

Cambridge: Emerging challenges & opportunities

Tim Minshall

Lecturer, Centre for Technology Management
Director, St John's Innovation Centre



Overview of this presentation

- UK context for technology transfer
- Cambridge context
- Two models:
 - Centralised model: Cambridge Enterprise
 - Embedded model: Institute for Manufacturing
- Cambridge – challenges & opportunities
- Conclusions



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

Cambridge context

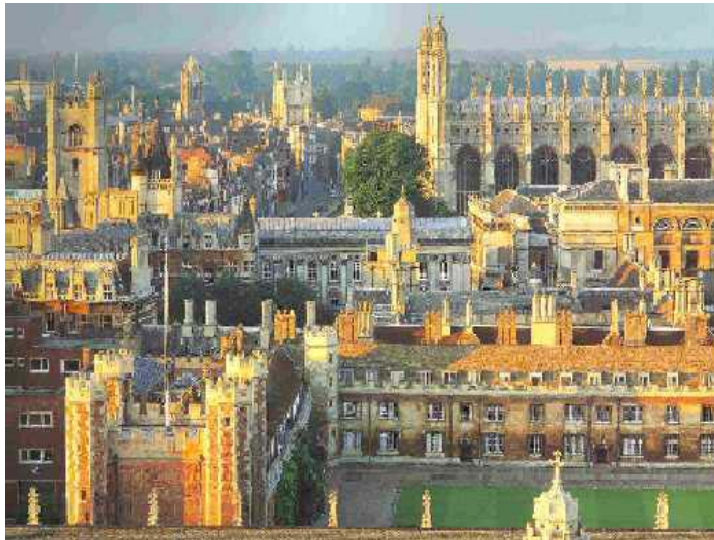


The Cambridge High-Tech Business Cluster



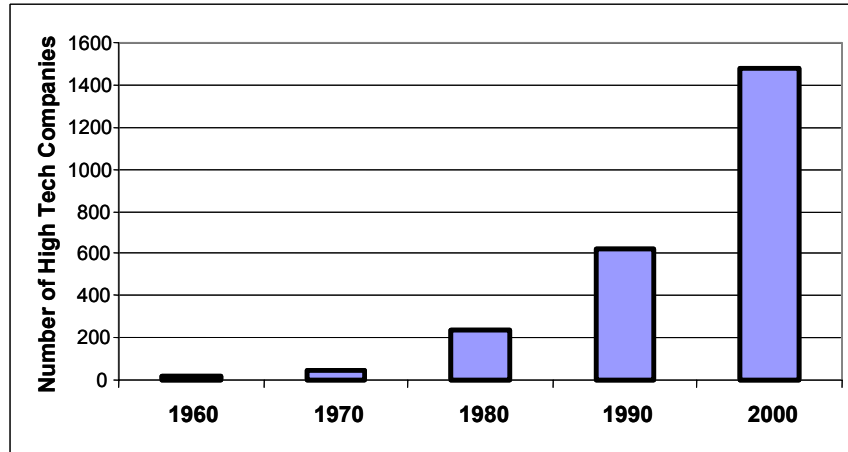
