Entrepreneurship and Cambridge

Donard de Cogan
NCUK Director
ANC Colombo

There are those who may refer to it disparagingly as the 'Fenland Poly' but Cambridge is a remarkable place. You can walk down the busy shopping streets on a winter's afternoon and perhaps you will see the cosmologist Stephen Hawking being pushed in his wheelchair. Well the great and good also have to shop like everyone else but he is more recognisable than many others who you might pass like ships in the night. It is a remarkably dense city, dominated by the colleges, each of which is really a mini-university. However, the real shock comes when one travels north and west out of the city and ventures into a veritable forest of modern buildings which together bear witness to the modern Cambridge phenomenon. The area is also known as Silicon Fen (the fens are low-lying wet-lands). The Cambridge Science Park, was an initiative of Trinity College and was established in 1970 to commercialise some of the intellectual strength. To say that it has been an outstanding success would be an understatement. In 2004 it absorbed 24% of all venture capital in the UK or in the broader picture, 9% of all venture capital in the European Community. There are currently over one thousand high-tech. companies located in the region which together generate over $3bn per year.

Other places have tried to emulate this model with small to medium success. So, what is it about the place? The American poet Robert Frost is famous for the comment that "it's hard to keep from being king if it's in you and in the situation", but this is also a story about people, many of whom are Cambridge graduates, but several key players have been successes without the need for a university degree. I think that there is nevertheless a unifying factor. In the many UK universities where I have taught I have been struck by a phenomenon whereby students put down deep roots in their university town and are loath to leave the area when they graduate. They either get a job in the town or they set up a company which gives them a reason for staying. I hypothesise that all people mentioned here find Cambridge a comfortable and intellectually stimulating place to be.

The first in this small panolpy must be Fred Sanger, one of only four people who have ever held two Nobel prizes and the only one who is still alive. He is a biochemist whose life's work has been concerned with cutting off and identifying amino acids from the ends protein and DNA chains. Today we call it genome sequencing. In 1992 the Welcome Trust and the UK Medical Research Council agreed to fund a new research centre that would play a role in mapping, sequencing and decoding the human genome and the genomes of other organisms. The decision by the European Molecular Biology Laboratory (EMBL) to site its outstation, the European Bioinformatics Institute (EBI) in the UK helped to secure the decision. The new institution is called the Sanger Centre and has been a focus for many spin-offs as well as much media attention.

The next is a hero from my university days. While he was still at school Clive Sinclair applied for a holiday job at the electronics company, Mullard and took along one of his circuit designs; he was rejected for 'theoretical precociousness'. Sinclair did not want to go to university when he left school just before his 18th birthday; he wanted to sell miniature electronic kits by mail order

to the hobby market. In the late 1960s I had his booklet of practical transistor circuits and had constructed one of his Micromat Radios, the smallest then available. I built my first calculator from one of his kits. His Black Watch was a stroke of genius. It used a tiny LED number display, but to save the battery this was not illuminated unless you pushed a button. It was a black watch and of course, the Black Watch was a famous British regiment. However not everyone shared my fascination and it was not a success. He was undaunted and the Sinclair ZX Spectrum computer which followed was every child's dream present in the days before PCs and laptops.

Sinclair was involved in the early days of Acorn Computers which quickly outgrew him. One of its founders, Chris Curry had also shunned university, but worked for Sinclair Radionics for a time as he moved around learning his trade. Acorn was co-founded with Andy Hopper (who is currently the Professor of Computer Technology at Cambridge and a Fellow of Corpus Christi College) and Hermann Hauser who did a PhD at Cambridge. The company evolved and one embodiment produced the BBC microcomputer, which was certainly the pinnacle of technology before the IBM PC. When that enterprise waned, amongst the rebirth was Advanced RISC Machines Ltd (ARM), a company which designs and licenses special processing chips. As of 2007, about 98% of the more than one billion mobile phones sold contained at least one ARM processor.

Tim Eiloart, my final hero was almost thrown out of Cambridge because he attempted a trans-Atlantic balloon trip which ended in the sea after four days. They then spent a further three weeks floating in the basket before they were picked up. The austere actions of his tutor at Trinity College were intended "as a last-ditch attempt to save an exceptionally bright student from breaking his neck". Shortly after graduating in chemical engineering he founded Cambridge Consultants, with the idea of acting as an intermediary between the university and industry. Initially, the company was privately run. However, in January 1972, it became part of Arthur D. Little, the large American management consultancy, gaining professional management support and access to international markets. Cambridge Consultants remained part of Arthur D. Little until 2001, after which the Cambridge Consultants management secured a buy-out of the company. Since then it has grown and is now has one of the world's most innovative product development companies.

So, if we analyse this small sample of the spin-offs from Cambridge we see that there must be a successful core so that the whole is above critical mass, but if one looks at their history in detail, they have all had their financial ups and downs. So how are these different? If a business goes under in the US, the nature of insolvency regulations means that the principals are soon up and going again. If a company fails in the UK it is normally terminal and almost impossible for its bosses to recover from the ruins. All of these Cambridge companies have had their financial hiccoughs, but what has happened has been much more like the US model. Is there is a lesson to be learnt here?

In conclusion, any country looking to exploit the intellectual capital of its universities would do well to make an in-depth study of the Cambridge model, but they would equally do well to be wary of too much emphasis on short-term returns. The current trend is for venture capital only to fund near-to-market ideas. I am a great believer in fostering the long-term. After all the

number theory work of Cambridge don G.H. Hardy and his great discovery, the mathematical genius Srinivasa Ramanajuan is now an essential part of the security systems which mean that we can safely withdraw money from an ATM. Blue-skies research still has a place.