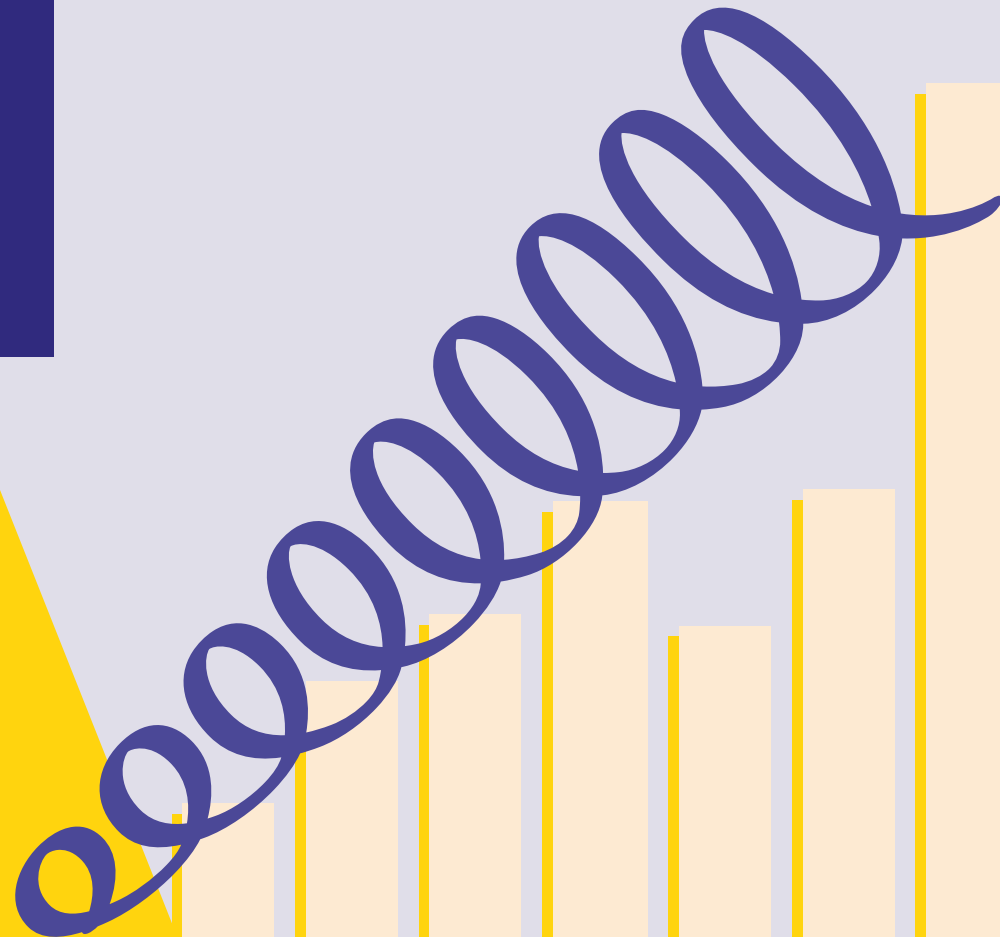


Equity investment into UK Spinouts

2022

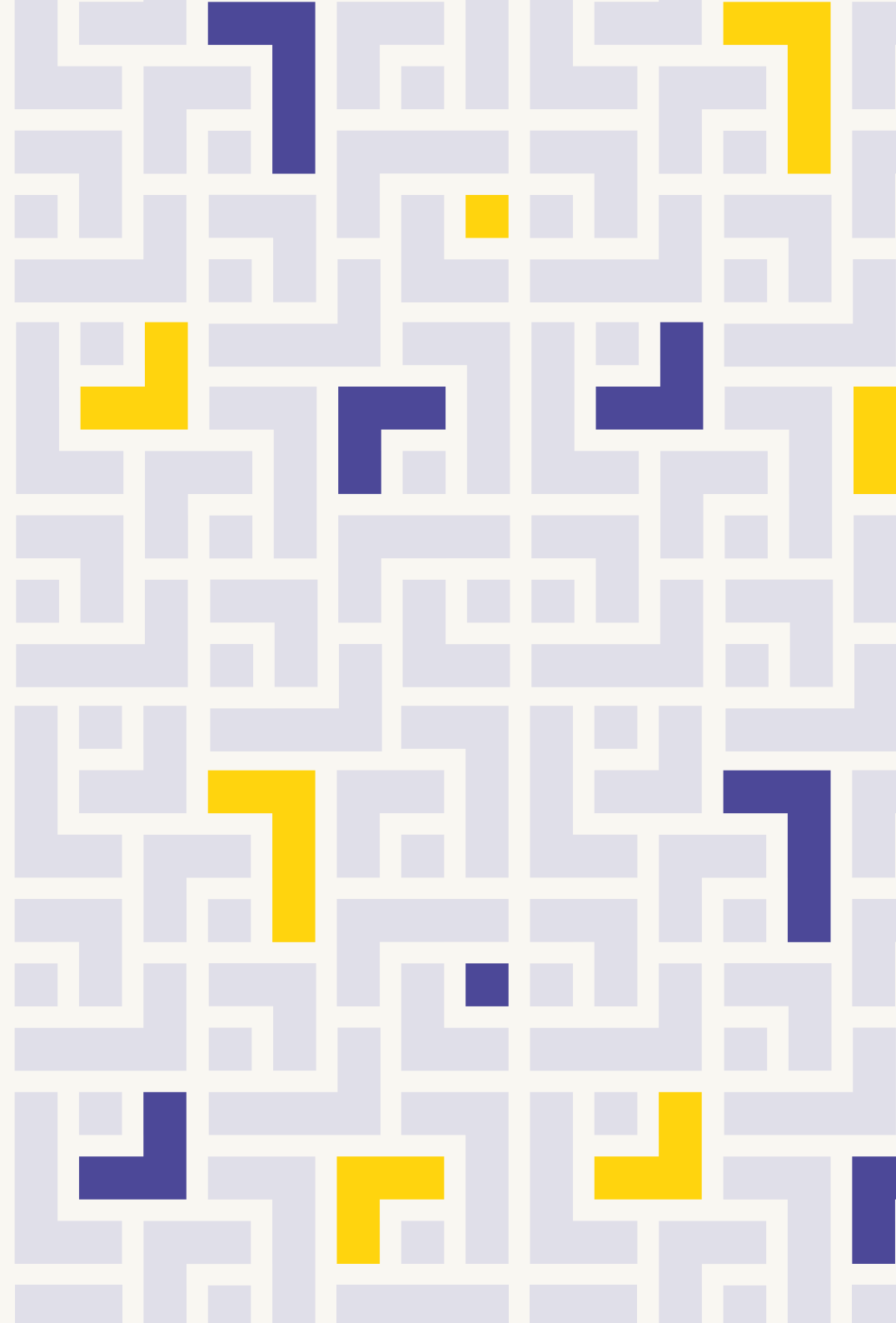
 **Beauhurst**

Parkwalk
Investing in Innovation



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Moray Wright, Chief Executive Officer at Parkwalk

This year's report shows an increased appetite for first-time equity deals and a record level of overall funding for spinouts. Whilst this is a positive step in the right direction for the sector, we still believe that despite the world leading research produced here in the UK, deeptech is still hugely underfunded at the scaleup stage, especially from UK investors.

The record levels of foreign investment into spinouts in the UK during 2021, was likely bolstered by the government's new £1.4bn investment fund to help

"It is pleasing to see an overall recovery in the spinout sector with investments surpassing the previous pre-pandemic peak."

encourage overseas investment in key, knowledge intensive sectors including electric car manufacturing, offshore wind and life sciences. Whilst encouraging overseas investment is critical there is still a large amount of dry powder in the UK that can be deployed into EIS funds to help innovative UK businesses that are looking to scale up. Not only would greater encouragement for investors to make use of such funds help support key sectors within the UK, but it would help support the government's R&D spending commitment of £22bn by 2024-25.

The jump in the number of first time deals can be explained by fund managers' increased confidence as we emerge from the pandemic. 2020 saw greater focus on existing portfolio companies but the increase in first time funding is a positive step to ensure the growth of the next cohort of large university spinout companies.

As we look to the future, the government's consultation on the relaxing of the regulatory charge cap for larger pensions schemes could have a positive impact on the spinout sector. Redirecting pension assets could, for example, help with their 'levelling up' ambitions and support the wave of green infrastructure and early-stage, innovative firms. This later stage funding could be a crucial tool as we look to create a sustainable, self-financing ecosystem for technology investment.

