



Spotlight on Spinouts

UK academic spinout trends
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Royal Academy
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Enterprise
Hub

Beauhurst



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Foreword

Dr David Cleevely CBE FREng
Enterprise Committee Chair,
Royal Academy of Engineering

**“Our ambition is to understand what
it takes for spinouts to thrive.”**

We are delighted to publish this report looking at the successes and trends of spinouts from UK universities. There's a wealth of information here: the number of spinouts by university and geographic distribution, investment trends, grants, equity stakes and key investors, the nationality and gender of founders, and the numbers of scaleups and exits. This report brings all this information together in one place for the first time.

Since the establishment of the Royal Academy of Engineering's Enterprise Hub in 2013, we have supported over 230 researchers, recent graduates and SME leaders to start and scale their businesses. We take no stake in any company and provide our services free to the companies that use them. We are therefore uniquely placed to provide an independent voice whose understanding is rooted in both

academia and industry, and to have insight into what it takes to spinout companies from universities. We play a major role in national discussions on the commercialisation of university owned IP – producing discussion papers, hosting roundtables and providing evidence for government inquiries.

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**The stakes are high.
Spinouts contribute
a great deal to our
economic prosperity
and if we can learn and
improve on what we
do then that will help
everyone.”**

The report contains much that will interest universities, spinouts and policymakers.

- Spinout activity is concentrated in a few institutions. The top four – Oxford, Cambridge, Imperial and UCL – account for around one third of all spinouts.
- Pharmaceuticals and medtech are the largest sectors, with the UK showing a rapidly developing AI sector.
- Where we had data, only 20% of founding teams included a female member and only 12% of spinouts have at least one female director.
- Data is not available to examine ethnicity of spinout founders and directors, a key barrier to understanding and improving diversity.
- On average it takes a spinout almost 10 years to exit by IPO or acquisition, and 41% of spinouts ceased activity between 5 and 10 years of age.
- Spinouts raise over £1b a year, but funding is highly concentrated, with a surprisingly small number of investors accounting for the bulk of investments. Woodford, the largest of these, collapsed during 2019.
- Grants are becoming increasingly important for spinouts.
- The increase in average investment size might suggest a trend of more follow-on funding and less new investment.

Through this report, we are seeking to understand the state of UK spinouts, and through annual updates we hope to be able to track progress, the impact of any changes and draw firmer conclusions. Our ambition is to understand what it takes for spinouts to thrive. By tracking investment trends and knowing more about the processes, people and decisions that power our spinouts and

the outcomes they lead to, we hope to identify best practice and incentivise change in line with the government's ambitions to cement the UK as a 'science superpower'.

“

We hope to identify best practice, and to incentivise change in line with the government's ambitions to cement the UK as a 'science superpower'.”

The stakes are high. Spinouts contribute a great deal to our economic prosperity and if we can learn and improve on what we do then that will help everyone.

This report is just a start, and the Academy has further activity in this space in the pipeline. We look forward to repeating this analysis in the coming years and improving it with each iteration. I would encourage anyone with thoughts or insights to get in touch with the Academy.



Introduction

Henry Whorwood
Head of Research and Consultancy, Beauhurst

“We hope that the data presented here provides a useful basis for discussion about how more successful spinouts can be created.”

Spinouts are an important means for UK universities to commercialise research and are often the subjects of intensive interest from investors, policymakers and others with an innovation-driven agenda. Yet for a subsection of the UK economy that receives much interest, relatively little quantitative data is available about spinouts, particularly in the public domain. Hopefully, this report goes some way towards addressing that paucity of information.

The analysis in this report is based on Beauhurst’s data on 1,424 spinouts – both alive and dead – that have spun out or met one of Beauhurst’s tracking triggers since 2011. Academic institutions share data with Beauhurst on which companies they consider to be spinouts, as opposed to student startups. A spinout is defined by the transfer of research-derived insight between the institution and

the company, often in exchange for equity, although not exclusively. Unsurprisingly, companies from the ‘golden triangle’ of Oxford, Cambridge and London dominate the population of UK spinouts. The report breaks down the population of spinouts by origin institution (p. 8) and by region (p. 10).

Pharmaceuticals is the most populated sector with 236 of the spinout companies having some activity in this area. This reflects the UK’s strength in the life sciences and the incentives for successful innovation in this sector. Oxford-spinout Adaptimmune listed on NASDAQ in 2015 with a market capitalisation of \$1.2b, making it the largest pharmaceutical spinout IPO to date.

IPOs are relatively rare for spinouts; only 25 companies have raised money via public markets since 2011. Instead, spinouts are increasingly able to

“

Unsurprisingly, companies from the ‘golden triangle’ of Oxford, Cambridge and London dominate the population of UK spinouts.”

access large sums via the private equity market. During the first 11 months of 2020, spinouts raised £1.11b via 269 deals. DNA and RNA sequencing device maker Oxford Nanopore Technologies raised £163m via four deals during 2020, bringing its total raised to £655m.

“

While there is no doubt that 2020 befitted the title *annus horribilis*, the pandemic has had some interesting and not necessarily negative impact on investment and grants received by spinouts.”

Large pools of relatively patient and private capital have made this trend possible. The top investor by the total value of deals backed since 2011 is the now defunct Woodford Investment Management, which has backed deals worth £824m. Woodford is followed by Touchstone Innovations, which has backed deals worth £763m, and IP Group with £720m. Although IP Group acquired Touchstone Innovation in 2017, we have kept the funds separate to show their historical contributions (p. 20).

While there is no doubt that 2020 befitted the title *annus horribilis*, the pandemic has had some interesting and not necessarily negative impact on investment and grants received by spinouts. The average equity investment received by a spinout in 2020 was a record £4.3m, up from a previous high of £3.7m in 2018. The average equity

investment received by a spinout in 2020 was a record £4.3m, up from a previous high of £3.7m in 2018. This may be indicative of a flight towards quality by investors in the face of the pandemic and a growing appreciation of the types of medical innovations for which academic institutions are often responsible.

