



PENNINGTONS
MANCHES

ACADEMIC SPINOUTS

A REPORT ON THE FUNDING
OF UK SPINOUTS 2016-2017





FOREWORD

This report from Penningtons Manches builds on work begun in *Financing Growth in Innovative Firms*, the consultation published as part of the Patient Capital Review. That report identified growing levels of investment into spinouts in the UK in the context of a perceived dearth of capital available on patient terms. Its conclusion was broadly that we need more capital for these kinds of businesses and on more patient terms.

Investment into spinouts has already reached record levels in 2017, with a few weeks still to go. This is undoubtedly a good thing but it will be salutary to note that the number of investments is well down on the peak seen in 2015. As the average deal size climbs, we should ask ourselves whether this makes it ever more difficult for new spinouts to attract funding. But we can take comfort from the fact that those businesses will be well-placed to take advantage of increasing levels of non-dilutive grant funding.

The report also finds that spinouts from the University of Oxford together raised the most equity investment in 2016 – fuel to the flame of one of the world’s oldest rivalries. That the University of Cambridge looks set to reclaim the top spot in 2017 is unlikely to put an end to the matter.

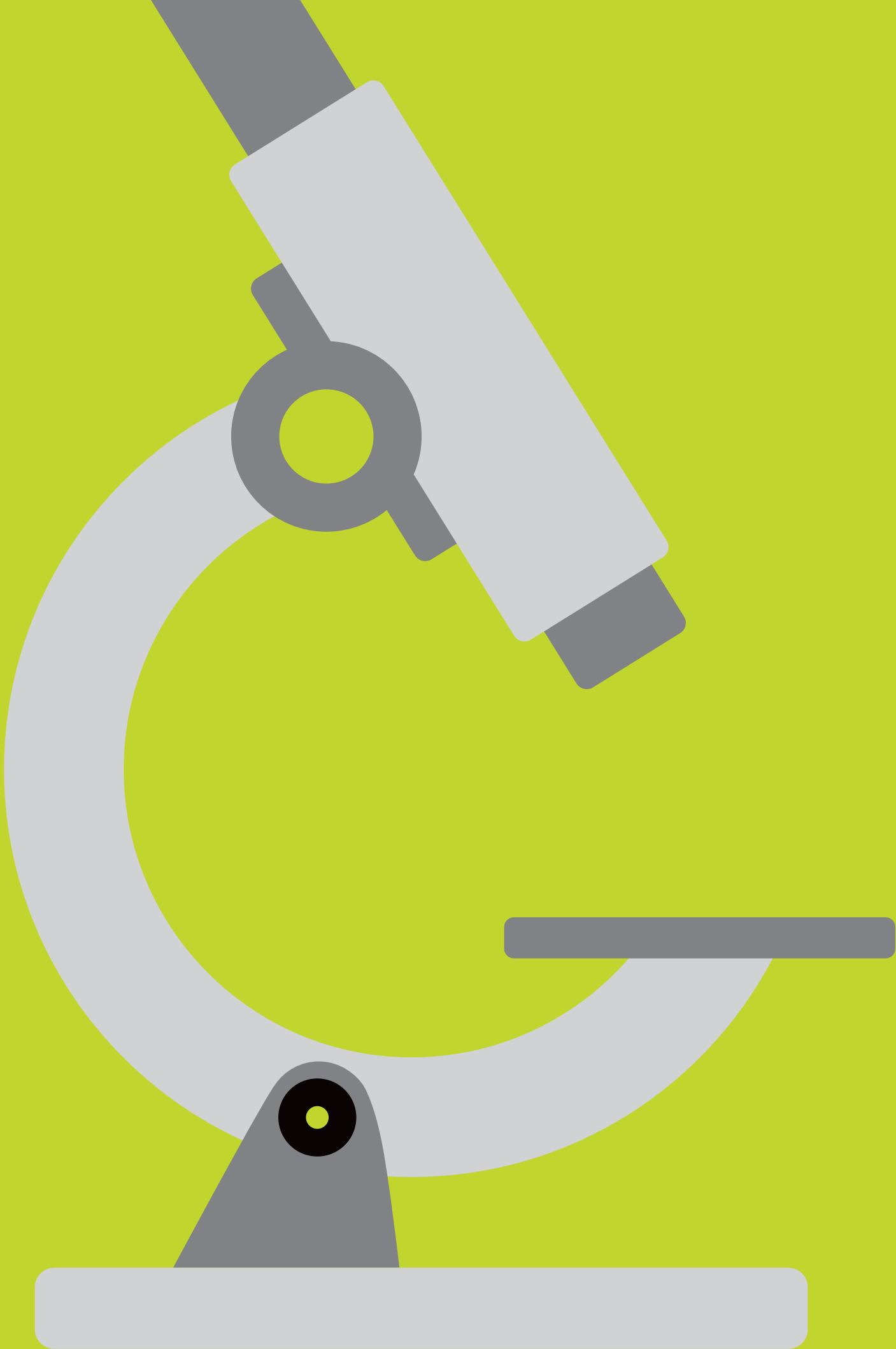
Beyond the golden triangle, it is encouraging to note the high-levels of investment in Scotland, which performs well both in terms of the numbers of spinouts in the business population and the volume of investment they receive – due in part to the willingness of the Scottish Investment Bank to co-invest with other early-stage investors in these businesses.

One of the reasons the Patient Capital Review was set up is to address the anecdotal concern that while the UK is excellent at paying for universities to produce world-class research, we are less competent at getting customers to pay for the products that research generates. It is hard to prove this thesis quantitatively but this report identifies the interesting trend that by the time it reaches the growth-stage a spinout’s valuation is not boosted by the IP it owns. This is on average – there are of course spinouts valued at huge multiples of their current revenues on the basis of the commercial promise of their IP.

Similarly, spinouts are most likely to be acquired at the venture-stage; whereas non-spinouts are acquired at the growth-stage. Put simply, for spinouts, the seed-stage involves developing and refining the IP; the venture-stage involves turning that IP into a viable product; and the growth-stage involves selling that product at volume. Some observers feel that if the company is acquired before it gets large revenues and if it is acquired by a foreign company, then as a country we lose the benefit of the GDP and tax receipts. However, few companies emerging from academia have the commercial experience or expertise to build the business to scale; the exit will often create a few high-net-worth individuals; and in many cases a foreign acquirer does not relocate the business after acquisition, so it is hard to say whether these early exits are a problem or not.

This report brings some much needed data to these questions and will doubtless prompt questions even as it provides some of the answers. Just as for a spinout testing its product, the more data the better.

Jonathan Harris
Editor, Spinouts UK



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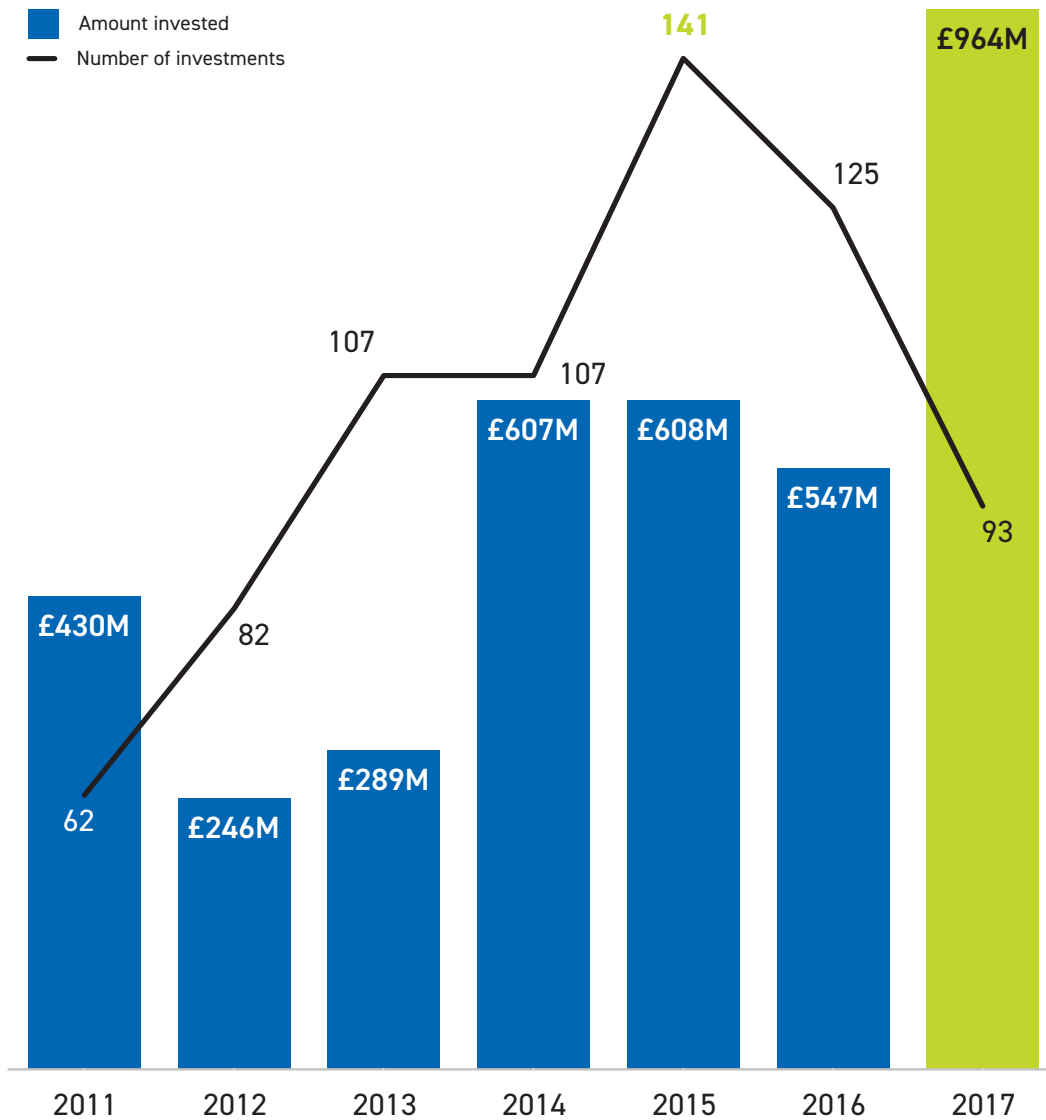
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EXECUTIVE SUMMARY

- Equity investment into academic spinouts is at an all-time high – more than £1B raised in 2017 so far.
- In 2016 spinouts from Oxford University raised the most, followed by Cambridge University and Imperial College London.
- Companies in the golden triangle saw the most investment, with high levels in the North West and Scotland.
- Spinouts from the majority of academic institutions are struggling to raise growth capital. Only 42% of the investment in spinouts is raised at the growth-stage, compared to 55% for non-spinouts.
- At the seed-stage the average spinout is worth 47% more than the average non-spinout. At the growth-stage it is worth 6% less.
- The top investor into spinouts in 2016 was Parkwalk Advisors by number of deals, Woodford Investment Management by amount.
- 15% of spinouts' organised investors (non-individuals) require the investee to be SEIS/EIS eligible. In light of this, the autumn budget's doubling of EIS allowances for investors and investees alike is particularly welcome.
- Foreign investors were involved in 15% of all spinout investments in 2016, which represented 37% of the amount raised.
- 2017 saw more grant money go to spinouts than ever before, although fewer grants are being made than in 2015. The largest number and greatest value of grants went to life sciences companies.
- Life sciences companies also saw the largest number of equity deals in 2016.
- Spinouts are more likely to exit at the venture-stage, compared to non-spinouts which exit at the growth-stage.
- Only 10% of 2016 investment went to spinouts with a female founder.

INVESTMENT LEVELS

ANNOUNCED INVESTMENT INTO SPINOUTS



The amount of “announced” investment into spinouts (equity deals disclosed publicly other than at Companies House) has already reached a seven-year high in 2017. The number of deals, though higher than the full-year figure for 2011 and 2012 is well below the peak of 141 investments seen in 2015.

