



The Impact of Impact

TTO's and UK Government Research Excellence Framework

Sep15

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

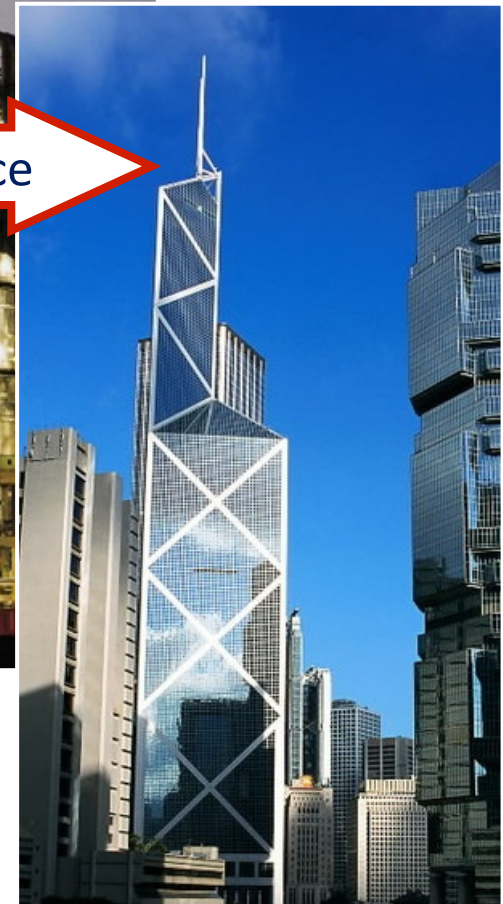
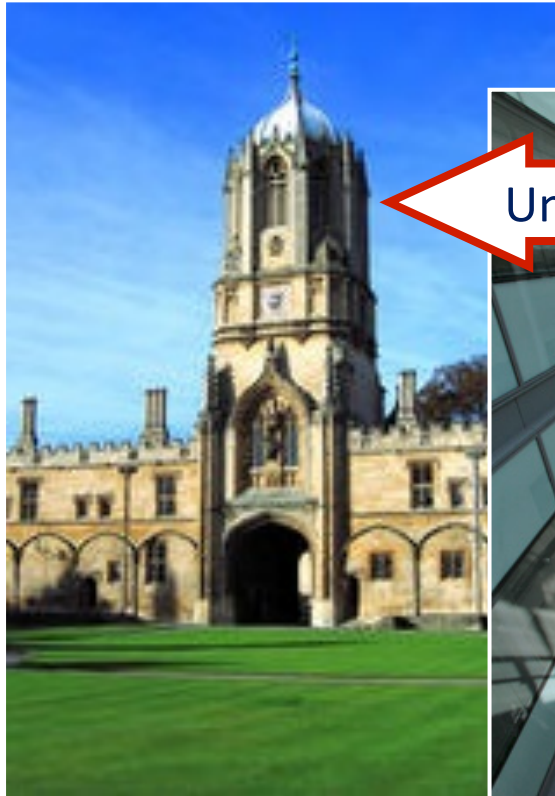


Isis Consulting Business
Technology Transfer and Innovation
Management



THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2015

Technology Transfer & Doing Business



University technology transfer resource



Oxford & Isis Innovation

OXFORD

Most Powerful UK Research University

According to the 2014 Research Excellence Framework, Oxford has the largest volume of world-leading (4*) research in the UK.

Highest University Research Spend in UK at
£612 million (2014)

5,809 academics and researchers, and
10,173 postgraduate students

ISIS INNOVATION

A company 100% owned by the University of Oxford,
established in 1988

Isis *helps* researchers *who wish to* commercialise the
results of their research

