

Cambridge UK and University Venture Capital

The University of Cambridge has participated in venture capital to invest in technologies emanating in the University since the 1980s. Its role ranges through investing into a fund alongside others, leading or co-leading on a fund and serving as the bond linking alumni investors into a fund. Each role focuses on a different origin for the technology: either University laboratories or more broadly Cambridge's research organisations, including the University.

Beginnings

In 1986, the financial firm Cambridge Capital raised a £10 million development fund from pension funds, the University of Cambridge and several Cambridge Colleges. In turn, it put £1 million from the fund into Cambridge Research and Innovation Ltd, or CRIL as it became known, with the remit to invest and develop technologies coming out of the laboratories of the University of Cambridge and other research institutions in the Cambridge area. Cambridge Capital managed the development fund, and hence CRIL. This was the first venture capital fund in Cambridge to invest in companies.

The background to this is that in 1985 the Government removed the British Technology Group's first right of refusal on commercialising publicly funded inventions coming out of UK research organisations. The loss of BTG's responsibility had come about because of its lack of interest in monoclonal antibodies¹.

Now universities could commercialise technologies from their laboratories themselves. And there was a need for funding.

Within the University of Cambridge, there were two key University policy elements underpinning it as a place to do business. First, the 1969 University committee's report, chaired by Nobel Laureate Sir Neville Mott, had recommended a moderate growth of high-tech industry in Cambridge. Aligned to this, the University wrote, in 1999, that its view encompasses:

'An ethos of trust and professional autonomy underlie the liberal policy of the University towards innovative activity by its staff.'

The University is non-bureaucratic and largely self-governing. Academics have considerable autonomy, but an informal system of checks and balances ensures close attention to teaching, research and administrative duties. In the engineering department, for example, which has the highest number of university spin-out

¹ Technology transfer in Britain: The case of monoclonal antibodies, [E M Tansey, Wellcome Institute for the History of Medicine](#) & [P. P. Catterall, Institute of Contemporary History, Taylor Francis Online, P409-444, published online 25 June 2008.](#)

enterprises, teaching performance and student assessments are closely monitored and professors are heavily involved in undergraduate teaching. There is a strong research culture and incentives to maintain research performance. Assessment is

based on output and there have been minimal bureaucratic obstacles to staff engaging in innovative activities.²

The other element was intellectual property (IP). The 1977 Patents Act granted employers ownership of their employees' inventions that they created in the course of their work. However, the University took the view that making inventions did not form part of a researcher's duties, so the Act was not applicable. Nonetheless, it did take on the duty of managing intellectual property arising from the UK Research Councils in 1987 and could act to support other IP matters.

The University already had a potential conduit for this new activity in the form of the Wolfson Cambridge Industrial Unit. In 1971 the Wolfson Foundation provided funds for the establishment of the Unit to promote co-operation between the University's Engineering Department and industry. Fundamental to its activities, was an emphasis on mutuality and that both researchers and the Unit should wish to participate in deal-making.

'The commercial side of the unit's work was channelled through the University's wholly owned charitable trading company called, enigmatically, Lynxvale Ltd. Lynxvale had been established in 1972 initially for trading works of art from Kettle's Yard. In the '80s and '90s, the Wolfson Cambridge Industrial Unit, under three successive directors, broadened its remit to promote links between industry more widely across the University in a variety of ways, worked closely with the University's central administration on negotiating industrial collaborative agreements and, while resource limited, proved effective in facilitating a number of specific projects'³.

What were the challenges? The biggest challenge for everyone in the University - and indeed for CRIL, other investors, industry and advisers - was the newness of the field. The culture and format of interactions with industry was different as was the role of the University in a spin-out company. Innovative deal structures were needed, and legal agreements were created without the resource of experienced professionals. CRIL, for example, organised intellectual property awareness sessions for researchers. Early role models, respected academics who engaged with commercialisation, were very important. So too was the growth of Cambridge's high-tech industry, the Cambridge Phenomenon, though these firms received financial support from banks in Cambridge, notably Barclays, through loans against receivables. The low capital requirements of the new software businesses made this possible. There was also some City of London equity financing of computer hardware companies.

During the 1990s and early 2000s CRIL continued to raise investment, with a total of about £5 million, and to invest. But plans to raise a significant fund and expand were thwarted by disagreements among the shareholders. In 2004 CRIL was liquidated and its residual

² Parliamentary Business, Select Committee on Science and Technology, Minutes of Evidence. Memorandum submitted by Cambridge University 17 January 1999.

