Spinout Disclosure

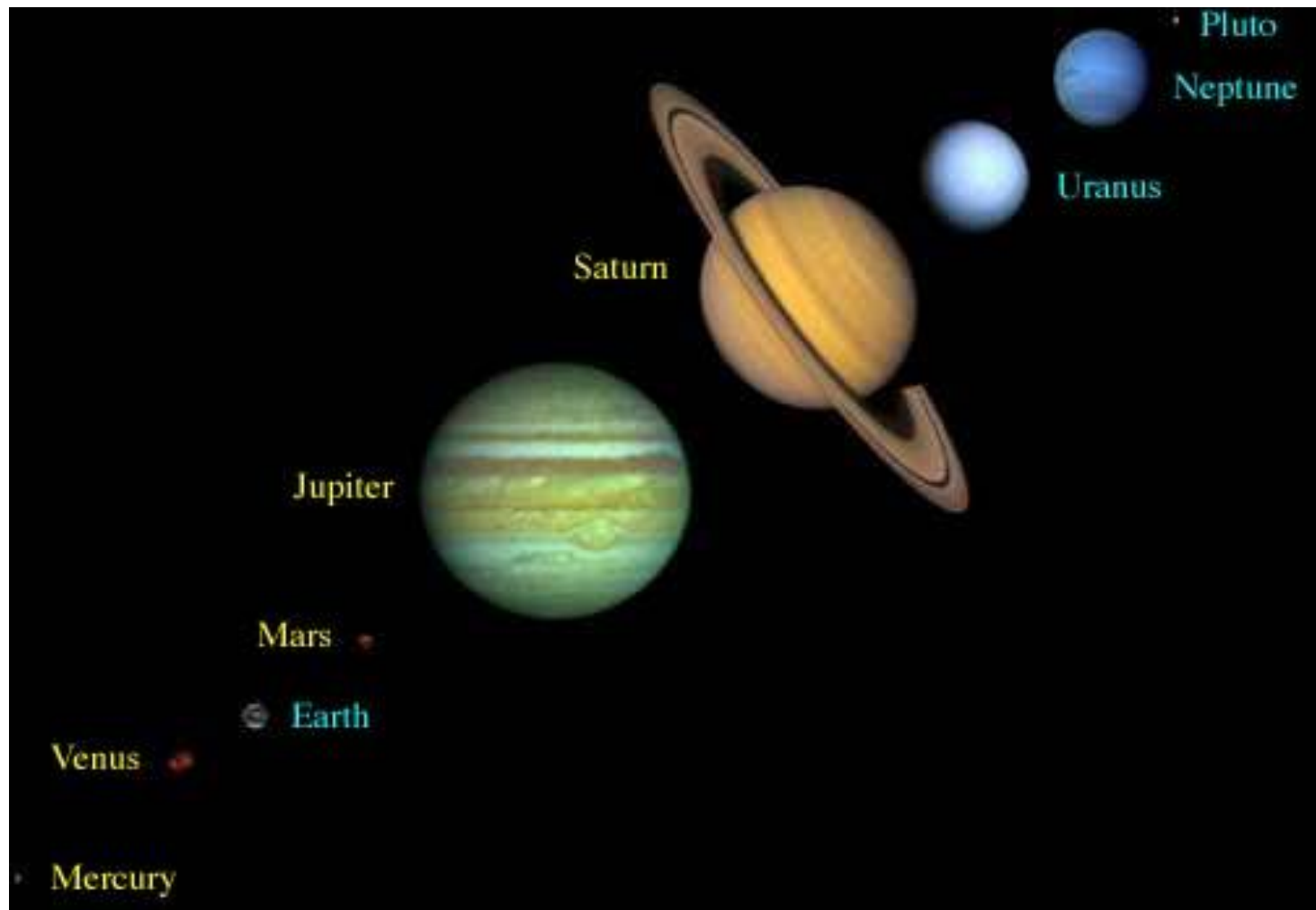
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- Isis gives out the “Spinout Company Booklet”*
- Isis creates new project files and new entries on the Isis database
- Isis and the researcher identify any new intellectual property projects
- Isis PM works with the researcher to refine the business idea