A world-class Technology Innovation business

- 4th highest British PCT patent applicant





Contents

Phases of Growth

REF – Research Excellence Framework

REF - Impact

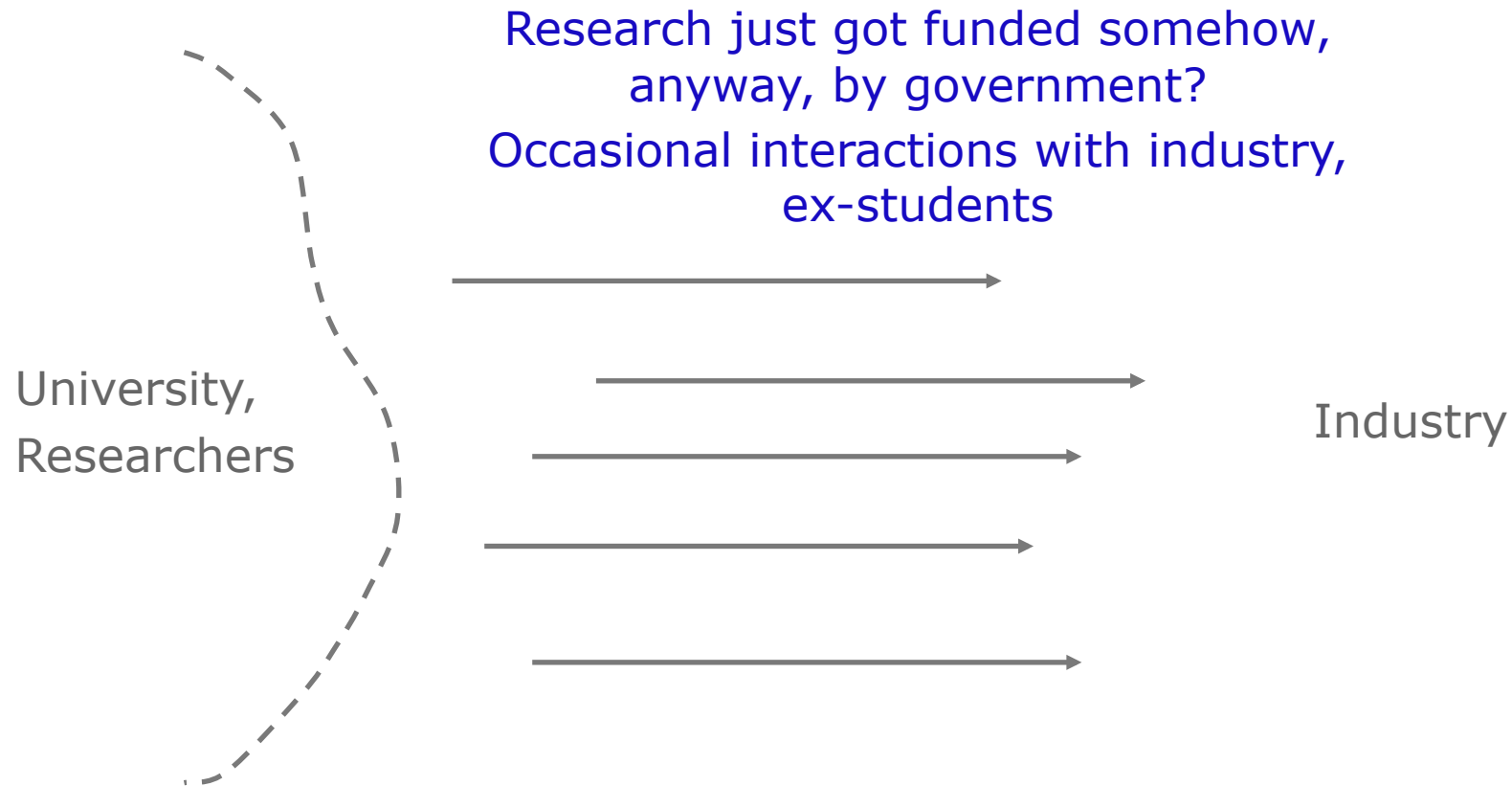
Implications

Dowling Review



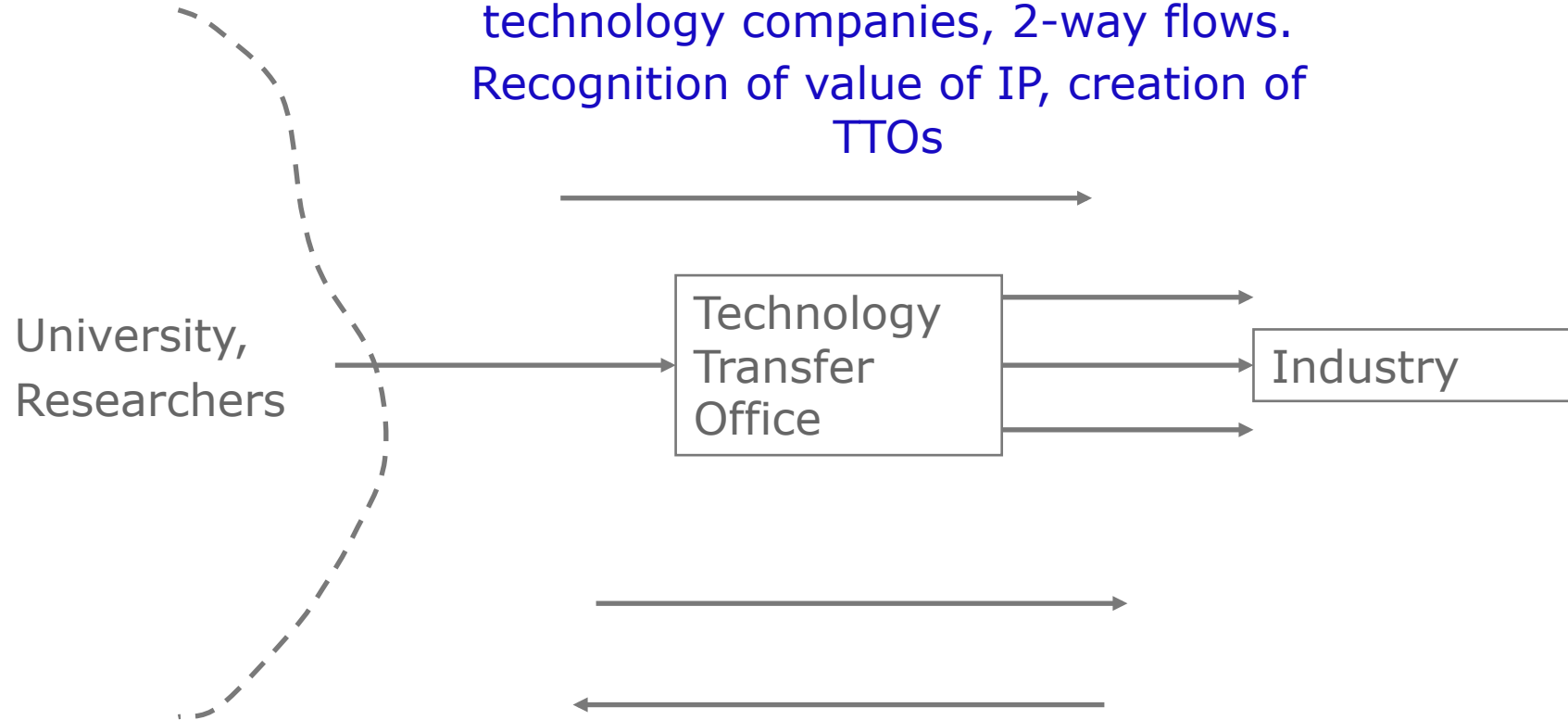
Phases of Growth of University Technology Transfer