"We still believe that despite the world leading research produced here in the UK, deeptech is still hugely underfunded at the scaleup stage, especially from UK investors."



Henry Whorwood, Head of Research and Consultancy at Beauhurst

Spinout companies are working on commercialising some of the most valuable and innovative intellectual property that comes out of the UK's universities. Understanding the investment going into these companies is crucial because it is that investment that will allow those companies to grow, and that growth will allow the innovation to reach consumers, patients and industry – ultimately to change lives.

Last year saw a record amount of investment into spinout companies: over £2.5b. This figure represents

just under 10% of the total amount of investment into UK private companies in 2021. In addition to this, a record number of new spinouts raised their first round of equity investment in 2021. 102 spinouts raised investment for the first time – an increase of 38% on the previous year.

The investment received by spinouts is coming from more diverse sources. A record proportion of deals (40%) involved participation from investors headquartered outside the UK. Not only is this good news because it means the overall pool of capital available to spinouts is getting bigger, it also means that the technologies spinning out of the UK's universities are attractive enough to lure investors from abroad. The majority of this investment comes from the US, but it is notable that the Netherlands and China also rank highly as investors into the UK's spinouts. The US is also home to the greatest number of acquirers of spinouts and home to the second most popular stock exchange on which spinouts hold their IPOs.

Increasing investment into the UK's spinouts is not only good for UK plc, it's good for every person.

Key figures:

£10.9b

The total volume of equity investment secured by spinouts between 2012 and 2021.

3,207

The total number of equity deals secured by spinouts between 2012 and 2021.

102

The number of first-time equity deals secured by spinouts in 2021.

40%

The proportion of equity deals into spinouts in 2021 with the participation of international investors.

166

The number of exits via IPO or acquisition undertaken by spinouts between 2012 and 2021.

