The Cambridge Advantage
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**Oxbridge** - the redolent slang term for Britain's leading Universities, Oxford and Cambridge, conjures up images of seductive clusters of mediaeval buildings, equipped with fine libraries, long pedigrees and famed alumni. Are they *Tweedle Dum* and *Tweedle Dee*, the same only a bit different, offering very similar opportunities to graduate students, academic contacts and business partners? Or are those differences crucial ones for entrepreneurship and development of fertile business links?

Nowadays, both cities are ringed with newly developed science parks and Innovation centres, housing a mixture of locally born hi-tech businesses with UK subsidiaries of international companies. Both contribute significantly to the success of the UK's new economy and increasingly will join forces to facilitate economic, scientific and technological development.

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**A different focus**

But there are important differences in the cultures of the two universities and Oxford is not yet challenging Cambridge for a leading position in technological innovation. Moreover, Oxford City Council's local plan for 2001-16 does not recognise advanced technology companies as among the leaders of growth in its industrial sector but instead cites education, services and manufacturing as its key sectors.

This different focus of the two university towns has a long history. Since the 17th century, Oxford University has traditionally dedicated a smaller proportion of its total activities and resources to sciences, focusing more on the Humanities. The pattern of Nobel prize winning compared between the two universities reflects this.

**Nobel prizes**

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<th>Oxford</th>
<th>Cambridge</th>
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<tbody>
<tr>
<td>Literature</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Peace</td>
<td>5</td>
<td>2</td>
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<tr>
<td>Physics</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Chemistry</td>
<td>10</td>
<td>18</td>
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<tr>
<td>Medicine</td>
<td>12</td>
<td>22</td>
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20% of all the Nobel prizes in medicine and chemistry have been won by scientists from the Cambridge cluster. While Oxford prides itself on the number of prime ministers, leading politicians, writers, historians and distinguished journalists among its alumni, Cambridge prefers to admire its great scientists, Newton, Darwin, Clerk Maxwell, Thomson and a host of others.

**Academic ranking**

In recent years, Cambridge has been moving up the Academic Ranking of World Universities, the academic equivalent of the FTSE Index, which monitors research inputs, publication outputs and other evidence of distinction in teaching and research. And the gap in performance is widening. In 2004, Cambridge was ranked third, with Oxford in 8th place. In the 2005 listing, Cambridge was ranked 2nd with Oxford being displaced to 10th place.

**Ideas to change the world**

Both universities seek to foster entrepreneurship and the establishment of spin-out companies to exploit and spread the benefits of new knowledge. Oxford through Isis Innovation and Cambridge through
Cambridge Enterprise. Currently Isis Innovation has some 400 live projects while Cambridge Enterprise has 550. If we compare patent filing activity, Isis Innovation averages one per week (52 in 2003/4), Cambridge Enterprise rather more with a score of 62 over the same period plus 141 disclosures.

Oxford has been no slouch in launching companies, a healthy 49 spin-outs since 1997. Over the same period, the Cambridge score is 42 but this figure is somewhat misleading since many Cambridge hi-tech companies have started without the University having ownership of the intellectual property on which they are founded. Currently 312 start-ups which have direct links to the University of Cambridge are recorded with 250 of these still trading and accounting for $1.5bn of revenue and $6bn of value. These include mould-breaking technology leaders in their fields such as

ARM
Autonomy
Cambridge Antibody Technology
Cambridge Display Technology
Cambridge Positioning Systems
nCipher
Plastic Logic

The strapline for the Cambridge Network is ‘Cambridge ideas change the world’ and they have, on many occasions continuing the tradition of groundbreaking scientific thinking which stretches back to Newton.