Phase 1



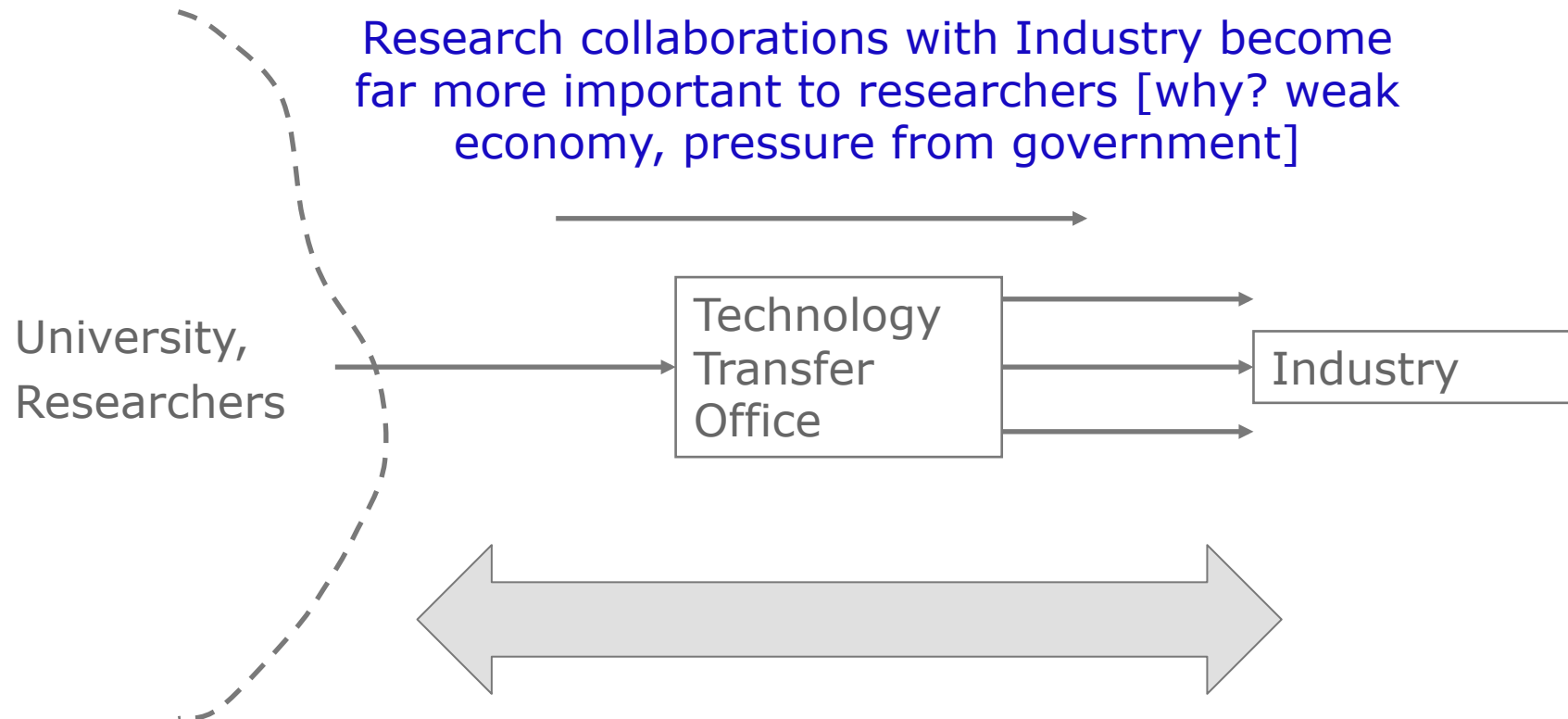
Phase 2

Increasing interactions with industry,
technology companies, 2-way flows.
Recognition of value of IP, creation of
TTOs



Phase 3

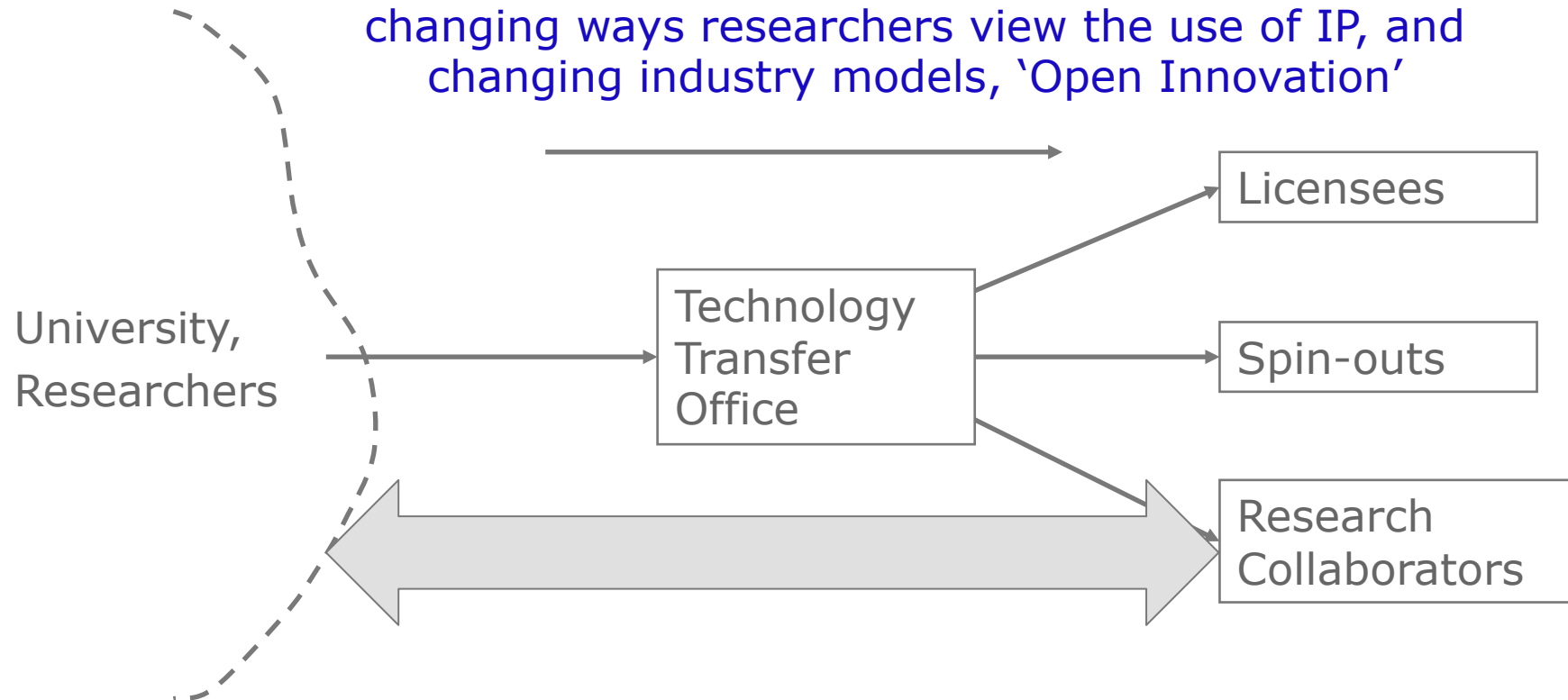
TTO's mature, some thrive, many struggle.
Research collaborations with Industry become far more important to researchers [why? weak economy, pressure from government]