Unannounced investment can be found by analysis of every SH01 form filed at Companies House. Due to the natural administrative lag in the filing of these forms by the companies receiving investment, it would be misleading to compare the unannounced figure for 2017 with that for 2016. When we include unannounced deals for 2016, however, the total amount of investment into spinouts rises to £695M by amount and the number of deals rose to 240 deals by volume. These additional 115 deals account

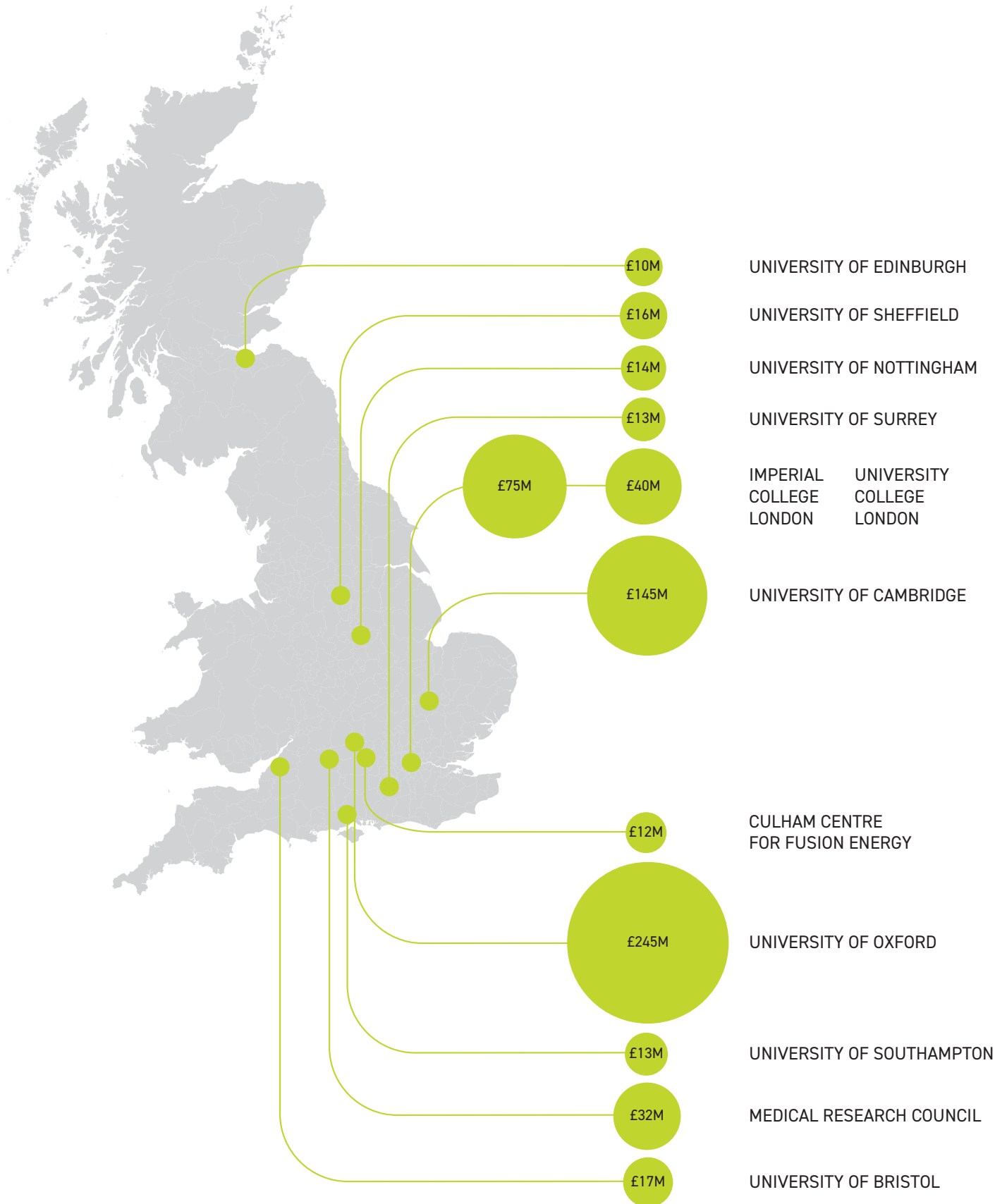
for only a further £148M of investment (an average deal size of £1.29M). This is logical because the larger an investment deal, the more likely it is to be announced.

Even when we include unannounced deals the trends are the same. Deal numbers peaked in 2015 at 253. Similarly, 2017 remains the top year on record for amounts raised when unannounced deals are included, rising to £1.1B so far.

The large amount of investment in 2017 is due to a few megadeals (conventionally defined as deals worth more than £50m). The largest of these were Improbable’s raise in May, Cell Medica’s raise in March and Darktrace’s raise in July.

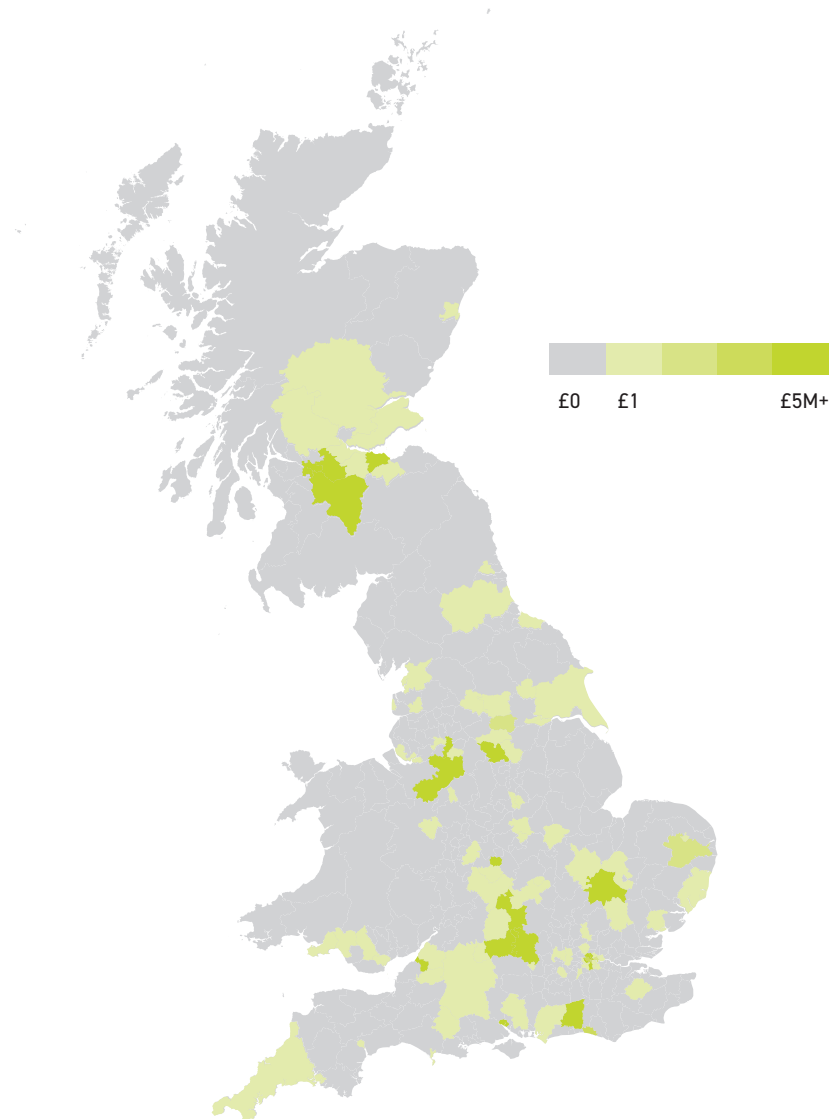
GEOGRAPHY

2016 SPINOUT INVESTMENT BY ACADEMIC INSTITUTION (TOP 12 INSTITUTIONS)



GEOGRAPHY

2016 SPINOUT INVESTMENT BY LOCAL AUTHORITY



In 2016 the top three academic institutions – ranked by the amount that their spinouts had raised in equity investment – were the University of Oxford, the University of Cambridge and Imperial College London. In aggregate the spinout companies from these three universities raised £445M.

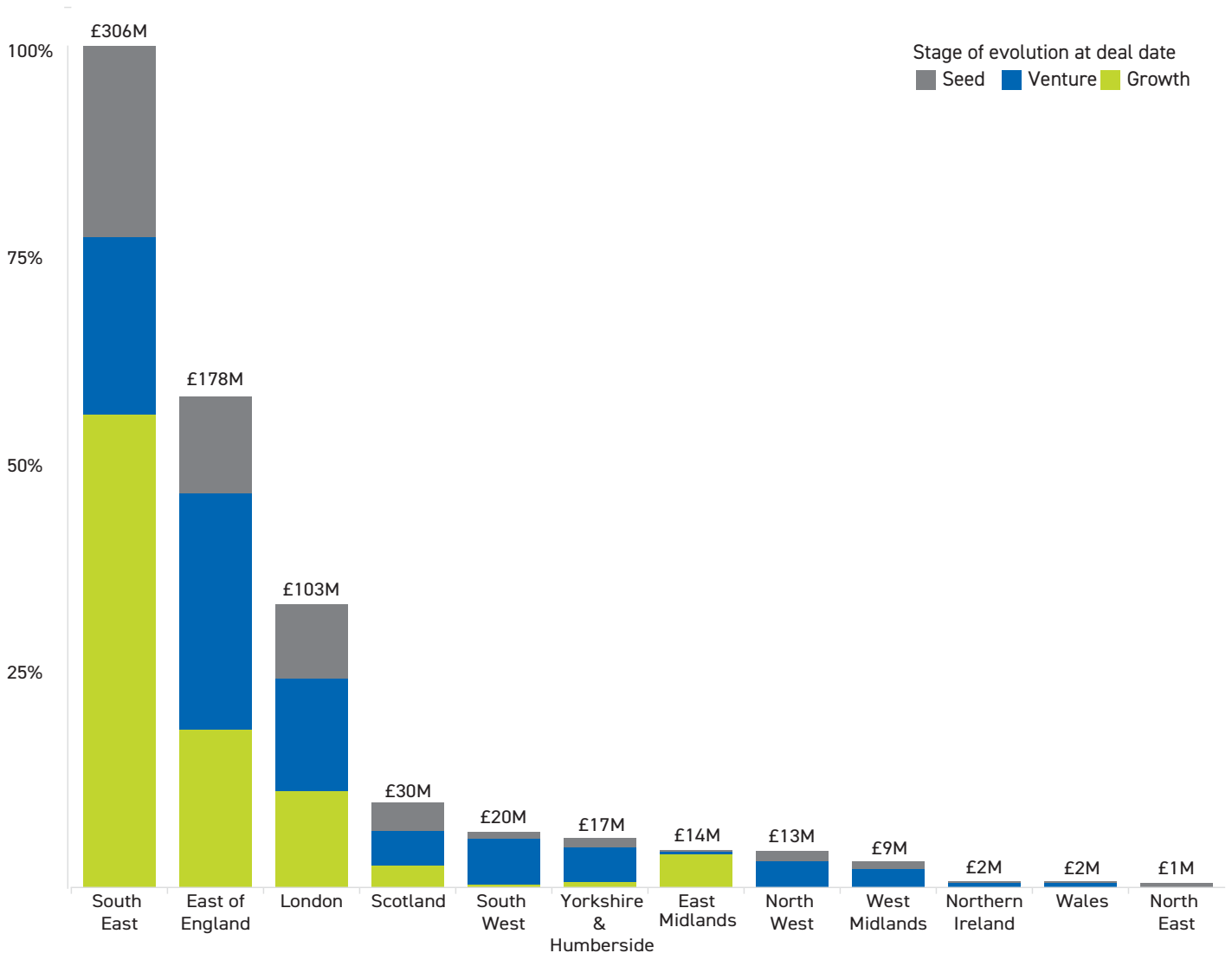
The Medical Research Council (MRC) and the Culham Centre for Fusion Energy (CCFE) are the only two academic institutions in the top 12 list that are not universities. Each of these institutions enters the list on account of the fundraising activity of one spinout company each. For the MRC, Inivata raised £31.5M in January 2016. For CCFE, Tokamak Energy raised £11.6M across two deals in April and December.