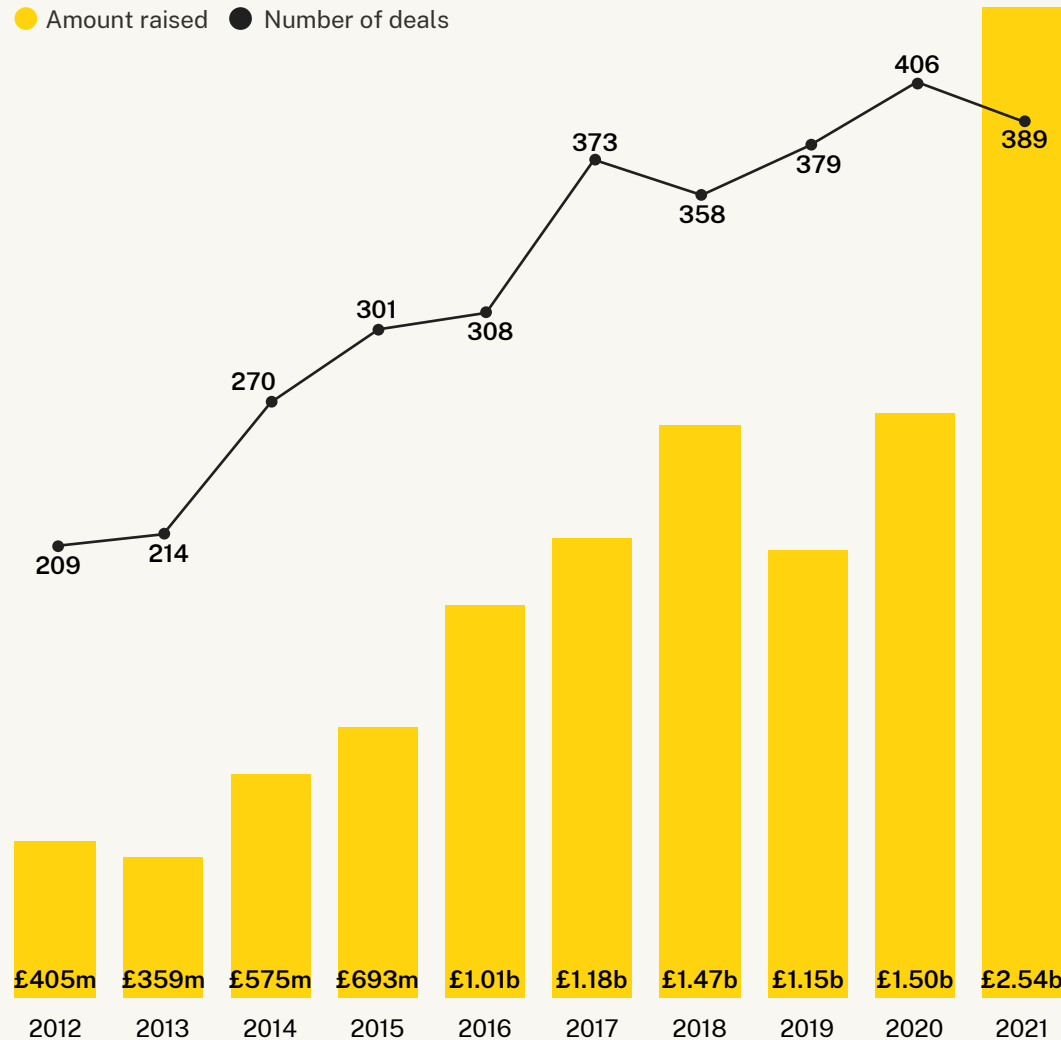
Spinout investment by year

Over the last decade, the number of equity investment deals into companies spun out of academic institutions has climbed in an upward trend, representing both increases in the number of spinouts existing in the ecosystem and the amount of interest that spinouts are receiving from investors.

The combined value of these deals increased 527% from £405m in 2012 to £2.54b in 2021 through an overall trend in growth, but with a slight drop in value in 2019 and 2020. This was likely a result of macroeconomic factors such as Brexit and the COVID-19 pandemic, and consequently some investor hesitancy. Figures for 2021 represent a return to the investment value that would have been expected from the growth trajectory that occurred between 2013 and 2018.

More than a thousand academic spinouts raised equity investment between 2012 and 2021, demonstrating the importance of this type of high-growth company to the innovation ecosystem. Spinouts often come from vital sectors such as diagnostics and medical devices, pharmaceuticals and other healthcare, materials technology, and clean energy.

Equity investment into UK spinouts (2012-2021)



£10.9b

total equity investment secured by spinouts (2012-2021)

3,207

total equity deals secured by spinouts (2012-2021)

Spinout equity investment

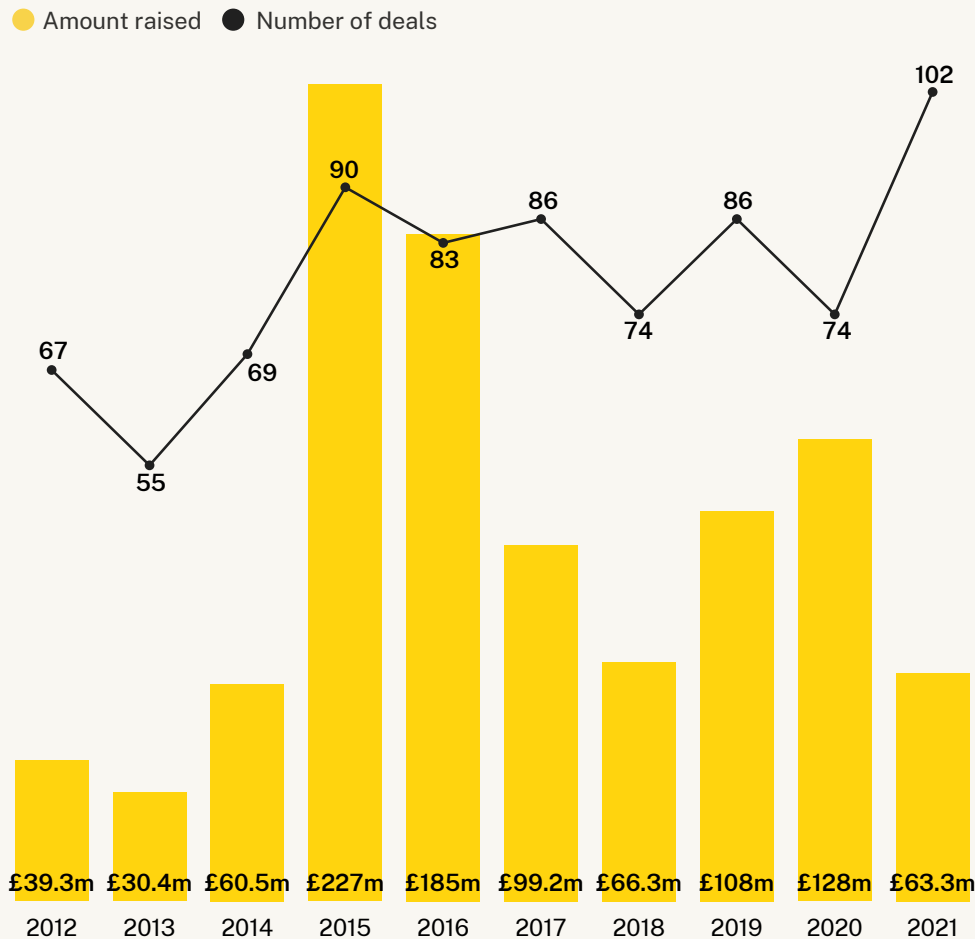
Equity deals by number and stage

The number of spinout companies raising their first ever deals peaked in 2021, at more than a hundred for the first time. Whilst the value of equity deals was highest in 2015 and 2016, this was the result of some unusually huge initial deals to a number of pharmaceutical companies. In 2015, this included £88m to