Researchers now view IP differently, as a means to research funding, not only TT deals

Phase 4

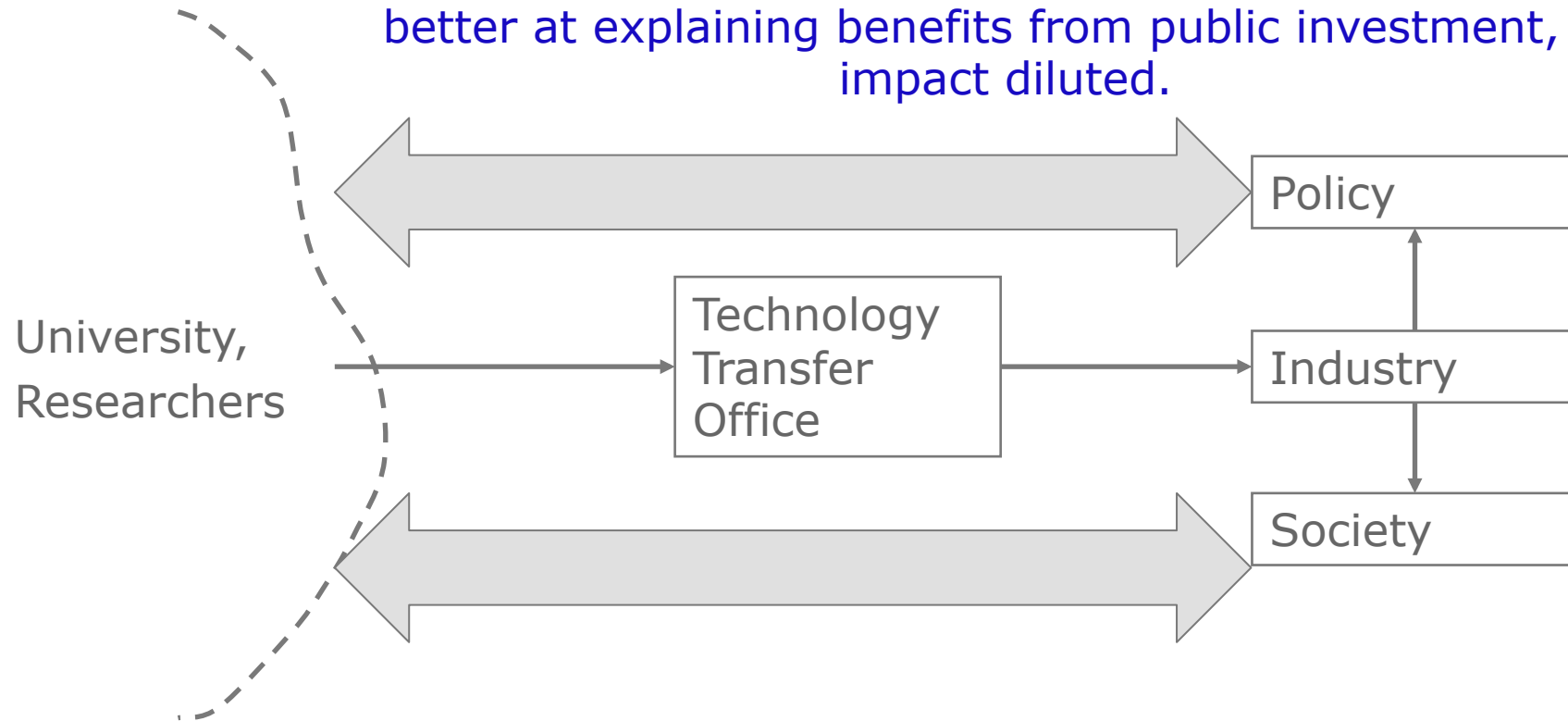
TTO's need to adopt more flexible models, to satisfy changing ways researchers view the use of IP, and changing industry models, 'Open Innovation'



Universities need to modify its expectations of the TTO. Will character of TTO's change ...?

Phase 5

Universities respond to pressure for Impact, become far better at explaining benefits from public investment, TT impact diluted.



University views TTO as (relatively) smaller part of a bigger picture.



REF & Impact

The research of **154** UK universities was assessed

They made **1,911** submissions including:

- **52,061** academic staff
- **191,150** research outputs
- **6,975** impact case studies

36 expert sub-panels reviewed
the submissions, overseen
by **four** main panels:



Overall quality

The **overall quality** of submissions was judged, on average to be:

- ★★★★ **30%** world-leading (4*)
- ★★★ **46%** internationally excellent (3*)
- ★★ **20%** recognised internationally (2*)
- ★ **3%** recognised nationally (1*)





What was assessed?

Outputs – 65%

Publications, books, designs, performances, exhibitions

Originality, significance and rigour

Impact – 20%

An effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia

Reach and significance

Environment – 15%

Strategy, resources and infrastructure that support research

Vitality and sustainability



Impact - <http://www.ref.ac.uk/>

141. Impact includes, but is not limited to, an effect on, change or benefit to:

- the activity, attitude, awareness, behaviour, capacity, opportunity, performance, policy, practice, process or understanding
- of an audience, beneficiary, community, constituency, organisation or individuals
- in any geographic location whether locally, regionally, nationally or internationally.

142. Impact includes the reduction or prevention of harm, risk, cost or other negative effects.



Impact - <http://www.ref.ac.uk/>

143. For the purposes of the impact element of the REF:

- a. Impacts on research or the advancement of academic knowledge within the higher education sector (whether in the UK or internationally) are excluded. (The submitted unit's contribution to academic research and knowledge is assessed within the 'outputs' and 'environment' elements of REF.)
- b. Impacts on students, teaching or other activities within the submitting HEI are excluded.



