

Technology Transfer Seminar
JST Hall, Ichigaya, 23rd March 2005

Technology Transfer at the University of Cambridge

David Probert
Centre for Technology Management

Overview of this presentation

- UK context for technology transfer
- Cambridge context
- The work of Cambridge Enterprise
 - Mission
 - Activities
 - Results
 - Future plans
- Alternative perspective on technology transfer at Cambridge

UK context for technology transfer

Purpose of a UK University

Traditionally:

- **Teaching:** providing learning and skills for students; producing graduates with relevant skills
- **Research:** curiosity led; blue-skies; testing hypotheses

Now includes:

- **Transfer of knowledge** into the community
 - ‘Third mission’ – with ‘third stream’ of funding

Technology Transfer - UK Context

- **1977 Patents Act**
 - Employee inventions property of employer
 - .. but not at Cambridge
- **British Technology Group**
 - End of monopoly 1986
- **1993 Government White Paper**
 - *“Realising our potential” = universities are key*
- **1998 Education White Paper**
 - *“need for third stream of funding for new programmes at universities”*
- **1998 onwards - Government incentives**
 - Substantial public funds for tech transfer
- **2004 Lambert Review**
 - Recognition of need for more effort to support collaboration
 - Development of model research collaboration agreements

Key statements from Government

“[..] enterprise, and entrepreneurial new businesses, are the engines of growth in a modern economy”

– Stephen Byers, Secretary of State for Trade & Industry (1999)

“[Government will give] £140m over 3 years. To reward and incentivise excellence in knowledge transfer alongside funding for research and teaching.”

– Lord Sainsbury of Turville, Minister for Science (2001)

“Increased collaboration between business and university research departments will bring significant economic benefits to the UK [..]. But concerted action by business, universities, and government will be required in order to grasp the opportunities for the UK economy.

– Lambert Review (2004)

UK Context

Since 1999, UK Universities have been given:

- a **responsibility** for knowledge transfer
- the **opportunity** to bid for funds from specific Government-led programmes
 - e.g., Science Enterprise Challenge, University Challenge Fund
- a **permanent stream of funding** support to third mission activities (c. £300m)