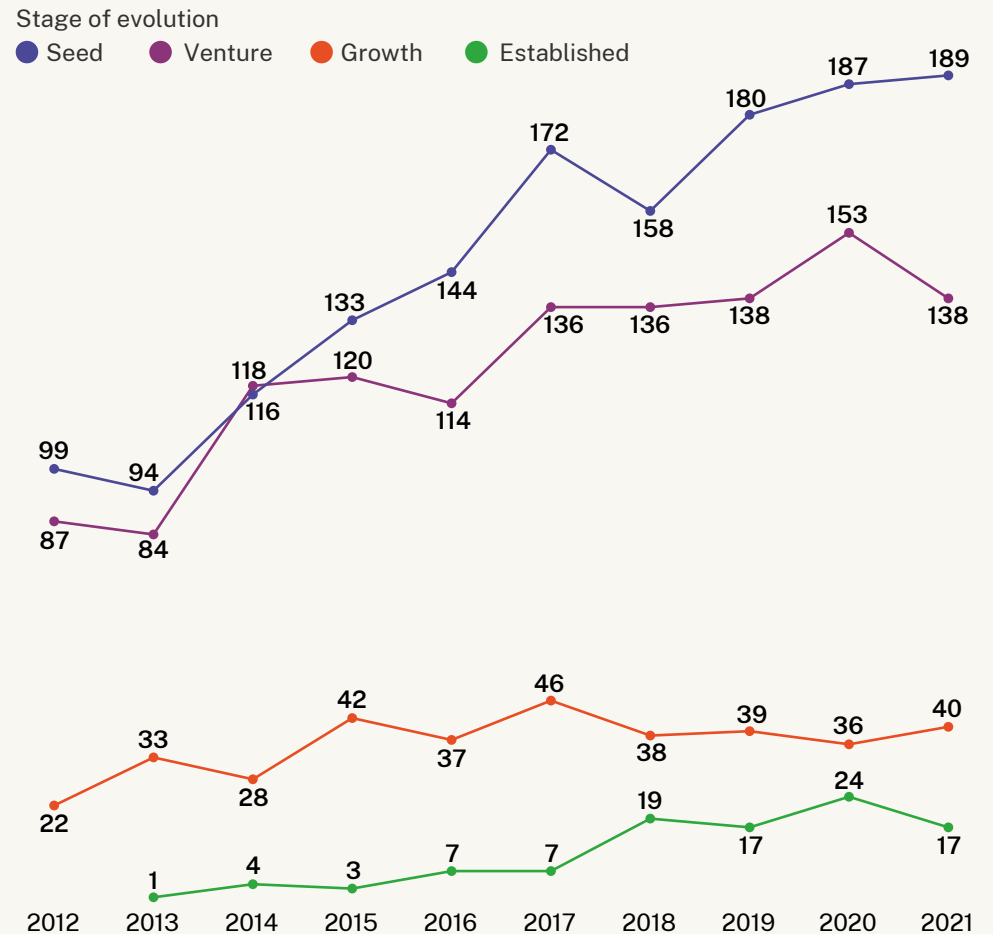
TauRx Pharmaceuticals, £30m to Autolus and £25m to Freeline Therapeutics, as well as £39.9m to Apollo Therapeutics in 2016. In comparison, the highest initial deal in 2021 was a £6m round to Alethiomics. As the deals by stage of evolution chart shows, the number of spinouts receiving seed-stage funding in

2021 is the highest it has ever been, indicating investors remain interested in young and ambitious firms. Later stage investment deals have remained more stable in number over the last decade; 2021 deals in the venture stage are very comparable to 2019, 2018 and 2017.

First-time equity deals into spinouts by year (2012-2021)



Equity investment deals into spinouts by stage of evolution at deal date (2012-2021)



Top equity investment deals in 2021

The companies raising the biggest investment deals in 2021 come from several different sectors, illustrating the talent and innovation of spinout companies is healthy and varied. Oxford Nanopore Technologies, spun out of the University of Oxford, is known for developing novel DNA and RNA sequencing technology. Since launch, the firm has raised a staggering 17 funding rounds totalling over £850m, including its latest £195m deal in May 2021 raised from IP Group, Wellington Management, M&G Investments, Temasek and Nikon, among other investors. The spinout went on to list on the London Stock Exchange in September.

The next biggest deal went to a very different industry; Graphcore has created processor technology, the Intelligence Processing Unit (IPU), optimised for machine-learning tasks and specifically designed for AI computing. Graphcore, spun out from the University of Bristol, has rapidly grown since its 2016 incorporation and its 2021 deal of £162m was the seventh funding round for the firm. Backers included Molten Ventures, Baillie Gifford, Fidelity International, Schroders, and Teachers' Innovation Platform (TIP).

Top equity deals into spinouts by investment volume (2021)

Oxford Nanopore Technologies	£195m
Graphcore	£162m
Exscientia	£162m
Vaccitech	£121m
Quell Therapeutics	£117m
Gyroscope Therapeutics	£108m
PepGen	£81.0m
bit.bio	£77.0m
Evox Therapeutics	£69.2m
Cambridge Epigenetix	£64.6m
AviadoBio	£60.2m
Ultraleap	£60.0m
Amphista Therapeutics	£38.1m
Synthesia	£36.6m
ENOUGH	£35.9m
PhoreMost	£35.4m

£2.54b

total equity investment secured by spinouts (2021)

6

equity deals of more than £100m into spinouts (2021)

Top investors into spinouts 2021

A top investor in 2021 was Parkwalk, participating in 31 deals to back UK spinouts. These included University of Cambridge therapeutics spinout PhoreMost in a £35.4m deal — co-investing with BGF Growth Capital, Astellas Venture Management, o2h Ventures, Morningside Group, Trend Investment Group, XtalPi Inc, and business angels — as well as University of Oxford diagnostics spinouts Brainomix in a £17m round with the University of Oxford Innovation Fund (UOIF), Boehringer Ingelheim Venture Fund, and Tencent.

