

COMPANY Amphion  
 PUBLICATION INVESTORS CHRONICLE  
 DATE 8-14 FEBRUARY

# Brains of Britain

British academic institutions are joining forces with venture capitalists to make money from their intellectual property. **Jon Mainwaring reports**

**T**HE UK HAS LONG BEEN RENOWNED AS A COUNTRY that is great at inventing things, but not so good at exploiting them. Take the jet engine, for example. Its inventor – RAF engineer Frank Whittle – had first thought of it in the late 1920s, but the technology did not have the full backing of the government of the day. The result was that, during World War II, the Germans – who some historians argue had seen Sir Frank's patents – actually got the world's first jet fighter into the air. More importantly, after the war it was the Americans who built the world's most successful commercial and military aviation industry, and not us.

It is the same story with the computer. A device that was developed jointly by a brainy Cambridge mathematician and a Post Office engineer to help Britain crack German codes somehow begat Silicon Valley (albeit through the subsequent American inventions of the transistor and the integrated circuit).

Today, the UK takes innovation more seriously. British academic institutions, traditionally suspicious of the business world, now recognise that funding gaps can be plugged with private money while venture capitalists realise that there is money to be made from intellectual property (IP) developed at our universities.

One of the oldest UK companies investing in university IP is British Technology Group (BTG). It appears that there were some visionaries around in the 1940s, because BTG's origins actually date back to an organisation called the National Research Development Corporation, which was created by the government in 1948 specifically to commercialise innovations that resulted from publicly funded research. However, BTG – which floated on the London Stock Exchange in 1995 – has now reinvented itself as a life sciences company.

The creation of a stock market 'sector' of investment companies that focus exclusively, or almost exclusively, on university IP began with the flotation of IP Group on the Alternative Investment Market (Aim) in 2003. And there are now more than half a dozen such companies quoted in London.

Valuing these companies is difficult. While it is straightforward to arrive at a net asset value (NAV) for an investment company whose investments are all in quoted businesses, it is harder to reliably value

a company that owns stakes in private businesses. Meanwhile, given that a fair few university spin-outs never get anywhere, there is considerable risk attached.

According to Richard Morgan, chief executive officer of university IP investor Amphion Innovations, "there are at least two different [investment] models". He explains that, while there are a lot of IP investors who follow a diversified approach, often buying stakes in a number of companies and technologies 'sight unseen', Amphion prefers to work closely with inventors, helping them put a management team in place and building a company around their IP. "We have very few investments and we focus on each one," he says. "We're like shipbuilders."

At the moment, Morgan says, the choice appears to be "do you track a portfolio of futures, or focus?" But, as the pool of university-generated IP around the world continues to grow, he expects new IP exploitation models to emerge.

Here, we look at the most promising investment companies quoted in London that hope to use university IP to create value.

## IP GROUP

IP Group exploits a university partnership model that involves long-term agreements between investment vehicles and academic institutions.

The group's origins lay in a partnership agreement between the investment bank Beeson Gregory and Oxford University Chemistry Department in December 2000; this partnership was transferred by Beeson to the group the following summer.

The Oxford agreement saw IP Group make a £20m investment in return for 50 per cent of the university's equity in spin-out companies and technology licences based on IP created at the university's chemistry department until 2015. Thanks to the deal, IP Group has acquired holdings in several Oxford University spin-outs, including companies now quoted on Aim, such as clean fuel technology specialist Oxford Catalysts and biotechnology business Summit Corporation.

Since the Oxford agreement was made, IP Group has signed similar long-term contracts with King's College London, Queen Mary College and Bath, Bristol, Glasgow, Leeds, Southampton, Surrey and York universities. And it has also established a fund to take advantage of other opportunities at Oxford, outside the chemistry department.