When it comes to attracting partnership from major multinationals across the spectrum of technologies, the research focus of Cambridge is more attractive than its innovative patents. The Cambridge list of world-leading companies with a presence in the city includes:

Intel
Microsoft
Hitachi
Toshiba
Seiko Epsom
Qualcomm
Broadcom
Sony
Genzyme
Kodak
Amgen

The companies listed below have recently visited Cambridge with a view to creating new research and business links there:

Google
Apple
Siemens
BASF

The importance of a vibrant entrepreneurial community

Apart from the lure of the breadth and strength of its knowledge base, Cambridge attracts these companies because it provides them with a lively and collaborative community which is not ruled or organised by a single overriding powerful institution. That includes the University despite its world leading prestige. There is a culture of ‘Constructive Chaos’ in the Cambridge community of scientific and technological missionaries and a sense of being part of something significant and special which is making a real impact on the world. It is the people who have built this community and who have
created its complex personal networks over a number of years who matter much more than structures and systems and there is a shared perception that personal networks are the most important way to share information creatively and foster further ideas for business success.

The Centre for Entrepreneurial Learning (CfEL), under the direction of Dr Shai Vyakarnam, has positioned its research and focuses its courses on the people who have created this vibrant and successful entrepreneurial community. It collaborates closely with experienced business founders who can provide role models for a new generation of would-be entrepreneurs, involving them directly in seminars, workshops and summer schools. It researches the social networks which have grown up over the years to illuminate how they influence company formation and how they may connect into the University's knowledge base. This approach, which values the influence of risk-taking individuals over formal structures and systems, is already adding value to the mix of factors which accelerate successful entrepreneurship and to further knowledge-sharing both within the Cambridge community and further afield in the UK, Europe, India and the Far East.

Entrepreneurial individuals and companies are not just seeking an ecosystem of money and business transactions, they have a thirst for knowledge and they want many different people or knowledge ‘cashpoints’ from which they can draw to find what they need. Cambridge and CfEL provide this in a myriad of ways.

Money

But while the prime focus in Cambridge is on people and the issues are not mainly about numbers, money to fuel business growth is a prime need and Cambridge has the premier UK cluster of venture capital investment. A staggering 23% of UK venture funding and 8% of the total venture capital investment for Europe goes to firms in Cambridge. The number of early stage venture capital deals in 2003/4 compared between the two towns is:

<table>
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<tr>
<th></th>
<th>Oxford</th>
<th>Cambridge</th>
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<td>Value:</td>
<td>£46m</td>
<td>£283m</td>
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If we look at main markets and the number of listed companies on the London Stock Exchange (FTSE), we find 14 from Oxford, 18 from Cambridge. Of these, only 2 of the Oxford FTSE companies are in the field of technology compared with 13 of the Cambridge companies. For AIM tech listings, Oxford has six compared with Cambridge’s 11.

Venture capitalists are not fools. There are 9 resident VC companies in Cambridge:

- Amadeus Capital Partners
- Avlar Bioventures
- ET Capital
- TTP Ventures
- University Challenge Fund
- 3i
- Cambridge Gateway Fund
- Pall Mall Partners
- Create Partners (East of England Regional VC Fund)
In addition, there are five angel groups:

- Cambridge Angels
- Cambridge Capital Group
- Great Eastern Investment Forum
- Library House
- 'Choir of Angels'

All five of the major accountancy firms are represented by offices in Cambridge, as compared with only one in Oxford. Cambridge also attracts top flight US and UK legal firms with international experience.

The Cambridge Technopole

The Cambridge Technopole is an informal network of business support organisations, operating to improve the quality of business support, particularly for companies based on new technology. It includes representatives from the Cambridge Business Group, an alliance of the Business Link for Cambridgeshire, the Cambridge Chamber of Commerce and Cambridge Enterprise Services, plus the Cambridge Network, Cambridge Science Park, the St John's Innovation Centre, the Eastern Region Biotechnology Initiative (ERBI), the East of England Development Agency, the Great Eastern Investment Forum, the Greater Cambridge Partnership and various departments and offices of the University of Cambridge.

The Technopole has been a 'bottom-up' initiative aimed at identifying gaps in the provision of support for businesses and to lobby for resources to fill them. It also publicises and explains what is going on in Cambridge to attract and retain appropriate new businesses to the sub-region and to signpost business customers to the right services.