Regional funds have also played an important role in supporting the growth of innovative spinout companies across the UK. Scottish Enterprise, also participating in 31 deals in 2021, has assisted in the development of a number of Scottish spinouts such as mycoprotein producer ENOUGH and biofuels company Celtic Renewables.

The Future Fund, a government support scheme backed by the British Business Bank, was also involved in a number of deals into spinouts in 2021. The scheme offered between £125k and £5m, subject to at least equal match funding from private investors, and aimed to help companies facing financial difficulties caused by the pandemic.

Top investors into spinouts by number of equity deals (2021)

Parkwalk	31
Scottish Enterprise	31
Future Fund	18
IP Group	14
Oxford Science Enterprises	13
SyndicateRoom	11
BGF Growth Capital	10
SFC Capital	10
Epidarex Capital	9
Access EIS	8
Mercia Fund Managers	8
Crowdcube	6
Archangels	5
Barwell	5
Foresight Williams Technology EIS Fund	5
GV (Google Ventures)	5
Mercia EIS Fund (Growth Fund)	5
Par Equity	5

389

total equity deals secured by spinouts (2021)

£842k

median size of an equity deal secured by a spinout (2021)

Top universities by equity deals

Unsurprisingly, the top institutions for the number of equity deals secured were the two universities with the highest spinout populations: the University of Oxford and the University of Cambridge, at 57 and 42 deals respectively. Compared to the same ranking in 2020, the University of Bristol has risen

from ninth to third. Bristol's biggest spinouts include processor developer Graphcore and biotechnology and regenerative medicine firm Mogrify — both of which remained headquartered in the city. London also features highly on the ranking of universities, forming the 'golden triangle' with Oxford and

Cambridge, with the three accounting for a significant amount of the spinout population. However, the University of Edinburgh, Queen's University Belfast, and University of Strathclyde also feature in the top ten, showcasing the innovation talent outside of England.

Top institutions by number of equity deals secured by their spinouts (2021)

University of Oxford	57	University of Dundee	8
University of Cambridge	42	University of Glasgow	7
University of Bristol	25	University of Exeter	7
Imperial College London	22	University of Surrey	6
University of Edinburgh	18	University of Leeds	6
Royal College of Art	18	Loughborough University	6
University College London	16	University of Sheffield	5
University of Southampton	13	Edinburgh Napier University	5
Queen's University Belfast	12	University of Sussex	4
University of Strathclyde	11	University of St Andrews	4
University of Birmingham	11	University of Aberdeen	4
University of Warwick	10	Queen Mary	4
King's College London	10	Heriot-Watt University	4
University of Nottingham	9	University of East Anglia	3
University of Manchester	9	Lancaster University	3
Newcastle University	9		

This ranking does not feature institutions whose spinouts raised fewer than three equity deals in 2021.

Top universities by equity volume

The top three institutions for the number of deals secured by their spinouts were also the top three for combined value. Four spinouts from the University of Oxford raised megadeals – deals of more than £50m – in 2021, significantly contributing to its place at the top of this ranking. Oxford Nanopore

Technologies raised £195m in May, while biotherapeutics firm Evox Therapeutics secured £69.2m in February and vaccine developer Vaccitech secured £121m in March. PepGen, which moved its headquarters to the US in 2020, raised equity of £81m from Oxford Science Enterprises and a number of

American investors. The University of Dundee notably ranked highly despite its spinouts securing eight deals in 2021. This was largely due to Exscientia's three large investments: £21.5m in March, £162m in April and £25.4m in September. Incorporated in 2016, the Dundee spinout then exited through an IPO in October.

Top institutions by equity volume secured by their spinouts (2021)