An interesting picture is also emerging via Innovate UK grant data. While incomplete, the data shows that spinouts received a record 231 Innovate UK grants in 2020, beating the previous high of 213 in 2017. However, the total value of grants awarded to spinouts was £45m, down from the 2019 high of £63m. The higher number of lower value grants to spinouts is likely a result of the government's efforts to incentivise a large number of companies to tackle the pandemic by harnessing Innovate UK funding competitions.

Speaking of incentives, the report examines the equity stakes taken by founders and academic institutions by sector. This complex piece of analysis has some important methodological considerations that are laid out on page 37. When academic institutions choose to take an equity stake, they receive almost exactly the same on average as individual founders (22.0% and 22.2% respectively). Equity splits between founders and institutions are a single yet important factor in balancing incentives and helping spinouts achieve success.

We hope that the data presented here provides a useful basis for discussion about how more successful spinouts can be created. We welcome any suggestions for improvement ahead of next year's publication.

Top origin universities by total number of spinouts.

University of Oxford	156
University of Cambridge	140
Imperial College London	92
University College London	68
Royal College of Art *	57
University of Edinburgh	52
University of Bristol	51
Swansea University	48
Queen's University Belfast	43
University of Manchester	39
University of Warwick	38
University of Strathclyde	38
University of Birmingham	35
University of Southampton	32
University of Sheffield	31
University of Glasgow	29
University of Nottingham	24
University of Leeds	24
Newcastle University	24
Heriot-Watt University	23
Ulster University	20
University of Aberdeen	20
University of Exeter	18
University of Surrey	16
University of Dundee	16

* The Royal College of Art classifies companies as spinouts that other institutions would likely consider to be student startups. For more detail, please see the methodology notes on page 43.

These figures include all academic spinouts incorporated since 2011, as well as any spinouts incorporated before this that have also hit one of Beahurst's high-growth triggers (page 43).

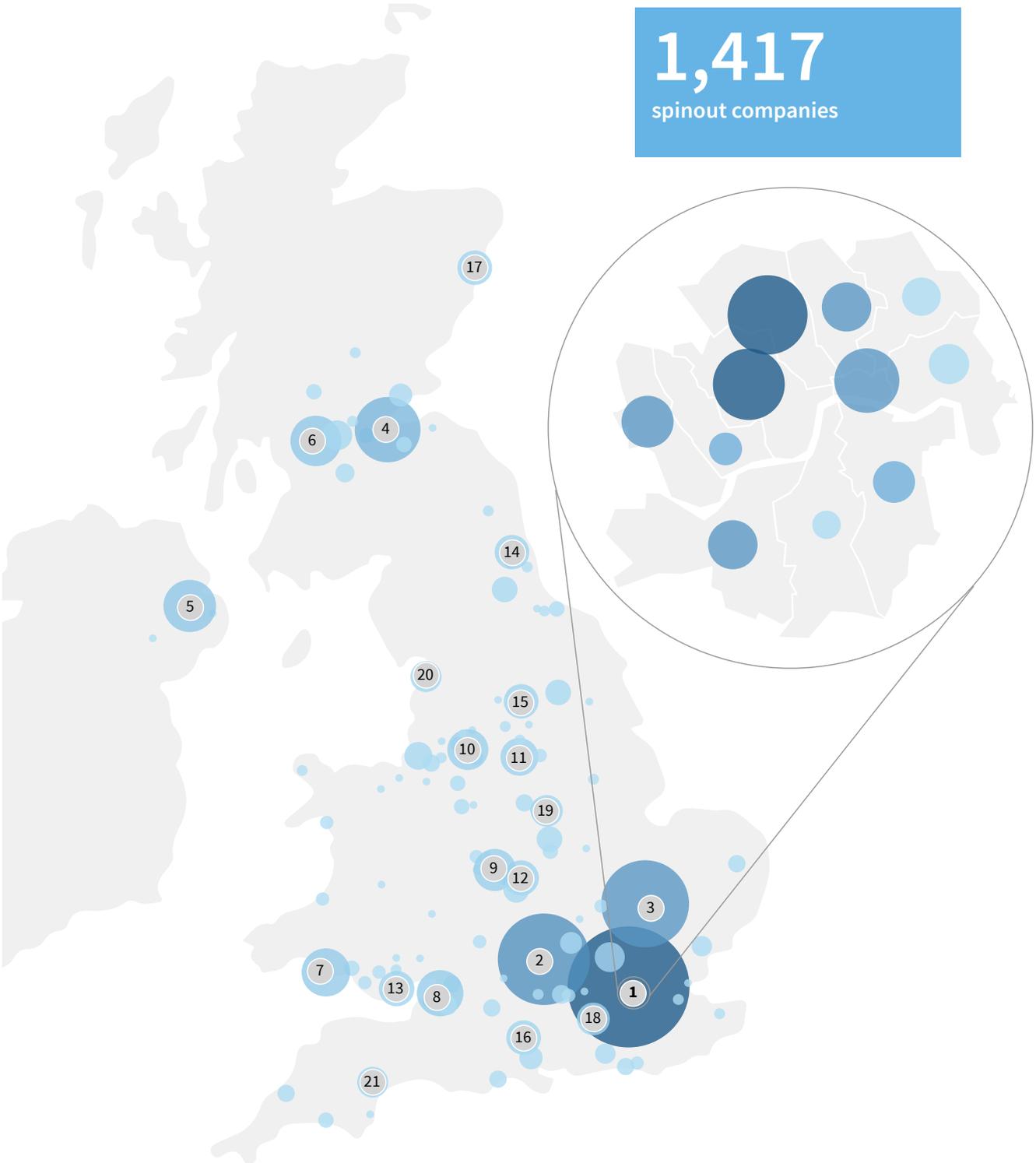
Cardiff University	16
Durham University	15
University of York	13
Queen Mary University of London	13
Lancaster University	13
King's College London	13
University of St Andrews	12
University of Liverpool	11
University of Bath	11
Loughborough University	11
City, University of London	10
Coventry University	9
Science and Technology Facilities Council (STFC)	8
Brunel University	8
University of Leicester	7
Aston University	7
University of Plymouth	6
University of East Anglia	6
Teesside University	5
University of Sussex	5
University of Salford	5
University of Bradford	5
Robert Gordon University	5
Edinburgh Napier University	5
Bangor University	5

Local authorities mapped.