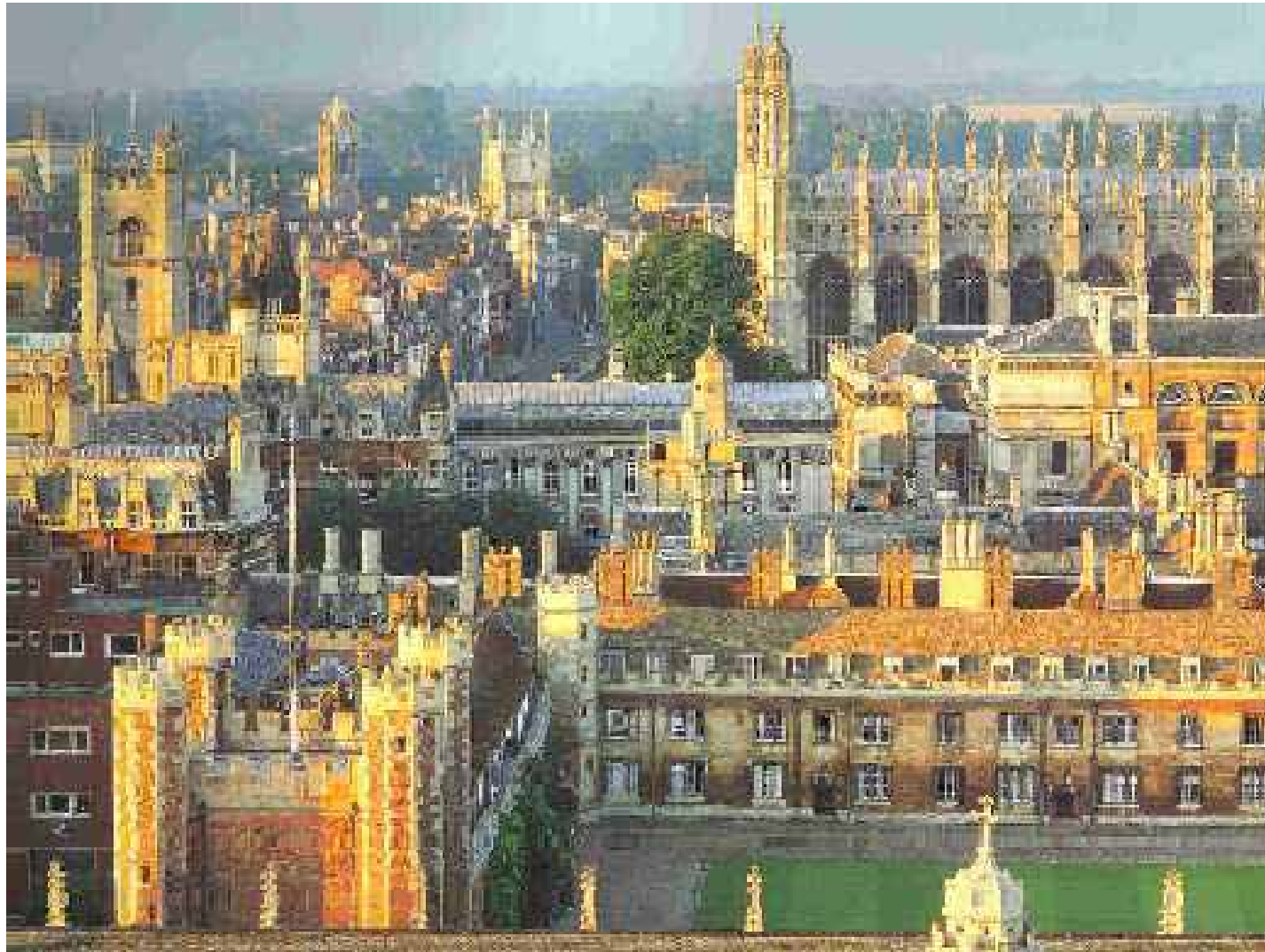
Cambridge context



The Cambridge High-Tech Business Cluster



With thanks to Alan Barrell, NW Brown



With thanks to Alan Barrell, NW Brown

ARM

astex™
TECHNOLOGY



> cps <

DOMINO

NCIPHER™

C a T

Cambridge Antibody Technology

C | D | T



making sense of an unstructured world

apama

Plastic Logic

THE AUTOMATION PARTNERSHIP

Laser-Scan

LIGHT BLUE OPTICS

zeus
TECHNOLOGY

Image Semantics

Microsoft

TRIGENIX®
A QUALCOMM Company

Cambridge Consultants

PA Consulting Group

TOSHIBA

in Europe

GlobespanVirata

GENERICS



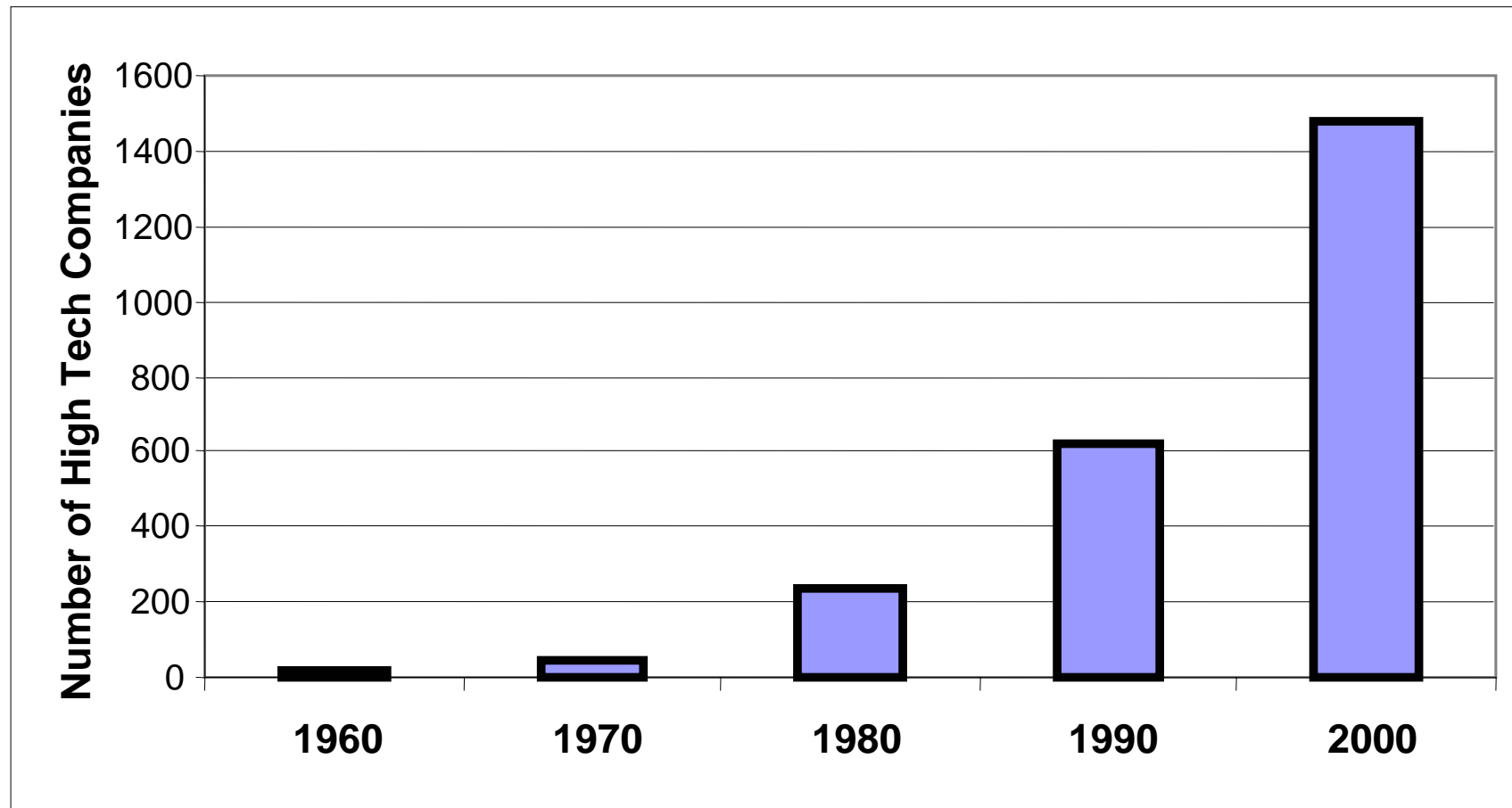
TTP GROUP

IfM



UNIVERSITY OF CAMBRIDGE

Growth of high tech in Cambridge



University of Cambridge

- Established 1209
- Students: 16,500 (11,600 u/g, 5,000 p/g)
- 20% from overseas representing 100 countries
- Over 100 departments, faculties & schools
- Research income over £254 million



University of Cambridge Income 2003 - 2004 (£m)


Nobel prizes:

- Cambridge (80)
- Chicago (72)
- Columbia (60)
- Harvard (>40)
- MIT (36)
- Princeton (30)
- Humboldt, Berlin (29)
- Cornell (28)
- Oxford (28)

Key people include:

- Isaac Newton
- Charles Babbage
- James Clark Maxwell
- JJ Thomson
- Ernest Rutherford
- Cockcroft, Walton and Rutherford
- Frank Whittle
- Crick and Watson
- Frederick Sanger
- Alan MacDiamid
- Cesar Milstein
- Richard Friend
- Sanger Centre team