With thanks to Alan Barrell, NW Brown



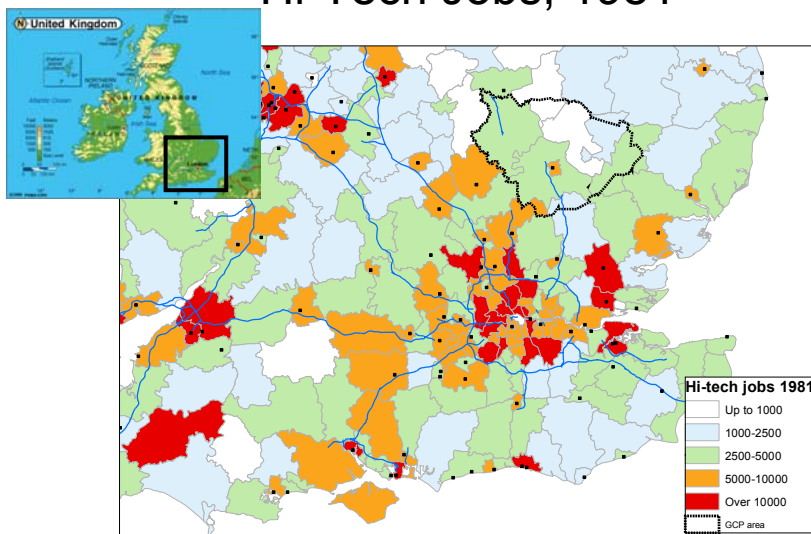


ARM astex csf cps
DOMINO CIPHER CAT C|D|T
Autonomy 1 Limited Plastic Logic THE AUTOMATION PARTNERSHIP
Laser-Scan LIGHT BLUE OPTICS zeus Image Semantics
Microsoft TRIGENIX Cambridge Consultants PA Consulting Group
Kodak intel
TOSHIBA GlobespanVirata
in Europe GENERICS TTP GROUP

Growth of high tech in Cambridge

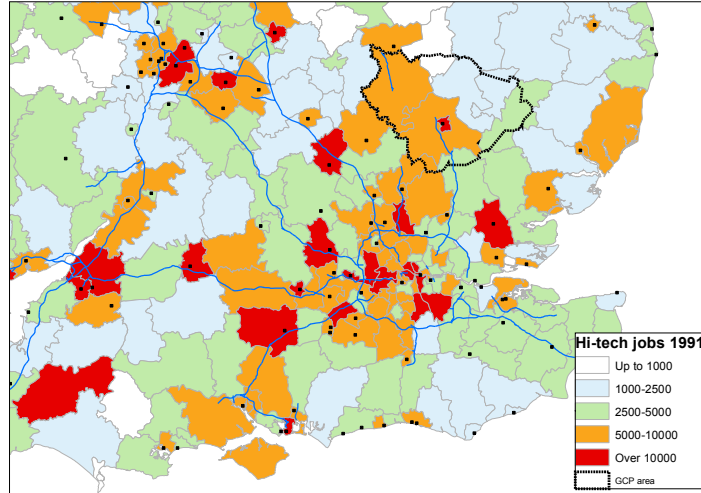


Hi-Tech Jobs, 1981



Source: ABI, LFS, PACEC

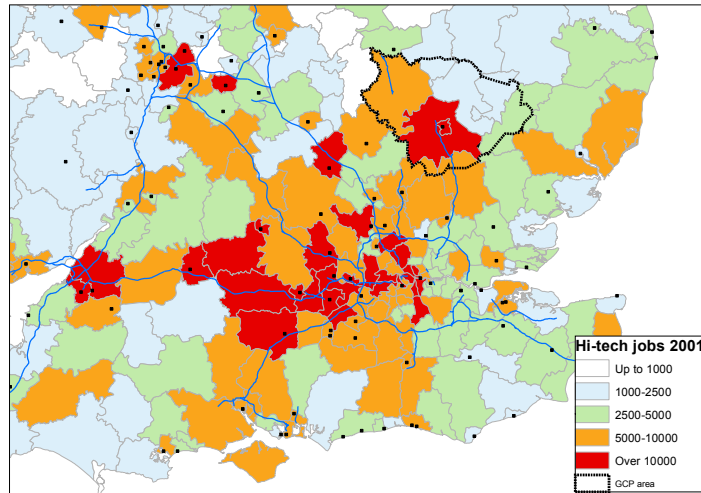
Hi-Tech Jobs, 1991



Source: ABI, LFS, PACEC



Hi-Tech Jobs, 2001



Source: ABI, LFS, PACEC



Cambridge ..