Spinouts are inevitably found in areas with research universities. Oxford is home to the largest number of spinouts (79), followed by Edinburgh (72), and two Cambridgeshire local authorities (home to a combined total of 124 spinout companies).

TOP LOCAL AUTHORITIES BY NUMBER OF SPINOUTS

1,417
spinout companies



Local authorities ranked.

London dominates the geographic distribution, trailed by Oxfordshire and Cambridgeshire.

TOP UPPER TIER LOCAL AUTHORITIES BY NUMBER OF SPINOUTS

1	London	247
2	Oxfordshire	141
3	Cambridgeshire	128
4	Edinburgh	72
5	Belfast	46
6	Glasgow	43
7	Swansea	39
8	Bristol	36
9	Birmingham	30
10	Manchester	28
11	Sheffield	24
12	Coventry	21
13	Cardiff	21
14	Newcastle upon Tyne	20
15	Leeds	20
16	Hampshire	20
17	Aberdeen	20
18	Surrey	18
19	Nottingham	17
20	Lancashire	16
21	Devon	16

Top sectors.

Pharmaceutical, clinical, and analytical sectors have the largest number of spinout companies operating within them. Spinouts are also commonly found in the software-as-a-service sector and materials sectors.

TOP SECTORS BY NUMBER OF SPINOUTS

Pharmaceuticals	236
Research tools/reagents	211
Analytics, insight, tools	161
Clinical diagnostics	120
Software-as-a-service (SaaS)	109
Medical devices	100
Materials technology	89
Nanotechnology	61
Mobile apps	57
Security services (physical and virtual)	48
Medical instrumentation	43
Desktop software	38
Healthcare products	39
Clean energy generation	39
Educational services	37
Chemicals	31
Semiconductors	28
Internet platform	28
Electrical components	26
Chips and processors	25

Top emerging technologies.

Artificial intelligence is the most commonly utilised emerging technology by spinouts. It can be used to solve problems across most sectors. Precision medicine and eHealth are also prominent in this list – reflecting the number of spinouts operating in pharmaceutical and clinical sectors.

TOP BUZZWORDS BY NUMBER OF SPINOUTS

Artificial intelligence	105
Precision medicine	54
eHealth	41
Big data	36
Internet of Things	35
Digital security	34
Wearables	31
Regenerative medicine	28
3D printing	23
Virtual reality	17
EdTech	17
Graphene	16
Quantum	13
Robotics	13
Augmented reality	13
Biomass and biofuels	11
Drones	11
Preventive care	11
The "quantified self"	10
FinTech	10