*also available at www.isis-innovation.com

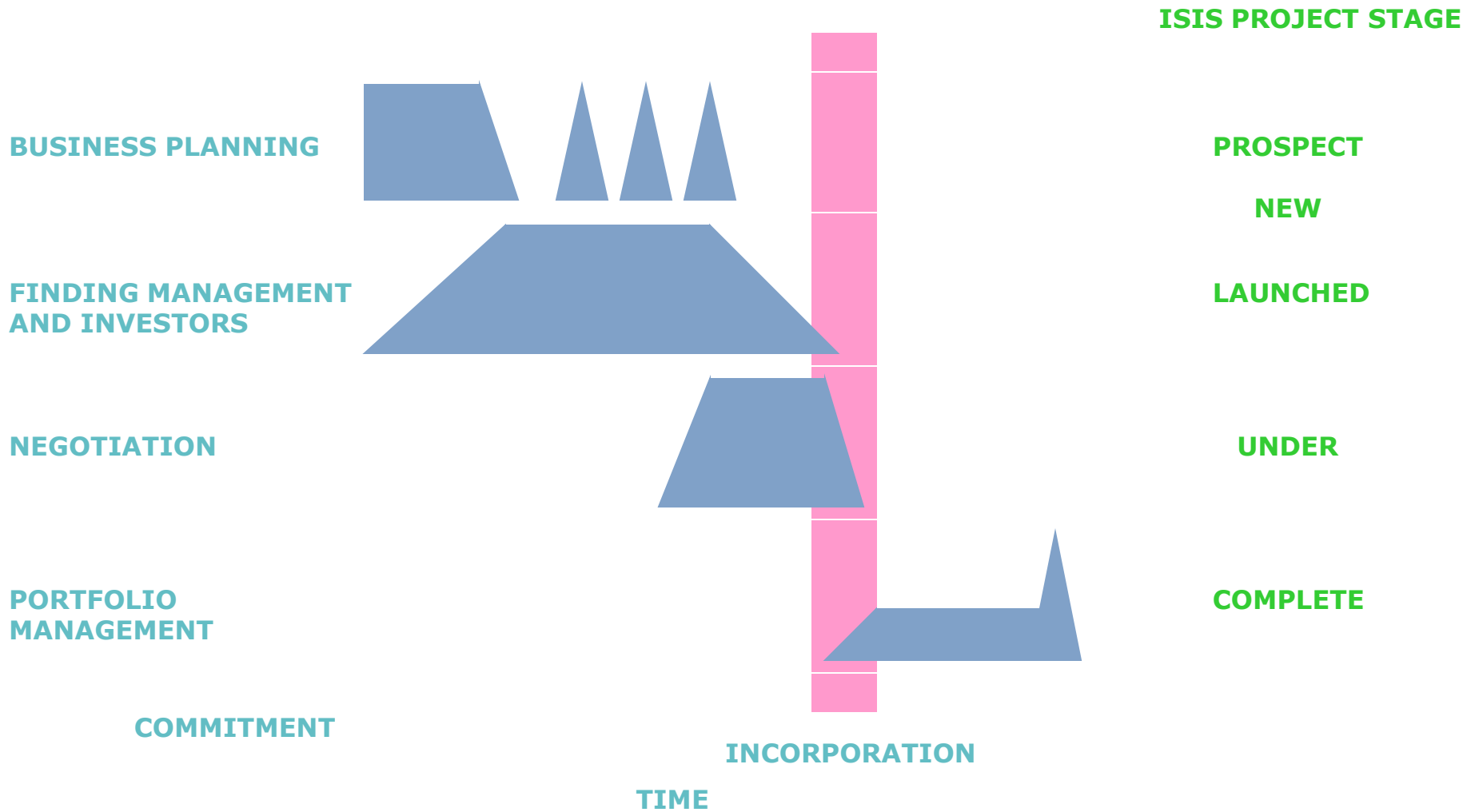
Why Spin-out?