<https://publications.parliament.uk/pa/cm199899/cmselect/cmsctech/17/9020102.htm>³

The evolution of knowledge transfer in Cambridge, 25 May 2015, Business Weekly

portfolio of 9 investments was distributed *in specie*. Most of the investors chose to pool those in a new vehicle (CRIL Nominees) managed by ET Capital, another early-stage

technology venture capital firm based in Cambridge. Since then, ET Capital has led follow-on investments of the CRIL portfolio into publicly listed ADC Therapeutics plc (formerly Spirogen) and Phico Therapeutics. CRIL Nominees has returned 2.38x cash-to-cash³⁴ since 2007 with the prospect of an aggregate return exceeding 5x when the portfolio is fully liquidated.

What was the impact of CRIL? It showed returns could be made on technology-based investments coming out of academic laboratories. Investee companies succeeded so a record was established that it could be done. For example, Cambridge Display Technology yielded a return of 25x on original investment and became the first University of Cambridge spin-out to be listed on NASDAQ in 2004⁵. As CRIL was around for nearly twenty years it was a steady role model – in which the UK Government also took interest. It moved the needle on attitudes to commercialisation amongst researchers and investors.

University centred growth

In 1989, the venture capital group 3i led, with the University, the creation of the £1 million Cambridge Quantum Fund, having created a similar fund in Scotland. Its investors were 3i, Hambros Advanced Technology Trust together with the University and some Colleges. Its focus was to invest in technologies coming out of the University's laboratories. The Fund invested in about four companies spanning pipeline technology to neonatal support systems but unfortunately, they didn't flourish. Additionally, it suffered from being second in the field with the investing market for University spinouts very small, and it was restricted in its mandate to the University unlike CRIL. The Fund was wound up in the late 1990s but added to knowledge of commercialisation amongst researchers and the University community.

Then in 1995, the University Venture Fund came into being. The University had sold its shares in Anglia Water, the CAD Centre (now AVEVA) and other sources and put £2.4 million aside to invest in companies based around University technology and a bioscience venture capital fund. Investee companies included Entropic, sold to Microsoft, Kudos sold to AstraZeneca and Solexa sold to Illumina.

The next development was the Cambridge Challenge Fund. It was set up as part of a national government initiative to fund university innovation:

The University Challenge Fund programme was established in 1999 with funding from the Department of Trade and Industry (now the Department of Business, Innovation and Skills), the Wellcome Trust and the Gatsby Charitable Foundation. The University, in collaboration with the Babraham Institute, successfully applied for funding to establish a £4 million seed fund in 2000⁵.

³ Extracted from CRIL Nominees Periodic Statement dated 30 November 2021

⁴ *years of Cambridge Enterprise, 50 years of technology transfer*, Cambridge Enterprise 2019

⁵ Cambridge Enterprise 24 November 2010 <https://www.enterprise.cam.ac.uk/news/cambridge-challengefund-marks-ten-years/>

The £4 million was made up of Government funding of £0.75 million with the Gatsby Charitable Foundation providing £1 million, Wellcome £1.25 million and the University £1 million. The purpose of the Fund was to invest in technology arising from the University's

and Babraham's laboratories. The team for managing the Fund was co-located with the University's technology transfer office, which became Cambridge Enterprise.

*'The Fund limited its investments to a maximum of £250,000, reasoning that any start up should be in a position to attract follow-on funding from elsewhere after this level of early investment – or else it was unlikely to succeed.... Because it did not have the remit to provide follow-on funding, the Challenge Fund established the Venture Partners Club as a way of bringing together potential second and third-round investors, such as 3i and Abingworth, that were already involved in some way with University spin-outs..... It was not easy, however to market the Challenge Fund to academics and researchers. Many still did not see commercialisation and spinout out businesses as part of their job.'*⁷

By 2010, the Challenge Fund had supported the development of 23 companies, which had in turn raised over £100 million in follow-on investment and £17 million in grants, leveraging the University's initial investments by 33 times⁸.

As part of the 800th University anniversary celebrations, in 2008 Cambridge Enterprise launched the evergreen University of Cambridge Discovery Fund which reached £1.3 million in 2009⁹. The Fund was set up to invest in technologies at the very early stage. It showed the appetite from alumni to support the University's commercialisation activity although alumni aired that the tax efficient Enterprise Investment Scheme (EIS) could be used rather than charitable donations.