Impact - <http://www.ref.ac.uk/>

158. Each case study must provide details of a specific impact that:

Occurred during the period **1 January 2008 to 31 July 2013**

Was **underpinned** by excellent research produced by the submitting unit in the period **1 January 1993 to 31 December 2013**



Impact – definitions of starred levels

Four star	Outstanding impacts in terms of their reach and significance.
Three star	Very considerable impacts in terms of their reach and significance.
Two star	Considerable impacts in terms of their reach and significance.
One star	Recognised but modest impacts in terms of their reach and significance.
Unclassified	The impact is of little or no reach and significance; or the impact was not eligible; or the impact was not underpinned by excellent research produced by the submitted unit.



[impact.ref.ac.uk/CaseStudies/Results.aspx?HEI=166](#)

REF2014 impact case studies
Research Excellence Framework

AboutHow to searchFAQsAPIREF2014 Home

Search again:

Submitting Institution: Oxford (University of)

REF impact found 258 Case Studies

Currently displayed text from case study: Summary of the impact

[Accurately dating the past – OxCal: free software for the calibration of radiocarbon dates](#)

Summary of the impact

OxCal is the most popular software package world-wide for calibrating and analysing dates within the carbon dating process, enabling the accurate dating of objects from the past. The brainchild of Prof. Christopher Bronk Ramsey, Director of the Oxford Radiocarbon Accelerator Unit (ORAU), OxCal is based on chronologies refined by the use of

[Read More](#)

Submitting Institution	Unit of Assessment	Summary Impact Type
University of Oxford	Geography, Environmental Studies and Archaeology	Technological

Research Subject Area(s)

Mathematical Sciences: Statistics

Earth Sciences: Geology

History and Archaeology: Archaeology

Filter Impact Case Studies

Submitting Institution:

☐ Show only Joint Submissions

Unit of Assessment:

Summary Impact Type:

Research Subject Area:

☐ Show only Interdisciplinary Case Studies

Impact Global Location:

Impact UK Location:



Impact

Unit of Assessment

Impact template - 1

Impact case study – 1 + 1 for every 10 staff

- Summary of the Impact

- Underpinning Research

- References to the Research

- Details of the impact

- Reference to corroborate the impact

4 pages, 2000 words



Impact case studies

Accurately dating the past – OxCal: free software for the calibration of radiocarbon dates

Achieving Economic and Cultural Impact through Digital Humanities: The Effect of Multi-spectral Imaging

Adapting to the Economic Rise of China

Advising on the design, development and implementation of the UK Office for Budgetary Responsibility

Ancient Art on the Web: The Beazley Archive Online Database

Anglo-Saxon Archaeology and History: Shaping Policy, Informing the Public



Impact case studies

Political(508)

Health(857)

Technological(1402)

Economic(381)

Legal(212)

Cultural(1098)

Societal(1723)

Environmental (459)



Implications

Facilitating Impact at Oxford



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 Impacts

The impact of Isis activities to commercialise technologies and expertise from Oxford University is seen through the creation of new products and services.



Impact stories



Driverless cars

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

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

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

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

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



Professor Paul Newman, Oxbotica co-founder: "It's important that the UK invests not only in its research institutions and the technology that can create autonomous self-driving vehicles but also that it supports and builds companies that can exploit that technology to the market."

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

www.oxbotica.com

The Government's watchdog

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



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

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

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

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

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


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

Professor Anthony Heath, Director, Professor of Sociology



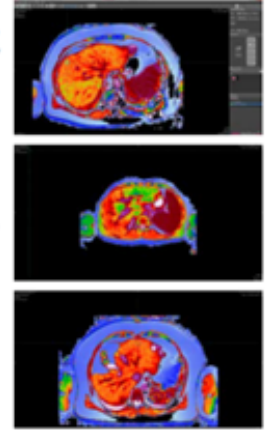
www.isis-innovation.com

Diagnosing liver disease early



Perspectum Diagnostics was Oxford's Radcliffe. The company is aiming to use tests to diagnose liver disease.

Early diagnosis of liver disease saves many patients and doctors avoid often painful needle biopsies are also saving and a 0.1 per cent.




Software which will allow provide a detailed picture of livers. The company's "Liver Index" and provides detailed inflammation, fibrosis and iron that can guide the need for treatment.

Clinical trials in Birmingham and Oxford, which can detect various liver diseases, have 10 per cent of the UK of the population in the area faced by doctors is early it appear only after damage.

...ing epidemic worldwide, mainly due to rising

...y stages of liver disease will save lives and our health





...scientist looking to set up a spin-out company would go early, and choose the right people for your core team is at least as important as the actual idea and the