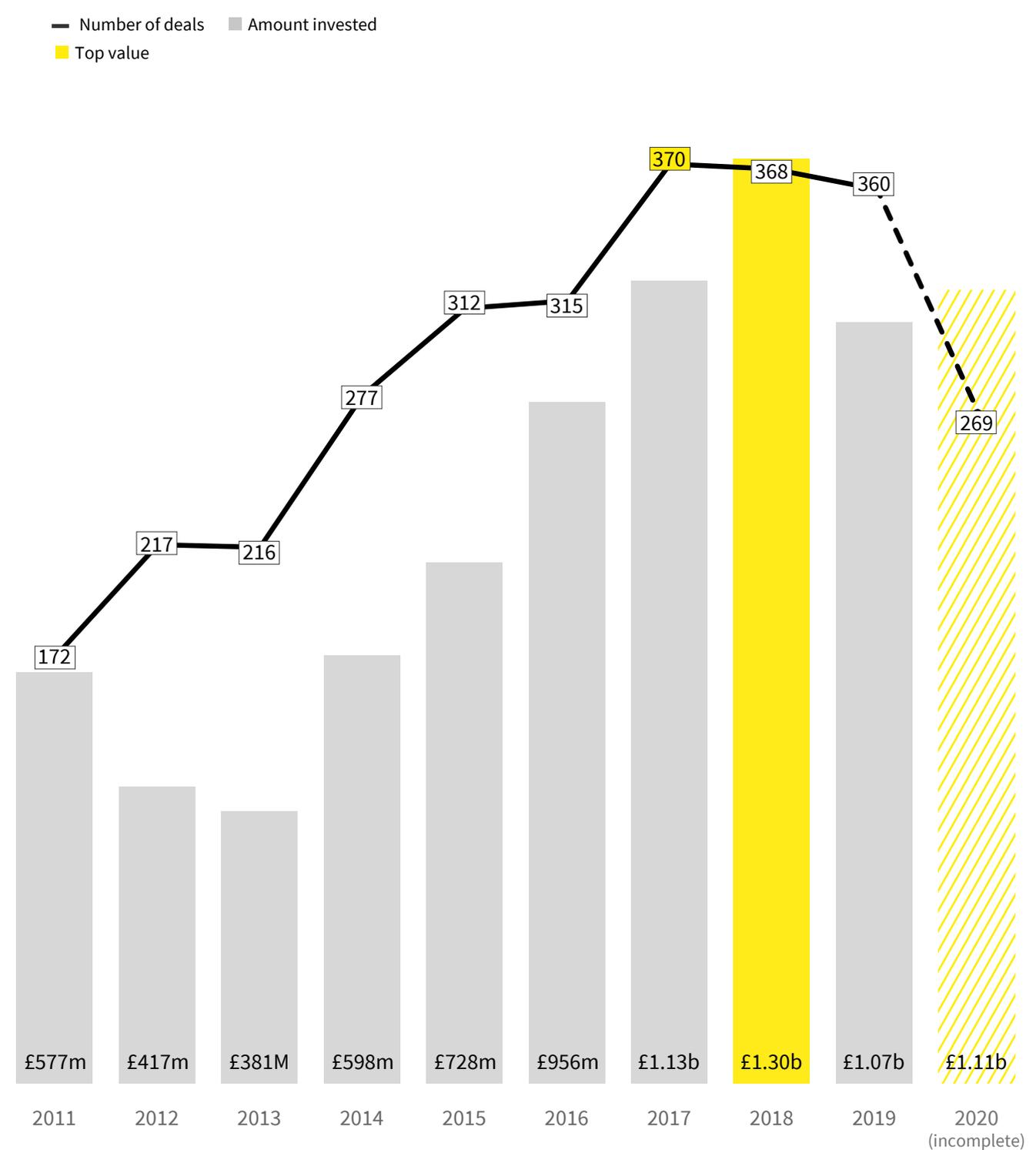


Equity and grants

Investment.

Spinout companies raised a record £1.30b equity investment in 2018. While the number of deals secured remained similar in 2019, the amount invested decreased by 18%. The 2020 amount invested has recovered slightly against 2019 but via fewer deals. This likely reflects investor efforts to support existing portfolio companies rather than making new deals during a turbulent year.

ANNOUNCED EQUITY INVESTMENTS IN SPINOUTS (2011 - NOV 2020)



Investees.

Oxford Nanopore Technologies, a developer of portable DNA and RNA sequencing devices, has raised the most equity investment of all UK spinouts, with £163m of its total secured in 2020.

2019 KEY FIGURES



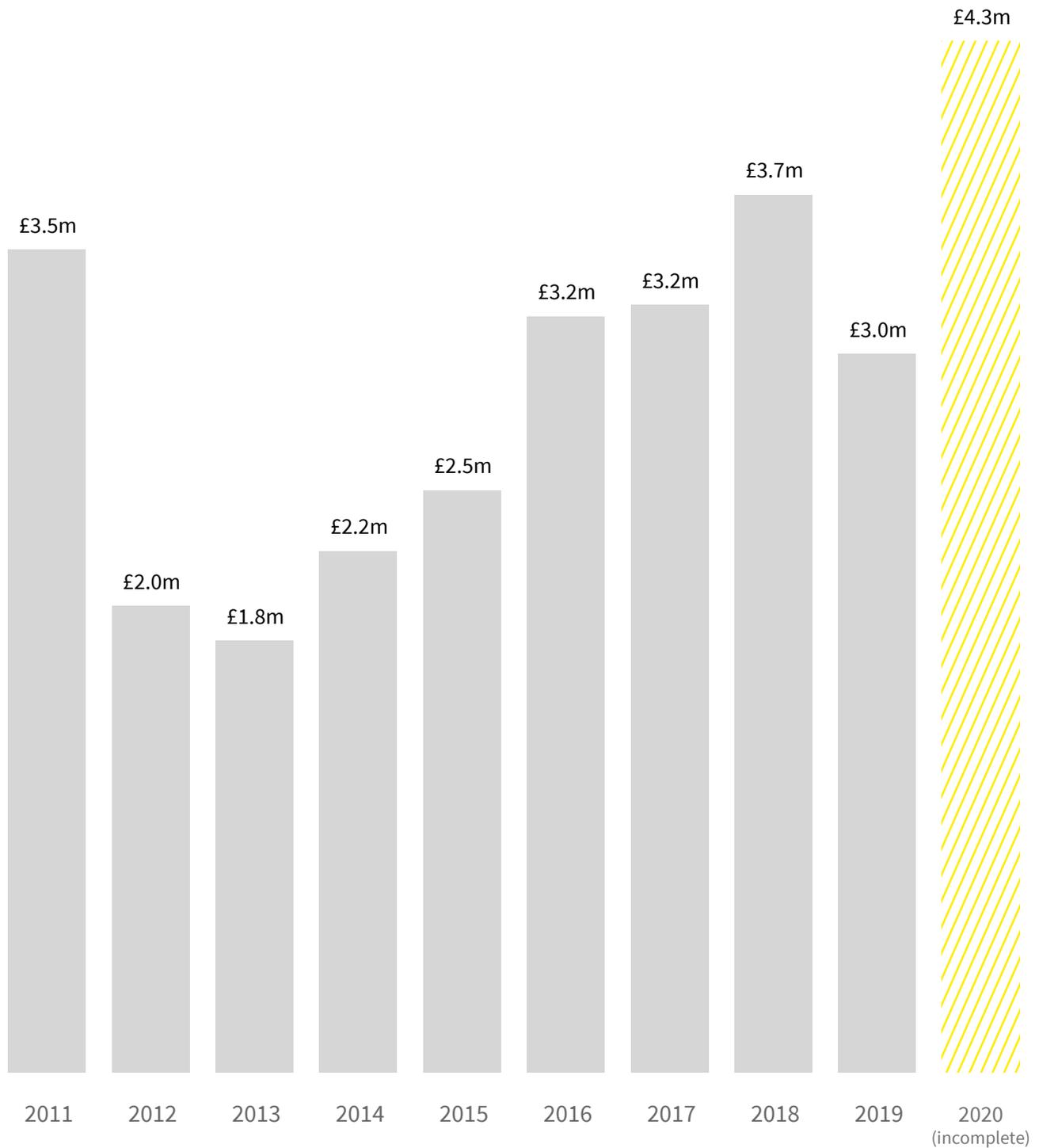
TOP SPINOUTS BY TOTAL EQUITY INVESTMENT RECEIVED (2011- NOV 2020)