Looking at where these spinout companies are based at the point they received the investment, obvious clusters arise around the universities. Spinouts based in Oxford City Council raised £194M in 2016; in Cambridge City Council they raised £109M. The next highest ranked local authorities, by amount raised by the spinouts located there, are the Vale of White Horse District Council (which is adjacent to Oxford City), South Cambridgeshire and the City of London.

When looking at investment levels in 2016 across all companies, London is clearly dominant. When looking at spinout investment, London plays second fiddle to Oxford and Cambridge, with honourable mentions for Bristol and Sheffield.

GROWTH CAPITAL

2016 SPINOUT INVESTMENT BY REGION AND COMPANY STAGE



It is natural and to be expected that investments at the growth-stage account for a large proportion of the amount invested: growth-stage investments are, on average, much larger than investments at the seed-stage or venture-stage. Similarly, there will always be fewer investments at the growth-stage than at the seed or venture stages, as companies either die or become self-financing as they develop.

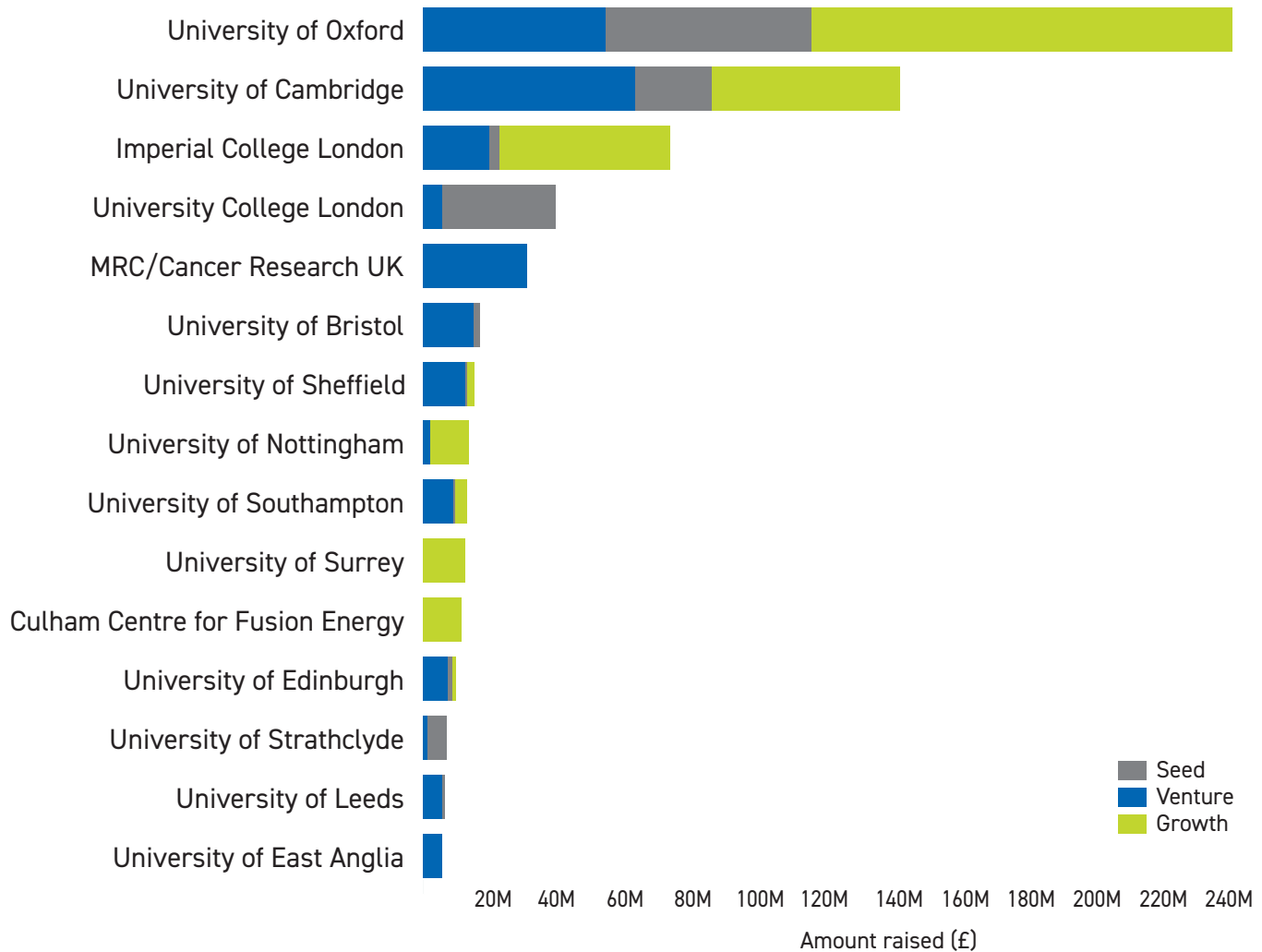
Nonetheless, looking at the distribution of investment by stage and by region, there is clearly a regional imbalance. Partly this imbalance is a function of the location of the top universities.

The high rank of the South East is due to spinouts from the University of Oxford; the high rank of the East of England to spinouts from the University of Cambridge; and London's due to spinouts from the colleges of the University of London and Imperial College London, as well as companies that relocate to London.

Spinouts from King's College London contributed significantly to London's ranking in 2017, but in 2016, although there were four investments into their spinouts, these amounted to just under £4M of investment.

GROWTH CAPITAL

2016 INVESTMENT AMOUNT BY UNIVERSITY AND COMPANY STAGE



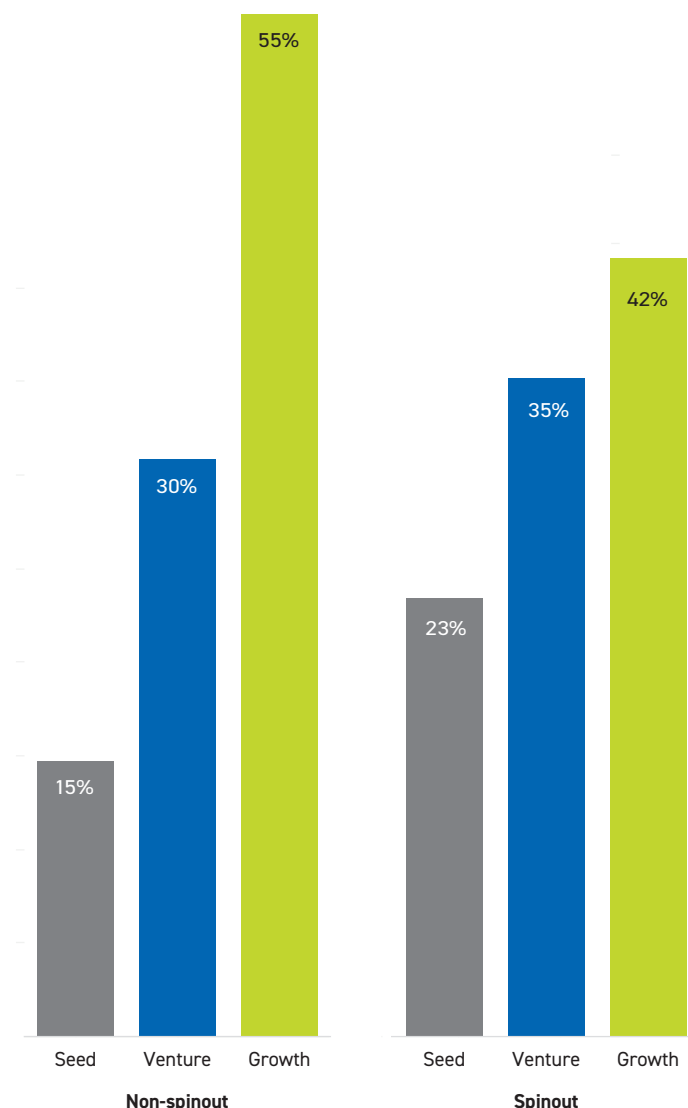
When ranking academic institutions by the amount of investment their spinouts raised in 2016 the disparity between the amounts being raised by a few universities and the majority becomes very clear.

Oxford University spinouts raised more than the spinouts from the fourth to fifteenth ranked universities combined. It is only when the stage of the spinout companies at the point of investment is taken into consideration that the reason for this disparity becomes clear. Spinouts from the University of Oxford, the University of Cambridge and Imperial College London between them raised £236M at the *growth-stage*.

This disparity is pronounced enough to be disturbing. Spinouts from certain universities are struggling to attract any growth-stage investment at all. Undoubtedly the fundraising efforts of spinouts from the top three universities are helped by the dedicated funds that invest into their spinouts. Oxford Sciences Innovation (OSI) was involved in 13 of the 25 investments into Oxford spinouts announced in 2016. Cambridge Innovation Capital was involved in four of the 20 into Cambridge spinouts in the same period. Touchstone Innovations was involved in three of the nine investments into spinouts from Imperial College London. Without these funds, these universities' rankings would surely look different.

GROWTH CAPITAL

2016 INVESTMENT AMOUNT BY COMPANY STAGE



Taking spinouts as a category overall – regardless of the region in which the company is located or the academic institution from which it was spun – a smaller proportion of the investment they receive is at the growth-stage than at the seed or venture stages compared with non-spinouts.

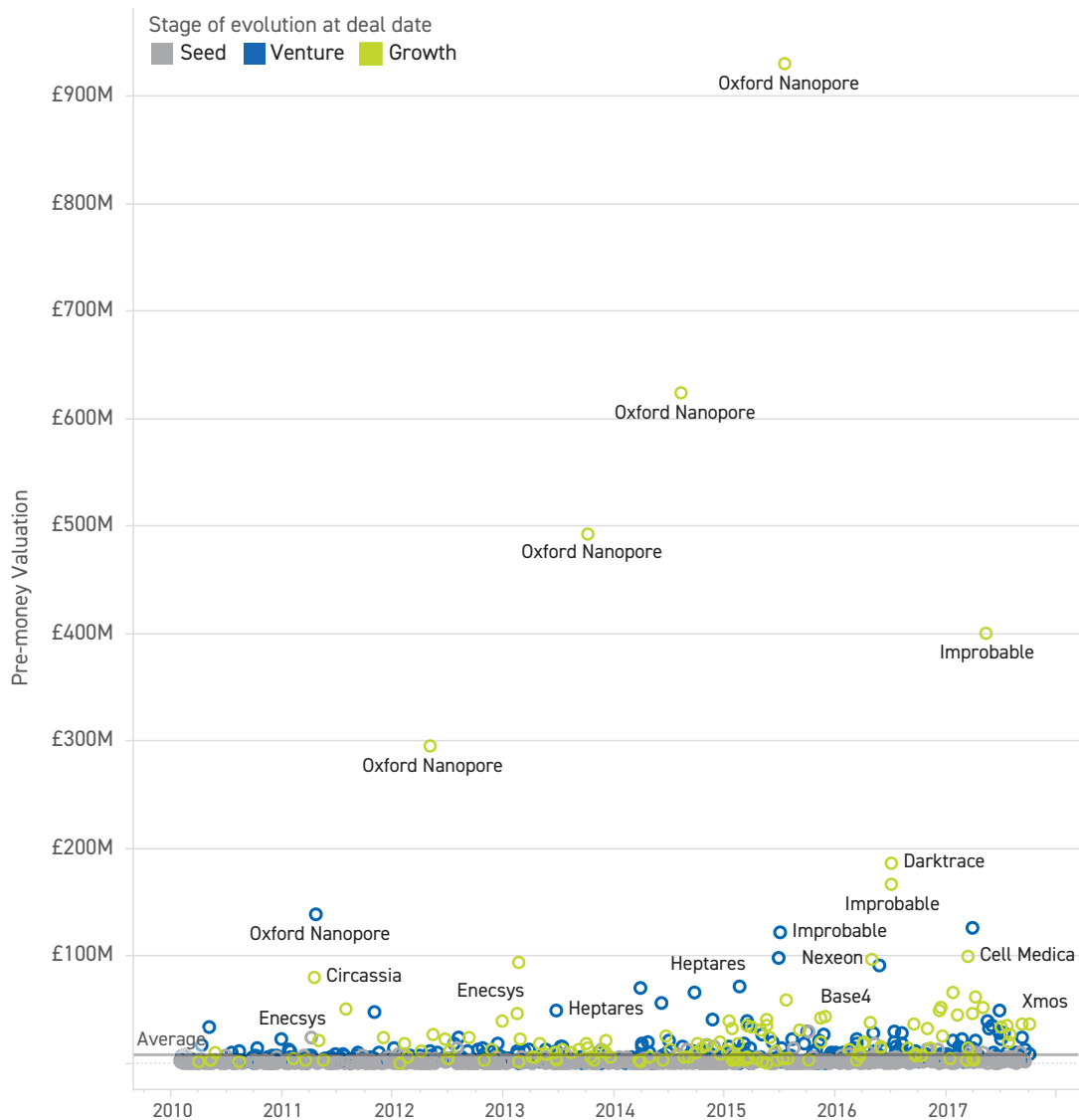
55% of the investment received by companies that have not spun out of an academic institution is received at the growth-stage. For spinout companies this figure is only 42%. Obviously the corollary of this is that spinouts receive a larger proportion of their investment at the earlier-stages. This might seem natural since spinouts are known to be comparatively capital intensive at their earlier stages. However, this does not mean that they can grow any more cheaply than a non-spinout company at later stages.