- At Isis we licence everything so why spin-out?
 - Can you build a new company around the technology to realise short, medium and long term revenue
 - Often a completely new technology
 - A portfolio of IP
 - Possibly needing long-term development
 - What does the academic want?
 - Are they keen?
 - Are they secure in the university?

Interplanetary Alignment



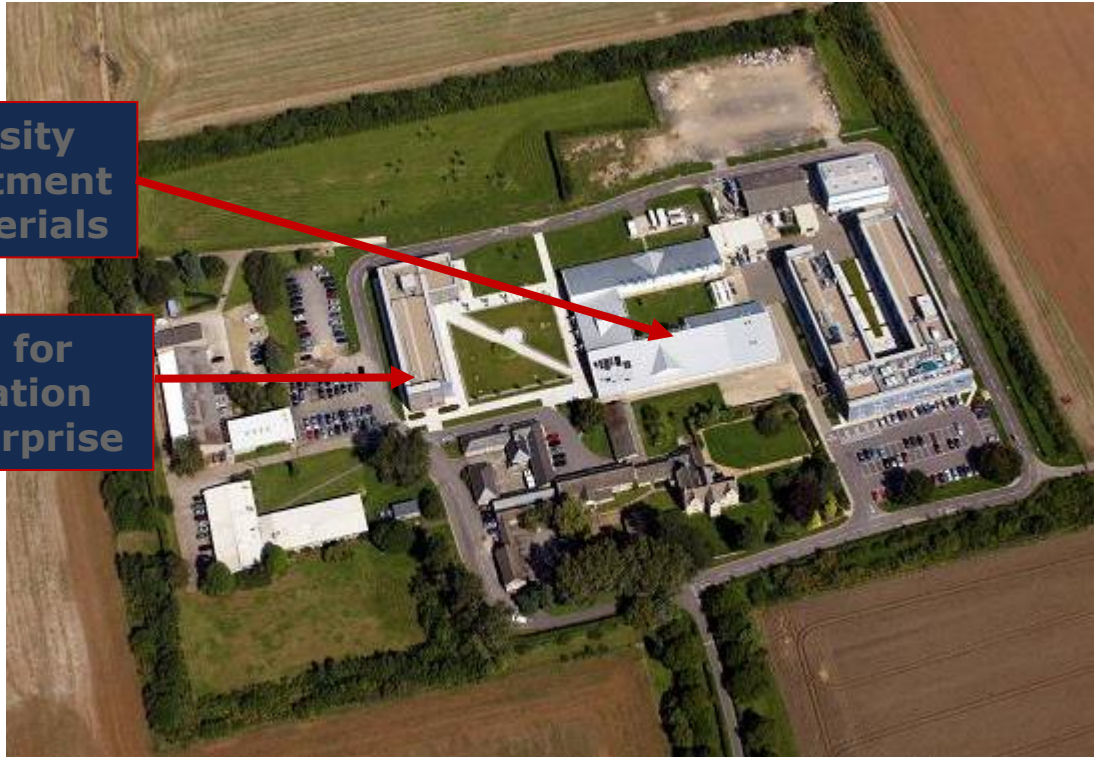
Spinout Project Activity Timeline



Begbroke Science Park

University
Department
of Materials

Centre for
Innovation
& Enterprise



Spin-outs on site:

Prolysis

OGT

Oxonica

Oxford Advanced
Surfaces

Oxford Nanopore

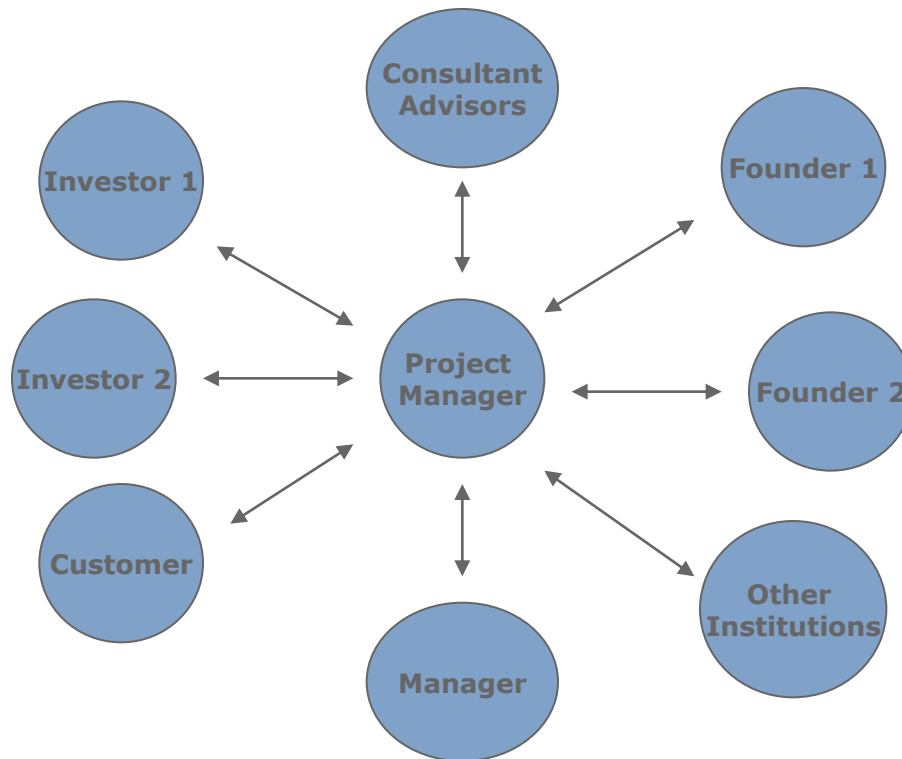
Oxford Biodynamics

Particle Therapeutics

- > Owned & operated by Oxford University, 5 miles from city centre
- > University research labs
- > Business Incubator & premises for new companies
- > Central meeting room and café

Spinout Project Management

- #1 Challenge: Managing Disparate Interests



Isis Angels Network

- Separate Legal Entity
- Members
 - Business Angels
 - Specialist Venture Capital Companies
- Membership is Free
- Business Plans Marketed by Post and/or via Events
- Marketing of Plans is Free

- Links to Other Networks

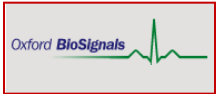
Spinouts (Selection)

Natural Motion



- > Innovative animation software
- > Benchmark invested 2006
- > Licences with LucasArts (Star Wars, IJ), Rockstar