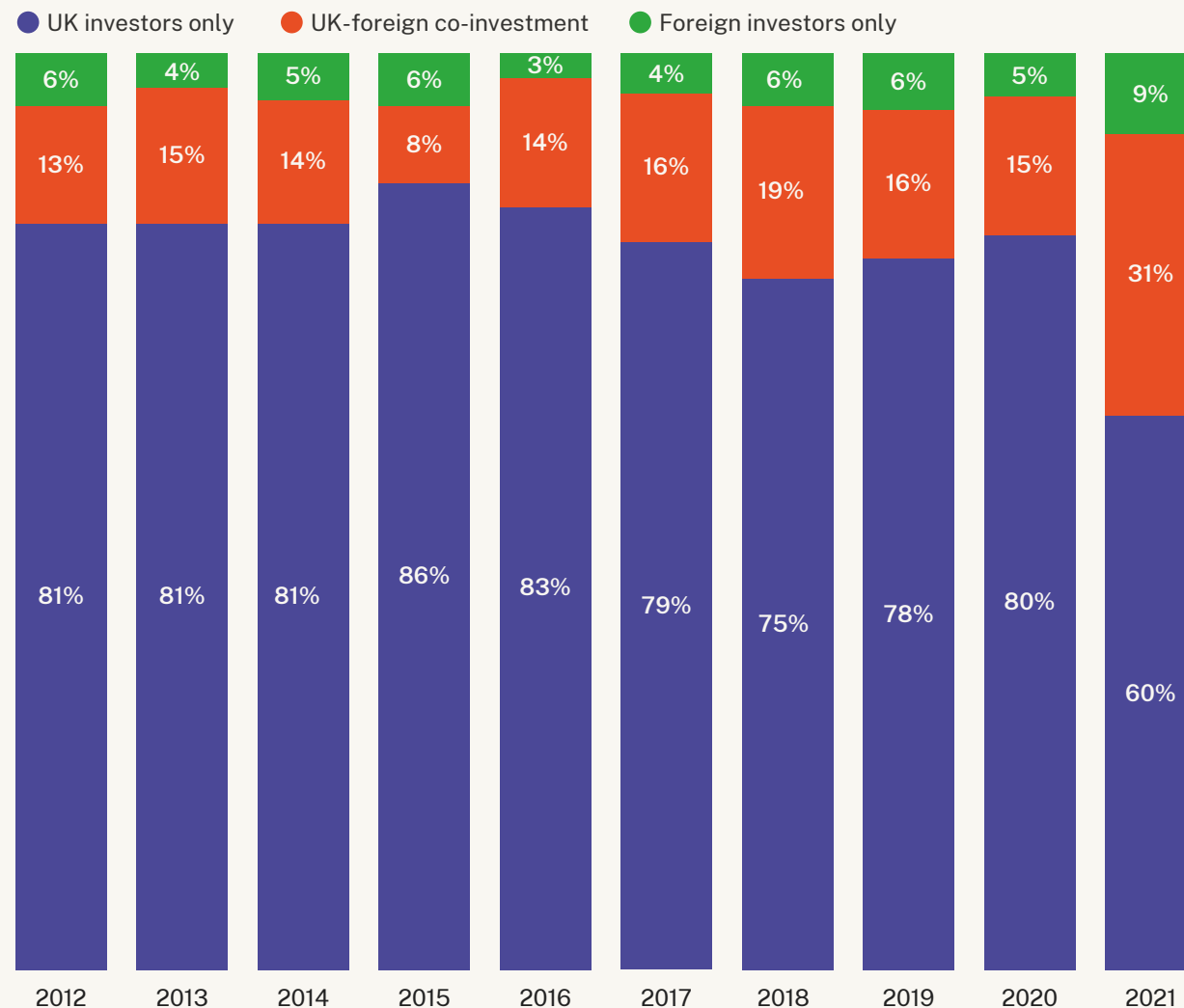
University of Oxford	£743m	University of Leeds	£16.1m
University of Cambridge	£501m	University of Southampton	£14.0m
University of Bristol	£266m	Queen's University Belfast	£14.0m
University of Dundee	£251m	Edinburgh Napier University	£12.3m
King's College London	£245m	University of Sheffield	£11.4m
University College London	£236m	Cardiff University	£9.5m
University of Strathclyde	£53.0m	Defence Science and Technology Laboratory	£8.0m
Imperial College London	£43.3m	Newcastle University	£7.6m
University of Warwick	£35.8m	University of Glasgow	£6.6m
University of Bath	£33.3m	University of East Anglia	£6.6m
University of Manchester	£28.9m	University of St Andrews	£5.6m
University of Edinburgh	£26.2m	Lancaster University	£5.1m
MRC/Cancer Research UK/BHF CTSU	£25.7m	University of Exeter	£4.9m
University of Birmingham	£23.1m	Science and Technology Facilities Council	£4.5m
Royal College of Art	£21.7m	Aston University	£4.5m
University of Nottingham	£18.0m	Cranfield University	£3.6m

UK vs foreign investment into spinouts

Between 2012 and 2020, the vast majority of equity investment into spinouts came from deals solely involving UK investors. These investors have been vital in cultivating the role of spinouts in the innovation ecosystem, providing financial backing for growth. Some funds have a clear link to the institution in their name: Oxford Science Enterprises; the University of Cambridge Enterprise Fund, managed by Parkwalk; and the University of Cambridge Seed Funds, managed by Cambridge Enterprise.

In 2021, there was a significant rise in co-investment between UK and international investors into spinouts and the cause is still emerging. A number of funds headquartered abroad chose to co-invest with the British Business Bank's Future Fund, a scheme that required at least equal matching from other investors, creating an opportunity for co-investment. The increase in international investor interest may also be caused by expectations surrounding spinouts' innovative solutions to the pandemic; commercialised research from top UK universities is closely scrutinised by investors. Notable spinout investor Oxford Science Enterprises co-invested with foreign investors more than ever before in 2021.

UK and foreign investor participation proportion of equity deals into spinouts (2012-2021)



The data underpinning this chart is primarily announced equity investment. Deals including any undisclosed investors or angel investors without a clear nationality have been excluded.

Investor nationality

The number of international funds participating in equity deals into spinout companies demonstrates the strength of the UK's high-growth ecosystem. During the pandemic, ambitious business attracting foreign investors has been important in boosting the economy and creating jobs across the country. The biggest source of international investment was by far the United States, likely due to the high number of firms headquartered there that are able to offer private equity and venture capital. Some commentators have also been predicting an increase in US investment since Brexit.

Funds located in the Netherlands have overtaken Chinese firms in the number of deal participations since last year's ranking. Dutch sources of investment for UK spinouts over the last ten years include Forbion Capital Partners, the Doen Foundation, Esperante Ventures, Merck Group's M Ventures, and BioGeneration Ventures. Meanwhile, major Chinese funds include Tencent, 5Y Capital, and Puhua Capital. In 2021, Tencent participated in Vaccitech's £121m round alongside investors from the UK, US and Monaco. Both Tencent and Puhua Capital were investors in bit.bio's £77m round alongside numerous US-based funds and Estonian firm Metaplanet.

Top nationalities of funds by number of equity deal participations into spinouts, excluding UK (2012-2021)

United States	378
Netherlands	37
China	33
Germany	32
France	26
Switzerland	21
Australia	18
Japan	16
Ireland	16
Denmark	15
Canada	15
Singapore	14
South Korea	14
Hong Kong	12
Belgium	9