This is evidence of a known anecdotal problem: the UK is excellent at developing IP-intensive technologies but not as good at commercialising them. It is very difficult to say whether this is because spinouts lack the capital they need at the growth-stage or because they don't receive the growth capital they need on account of the fact that they're not showing commercial promise. At the very least, there is scope for investment into spinouts to catch up with the wider market.

A more plentiful supply of patient capital is the objective of several initiatives including the Patient Capital Review. If they succeed, they will help to move spinouts 42% closer to the wider market's 55%.

VALUATIONS

SPINOUT VALUATIONS OVER TIME



Spinouts are known to command high valuations. At the point of incorporation a spinout will own (or be licensing) an already advanced piece of IP / technology.

A spinout's first investment round will include the value of this IP which will often represent several years' worth of development. In some examples, as the spinout company develops its technology towards commercial readiness, this IP can escalate in value at very fast rates.

A notable example is Oxford Nanopore. In February 2010 Oxford Nanopore had a pre-money valuation of £92.7M. In December 2016 this had reached £1.14B. In its 2016 accounts it declared turnover of £4.5M – a multiple of 252x.

Oxford Nanopore's valuation trajectory, however, is by no means the convention for spinouts.

VALUATIONS

SEED-STAGE SPINOUT VALUATIONS OVER TIME



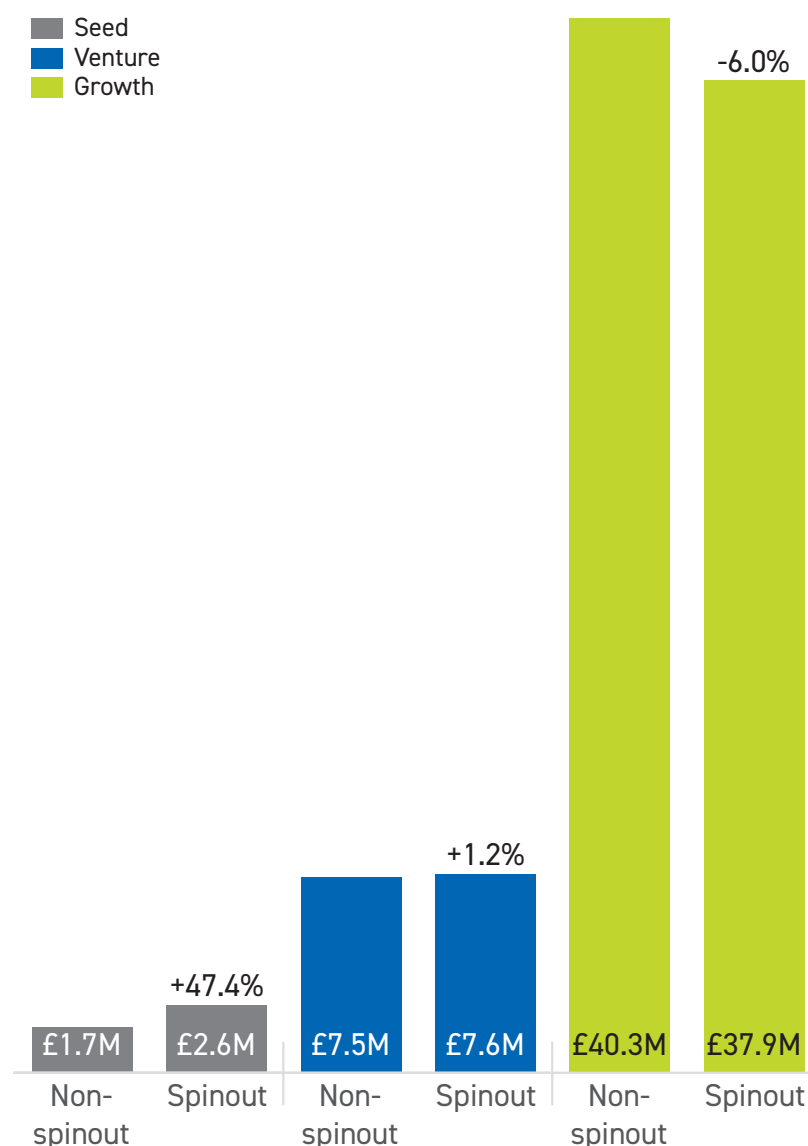
Looking at companies at the seed-stage only, it is possible to see that the average valuation of a spinout is higher than the average valuation of a non-spinout. At the seed-stage, even when the commercial potential of a spinout's IP has yet to be proven, that IP has a positive impact on the valuation of the spinout.

On average a seed-stage spinout's pre-money valuation is £2.6M compared to a non-spinout's average valuation of £1.7M. A spinout's valuation is boosted 47% by the IP it owns or has licensed from the academic institution from which it span out.

Since 2010 BigDNA has had the highest pre-money valuation of any seed-stage spinout. BigDNA, a spinout from the Moredun Research Institute, raised £250K in October 2015 at a pre-money of £30M.

VALUATIONS

AVERAGE VALUATIONS BY COMPANY STAGE



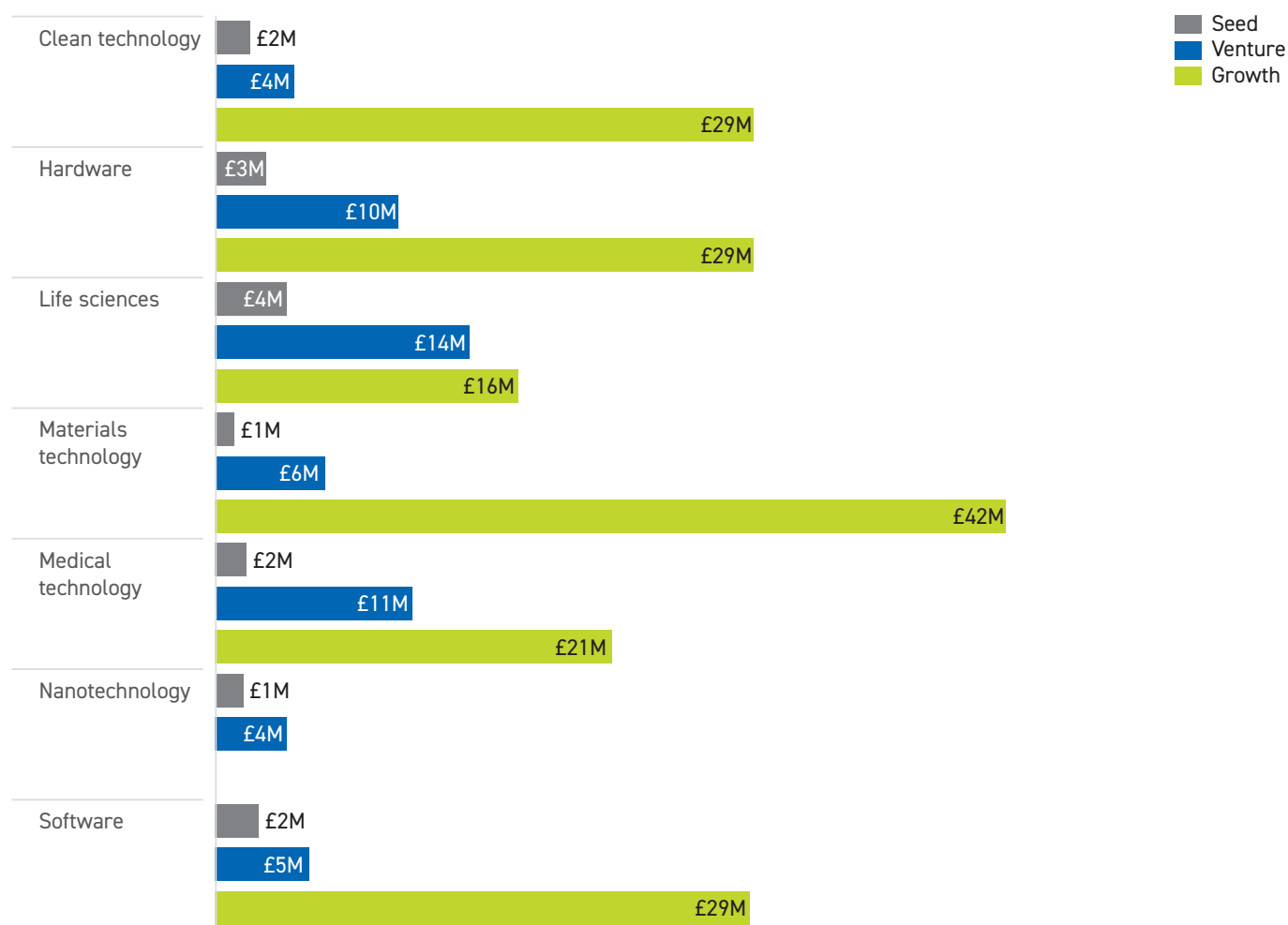
While the average valuation of a seed-stage spinout is 47% higher than the average valuation of a non-spinout, this positive discrepancy starts to get eroded as the company develops.

At the venture-stage, the average pre-money of a spinout company is only 1% higher than a non-spinout. At the growth-stage spinouts have a lower pre-money valuation on average than their non-spinout counterparts.

It seems likely that this trend is related to the dearth of growth-stage funding for spinouts. As with the question of funding, it is hard to say if it is the lack of funding that means spinouts can't grow and so their valuations remain lower, or if their lower valuations / poorer prospects put investors off.

VALUATIONS

AVERAGE VALUATION BY COMPANY SECTOR AND STAGE IN 2016



Companies in the life sciences sector had the highest seed-stage pre-money valuation in 2016. The IP that a company spins out with appears to be most valuable at both the seed-stage and in the life sciences sector.