Changing role of the University in the business cluster

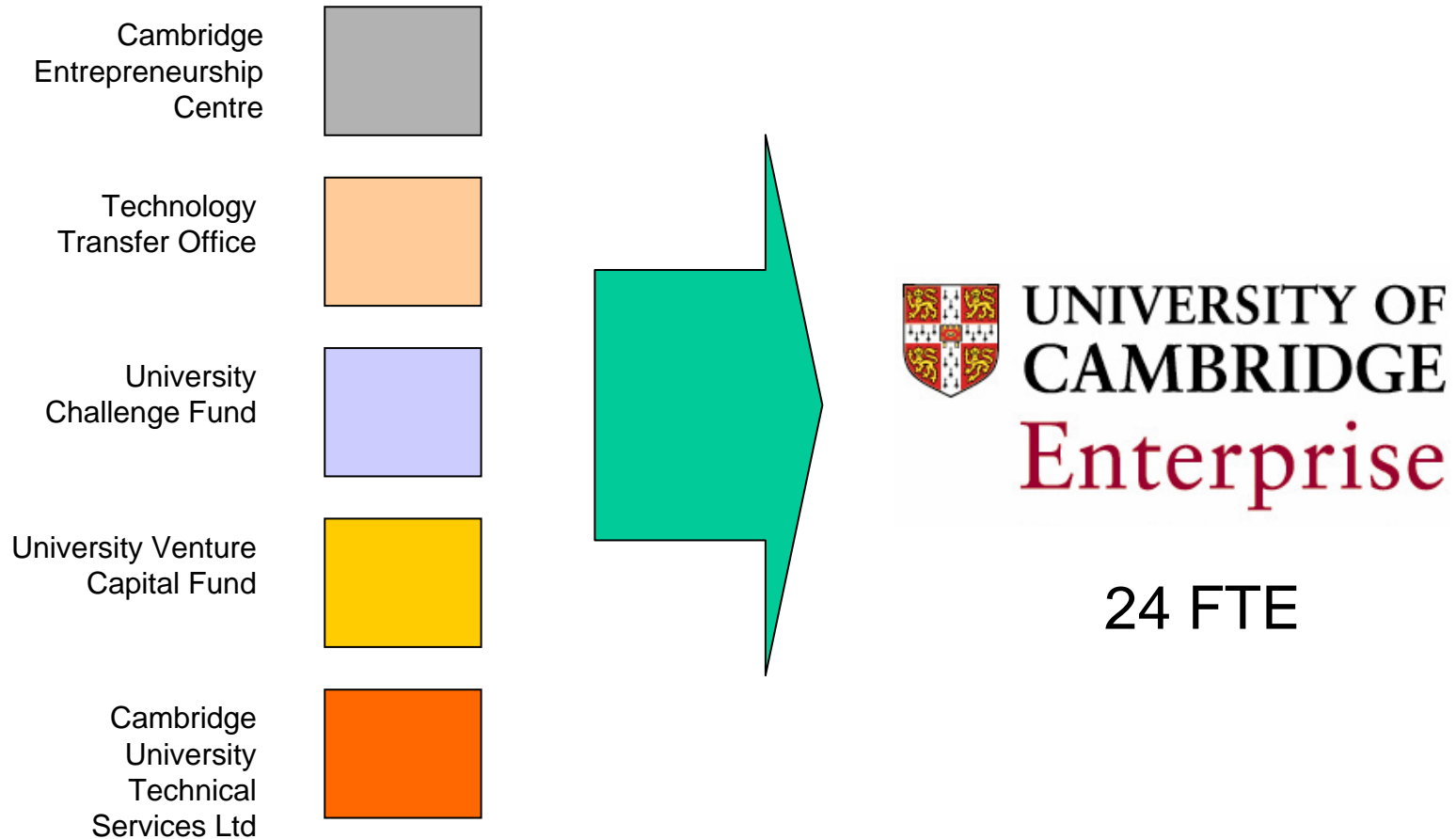
- Previously:
 - Indirect
 - Under-resourced
- 
- Currently:
 - Direct
 - Focused resources

Cambridge Enterprise

What is technology transfer?