Cambridge's hi-tech cluster began to establish itself in the postwar period and has steadily grown and matured in the intervening years, generating a large community of successful entrepreneurs who are willing to share their experience through mentoring and many other kinds of participation in the processes of growth, maturing and renewal of the entrepreneurial compost heap.

In addition, Cambridge has spawned a vibrant technology consultancy cluster with the resources and knowledge to apply technological know-how to commercial needs. This cluster has played a very significant role in the development of new industry sectors such as industrial inkjet printing and innovative applications of wireless and communications technologies.

Through the activities of the Centre for Entrepreneurial Learning (CfEL) and via many local interest groups and private sector organisations which have grown up to bring together business incubation, knowledge of investment readiness, technical and market due diligence, management of intellectual property and mentoring, this experience is shared and focused through many channels for the benefit of new members of the local hi-tech community. Cambridge has matured into a low risk place to do high risk things where money, knowledge and experience can be leveraged through a variety of 'knowledge cash
points’ as and when they are needed, diluting the risks, providing invaluable support for the budding entrepreneur and greatly improving the prospects for business success.

This piece is authored by John Snyder, Entrepreneur in Residence at CfEL. It is based on a debate entitled "Which intellectual powerhouse provides the best opportunities for technology entrepreneurs?" between members of the academic and business communities of Oxford and Cambridge which took place over a video link at Queens College, Cambridge and Trinity College, Oxford on 27 September 2005.
John Snyder read first Geography and then Anthropology at Cambridge and followed that with an MA in Social and Political Sciences. In 1992, he and Dr Martin Porter spun out the Muscat search technology from the University and as CEO, John built Muscat into a profitable enterprise software business. Muscat was sold to The Dialog Corporation in 1997. In 2001, he returned to Cambridge University to head the Business Creation unit at the new Entrepreneurship Centre where he developed and ran a mentor-based start-up acceleration programme. He is currently an Entrepreneur in Residence.

In 2002, John chaired the 5th Cambridge Enterprise Conference and also co-founded Library House, the research house which brings together investors and early stage companies. He was a founder member of Cambridge Angels and more recently, of CAP Partners LLP which aims to manage an early stage venture fund.

John is a founder Director of Enterprise Accelerator which now partners with NESTA and the DTI to accelerate start-ups and is a Board member of the East of England Development Agency. He has recently teamed up again with Dr Martin Porter to commercialise a new generation of search software called Grapeshot.

Shai Vyakarnam PhD MBA is Director for the Centre for Entrepreneurial Learning (CfEL). He started his working career in small companies, leaving to complete his MBA and PhD at Cranfield School of Management, where he stayed on the faculty for ten years, before taking up a Chair in Enterprise at Nottingham Business School. In 1990 he co-founded Transitions, combining his academic interests with the practical ‘how-to’ for businesses. As a result of this he has worked with over 400 businesses in workshops, consulting assignments through his business ‘Transitions’ and as coach, mentor and non-executive director. He is on the editorial board of the International Small Business Journal and the Journal of Strategic Change. He is Visiting Professor at Nottingham Business School and at the University of Reading.

Cambridge Judge Business School is part of the University of Cambridge. Founded in 1990, it has over 300 students and 80 teaching and research staff. It offers a portfolio of undergraduate, graduate and executive management programmes, including the Cambridge MBA. Teaching and research benefit from a wide range of associate faculty in other departments within the university. The business school hosts one of the largest concentrations of interdisciplinary business and management research activity in the Europe. For more information please visit the website at www.jbs.cam.ac.uk.

The School’s Centre for Entrepreneurial Learning (CfEL) delivers a range of educational activities to inspire and build skills in entrepreneurship and ‘spread the spirit of enterprise’ to both the University of Cambridge and beyond. CfEL is based at Cambridge Judge Business School, Trumpington Street, Cambridge CB2 1AG. For further information, please visit www.cfel.jbs.cam.ac.uk.