All these funds are now managed by Cambridge Enterprise Seed Funds. As of July 2021, the Seed Funds have £107 million of assets under management. The £107 million encompasses, on a roughly 50:50 value basis, seed fund investments and the University's modest equity holdings in spinout companies through licences and assignments. Up to the end of July 2021 these funds have invested £34.4 million. The Cambridge Enterprise portfolio companies have raised in excess of £2.7 billion since 1995 and there are currently (July 2022) 123 companies in the portfolio.

University's evolving approach to IP

The University's flexible approach to protecting intellectual property and its IP policy are often cited as a major factor for Cambridge's success. After gradual changes in University IP practices since 2000, the University clarified its policy in 2005. A distinction was drawn between research that is sponsored by external organisations such as research councils, charities and industry, and that which is unsponsored.

For the former, the University and its researchers are bound by the terms of the sponsorship agreement, which includes how to handle IP. Importantly these agreements also contain clauses on academic publication of results.

⁷ 10 years of Cambridge Enterprise, 50 years of technology transfer, Cambridge Enterprise 2019 ⁸

As above for 7.

⁹ As above for 7.

For the latter, creators may decide to publish results before commercialisation. If however they do wish to pursue commercial development, they are obliged to disclose the IP to the University via Cambridge Enterprise and the University has the initial right to apply for a patent or other registrable IP right. The inventors and Cambridge Enterprise then decide jointly whether to develop the IP in conjunction with Cambridge Enterprise or independently¹⁰. Copyright, which does not require registration, does not fall into this category.

*'The goal for Cambridge Enterprise has always been to benefit society by helping to commercialise expertise, innovations and technology emerging from the University of Cambridge. In a sense Cambridge Enterprise provides a bridge between academia and the commercial word....'*¹¹

In general terms, patents form the basis for biotech companies and stem from research funded by external sponsors for many years. Copyright is the initial basis for many IT companies.

Diversification and growth

The next steps were catalysed by challenge from an external board member of Cambridge Enterprise in 2011. Where were the ambitious strategies and plans for translating worldleading science and technology for the benefit of humankind? And how to encourage entrepreneurially minded academics and in a way that they can benefit financially? Cambridge Enterprise responded with alacrity and energy to help make changes.

First, through a collaboration of Cambridge Enterprise with Parkwalk Advisors, 2012 saw a new structure come into being. Parkwalk had also formed the view that university alumni might invest and support early-stage funding for spinouts and forge the bridge between the laboratory and larger venture capital funds. With a goal also to be founder-friendly, Parkwalk set up the first such fund: the University of Cambridge Enterprise Fund (UCEF). The Fund offers University of Cambridge alumni the opportunity to invest in companies spun out of the University in a tax-efficient manner through the EIS.

Crucial to the model is that the Seed Fund's investment committee makes the decision on which spinouts its own Seed Funds should support. UCEF then usually invests alongside on a 50:50 basis. So far (July 2022) UCEF has invested £20 million (of the £22 million raised by UCEF) into 55 companies. In all, there have been 93 funding rounds and Parkwalk has invested £67 million from its other funds into UCEF companies. The return on UCEF is 2.8x, excluding EIS reliefs.

'The University of Cambridge Enterprise Funds are an important source of additional funding of our young companies. They are a great way for Cambridge alumni and friends to help create economic and social impact based on University research.'

¹⁰ Guidance note from the Research Office and Cambridge Enterprise: IP Policy in practice – how it works, who to approach and when? <https://www.enterprise.cam.ac.uk/wp-content/uploads/2015/04/ip-policy-inpractice-guidance-note-25may10.pdf> 24 June 2010

¹¹ 10 years of Cambridge Enterprise, 50 years of technology transfer, Cambridge Enterprise 2019

Parkwalk has been a valued partner since the launch of these funds and has played a huge role in their success.⁶

In 2021, the University made an allocation to Cambridge Enterprise Seed Funds of a further £30 million over 5 years for investment in spinouts with the continued double bottom-line mission of benefit to society and financial return.