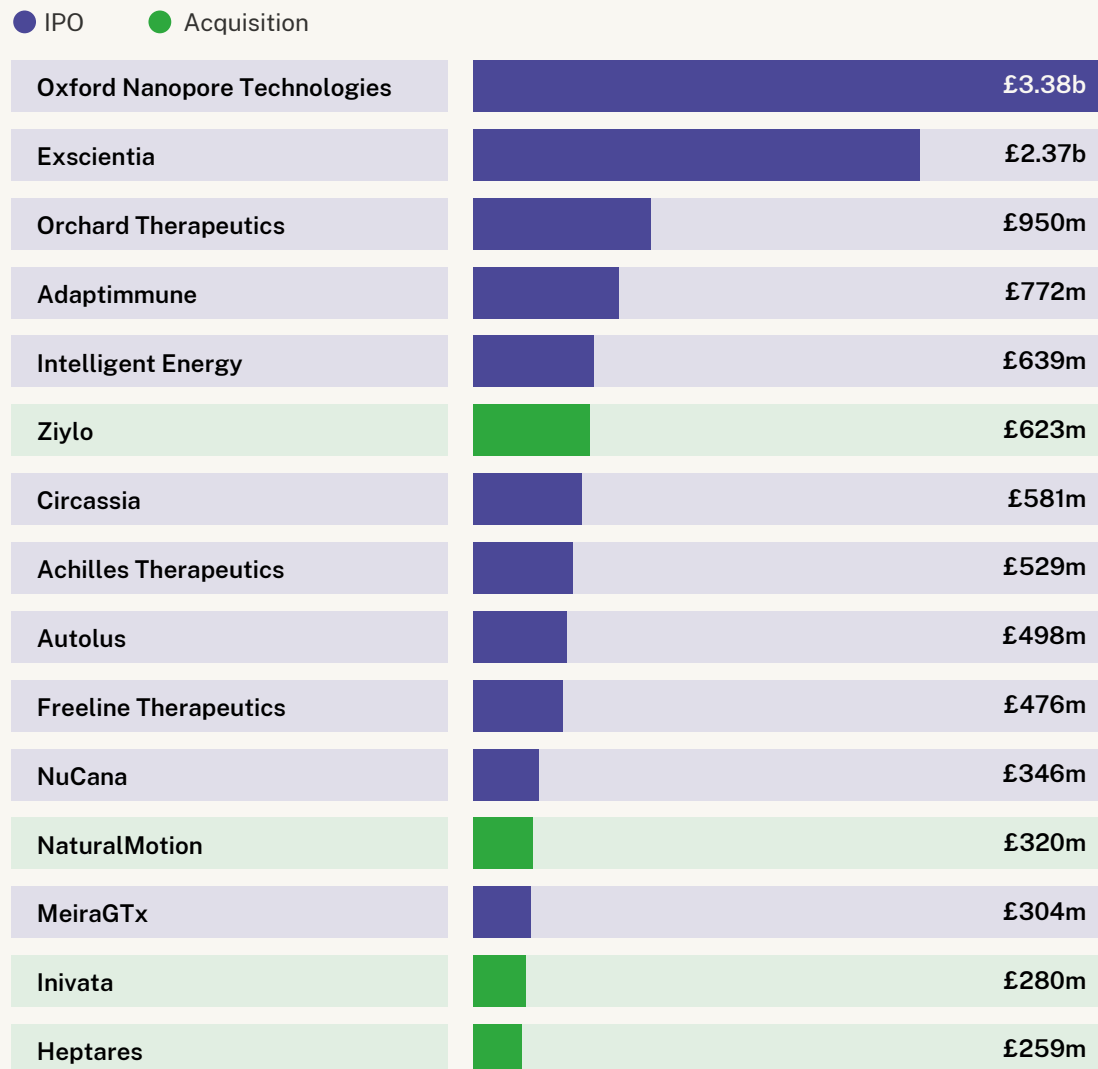
Spinout exits: valuations

Over the last decade, a number of spinouts from UK universities have had highly valuable exits, either through IPO or acquisition. The largest ever IPO of a spinout occurred in September 2021 – Oxford Nanopore Technologies listed on the London Stock Exchange after raising equity deals with a combined value of more than £850m. The firm has seen enormous growth over the last few years, increasing its turnover 726% between 2017 and 2020 from £13.8m to £114m.

University of Dundee spinout Exscientia also exited via IPO very recently in October 2021. Exscientia raised £300m over seven equity rounds and received £5.4m in grants before listing. Orchard Therapeutics' 2018 IPO on NASDAQ remains one of the most valuable spinout exits. The business was spun out from both the University of Manchester and UCL.

Although acquisitions form fewer of the top exits by valuation than IPO, acquisitions are a far more popular way to exit the ecosystem, with 134 spinout companies acquired between 2012 and 2021 compared to 32 undertaking IPOs. The most valuable acquisition of a spinout was Ziylo, a biotechnology company built out of research at the University of Bristol. Ziylo was bought in 2018 by Danish pharmaceutical firm Novo Nordisk.

Exits by spinouts by valuation (2012-2021)



32

spinouts exited via an IPO
(2012-2021)

134

spinouts exited via acquisition
(2012-2021)

For IPOs, figures are based on market capitalisation. For acquisitions, they are based on consideration paid.

Spinout exits: location

The top city for UK spinouts to IPO in is London, with 13 companies choosing the Alternative Investment Market (AIM) and a further six listing on the London Stock Exchange (LSE) between 2012 and 2021, demonstrating there is an appeal for spinouts to choose markets at home for listing. The 12 companies that chose to list on the United States' NASDAQ were almost all therapeutics and pharmaceutical businesses, innovating new treatments to a range of health conditions.