Oxford BioSignals



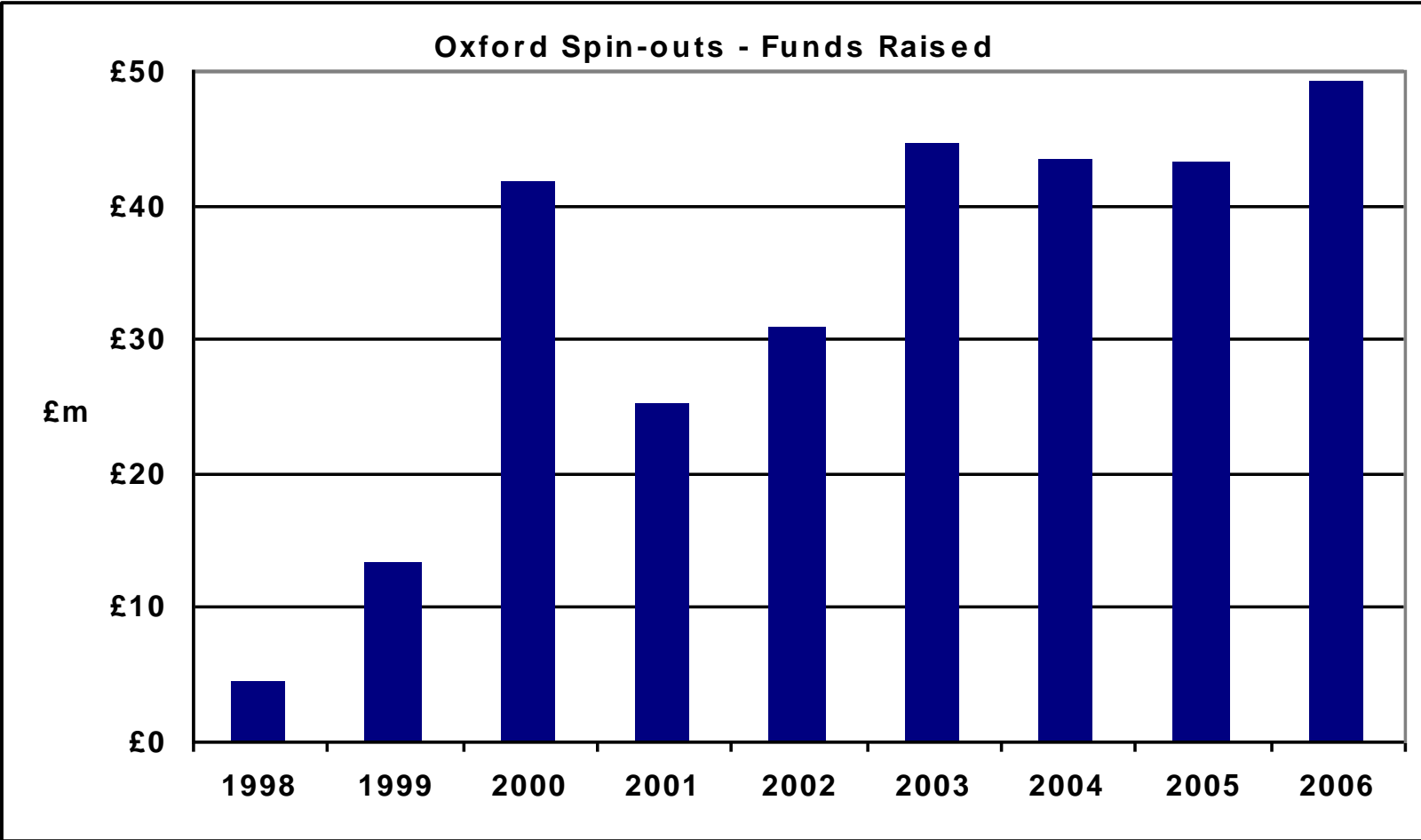
- > Aero-engine and critical care multi-parameter monitoring
- > Rolls Royce is an equity investor (£4.5m)
- > BioSign™ 510(K) approved

Oxford Nanopore Technologies



- > Raised £7.5m in Jan 2006, £10m in Feb 2008
- > Synthetic nanopores to detect single molecules
- > Target “\$1,000 genome sequence in three hours”
- > CEO 15 year veteran of Medisense, inventor of glucose monitoring

Oxford spin-outs – Funds raised



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Returns from Spin-outs

Equity sales and dividends 1996 - 2006

- £51m
- £20m from IP Group / Chemistry deal
- £12m from Technikos / Biomedical Engineering