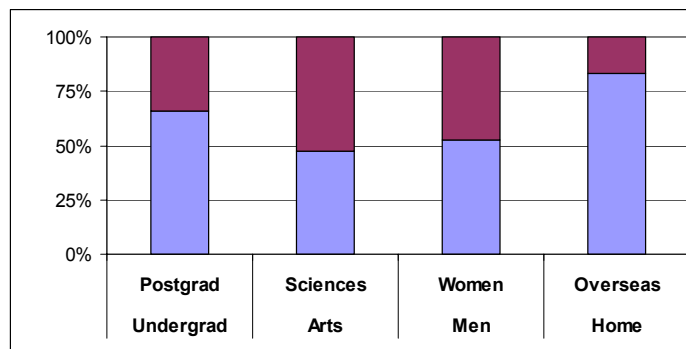
- Attracted 25% of UK's VC; 8% of European VC
 - Biggest concentration of VCs outside London
- Active angel groups
 - Cambridge Angels, GEIF, Choir of Angels,..
- Diverse networks
 - Cambridge Network, Technopole Group, CHASE,..
- Numerous conferences
 - Cambridge Summer Forum, Cambridge Enterprise Conference, ..
- Incubators, science parks, business parks
 - SJIC, CSP, Babraham Bioincubator,..
- Strong business – university links

Source: Cambridge Cluster Report 2005; Cambridge Technopole Report 2006



University of Cambridge

- Established: 1209
- Students: 17,824
- Research income: €370m
- Over 100 departments



Source: www.admin.cam.ac.uk/reporter/2004-05/special/



Knowledge transfer

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

Centralised model

cambridge **enterprise**
commercialising University technology

Cambridge Enterprise

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



Financial results 2005

- **Inventions and patents**
 - Number of Invention Disclosures = 127
 - Number of UK priority patent applications filed = 41
- **Agreements**
 - Licences and options granted = 40
 - New start-ups assisted = 30
 - Consultancy contracts = 70
- **Income**
 - **Licence income = €4m**
 - **Consultancy income = €2.3m**



Source: <http://www.enterprise.cam.ac.uk/about/statistics.htm>



Embedded model

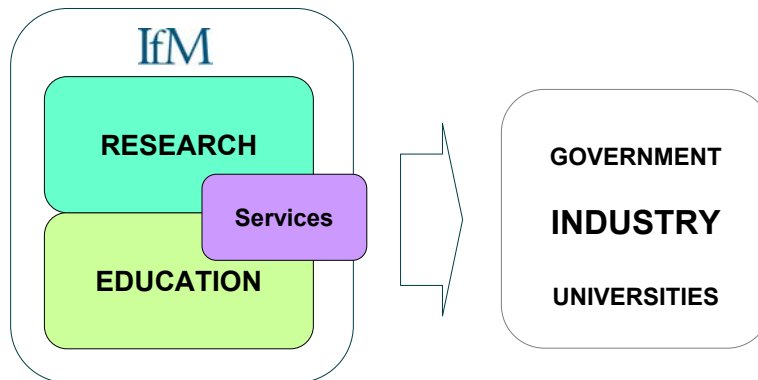
IfM

Knowledge transfer

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The Institute for Manufacturing

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



Education

Undergraduate



Manufacturing Engineering Tripos

Postgraduate



Advanced Course in Design, Manufacture and Management

Post experience



Manufacturing Leaders Programme

Research



- Production Processes



- Strategy and Performance



- Industrial Photonics



- Technology Management



- Automated Distribution and Control



- Economics and Policy



- Auto ID



- International Manufacturing



- Industrial Sustainability



- Decision Support

Services

Embedded in the IfM, the ILU acts as an interface to industry disseminating research outputs through:

- **Delivery** - industrial services and engagements locally, nationally and internationally