Now (July 2022) these pooled Seed Funds invest £7-9 million each year in 20 to 30 transactions and can invest £1 million in each opportunity. Pre-seed investments have been up to £75,000 and seed to £250,000 with thresholds increasing with the recent injection of additional funds. For the seed stage, the practice is for the Seed Funds and UCEF matching funding to syndicate with other investors, often angels, taking a round to over £1 million. For the year ending July 2022, the combined Seed Funds and UCEF investing commitments are expected to exceed £10 million. In the last few years, companies funded include DioSynVax, IKVA, PharmEnable and Xampla.

Second, there was the matter of how to provide follow-on funding for spinouts and retain value for the University and its researchers. This was the genesis of Cambridge Innovation Capital (CIC). Cambridge Enterprise's then-Chairman became the Chairman of CIC, a founding CEO joined and there was success in persuading the University not only to invest but lend its support and name to a newcomer.

Hence, CIC was founded with multiple goals: to improve the success rate of businesses in the Cambridge cluster, to grow the market, encourage more academics to be entrepreneurs, to be founder-friendly and so invest with ordinary shares or nonparticipation shares, and last but not, least deliver financial success to the University and investors in the fund.

As CIC planned to be geographically focussed in the Cambridge area but technologically agnostic in its investment it was taking the opposite route of other funds which are technologically focussed and geographically diverse. It was not an easy task to attract investors to CIC.

However, CIC raised an initial £50 million in 2013 to invest in innovative businesses in the Cambridge cluster with a patient capital model. The cornerstone investors were Invesco Perpetual and Lansdowne Partners, with the University of Cambridge and its Endowment Fund investing alongside ARM and IP Group.

CIC has raised substantial amounts over the years, for example £75 million in 2016 and £150 million in 2019. In 2020 CIC decided to raise its first fund. In 2022, CIC secured £225 million for CIC Fund II, including from a diverse range of private and institutional investors including several Cambridge Colleges. Fund II is a 10+2-year fund and CIC is the General Partner.

⁶ Dr Christine Martin, Head of Seed Funds, Cambridge Enterprise, Parkwalk website
<https://parkwalkadvisors.com/fund/university-of-cambridge-enterprise-funds/>

CIC now (July 2022) has more than £500 million of assets under management. CIC's 36 portfolio companies have raised over £2 billion. CIC expects to raise future capital through the creation of new funds rather than on its own balance sheet.

CIC continues to have a close working relationship with Cambridge Enterprise's Seed Funds. CIC is a preferred but not exclusive investor for Seed Fund investments, and it is important to CIC that it does not have a monopoly. CIC has the right to co-invest with the Seed Funds' investments at company creation, and pre-emption rights in future rounds. Andrew Williamson, CIC's CEO comments:

*'In terms of CIC investing in businesses connected to Cambridge, there are a few ways that can manifest itself. Around half are connected to the University of Cambridge, a good chunk come from other IP-generating institutions in the ecosystem, such as the Wellcome Sanger or consultancies, and then there are spinouts from companies located here such as Arm and Astra Zeneca.'*⁷

University science with the backing of the Seed Funds, UCEF and CIC have, for example, invested in Predictimmune which is developing personalised treatments for immunemediated disease and Riverlane an emerging quantum engineering company.

Over the last decade, CIC has seen a significant change in access to capital for Cambridge based companies, the size of funding rounds, more ambitious scientific founders and a more positive investor and academic entrepreneur ecosystem. Through Innovate Cambridge, work has started with Cambridge Enterprise and the University on plans for amplifying the prosperity of Cambridge and the region over the coming decade.

The University is at the heart of the Cambridge cluster whose companies have an annual turnover of £18 billion⁸.

Conclusions

The University began venture capital investing as a participant in a £1 million fund in the 1980s. Now (July 2022) venture capital with direct links to the University of Cambridge has over £600 million of assets under management.

The University started out as a financial investor and over the years it has and continues to implement and explore internal mechanisms for deploying venture capital. These dual streams in the University's approach are illustrative of Cambridge's broad and diverse growth.

An openness to new financial ideas both from within the University and beyond stands out. This in turn fosters collaborative mechanisms that are playing a greater role now in the growth of University Venture Capital in Cambridge. Collaboration not only focusses

⁷ Cambridge Innovation Capital news online 27 April 2022 <https://www.cic.vc/news-insights/cicnews/2022/225m-raised-for-cambridge-innovation-capital-s-fund-ii/>

⁸ Cambridge innovation in numbers, collated by CBR and the Cambridge Judge Business School, December 2021

organisations on their areas of excellence and how they participate in innovation but also cultivates trust.

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