Spinouts in the materials technology sector were the least valuable at the seed-stage, with an average pre-money valuation of £1M in 2016. However, growth-stage companies in the same sector had the highest average pre-money in the same year. It must be borne in mind that only one company underlies this average. Oxford Photovoltaics completed two equity fundraisings in 2016: the first in September at a pre-money of £36.1M; the second in December at pre-money of £48.6M. While this

seems like a very rapid growth rate: £8.72M of the growth in valuation comes from the money put into the company as part of the investment in September 2016 by Parkwalk.

At the growth-stage spinouts operating in clean technology, hardware, and software all had an average pre-money valuation of £29M (£28.8M, £28.8M and £28.6M respectively). Across all sectors the variation in valuations at the growth-stage was huge: the lowest was £3.4M (Microtest Matrices), the highest was £1.14B (Oxford Nanopore). In software the highest growth-stage pre-money valuation was £187M (Darktrace) and the lowest was £6.9M (UltraSoC, a spinout from the University of Kent).

INVESTORS

TOP INVESTORS INTO SPINOUTS IN 2016

INVESTOR NAME	DEALS
Parkwalk Advisors	26
Oxford Sciences Innovation	13
Scottish Enterprise	11
Touchstone Innovations	9
Mercia Technologies	9
IP Group	8
SyndicateRoom	6
Archangels	5
Cambridge Innovation Capital	5
Midven	5
Woodford Investment Management	5
24Haymarket	4
Entrepreneur First	4
Development Bank of Wales	4

There are well-known investors that either have a remit to support spinouts (either from a specific university or more generally) or specialise in IP/technology intensive businesses. It is no surprise, therefore, to see Parkwalk Advisors (managing multiple funds), Oxford Sciences Innovation (OSI) and Touchstone Innovations as three of the four top investors (by number of deals) into spinouts in 2016.

It is more surprising, however, to see Scottish Enterprise and the Development Bank of Wales (previously Finance Wales) as two of the top investors into spinouts. In particular, Scottish Enterprise was the third most active investor into spinouts in 2016, participating in 11 deals worth a total of £14.3M. Similarly, Archangels and SyndicateRoom show the importance of the private and retail investor to the funding of spinouts. Given that 15% of the funds/organised investors that backed spinouts in 2016 require the investee to be SEIS or EIS eligible, the

INVESTOR NAME	AMOUNT
Woodford Investment Management	£177M
IP Group	£119M
GT Healthcare	£100M
Touchstone Innovations	£98.9M
Cambridge Innovation Capital	£51M
KKR	£49.9M
SB ISAT Fund	£49.9M
Summit Partners	£49.9M
Ten Eleven Ventures	£49.9M
Oxford Sciences Innovation	£49.7M
Invesco	£40M

importance of those schemes to funding innovation in the UK should not be underestimated. Given the recent announcement to double the amount of available EIS reliefs for knowledge intensive companies, we look forward with interest to the impact this will have on the funding of this sector.

The top investors into spinouts in 2016 by value have been calculated based on the sum of the transactions each investor participated in, regardless of the number of investors involved in the deal. This is because in most cases the information on each investor's individual contribution to a round is not available, unless they were the sole investor in the deal. The figures should therefore be treated as representative.

Woodford Investment Management tops the list having participated in only five investments into spinouts in 2016 but which were worth a total of £177M (an average £35.3M).

INVESTORS

SPINOUT INVESTORS BY TYPE

INVESTOR TYPE	NUMBER OF FUNDS INVESTING IN 2016
Private equity & venture capital	34
Angel network	13
Corporate	10
Local & regional government	7
Commercialisation company	6
Crowdfunding	5
Devolved government	5
University	5
Central government	2
Private investment vehicle	2

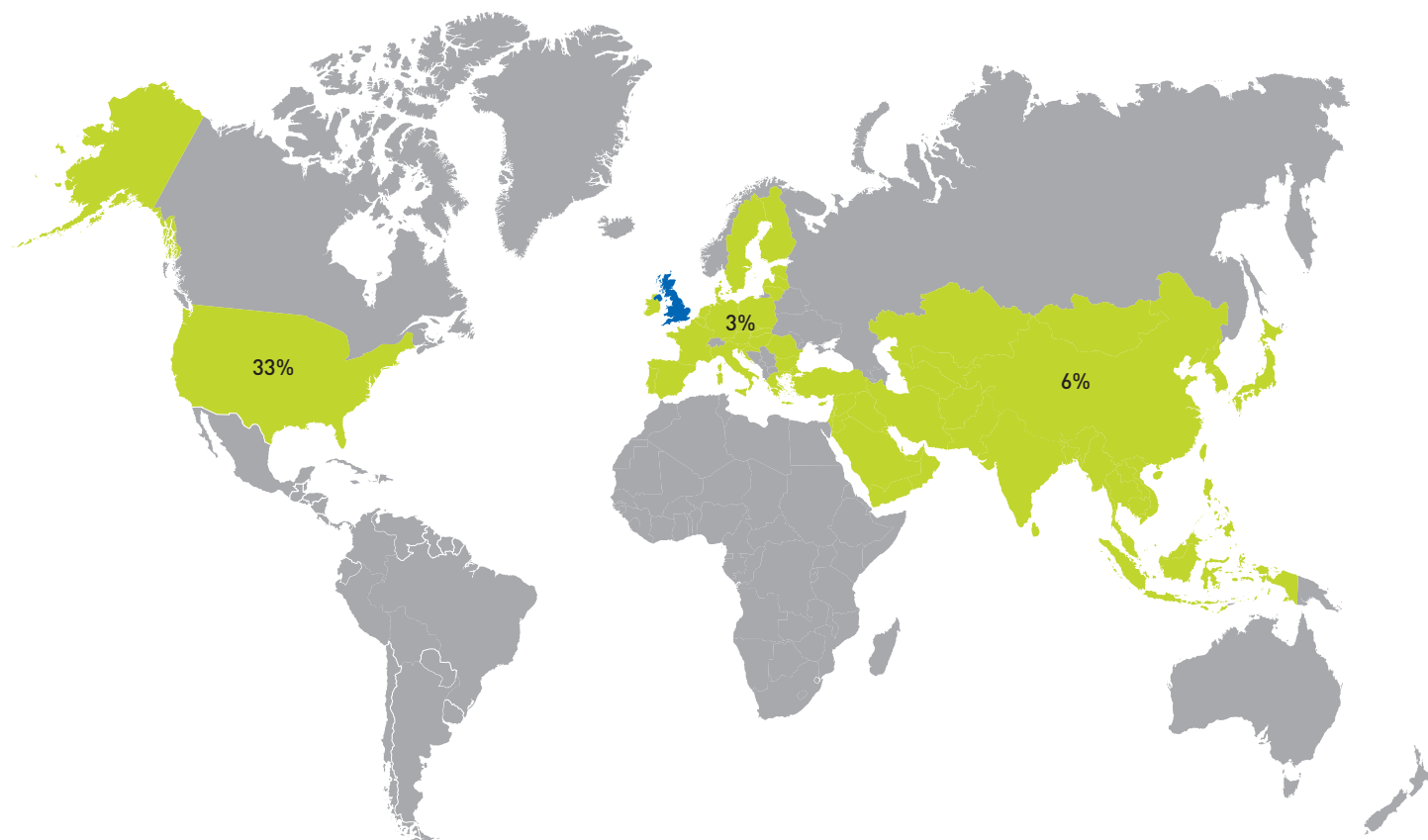
Various types of fund back academic spinouts. Of the 121 funds that invested in a spinout in 2016, 34 (28%) were private equity or venture capital funds – this mirrors the wider equity fundraising market in which 25% of the funds investing in 2016 were classified as private equity and venture capital.

Angel networks, 13 of which made investments into one or more spinouts in 2016, committed funds to 18 companies worth a total of £32.7M (with an average deal size of £1.93M). The majority (67%) of these investments were made into companies at the venture-stage. Ten of the spinouts backed by angel networks are located in Scotland. This explains why Scottish Enterprise appears so high up the top investor list: the Scottish Investment Bank regularly invests alongside the angel networks that operate in Scotland.

Five different crowdfunding platforms backed spinouts in 2016; SyndicateRoom alone facilitated six investments into spinouts. The adoption of crowdfunding as a means of raising early-stage investment for spinouts was relatively rapid since the first platforms began operating in the UK. Investment peaked by number of deals in 2015 (33) and by amount in 2016 (£25.1M).

Corporate investors participated in only nine spinout fundraisings in 2016 but they were worth a total of £85.2M (an average deal size of £9.46M). This is lower than the peak of 2014 when corporates invested £119M into spinouts.

NATIONALITIES OF FOREIGN SPINOUT INVESTORS



Investors headquartered outside the UK were involved in 19 (15%) of the 125 announced investments into spinouts in 2016. These deals were worth £202M to those companies – 37% of the total value of announced investment in 2016.

Funds that have a head office in the United States were involved in 12 of the 19 deals that included a foreign investor. These deals were worth a total of £181M. The \$65M investment into Darktrace in July 2016 was by far the largest investment to involve a US fund. Ten Eleven Ventures, Summit Partners and KKR were the US funds that participated in the deal.

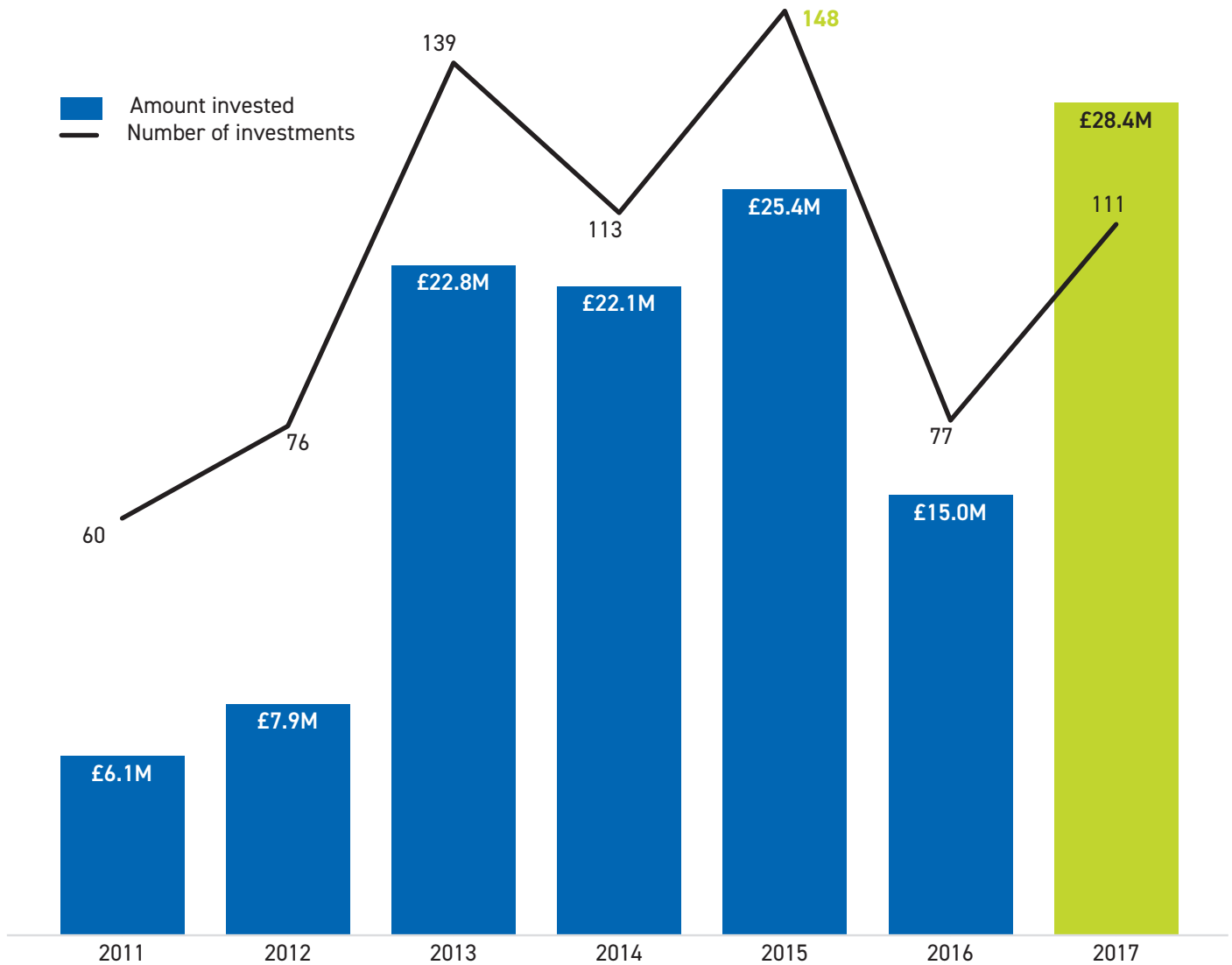
Investors headquartered in the EU (excluding the UK) were involved in four spinout investments worth £32.6M in 2016. As with all UK deals involving a foreign investor,

these investments often have a mix of investors of different nationalities. Storm Therapeutics raised £12M from Cambridge Innovation Capital (UK), Touchstone Innovations (UK), Pfizer Venture Investments (US) and Merck Ventures (Netherlands). Although Merck is headquartered in New Jersey, its corporate venture capital arm is headquartered in the Netherlands and has offices in Amsterdam, Darmstadt (Germany), Cambridge (US) and Yavne (Israel).