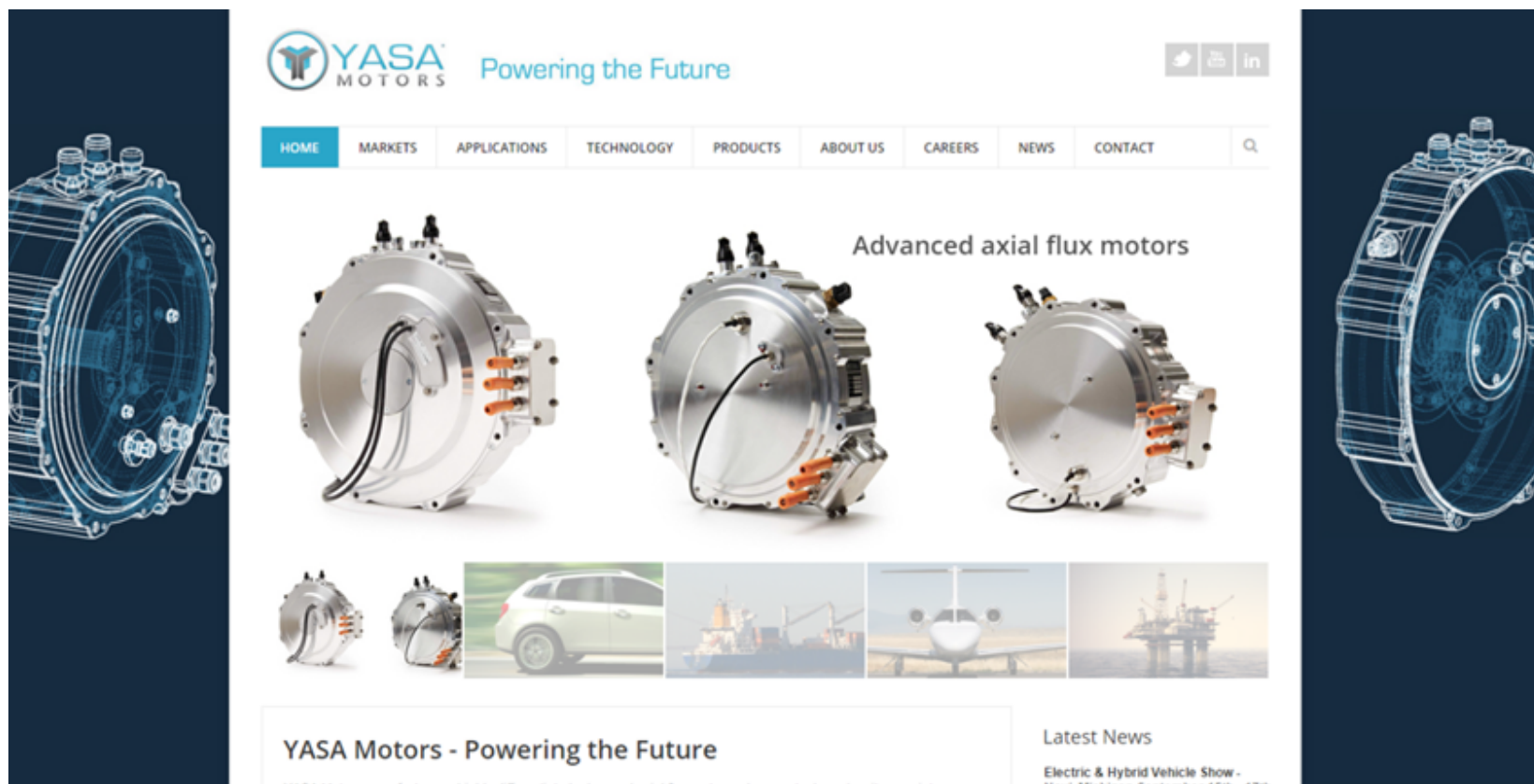
Professor Brian Henderson is non-executive director of Perspectum Diagnostics, a spin-out from the Oxford Centre for Clinical Diagnostic Research.

www.perspectum-diagnostics.com

University of Oxford: Research themes examples

Medical Sciences	Maths, Physical, Life Sciences	Social Sciences	Humanities
Cancer	Energy	International Growth	Digital Humanities
Cardiovascular Disease	Healthcare	Government and Leadership	Environmental Humanities
Diabetes, Endocrinology, Metabolism	Advanced Materials	Big Data & Social Media	Medical Humanities
Infection and Immunology	Resource Efficiency	Corporate Governance	Medicine and Conflict
Genomics	Recovery & ICT	Women in Business	Global History
Musculo-skeletal Science	Cyber Security	Training Educators	Cultural Heritage
Neuroscience	Big Data	Social Policy	Culture Transfer & Translation
Reproduction & Development	Robotics	Social Intervention	Practical Ethics
			

YASA Motors



£320m Spin-Out Investment Fund

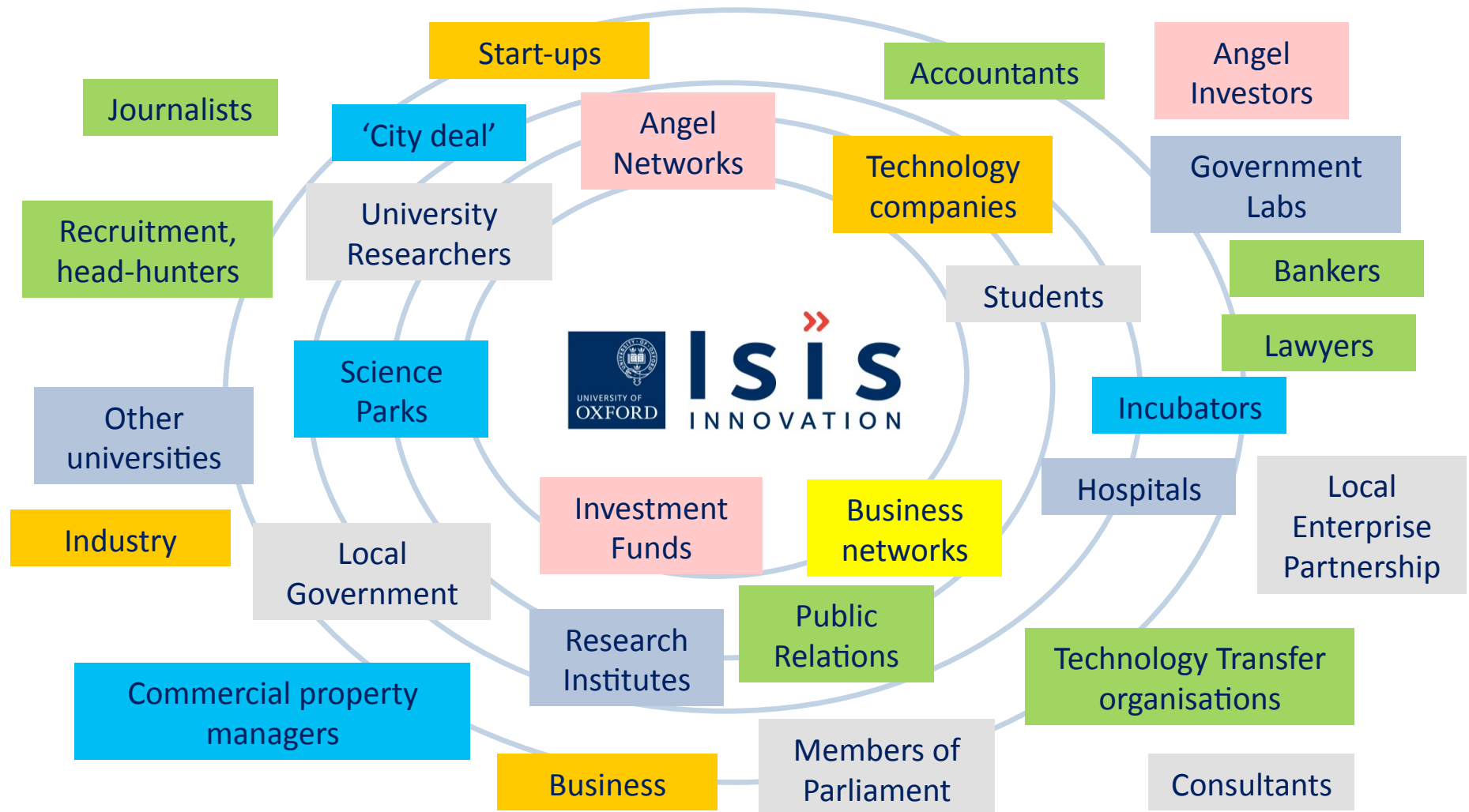
- **Oxford Sciences Innovation** formed to invest in spin-outs from Oxford (MPLS & Medical Sciences Divisions), Harwell & Culham laboratories
- Investing in **new and existing** spin-out companies, working **inclusively with other investors**
- **Investors** : Invesco, IP Group, Lansdowne Partners, Oxford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