- **Graduates**
 - ‘regenerating the gene pool of industry’
- **Research**
 - Public availability of leading edge outputs
- **‘Intermediate activities’**
 - Consultancy, executive education, student projects, Teaching Company Schemes, embedded labs,...
- **Licensing**
 - Packaged knowledge
- **Spin-outs**
 - Formation of new commercial entities

Formation of Cambridge Enterprise



Cambridge Enterprise: *Mission*

- *“Cambridge Enterprise exists to help University of Cambridge inventors, innovators and entrepreneurs make their ideas and concepts more commercially successful for the benefit of society, the UK economy, the inventors and the University”*

Cambridge Enterprise: *Operations*

- Encouraging and supporting the commercialisation of knowledge from all parts of the University:
 - Licensing
 - Business creation (spin-outs and start-ups)
 - Investments
 - Consultancy
 - Incubator
 - Teaching and training
 - External relations

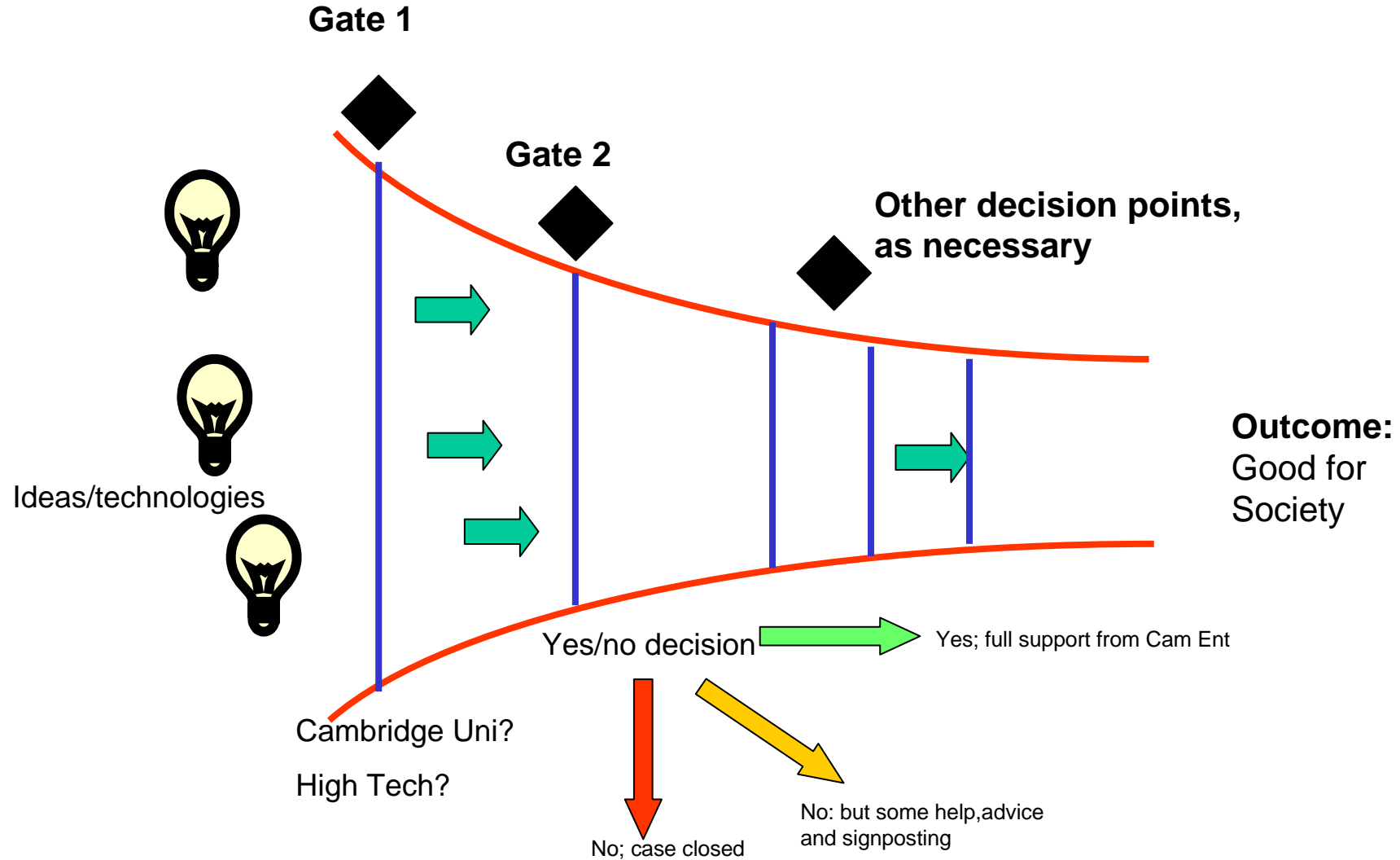
IP & Licensing

- Management of the University IP portfolio
- Working closely with the inventors
- Recommendations on best route for commercialisation
- Protecting intellectual property by best mechanism
- Seeking commercialisation and licensing opportunities