 UNIVERSITY OF OXFORD	<p>SECTOR Pharmaceutical research tools</p> <p>TOTAL RAISED £655m</p>	 LOUGHBOROUGH UNIVERSITY	<p>SECTOR Energy production</p> <p>TOTAL RAISED £151m</p>
 UNIVERSITY OF CAMBRIDGE	<p>SECTOR Consumer electronics hardware</p> <p>TOTAL RAISED £287m</p>	 MRC/CANCER RESEARCH UK/BHF CLINICAL UNIT (CTSU)	<p>SECTOR Pharmaceutical research tools</p> <p>TOTAL RAISED £142m</p>
 UNIVERSITY COLLEGE LONDON	<p>SECTOR Precision medicine</p> <p>TOTAL RAISED £221m</p>	 IMPERIAL COLLEGE LONDON	<p>SECTOR Pharmaceuticals</p> <p>TOTAL RAISED £140m</p>
 UNIVERSITY OF CAMBRIDGE	<p>SECTOR Cyber security</p> <p>TOTAL RAISED £173m</p>	 IMPERIAL COLLEGE LONDON	<p>SECTOR Pharmaceuticals and precision medicine</p> <p>TOTAL RAISED £137m</p>

Average investment size.

The average size of an equity investment round grew steeply between 2012 and 2018. After a decline in 2019, the mean equity raised by spinouts has increased to an unprecedented £4.3m for 2020. The average investment round for non-spinout companies in 2020 was £9.5m.

AVERAGE INVESTMENT SIZE (2011 - NOV 2020)



Top investors.

Scottish Enterprise has been the most active investor into spinouts, backing 201 deals since 2011, through its various vehicles. IP Group, second in this rank, acquired Touchstone Innovations and Parkwalk Advisors, both of which are also featured on this list.

TOP INVESTORS BY NUMBER OF EQUITY INVESTMENTS INTO SPINOUTS (2011 - NOV 2020)

Scottish Enterprise	201
IP Group	104
Parkwalk Opportunities EIS Fund (Parkwalk Advisors)	92
University of Cambridge Seed Funds (Cambridge Enterprise)	90
Mercia Fund Managers (Mercia Asset Management)	78
The University of Cambridge Enterprise Fund (Parkwalk Advisors)	75
Touchstone Innovations	69
Oxford Sciences Innovation	55
Archangels	49
SyndicateRoom	45
Start Up and Early Stage Capital (Development Bank of Wales)	43
Parkwalk UK Tech Fund (Parkwalk Advisors)	40
University of Oxford Innovation Fund (Parkwalk Advisors)	37
UK Innovation & Science Seed Fund (Midven)	31
The University of Strathclyde	31
Woodford Investment Management	30
Cambridge Innovation Capital	30
24Haymarket	30
Nesta Impact Investments (Nesta)	30
Fusion IP	29

Top investors.

The now defunct funds managed by Woodford had invested in over 17 spinout companies, including contributions to large deals by Oxford Nanopore Technologies, MISSION Therapeutics, and Autolus. Woodford had a South East focus, with seven of the investments into Oxford spinouts and five into spinouts from London universities.

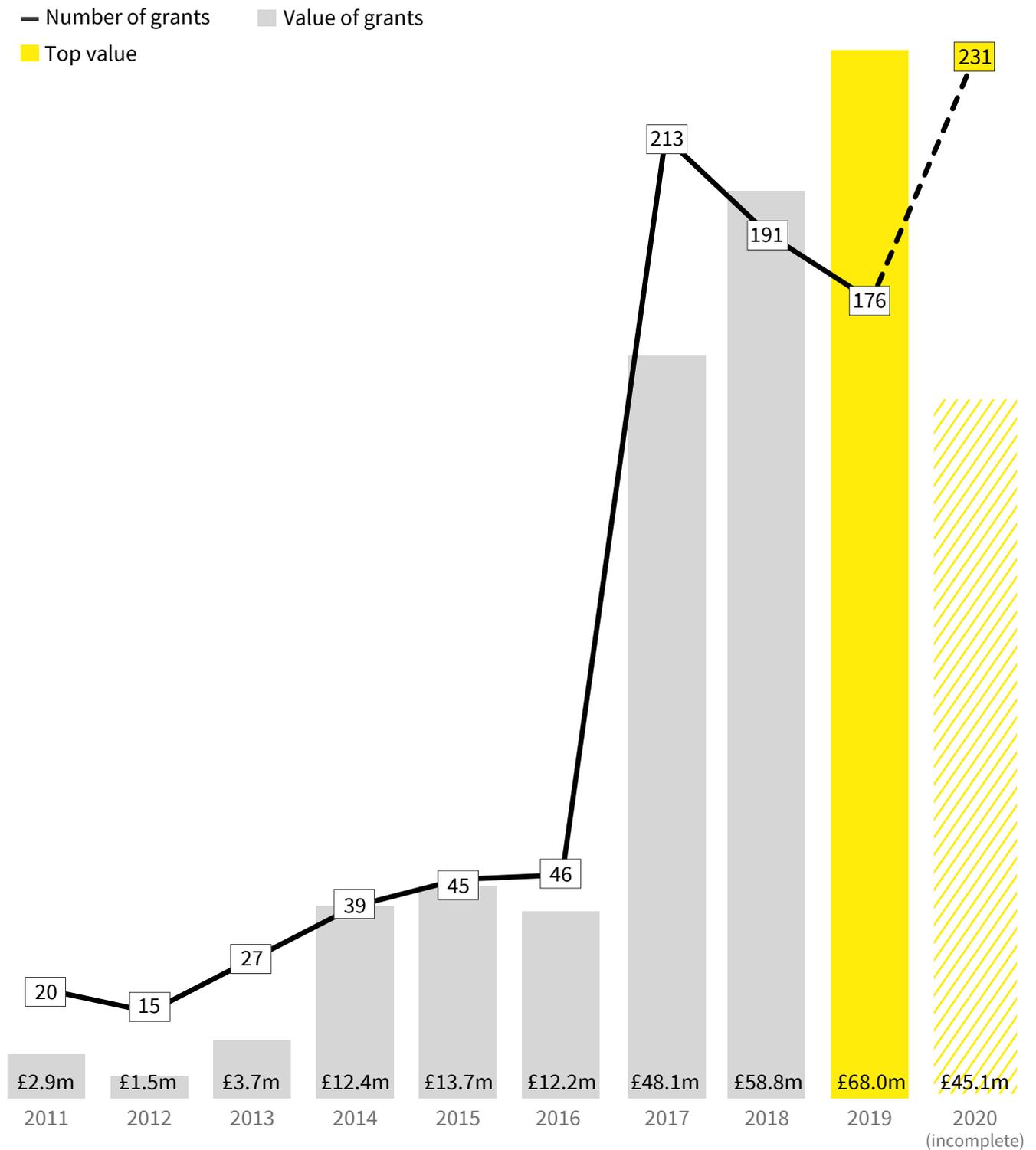
TOP INVESTORS INTO SPINOUTS BY TOTAL VALUE OF DEALS BACKED (2011 - NOV 2020)