Investors headquartered in Asia were involved in three deals in 2016 worth £56.5M. This rises to four deals and £60.8M in 2017. The SB ISAT fund (a joint fund run by Indosat and SoftBank) also participated in the 2016 Darktrace deal that involved US investors.

GRANTS

PUBLIC GRANTS INTO SPINOUTS



Despite not yet being over, 2017 has already proved to be a record year for the amount invested through grants, with £28.4M received by spinouts. 2015 saw the largest number of grants awarded to spinouts.

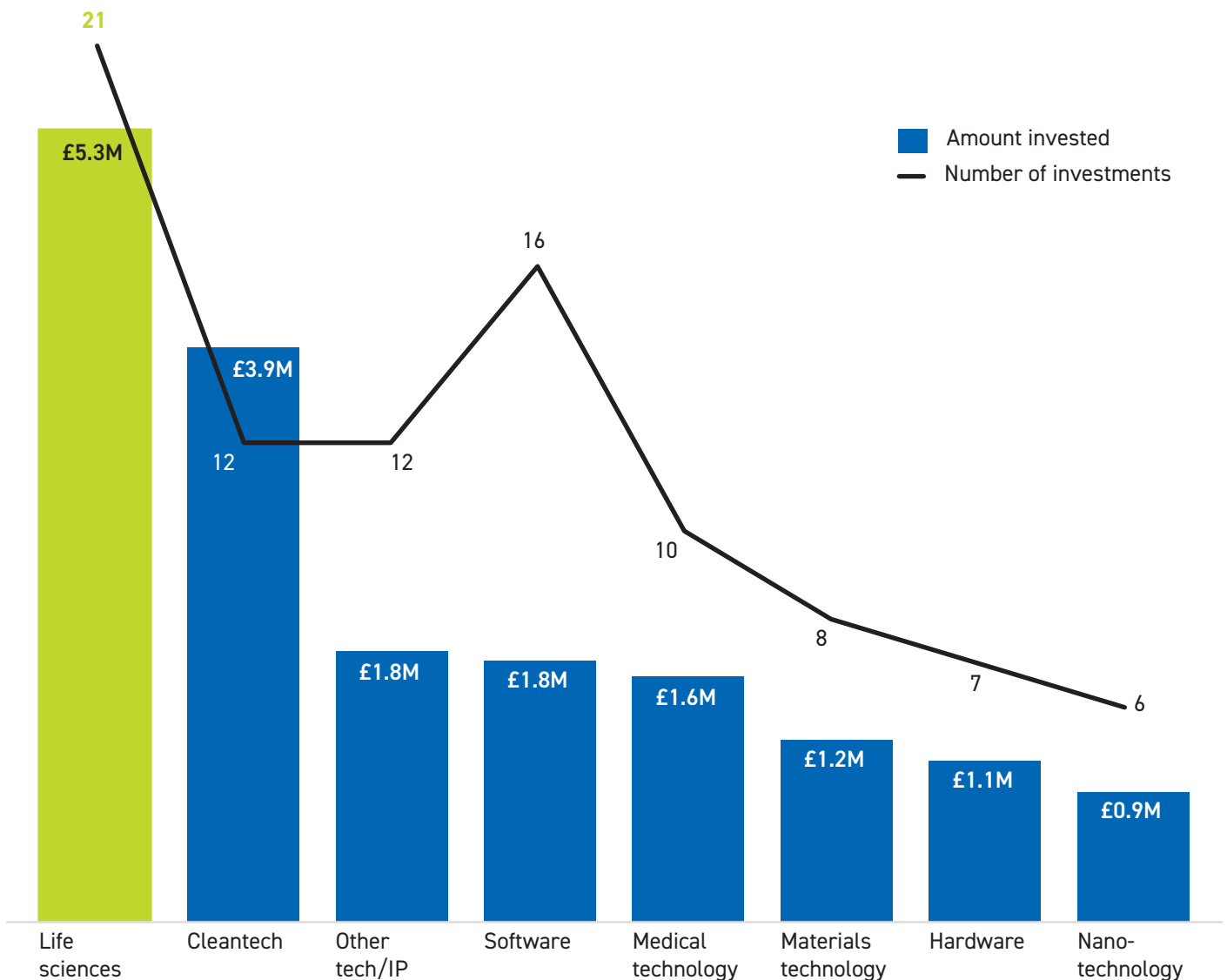
This fits with data on Innovate UK grants received by all companies, which shows that 2015 was also the year in which the most grants were awarded.

However, 2015 was also the year in which the greatest amount was awarded through Innovate UK grants to non-spinouts. This indicates that for spinouts, 2017 has been an unusually good year for grant investment in comparison to the general company population.

Looking at the most recent five years, 2016 stands out for having fewer grants and a smaller total amount awarded to spinout companies. Comparing with the average amount of £22.7M invested per year over the past five years, 2016 was significantly lower at only £15M. The number of grants in 2016 to spinouts was also lower, at only 77 in comparison to the five-year average of 118.

GRANTS

2016 PUBLIC GRANTS BY COMPANY TECHNOLOGY SECTOR



The life sciences mid-level sector (comprising the pharmaceuticals and research tools/reagents sectors) received both the largest number of grants (1.74 times more than the next busiest sub-sector) and greatest overall amount.

This mirrors the popularity of life sciences spinouts in receiving equity investment in 2016, which attracted 1.78 times more investment than the next largest technology sector. As well as receiving the second largest total amount of grants in 2016, spinouts in the clean technology sector received the largest value grants on average, at £325K per grant.

Nanotechnology spinouts received the fewest grants in 2016 and the lowest value of grants but this is partly a function of the small business population in that sector. Indeed, the dominance of life sciences is equally a function of the fact that the largest number of spinouts operates in the sector.

SECTORS

NUMBER OF 2016 INVESTMENTS INTO SPINOUTS BY COMPANY SECTOR

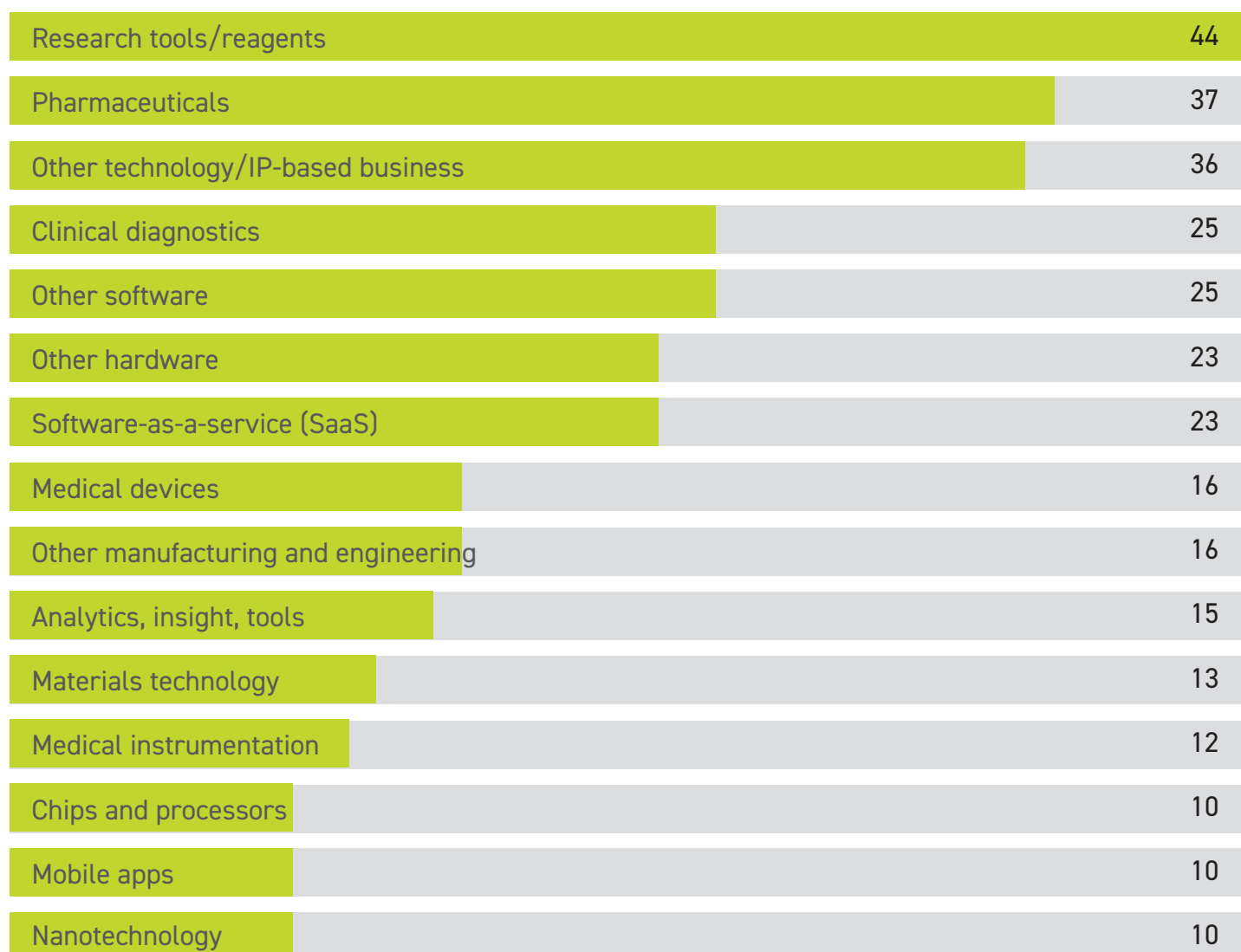
Technology/IP-based businesses	240
Industrials	52
Business and professional services	42
Personal services	12
Energy	6
Media	6
Agriculture, forestry and fishing	6
Leisure and entertainment	4
Retail	3
Tradespeople	3
Built environment and infrastructure	2
Telecommunications services	1

The chart above shows the number of equity investments made into spinouts in 2016, according to the top-level sectors in which the spinouts are categorised. It is worth noting that the chart features double-counted sector data, since each spinout company can be categorised as operating in multiple top-level sectors. Since by definition a spinout is a company commercialising IP, naturally all the spinouts are classified as operating at least in the technology/IP-based businesses sector if not in any other sectors. Therefore the value of 240 investments into spinouts in the technology/IP-based business sector represents all spinout investments in 2016.