- **Events** - courses, workshops, symposia & conferences

- **Membership** – corporate membership scheme

Example: Aero ID Technologies Programme

- Addressing barriers to wide scale adoption of Radio Frequency Identification and other ID technologies in the aerospace sector



cambridge **enterprise**
commercialising University technology

IfM

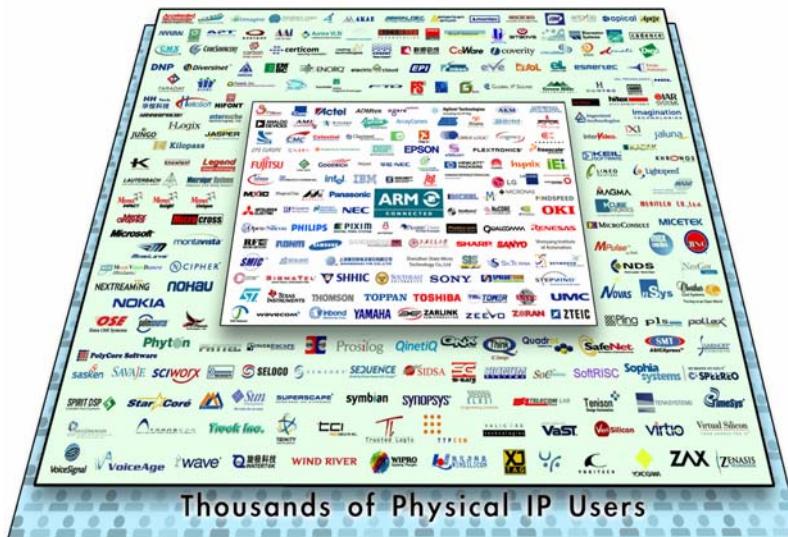
Back to Cambridge ...

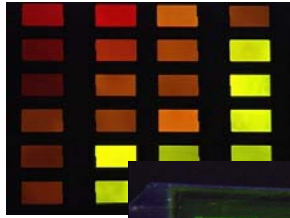
View from 1987 ...

- “Enterprises in the region remain very small”
- “The most successful of the new Cambridge enterprises have failed to remain independent – typically selling out to foreign firms”
 - AnnaLee Saxenian, “The Cheshire Cat’s grin”, 1987



Acorn 





But (#1)...

employees in Cambridge star companies

- ARM 1,400
- Autonomy 205
- CSR 248
- CDT 125

employees in Silicon Valley star companies

- Cisco 34,000
- Oracle 42,000
- Intel 85,000
- SUN 35,000

But (#2): Lots of VC?

Total Cambridge
VC

= €750m

Selection of Silicon
Valley VC

= \$3500m

Source: Cambridge Technopole Report, 2006. NB: Excludes 3i



But (#3)...

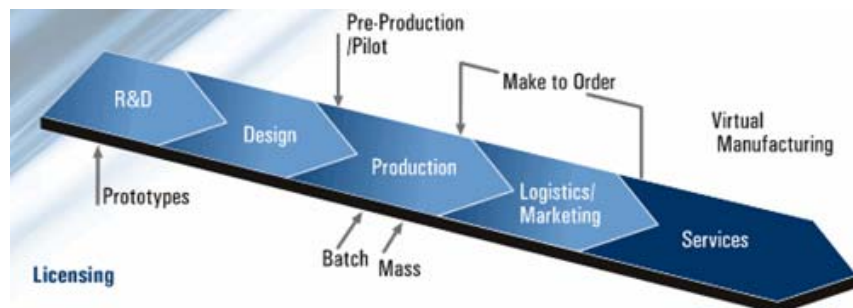
- “[...] **we run the risk of turning into Cambridge, England:** we’ll have isolated clusters of the very best university research and a number of small R&D firms but not the downstream production, service and support jobs that make a vibrant economy. **We’ll create all the new ideas – but others will get too much of the benefit**”

– Prof. Mike Best (UMass Lowell Center for Industrial Competitiveness) in
“Choosing to lead: The race for national R&D leadership and new economy jobs”