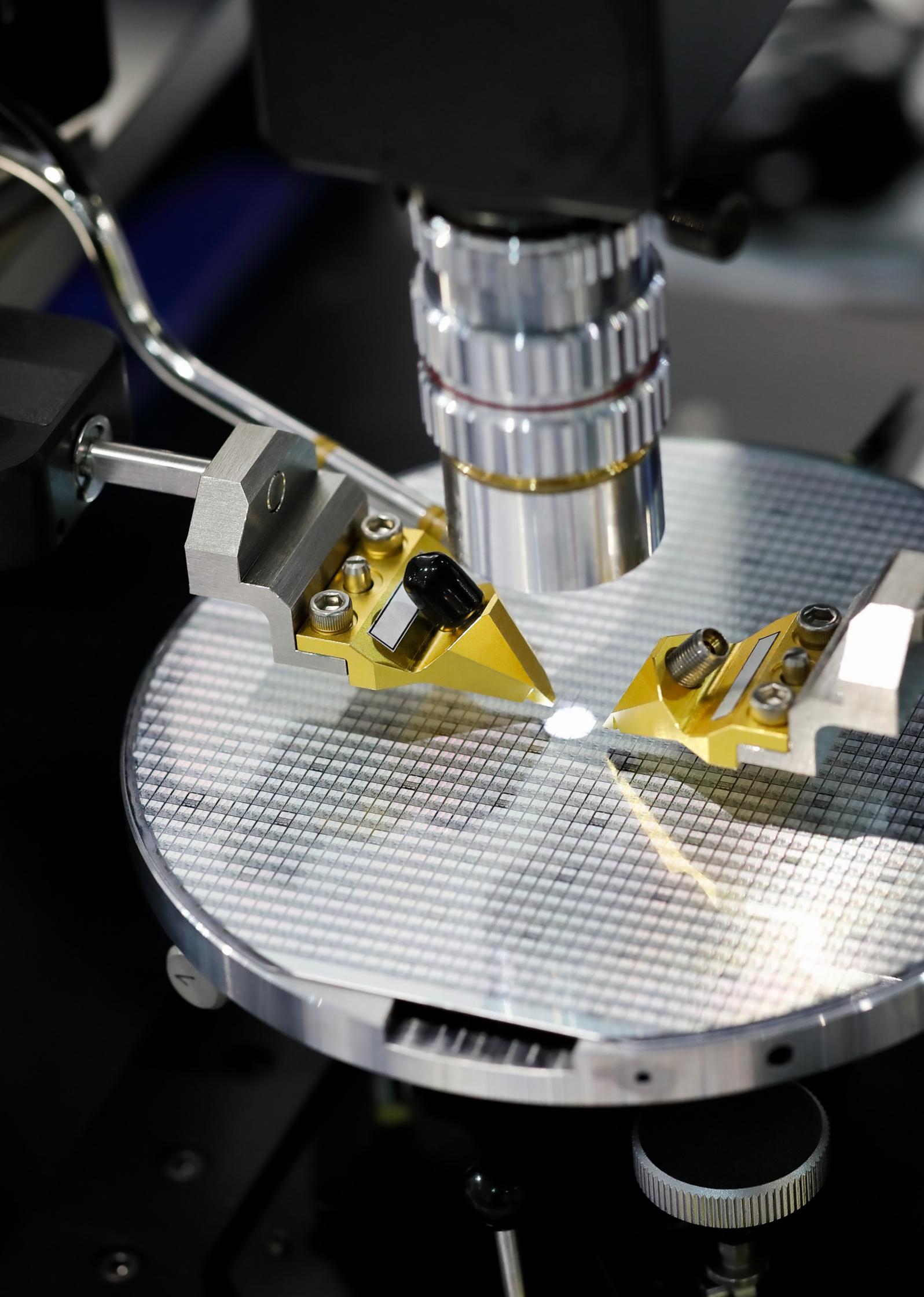
Woodford Investment Management	£824m
Touchstone Innovations	£763m
IP Group	£720m
Invesco Perpetual	£514m
Oxford Sciences Innovation	£401m
Parkwalk Opportunities EIS Fund	£380m
Cambridge Innovation Capital	£303m
Syncona Partners	£291m
SR One	£241m
University of Cambridge Seed Funds	£224m
Temasek	£219m
Sofinnova Partners	£218m
Foresite Capital	£214m
Novartis Venture Fund	£211m
Amadeus Capital Partners	£206m
Novo Holdings	£205m
RTW Investments	£200m
F-Prime Capital Partners	£200m
Baillie Gifford	£200m
Agent Capital	£200m

Innovate UK grants.

There were a record-breaking number of grants awarded to spinouts in 2020 (231 grants), in part due to the COVID-19 grants issued by Innovate UK. However, 2020 did not beat 2019 for the total amount awarded, where £68m was received by academic spinouts. This includes grants awarded to automotive spinouts YASA Motors (£7.34m) and Intelligent Energy (£7.35m).