At the end of June, the company had investments in 60 spin-out businesses – 11 of which were quoted. Since then, it has also seen the



flotation of Leeds University spin-out Tracsis, which develops resource optimisation software for major transport companies in the rail and bus industries. Now that IP Group has a large portfolio of IP in place, it plans to take a disciplined approach to the incubation of businesses. One example of this is the group's subsidiary Techtran – the Leeds University outsourced technology transfer unit that it acquired in 2005. This organisation gives advice to spin-outs on how to develop and implement a business strategy, support on negotiating licensing deals, legal help and access to funding.

IP Group itself floated on Aim in October 2003, before moving to a full listing on the London Stock Exchange three years later. It is the largest of the London-quoted investment businesses that are focused on university IP, with a market cap of approximately £275m.

The group has been profitable since 2004, and after a record year of profits in 2006 – thanks in part to the flotations of Oxford Catalysts and Avacta Group, which generated gains of £22.6m – it is expected to report a lower pre-tax profit for 2007 of £30.8m (£38.5m in 2006).

This should translate into earnings per share of approximately 12.3p (16.1p in 2006), which are forecast to increase by a fifth to 14.7p in 2008.

IP Group's shares, at 109p, trade at a premium of 25 per cent to NAV, based on house broker KBC Peel Hunt's estimate of a 2007 year-end NAV per share of 87p (which includes 46.7p cash per share). The broker argues that a premium is justifiable because IP Group's value is not only in the stakes it holds in existing investee companies, but also in the long-term potential of its many university partnerships.

KBC forecasts that NAV per share should reach 102p by the end of 2008, which is not too far off its current share price. Good value.

## BIOFUSION

Aim-quoted Biofusion uses a similar model to IP Group, and has so far signed long-term partnership agreements with Cardiff and Sheffield universities. But the relationships between these organisations are further strengthened by the fact that the two universities hold, between them, a majority stake in Biofusion (55.5 per cent).

Under the agreements, Biofusion focuses on life sciences companies, has rights to 100 per cent of IP developed at the universities, plus 100 per cent of the equity of any resulting spin-outs. However, the academics directly involved in inventing the IP then receive around 40 per cent of any spin-out companies from Biofusion.

The business has so far not achieved a public flotation of any of its portfolio companies – although these are at a relatively early stage of development. However, it has achieved exits for two of its portfolio companies via trade sales. Cardiff Protides and Cardiff Biologics were both sold to biotech company Morvus in October.

Among the 23 companies in Biofusion's portfolio, one of the most promising in terms of the potential upside is Phase Focus.

Spun out of the University of Sheffield, Phase Focus has developed a technology that could remove the need for lenses in optical and electron microscopy. Lenses can account for up to 30 per cent of the cost of a microscope, so the company has developed its own lens-less microscope that is not only cheaper but also performs better than existing microscopes. This uses charged coupled devices (the technology that digital cameras use to capture an image) to 'see' the

object under examination, then a computer is used to magnify the resulting image.

Founded in 2002, Biofusion is still at an early stage. Although Nomura Code Securities forecasts that it will make its first profit this year, the broker is not expecting significant earnings to be generated before 2010.

However, Nomura argues that the combined value of its stakes in 23 spin-out businesses and net cash of £10.6m is equal to the company's market capitalisation of £50m (based on the current share price of 139p). So, thanks to the long-term contracts, Biofusion's investors are effectively paying nothing to gain exposure to any upside from £120m of university research and development spend.

## AMPHION INNOVATIONS

Amphion Innovations invests in a range of technologies developed in universities on both sides of the Atlantic. It has its roots in Amphion Capital Partners – an investment business founded in 2003 that was

the brainchild of Richard Morgan and Robert Bertoldi, who had both gained several years of investment experience working under James Wolfensohn (the ninth president of the World Bank) at his company, Wolfensohn Partners.

Amphion Capital Partners' investments were focused on the life sciences

sector in the US. For example, Nasdaq-listed biotechnology firm Celgene, valued at \$8.5bn (£4.3bn), was co-founded by Amphion's management team.