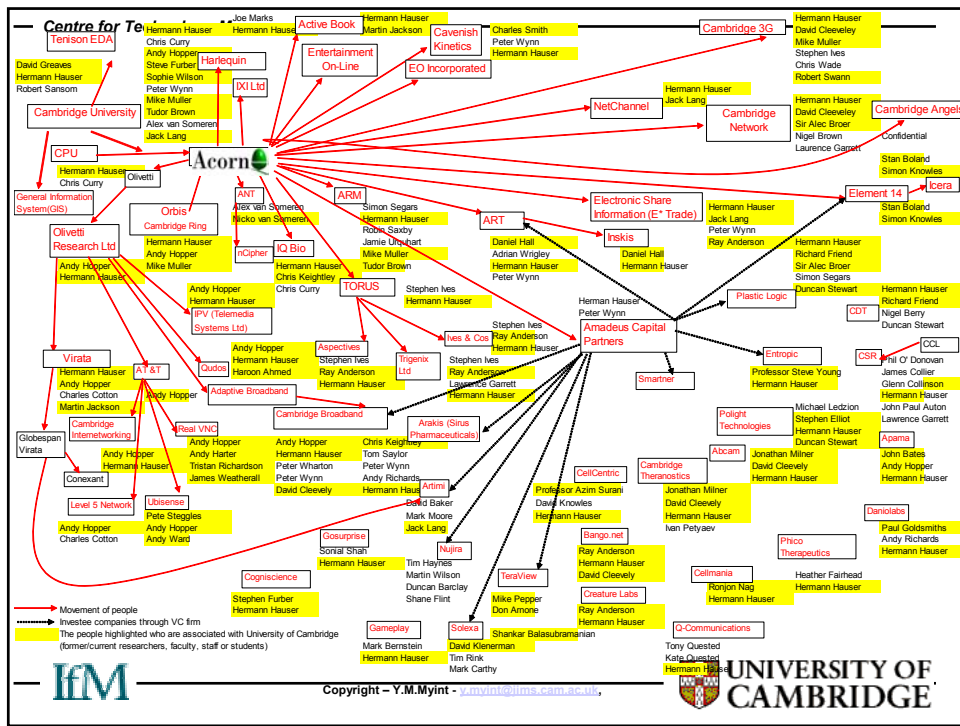
So what's the USP for Cambridge?

- University strengths in 'R'
- Commercial strengths in 'D'
 - Design, development, prototyping, batch production,...



So what's the USP for Cambridge?

- University strengths in 'R'
- Commercial strengths in 'D'
 - Design, development, prototyping, batch production,...
- Good links between the two
 - R&D, student projects (163 locally p/a), recruits, problem solving, company creation, training
- Brand = Investment magnet
- People (and their connections)



Centre for Technology Management

cambridge technopole:
AN OVERVIEW OF THE UK'S LEADING HIGH-TECHNOLOGY BUSINESS CLUSTER

The Award of Excellence for Innovative Regions by the European Commission

IfM

UNIVERSITY OF CAMBRIDGE

Taking a UK perspective ..

- Strong science, weak commercialisation
- Increasing challenges from developed & emerging economies
- A broader vision of innovation in government
- Over-emphasis of role of universities in policy circles
- Start-ups alone are not enough
- Systemic weakness in supply of 'real' venture capital

Universities' roles ...

- **Centralised model**
 - Starting new companies
 - Accessing specific IP

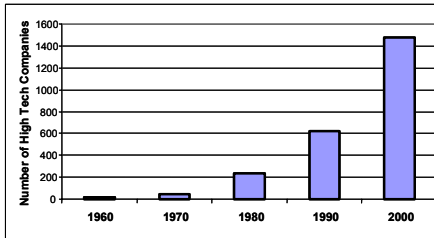
cambridge **enterprise**
commercialising University technology

- **Embedded model**
 - Company growth
 - Company transformation

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Thank you



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UNIVERSITY OF CAMBRIDGE