INNOVATE UK GRANTS AWARDED TO SPINOUTS (2011 - NOV 2020)





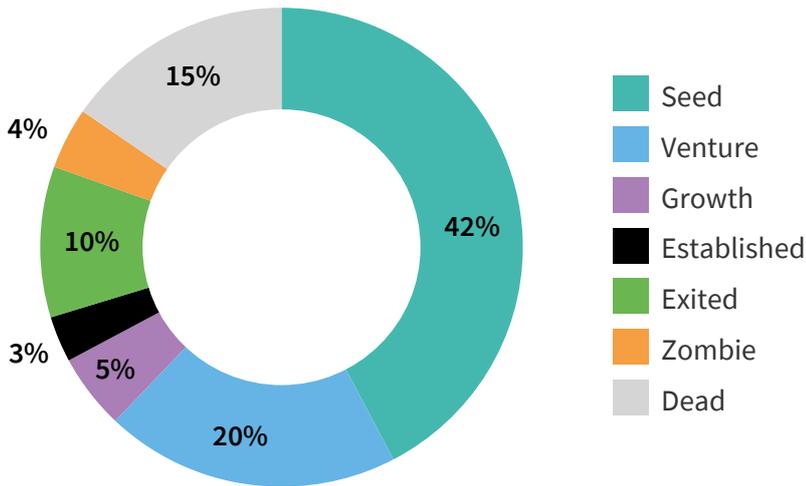


Survival, growth and exits

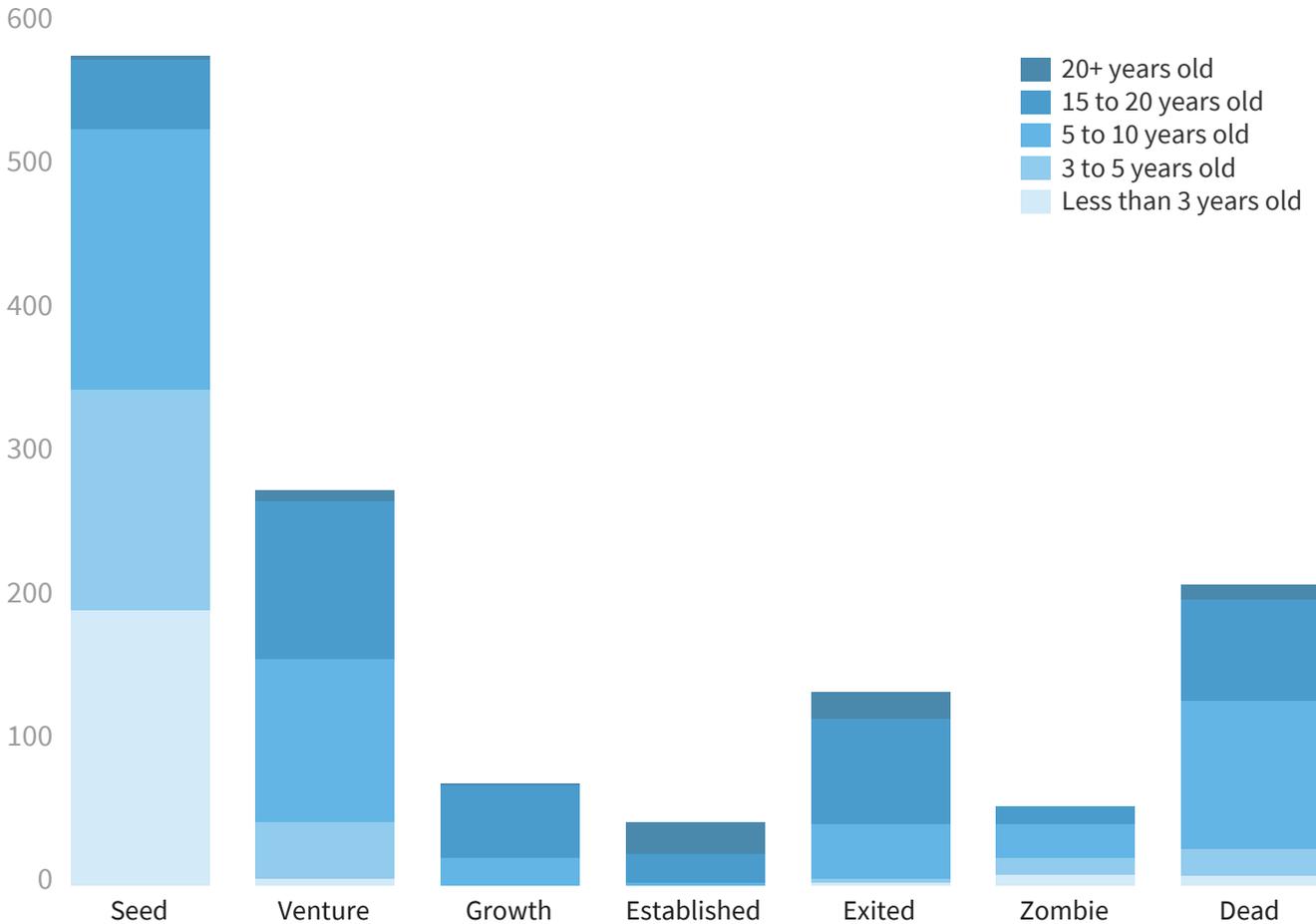
Survival.

Spinouts are generally found at earlier stages of development than the wider population of high-growth companies. There is a higher proportion of exited companies among spinouts (10% versus 7% in the wider population) and a comparable proportion of dead companies (15% versus 14%).

STAGE OF EVOLUTION



AGE BY STAGE OF EVOLUTION



Survival.

A large proportion of spinouts (41%) cease activity between 5 and 10 years of age. This may speak to a lack of long-term, patient support for companies developing pharmaceutical and clinical products and services, or other highly research-intensive companies.