Amphion Innovations came about in 2005, when it acquired Amphion Capital Partners' management and investment portfolio a couple of months before floating on Aim. Thanks to that legacy, the business retains a strong portfolio in North America, but it also has investments in several UK-based companies and it has expanded beyond life sciences to invest in sectors such as security technology, software and superconductors.

Amphion uses a hands-on approach that involves working with a small number of its investee companies, rather than spreading its investments across a large number of spin-outs and start-ups. As broker Charles Stanley says, Amphion employs a Warren Buffett-style approach of never investing in a business that it does not fully understand. Once Amphion has made an investment, it is prepared to work with a business over the long term, until it can realise a hefty profit. For example, this year it decided to sell almost all of its remaining stake in one of its longstanding investee companies – Beijing Med-Pharm – for \$3.3m, realising a return of 4.4 times its original investment. Two investee businesses are being readied for flotations in 2008: Durham Scientific Crystals (DSC) and WellGen.

DSC, a spin-out from Durham University's physics department, develops patented semiconductor materials for use in X-ray imaging for medical and security applications. In December, the company won a deal with the Home Office to develop automatic explosives detectors for UK airports. The company's compound semiconductor technology is being used to create a prototype baggage scanner that can detect explosives using X-rays.

WellGen is a spin-out from Rutgers University in the US. This biotechnology business uses a technology called nutrigenomics to discover and develop food and dietary supplement ingredients from

**NOMURA FORECASTS BIOFUSION WILL MAKE ITS FIRST PROFIT IN 2008, BUT SIGNIFICANT EARNINGS ARE NOT EXPECTED BEFORE 2010**



plants. According to Charles Stanley, the market in which it operates is worth \$20bn in the US alone, and is growing at more than 8 per cent a year. Meanwhile, according to Mr Morgan there is the “possibility that we will be able to do something with Motif” in 2008. Motif is a population genetics company that seeks to identify the genetic causes of major diseases by working with human genetic data from the Gulf states.

Amphion's deals are few and far between, so it has investments in just five other companies. But because of the business's focused approach, each of these has a good chance of delivering a return. This year should be an interesting one for Amphion's share price as it floats at least two companies, and potentially a third. The shares trade at a slight discount to the net asset value (NAV) per share figure of 24.8p that house broker Charles Stanley estimates for the year-end of 2007. At the end of 2008, the broker expects NAV per share to be almost 36p. Buy.

#### **BRAVEHEART**

One of the newest Aim companies focused on investing in university innovation is Braveheart Investment Group. As the name suggests, this is a Scottish business that enjoys close relationships with several universities, as well as two innovation centres, north of the border.

The business has been around in one guise or another since 1997, eventually joining Aim in March 2007. Today, it has a

diversified portfolio of stakes in more than 30 companies.

Last summer, the group announced an exclusive £2.5m innovation fund with Edinburgh University, adding to its existing innovation fund with Strathclyde University. The group has also set up funds with the Bank of Scotland and Scottish Enterprise to invest in university spin-outs.

These funds are an important plank in the group's strategy. By managing investment funds as well as being a direct investor itself, Braveheart not only gets an additional income stream, but also draws on the experience of the high-net-worth individuals who invest in its funds. They can help with due diligence, sit on company boards in a non-executive capacity and provide the group with valuable feedback about its investments.

One investee business that is making progress is NiTech – a Heriot-Watt University spin-out. The company's Continuous Oscillatory Baffled Reactor technology can lower the production costs of manufacturing chemicals, drugs and biofuels, and is being used by such blue-chip customers as Avebe, FujiFilm and Genzyme. In October, NiTech raised £800,000.

According to house broker Panmure Gordon, shares in Braveheart – trading at 121.5p – should be changing hands for 165p. The house broker argues that its price-to-book ratio of 2.3 times its valuation is low compared with peers such as Imperial Innovations, whose shares trade at 3.3 times its book value. Braveheart is one to watch.