Current portfolio

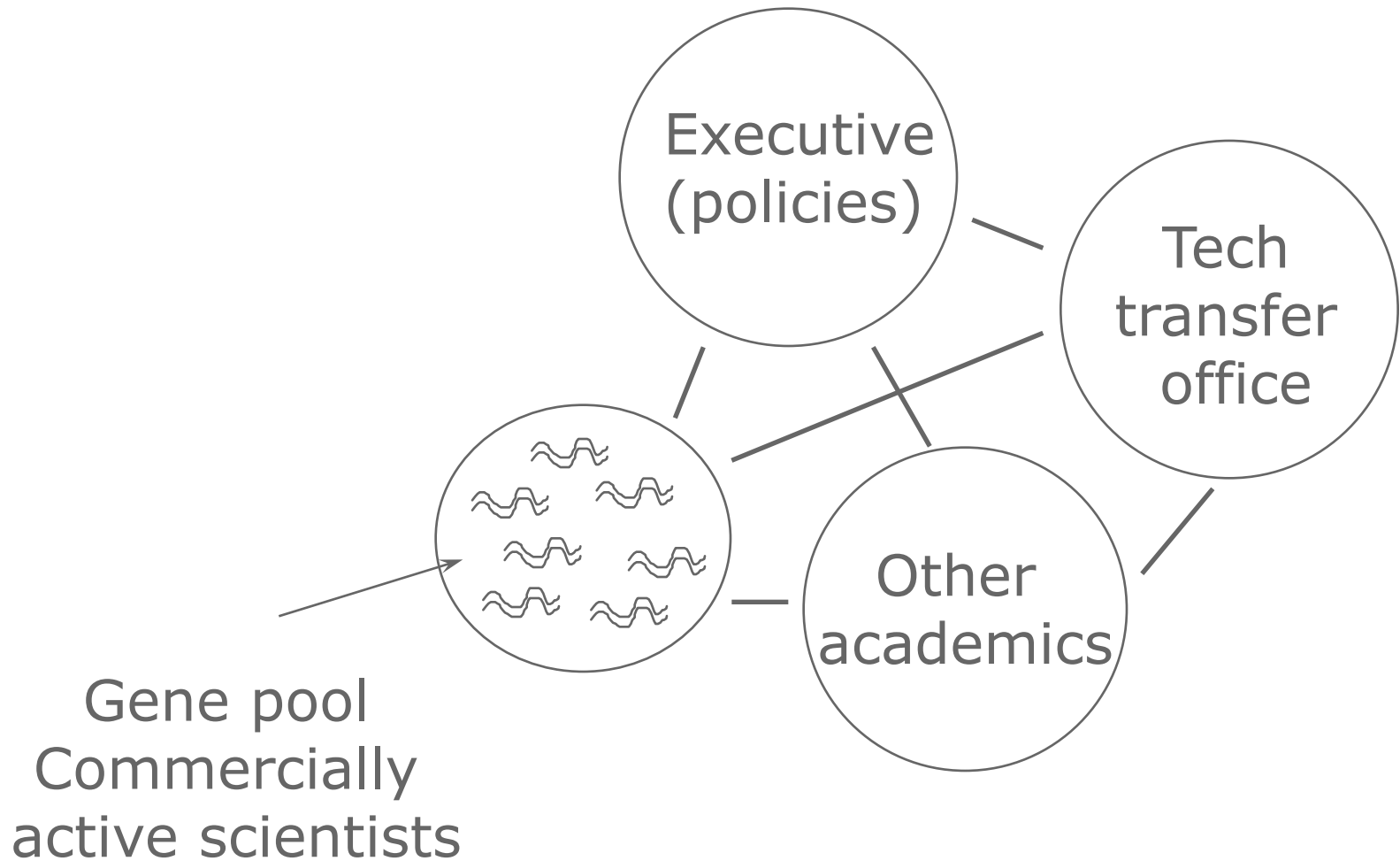
- Total spin-out valuations c £25m
- AIM quoted £9.7m