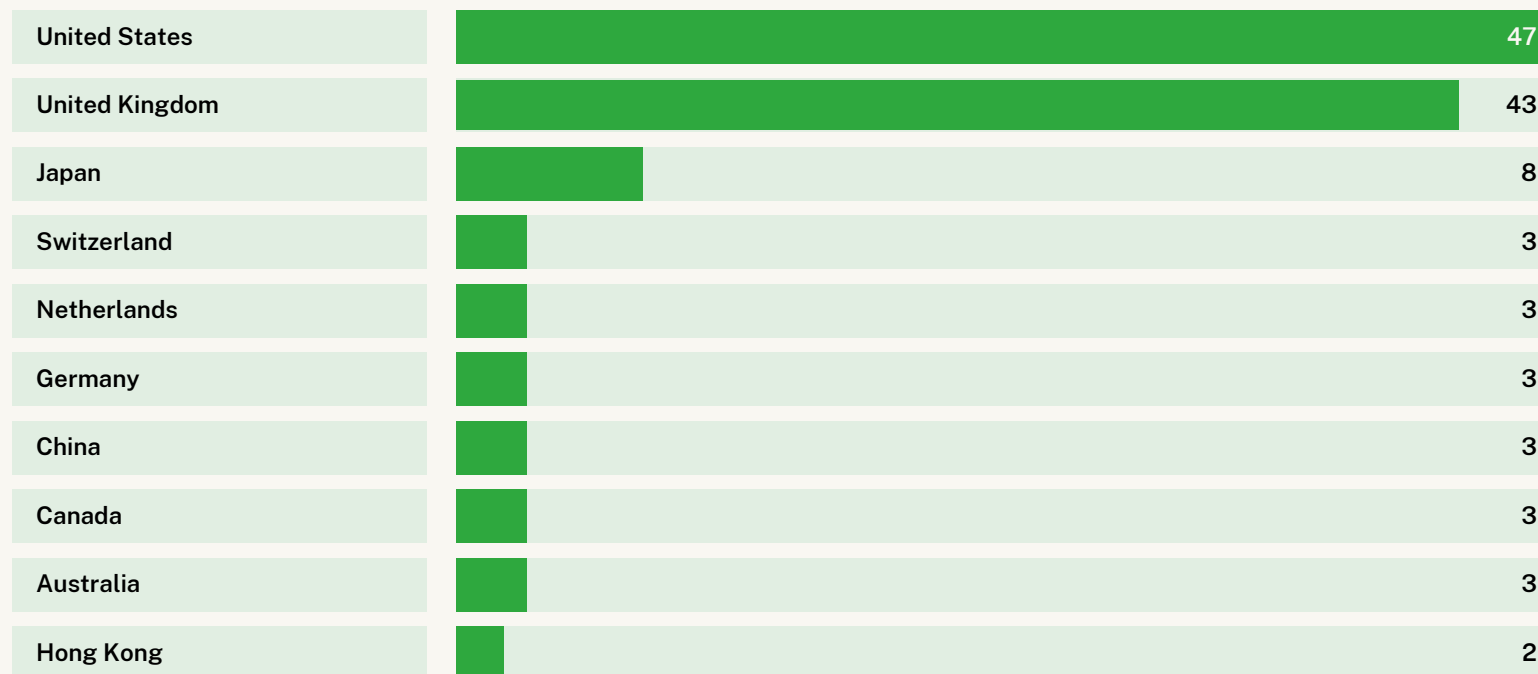
Turning to acquisitions, US acquirers bought more valuable spinout companies than any other nationality, including the UK. Not only are US buyers attracted to the strength of innovation in science and technology by spinout businesses, market valuations are also recovering from the impact of Brexit and COVID-19, meaning this trend is likely to continue.

In addition to the nationalities on this list, acquirers from Austria, Denmark, France, Israel, Italy, Norway, and Sweden bought one spinout company each. Overall, acquirers from 17 unique countries acquired UK spinouts between 2012 and 2021.

Top stock exchanges of by number of spinouts listed (2012-2021)



Top nationalities of acquirers of UK spinouts by number of acquisitions (2012-2021)



Methodology

Beauhurst tracks all spinouts deemed to have spun out on or after 1 January 2011. Spinning out from an academic institution is one of our eight triggers (outlined on the bottom right of this page) that we believe suggests a company has high-growth potential. More detail on Beauhurst's tracking triggers is available via our website. Companies that spun out of an academic institution prior to 1 January 2011 may still be included in this report if they met one of the other seven triggers after 1 January 2011 and then were subsequently determined to be a spinout.

Equity investment

To be included in our analysis, any investment must be:

- Secured by an academic spinout (as defined opposite)
- Some form of equity investment
- Secured by a non-listed UK company
- Issued between 1 January 2012 and 31 December 2021

What is an academic spinout?

We define an academic spinout as a company that meets condition 1 and at least one condition out of 2-4:

1. The company was set up to exploit intellectual property developed by a recognised UK university or research institution (This is broadly in line with the Higher Education Statistics Agency's (HESA) definition of a spin-off)
2. The institution owns IP that it has licensed to the company
3. The institution owns shares in the company
4. The institution has the right (via an options or warrants contract) to purchase shares in the company at a later date

Beauhurst identifies ambitious businesses using eight triggers (outlined at the bottom of this page) that we believe suggests a company has high-growth potential. More detail on Beauhurst's tracking triggers is available via [our website](#).

Equity investment

To be included in our analysis, any investment must be:

- Some form of equity investment
- Secured by a non-listed UK company
- Issued between 1 January 2012 and 31 December 2021

Announced and unannounced fundraisings

An unannounced fundraising is an investment made into a private company that is completed without press coverage or a statement from the recipient company or funds that made the investment. These transactions are an integral part of the UK's high-growth economy, accounting for around 70% of all equity transactions.

High-growth tracking triggers



Equity investment



Academic spinouts



Scaleups



High-growth lists



Accelerator attendances



Major grant recipients



MBOs/MBIs



Venture debt

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

Our platform is trusted by thousands of business professionals to help them find, research and monitor the most ambitious businesses in the UK. 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.

Our data is also used by journalists and researchers who seek to understand the high-growth economy, and powering studies by major organisations – including the British Business Bank, HM Treasury and Innovate UK – to help them develop effective policy.

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

Parkwalk Investing in Innovation

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Parkwalk is the largest growth EIS fund manager, backing world-changing technologies emerging from the UK's leading universities and research institutions. With £400m of assets under management, it has invested in over 150 companies across its Parkwalk Opportunities and Knowledge Intensive EIS Funds, as well as the award-winning enterprise and innovation funds Parkwalk manages for the Universities of Cambridge, Oxford, Bristol and Imperial College.

Parkwalk invests in businesses creating solutions to real-world challenges, with IP-protected innovations, across a range of sectors including life sciences, AI, quantum computing, advanced materials, genomics, cleantech, future of mobility, medtech and big data.



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