There were 129 investments into spinouts that are exclusively technology/IP-based businesses in 2016, making 56% of the total number. Of the investments into spinouts operating in multiple of these top-level sectors, 38% of investments were to spinouts in the industrials sector and 31% were to spinouts in the business and professional services sector. A few top-level sectors received no investment at all due to a lack of spinouts entirely. These include supply chain and craft industries.

SECTORS

NUMBER OF 2016 INVESTMENTS INTO SPINOUTS BY COMPANY SUB-SECTOR



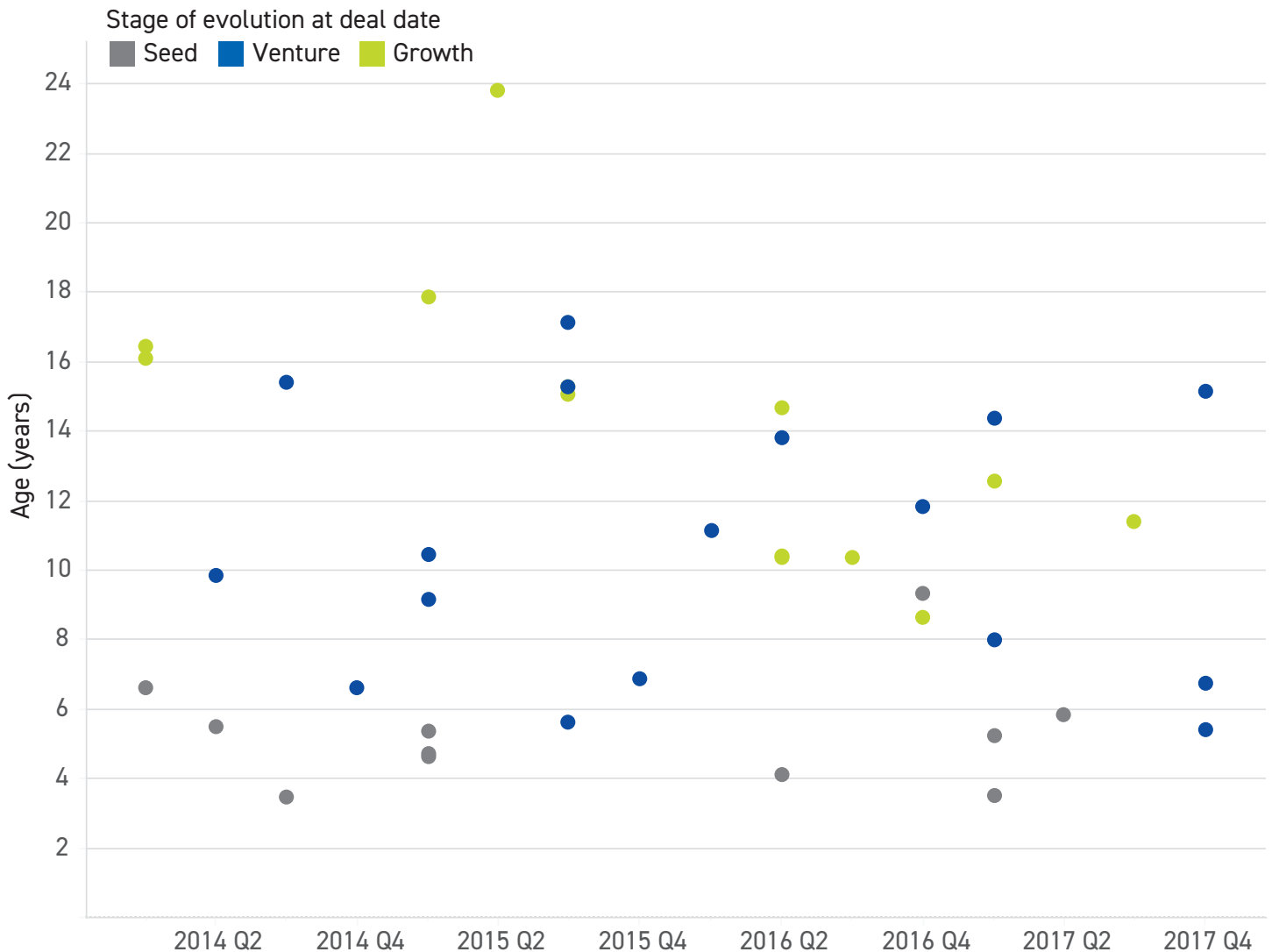
When looking at the lower-level technology sub-sectors that received the most investment in 2016, we see that life sciences dominated by deal numbers, with research tools/reagents receiving 19% of the deals and pharmaceuticals receiving 16% (with a combined total of 29% once double counting is adjusted for). Of the top 12 sub-sectors by number of investments into spinouts in 2016 shown above, 10 fall under the technology/IP-based businesses top-level sector.

The only non-technology/IP-based sectors to feature in the top 12 are other manufacturing and engineering (16 investments) and analytics, insight, tools (15 investments). The companies receiving these investments will also be operating in other sectors at least one of which will be a technology/IP-based business sector.

Comparing 2016 equity investment into spinouts with investment into all companies in 2016, we see that for all companies, the greatest number of deals also went to technology based companies, but for non-spinouts software sectors were predominant. The top three sectors were software-as-a-service (SaaS), mobile apps, and internet platforms. The analytics, insight, tools sector, which was also a top sector for spinouts investment, received the fifth highest number of investments, suggesting that the spinouts and non-spinouts in this sector receive investment in roughly even proportion.

EXITS

SPINOUT EXITS BY COMPANY AGE



In 2016 11 academic spinout companies were acquired by other businesses. The acquiring companies ranged in size from large international corporates to smaller companies developing complementary technologies. The sale price was only disclosed for two of the 11 transactions: Emerson paid £30.6M for Permasense (a spinout from Imperial) and Ergomed paid £28M for Haemostatix (a spinout from Leicester University). Emerson had previously acquired a spinout from the University of Strathclyde in 2014. Of the spinouts acquired in 2016, Phagenesis had raised the greatest amount of equity funding prior to exit: £13.1M across three deals.

Since 2011, the majority of spinouts have been acquired at the venture-stage. These IP-heavy companies can have been around for a reasonably long time prior to

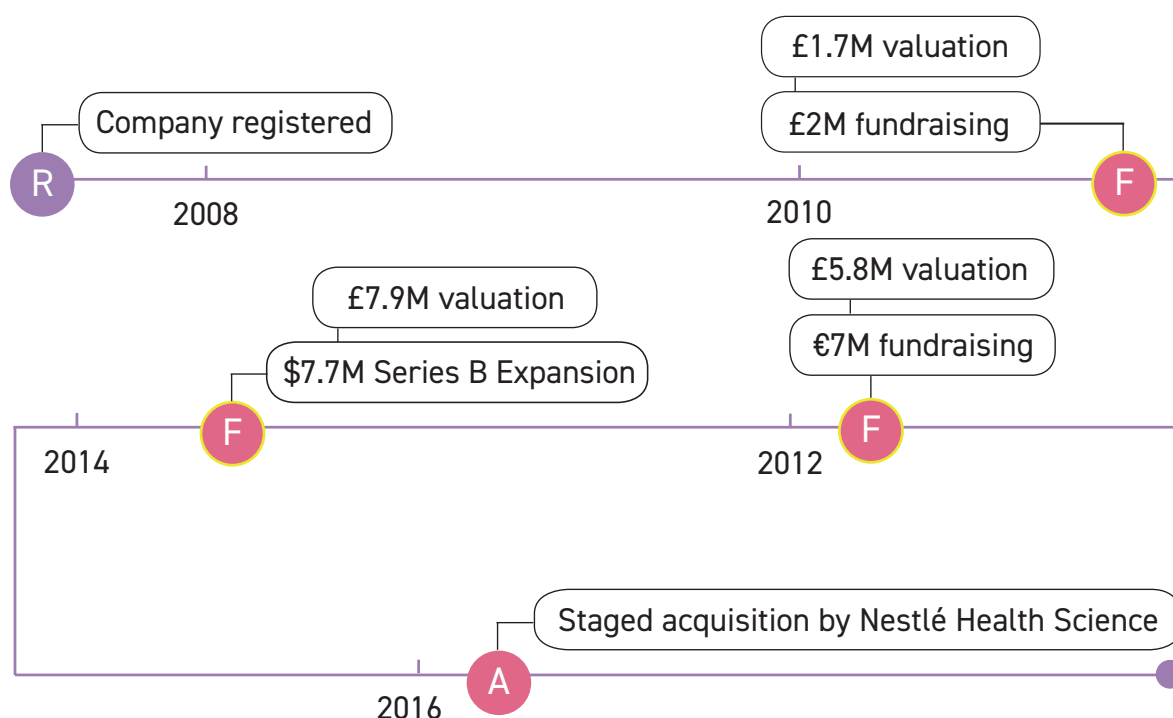
reaching the venture-stage. It is not surprising that these companies, on reaching the venture-stage as their products start to gain traction, can be acquired in fairly short-order. Running a company to commercialise IP and running a company to grow sales and profit margins are different undertakings requiring significantly different skill sets. To be acquired by a company with an established customer-base can be the quickest way to achieve that growth.

Some companies do get acquired very early on: if a piece of IP / technology is commercially viable enough to spin out from the university, it is natural that businesses will see commercial value in acquiring it. The youngest acquired spinout was Cambridge Graphene (two and half years).

CASE STUDY: PHAGENESIS

PHAGENESIS CASE STUDY

Phagenesis developed a device that aims to help patients who cannot swallow properly to do so. The company was a spinout from the University of Manchester.



Phagenesis was formed in 2007 in order to commercialise the IP developed by Professor Shaheen Hamdy at the University of Manchester since 1994. Phagenesis creates medical devices that help patients suffering from dysphagia to swallow properly. The funding received by the company reflects the stages of product development. In September 2010, it received £2M Series A financing from undisclosed investors, which was used to fund product design and clinical trials.

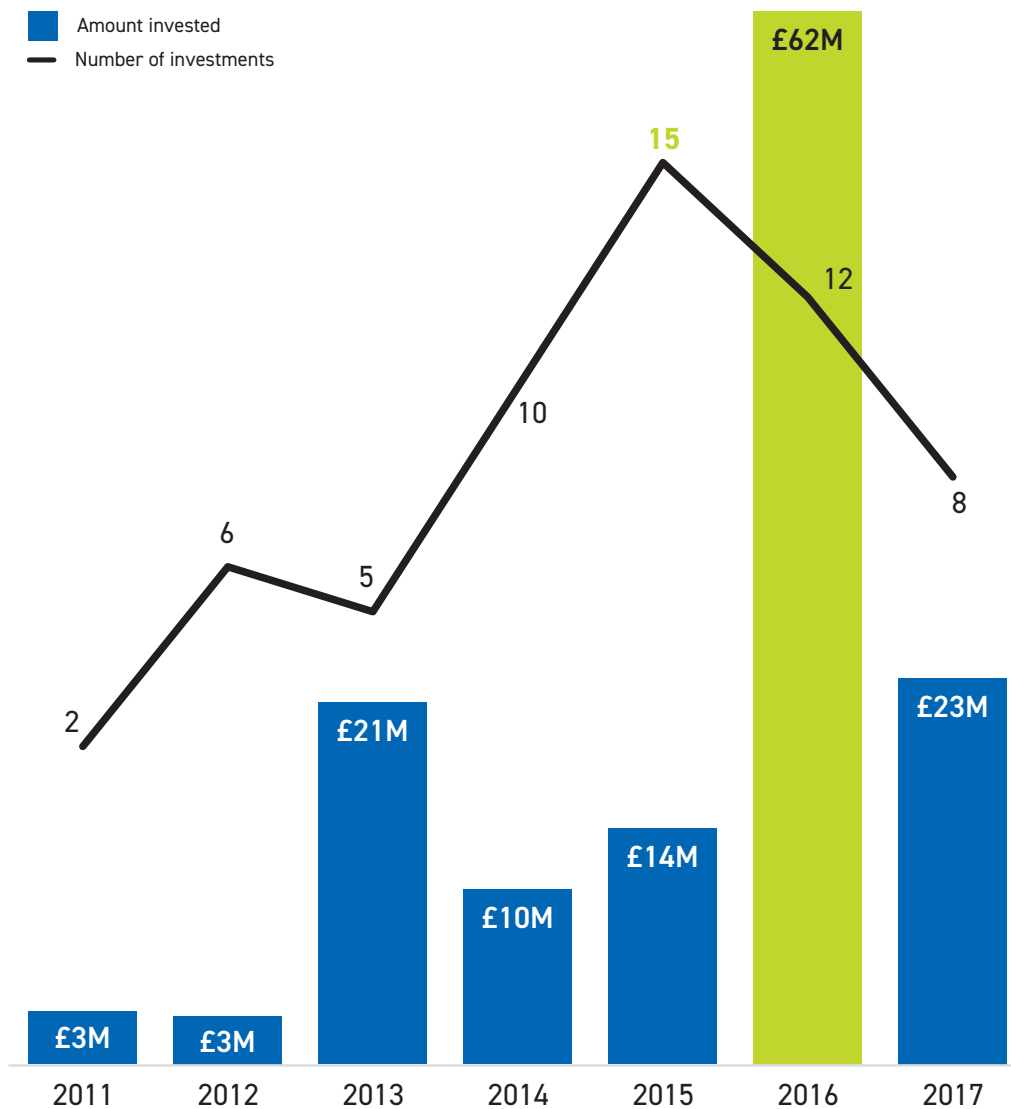
In October 2011, the company received a round of €7M Series B financing, which was led by Inventages Venture Capital - an international VC fund manager focusing on life sciences, nutrition and wellness. This funding was used to further progress with clinical trials.