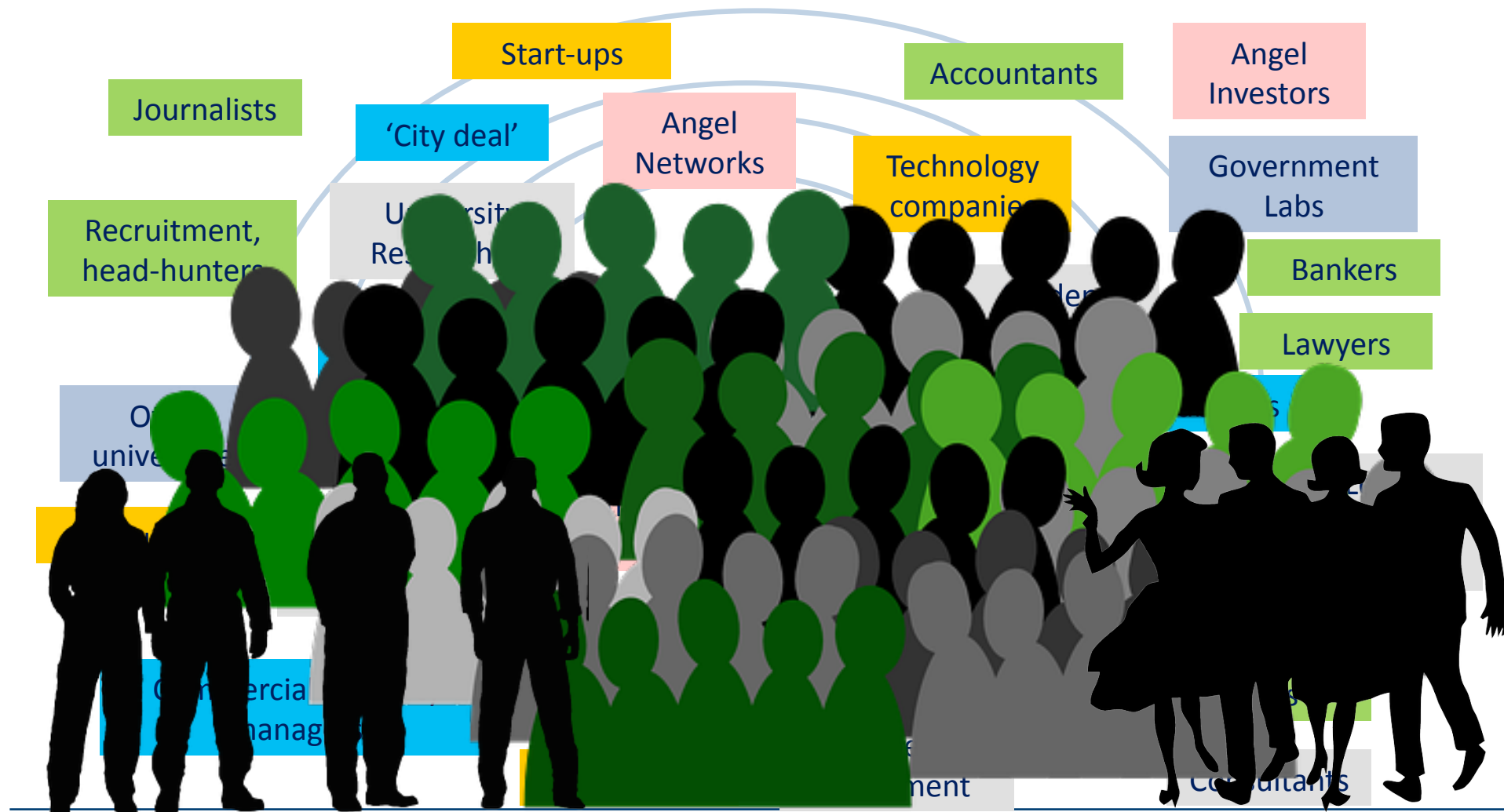


Implications - general

The Innovation ~~Ecosystem~~ Community



The Innovation Community

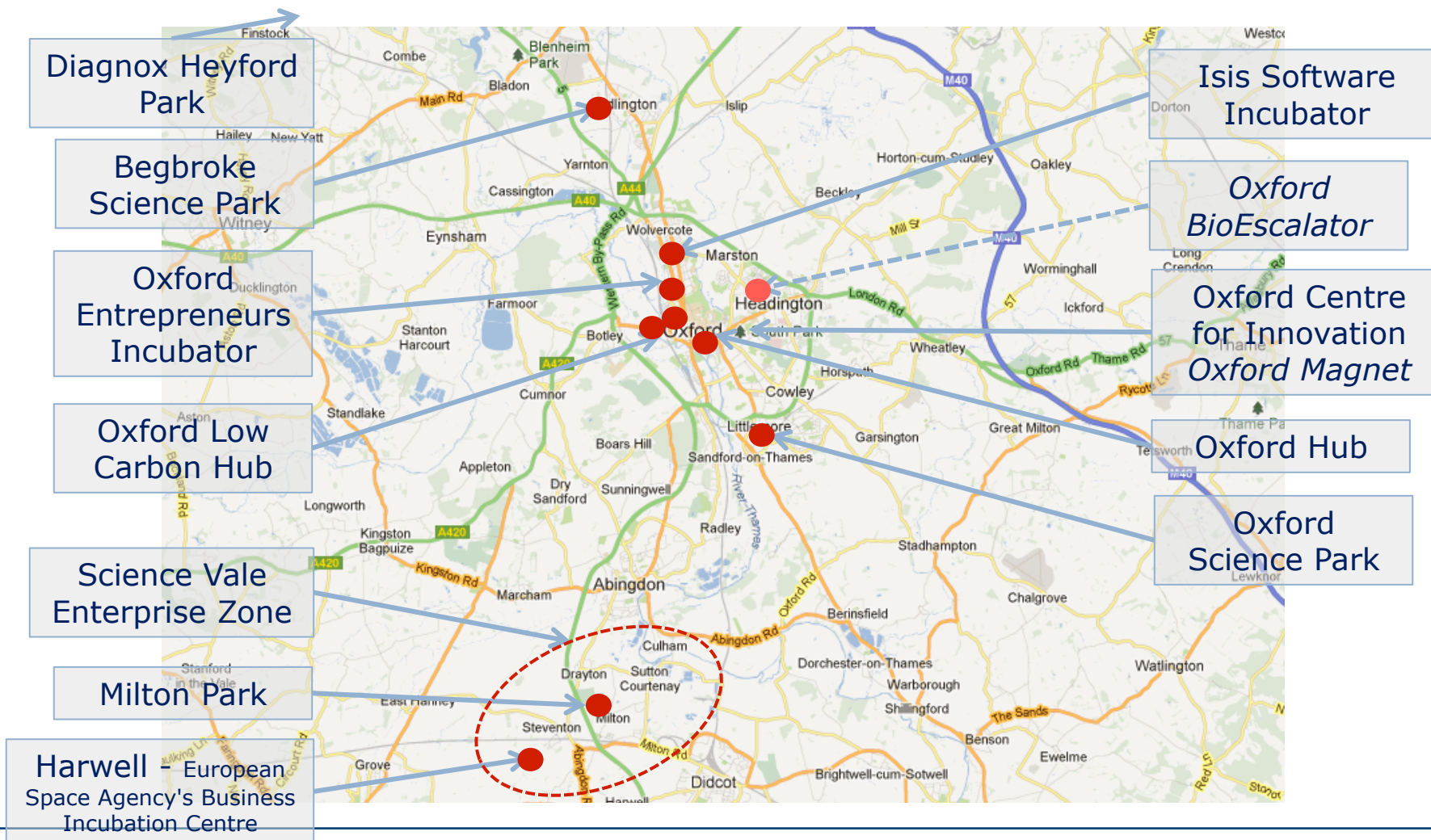


Oxford Innovation Society



- Tea & coffee reception
- Academic presentation
- Sponsor presentation
- Champagne reception
- Dinner in College
- After dinner drinks

Oxfordshire incubators & science parks





Everything Changes – the Language

- Technology Transfer
- Knowledge Transfer
- Third arm ... leg ... thing ... mission
- Knowledge Exchange
- Wider engagement
- *KEC - Knowledge Exchange & Commercialisation*

- Technology Commercialisation
- Wider engagement

Vision for Isis

Technology

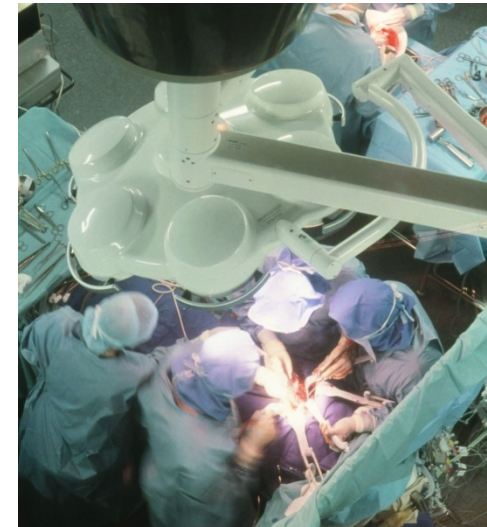
Innovation

For People

From Oxford and elsewhere

Successful ~~exploitation~~ ^{implementation} of new ideas

Health & Wealth of Society





Communications

Communications

Public relations

Public Affairs Directorate

Lobbying

Advocacy

Comunicazioni

Pubbliche relazioni

Affari Pubblici Direzione

Lobbying

Advocacy

Publications



Printed brochures



E-News
(English, Chinese)



Social Media
(LinkedIn, Twitter)

IMPACTS



Dowling Review

Dowling Review

The Dowling Review of
Business-University Research
Collaborations

July 2015

The Dowling Review of
Business-University Research
Collaborations

July 2015

www.raeng.org.uk/policy/dowling-review

Recent Reviews addressing Business-University Collaboration



Figure 4
Academics' motivations for engaging in collaboration with business⁶





Dowling Review

Recommendations (32)

Complexity

People are central

Effective brokerage is essential

Critical mass

Terms of Engagement

Government Strategy

16 for Government

16 for Innovate UK

12 for Research Councils

7 for Universities & 2 for TTO's

5 for Business

www.isis-innovation.com

Isis Enterprise wins Queens Award

Isis Innovation Ltd.

Isis Innovation is a wholly-owned subsidiary of the University of Oxford, managing technology transfer and academic consulting for Oxford, and providing consultancy services to clients around the world.

Our mission is to be the leading international technology transfer organisation to...

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