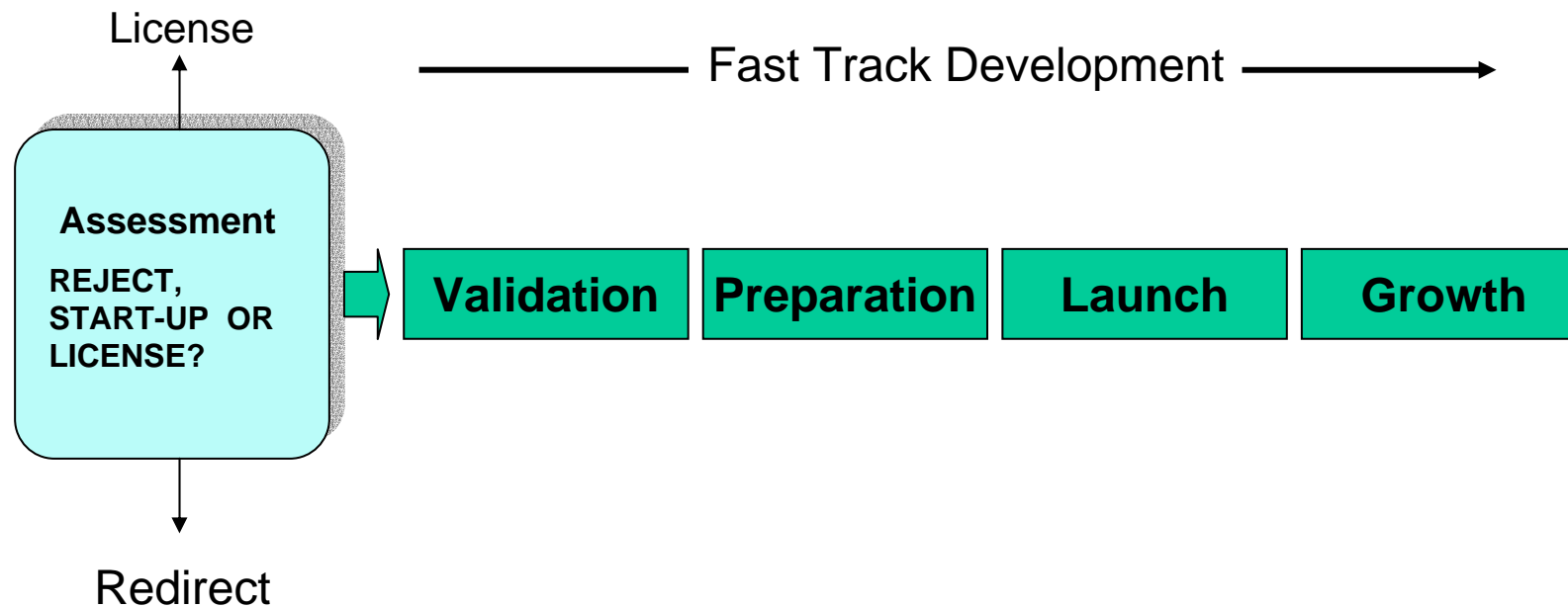
Company Creation

- Providing support, advice and mentoring for new business ventures
- Help in writing Business Plans
- Getting new ventures to the stage of ‘investment readiness’
- Providing some incubation space for new ventures (‘Cambridge Enterprise Lab’)
- Assisting in early stage funding; UCF; UVC; introduction to external VC’s

Case process for company creation



Business Creation Process



Investment in New Ventures

- Early stage funding support for University new ventures
- Preparation of the investment case for University Ventures Board
- UCF £10k – 250k; UVC £100k – 500k
- About 39 investments in 28 companies so far

Consultancy Activities

- Contracting service for academics that have opportunities for consultancy
- Contract preparation, negotiation and pricing for consultancy agreements
- Professional liability insurance cover and ability to use the University name

Teaching and Training

- Collaboration with the Centre for Entrepreneurial Learning team on teaching programmes
- Direction on teaching programme targets, content and delivery
- Assistance with delivery
- CEL programmes with surgeries, mentors, etc
- Business Plan Competition

External Relations

- Technology showcasing (in collaboration with the Corporate Liaison Office)
- Sponsorship programme
- Cambridge Enterprise Conference
- Other events: Cambridge/MIT Gala Dinner

Cambridge Enterprise: *Outputs*

For the academic year 2003 – 2004

- 60 new patent filings
- 38 licences agreed
- £2.15 million licence revenues
- £1.8 million consultancy revenues
- 35 new business ventures created
- 1st IPO for Cambridge in Dec 2004
 - Cambridge Display Technology

Collaboration with Industry

Very wide and extensive collaboration with industry

- 150 business mentors helping our new ventures
- 240 business people who help with teaching
- £400,000 raised in sponsorship from business last year; £20m for collaborative research
- 35 company internships arranged