In May 2012 the company received £1M from the Wellcome Trust to expand its dysphagia treatment. In October the company launched its first treatment, which was followed by an expansion of its Series B funding round to \$17M in May 2013 from Inventages Venture Capital and undisclosed investors.

In September 2016 Phagenesis agreed a staged acquisition process with Nestlé Health Science for an undisclosed amount, as part of a number of deals by Nestlé Health Science that focus on companies in the area between food and pharmaceuticals. A similar move occurred in May 2011, when Nestlé Health Science acquired US company Prometheus Laboratories Inc, which specialises in developing gastrointestinal diagnostics and pharmaceuticals. So far Phagenesis has achieved two of the key milestones in the staged acquisition process.

GENDER

INVESTMENT INTO SPINOUTS WITH AT LEAST ONE FEMALE FOUNDER



The chart above shows the number of equity investments and amount invested into spinouts that have at least one female founder. 2015 had the largest number of deals, at 15, whereas 2011 had the fewest, at only two. 2016 saw the largest amount of investment into spinouts (£62M) with at least one female founder, and also the largest average deal size of £5.17M.

It is worth noting that a single deal of £31.5M contributed to just over half of the total amount invested in 2016. Inivata, which received the investment in January 2016 from Cambridge Innovation Capital (CIC), Touchstone Innovations, Johnson & Johnson Development Corporation and the Woodford Patient Capital Trust, was co-founded by Davina Gale, an academic from Cambridge University.

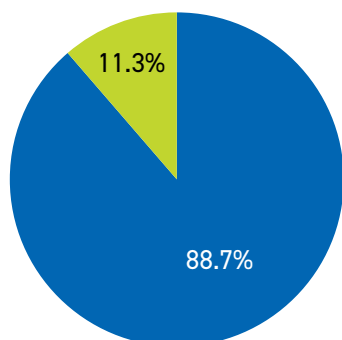
Even if we were to exclude this deal, however, 2016 would remain the year with the largest total amount invested. It is also worth noting the bumper £16.9M investment received by OxStem, a company developing cell programming therapies and which has two female founders (of four).

2017 may well see some additional investments – hopefully large ones – into spinouts with a female founder but will nonetheless almost certainly represent a year-on-year decline compared with 2016. In light of this, 2017 was certainly not a good year for investment into spinouts with female founders because overall investment into spinouts climbed to new heights with 2017 as the most fruitful year to date.

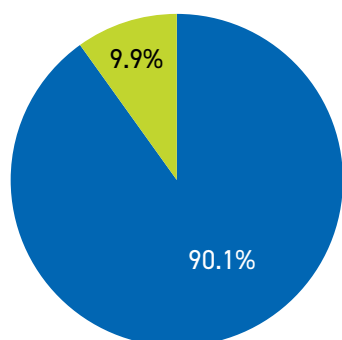
GENDER

SPINOUTS

Population



2016 Investment



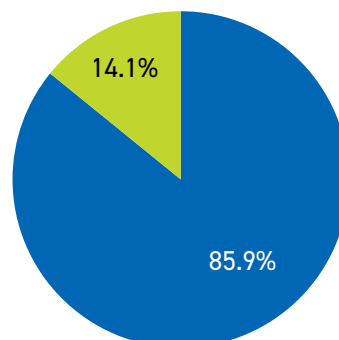
Investment levels into spinouts with a female founder are so low because spinouts have proportionally fewer female founders, with 2.8% less than their non-spinout counterparts.

A likely factor contributing to the relatively small number of spinouts with female founders is the lack of female professors at the academic institutions from which the companies are spun out. *Staff in Higher Education 2013-14*, a report by the Higher Education Statistics Agency, found that in 2013-14 only 22% of professors (4,415) were female.

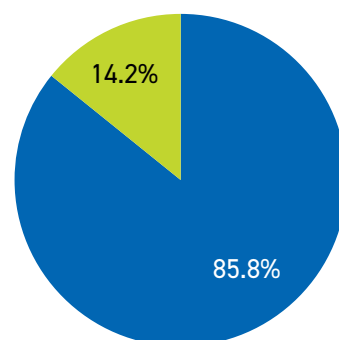
Given that many spinout founders are professors working to develop the company's IP before it spins out from the academic institution, a lack of female professors means there are fewer women founding spinouts in the first place.

ALL COMPANIES

Population



2016 Investment



Spinouts with a female founder received a smaller proportion of the investment in 2016 than non-spinout companies with a female founder. This is partly because more non-spinout companies have a female founder than spinouts do.

But while 11.3% of spinouts have a female founder, they only received 9.9% of investment in 2016. This means the spinouts with a female founder aren't receiving as much money as their male-founded counterparts.

ABOUT THIS REPORT

DATA

This report has been written by Beauhurst, using data collected and created by Beauhurst. Penningtons Manches commissioned Beauhurst to write this report to provide a reference of facts and figures on the funding of spinouts in the UK.

Beauhurst's proprietary sector and stage classifications are explained below. For further information on these classifications or any of the data that underlies this report, contact Beauhurst.

The analysis focuses on 2016: where not otherwise stated, figures refer to 2016 levels of announced and unannounced investment. All 2017 figures are based on partially complete data. Any charts and figures that incorporate 2017 data look at announced deals only (see below).

Data for this report was finalised on 1/11/17.

GLOSSARY

Seed: an early-stage company, generally pre-revenue, that has received a small amount of investment.

Venture: a company with a more developed proposition, generating revenue but usually pre-profit, that has received considerable investment, usually from funds/organised investors.

Growth: a company with an established product, generating revenue and usually profitable (even if re-investing that profit), that has received considerable investment from multiple types of investor.

REPORT METHODOLOGY

This report looks at the equity investment, grants and exits of spinouts located in the United Kingdom. A spinout has been defined as such if it has: (i) come out of an academic institution (universities, research councils, research centres) with a licence to or ownership of IP generated at that same institution; and (ii) received external investment (equity, or debt from a specialist lender). In order to be included in this report there must be confirmation of the spinout's relationship with the academic institution in the public domain.

Company stage: Beauhurst categorises companies into six stages of evolution (seed, venture, growth, zombie, exited, dead) using over 40 proprietary criteria, which vary based on the complexity of the intellectual property the company is developing. For example, Beauhurst uses different criteria to evaluate a pharmaceutical company than for a software company. No one criterion is enough to determine stage of evolution, so we take a balanced view with each decision. Rarely, a company may skip a stage, going from seed to growth, depending on how it is doing.

Company sector: Beauhurst tags companies with as many sectors from their proprietary sector matrix as appropriate, but does not order or prioritise the sectors attached to a company. The top-level sectors in the matrix are: agriculture, forestry and fishing; energy; leisure and entertainment; retail; technology/IP-based businesses; telecommunications service; tradespeople; transportation operators; built environment and infrastructure; business and professional services; craft industries; industrials; media; personal services; supply chain; and other.

Equity investment: Beauhurst monitors thousands of sources to find announced equity investments, which is often the most timely declaration of a deal. More than 50% of deals, however, are not announced. To find these deals we look at SH01s (a share allotment form) filed at Companies House. We also use these SH01s to calculate a company's pre- and post-money valuations. For the purposes of this report we have included the money raised from fresh equity issuances during IPOs in investment totals.

Investors: We attribute equity investments to however many investors were involved in the deal provided they received new shares, regardless of the number or value of shares received. Investor nationalities are determined using head office locations.

ABOUT BEAUHURST

Beauhurst

Beauhurst is a searchable database of the UK's high-growth companies.

Our platform is trusted by thousands of professionals to help them find, research and monitor the most ambitious businesses in Britain. We collect data on every company that meets our unique criteria of high-growth: from equity-backed startups to accelerator attendees, academic spinouts and fast-growing scaleups. This data is used by our clients at organisations including law firms, technology transfer offices, university enterprise education departments, venture capital firms, corporate finance houses, LEPs, growth hubs and many more.

Our data is also used by journalists and researchers who seek to understand the high-growth economy, and it powers studies by major organisations – including the British Business Bank, HM Treasury, Innovate UK, and the ScaleUp Institute – to help them develop effective policy. We often work with organisations to help them use and analyse our data and to produce bespoke reports that answer their specific research questions.

We believe good data is the key to making better investments, faster decisions and more effective interventions. We believe with the right data we can help support the UK's world-leading entrepreneurial ecosystem and help more companies start up and scale up.

For more information and a free demonstration of the platform, visit beauhurst.com

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ABOUT PENNINGTONS MANCHES

The highly-regarded technology transfer team at law firm Penningtons Manches comprises specialist corporate, tax, IP/IT, commercial and employment lawyers with extensive experience of advising spinout companies, institutions and investors on their technology transfer requirements.

We have a strong sector focus on life sciences and technology and many members of our team have City training and a science background. With a regional footprint in the South East of England, including offices in the golden triangle of London, Oxford and Cambridge, we are ideally positioned to deliver cost-effective advice to clients engaged in the development of transferred technology. Our office in San Francisco is also able to assist certain of our spinout company clients with advice on expansion and access to capital in the US.

Our work in this area includes negotiating and advising on investment term sheets, investment and shareholders' agreements, EMI/EIS/VCT requirements, SME status for R&D tax credits, assignments and licensing of intellectual property rights, collaborative research and confidentiality agreements, and all that goes with them.

Our full service offering gives us the scale and scope to help spinout companies as they grow and our team regularly advises companies and investors on subsequent larger funding rounds, more complex commercial agreements and eventual exits (whether by sale or AIM IPO).

Expertise at a glance:

- establishment, seed funding and funding rounds
- share options and incentives
- corporate and personal tax, including EMI/EIS/VCT schemes
- company secretarial matters
- joint ventures including collaborations between universities and revenue share agreements
- collaborative research agreements including EU-funded projects
- in-licensing and transfer of IP rights including pipeline and option agreements
- IP strategy and IPR disputes including patent litigation
- consultancy agreements
- property requirements
- further funding rounds
- listing or trade sales

We are delighted to have produced this report, in conjunction with Beauhurst, and we hope that this will be a useful contribution to the knowledge held on this important area of activity.





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