UCSF

- Capital invested £4m
- Current valuation £11.5m
- Cash available £1.3m

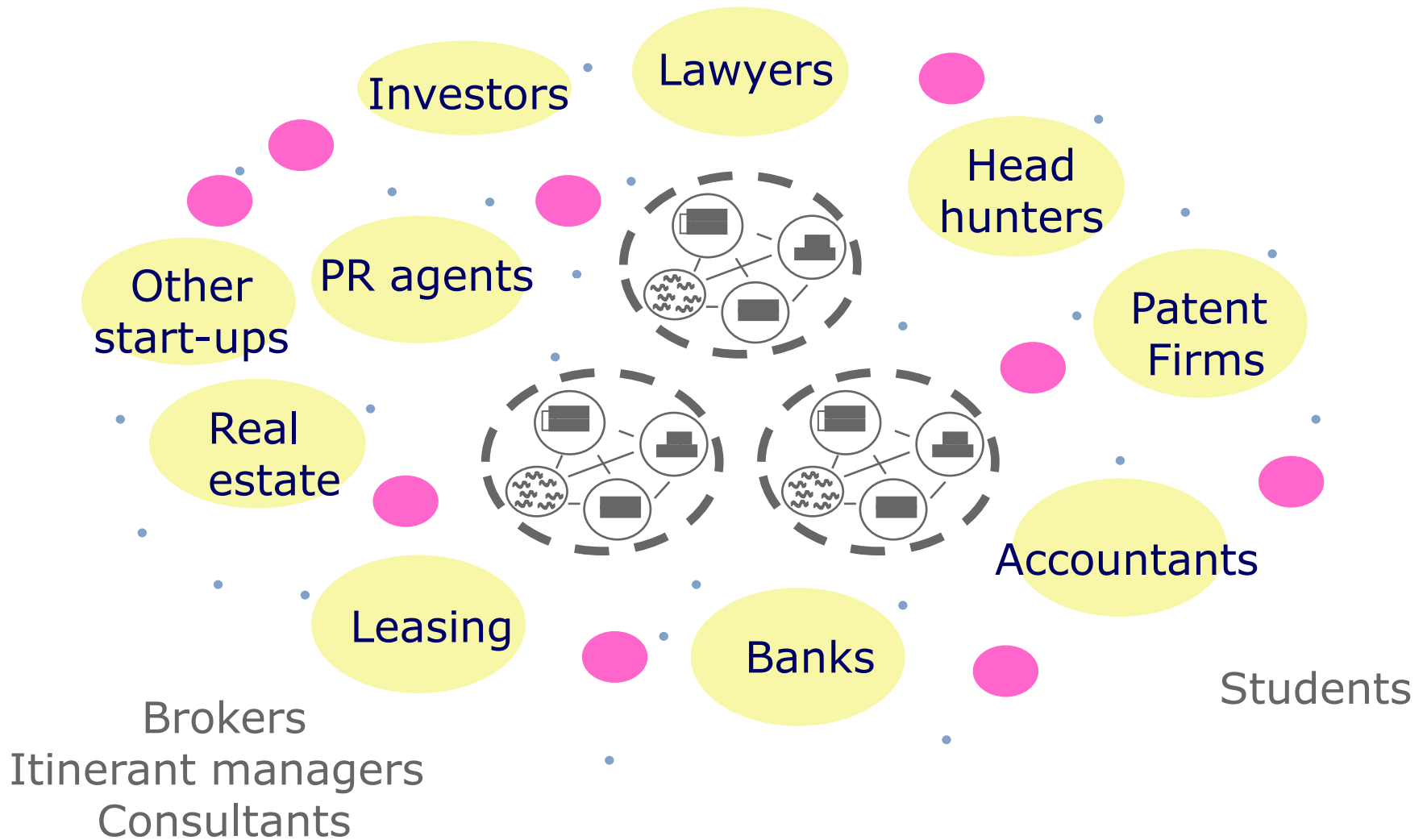
Oxford Spin-out Equity Management

- Formed in August 2008
- To manage the University's interests in its spin-out companies
- Two executives
 - Director – Dr Chris Towler
 - Portfolio Manager – James Mallinson
- Mission: “To add value to Oxford University’s stakes in its spin-outs”
- *Modus operandi*
 - Working closely with Isis Innovation
 - Maintaining relationships with the companies and their Boards
 - Understanding their business models, aspirations and challenges
 - Creating transparent processes by which University can effect its aims
 - Implementing chosen course of action
 - Reporting to University (balanced analysis of upsides and downsides)



Ecosystem

[Thanks to Jeff Skinner, UCL]



Any Questions?