- Technology showcasing events; 80 companies involved in 2003
- Run the Cambridge Enterprise Conference

Goals and Objectives

During the next five years Cambridge Enterprise aims to:

- Double the extent of licensing activities and revenues
- Double the number of spin-outs from the University
- Increase the growth rate of spin-out businesses
- Double the number of academics commercialising their inventions and ideas
- Increase the level of interaction with business on all levels
- Breakeven financially and return surplus funds to the University if possible

An alternative perspective on technology transfer

What is technology transfer?

- **Graduates**
 - ‘regenerating the gene pool of industry’
- **Research**
 - Public availability of leading edge outputs
- **‘Intermediate activities’**
 - Consultancy, executive education, student projects, Teaching Company Schemes, embedded labs,...
- **Licensing**
 - Packaged knowledge
- **Spin-outs**
 - Formation of new commercial entities

The Institute for Manufacturing

Aim:

- Assist manufacturers to grow & increase competitiveness.
- Help industry to create wealth more effectively.

We do this through:

- Education: Helping to raise the manufacturing skill base
- Research: Developing innovative tools and techniques
- Practice: Transferring know-how to industry.

Conclusions

- Effective Knowledge Transfer and commercialisation is very important for Universities
- In Cambridge structures, process and resources are improving
- We are always looking for ways to improve further our capabilities
- Sharing best practice, such as at this seminar, is an important mechanism for knowledge transfer within our sector

Useful links

- University of Cambridge Centre for Technology Management
 - www.ifm.eng.cam.ac.uk/ctm
- Lambert Review
 - www.lambertreview.org.uk
- UK Office of Science and Technology
 - www.ost.gov.uk
- “University spin-off companies: Starting to fill the evidence gap”
 - www.stjohns.co.uk/documents/usoreport.pdf