DEAD SPINOUTS BY LIFESPAN (ORDERED BY INCORPORATION DATE)

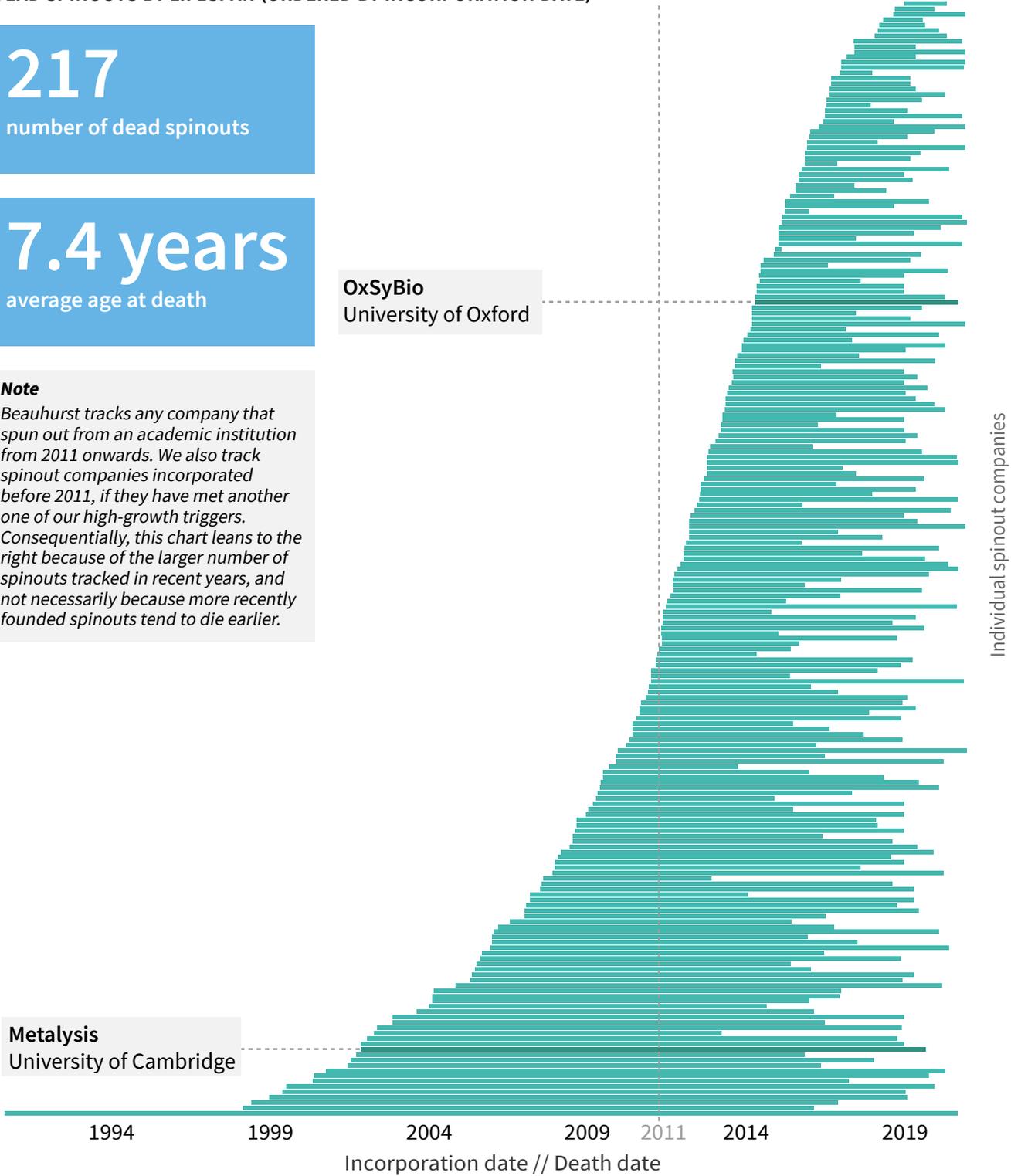
217
number of dead spinouts

7.4 years
average age at death

Note
Beahurst tracks any company that spun out from an academic institution from 2011 onwards. We also track spinout companies incorporated before 2011, if they have met another one of our high-growth triggers. Consequentially, this chart leans to the right because of the larger number of spinouts tracked in recent years, and not necessarily because more recently founded spinouts tend to die earlier.

OxSyBio
University of Oxford

Metalysis
University of Cambridge



Growth.

Only 7% of the spinout population in the UK are visible scaleups (i.e. companies that have achieved 10% or more growth in their turnover or headcount for at least three consecutive years). Turnover growth, however, is often a less important measure of the success of spinouts. Some firms will be acquired once their technology is proven but before the acquisition of customers.

KEY STATS FOR 2019-2020

103

number of 10% scaleups

98

number of 20% scaleups

LARGEST SCALING SPINOUTS BY TURNOVER AND/OR EMPLOYEE COUNT (2019-2020)



QUEEN'S UNIVERSITY
BELFAST

SECTOR

SaaS

LATEST TURNOVER

£179m

LATEST HEADCOUNT

1,424



UNIVERSITY OF
CAMBRIDGE

SECTOR

Materials

LATEST TURNOVER

£7.5m

LATEST HEADCOUNT

181



UNIVERSITY OF
CAMBRIDGE

SECTOR

Cyber security

LATEST TURNOVER

£107m

LATEST HEADCOUNT

824



UNIVERSITY OF
OXFORD

SECTOR

Automotive

LATEST TURNOVER

£9.2m

LATEST HEADCOUNT

176



UNIVERSITY OF
CAMBRIDGE

SECTOR

Research reagents

LATEST TURNOVER

£58.3m

LATEST HEADCOUNT

432



UNIVERSITY OF
DURHAM

SECTOR

Nanotechnology

LATEST TURNOVER

£17.2m

LATEST HEADCOUNT

133



UNIVERSITY OF
OXFORD

SECTOR

Clinical diagnostics

LATEST TURNOVER

£6.8m

LATEST HEADCOUNT

167



IMPERIAL COLLEGE
LONDON

SECTOR

Design software

LATEST TURNOVER

£12.9m

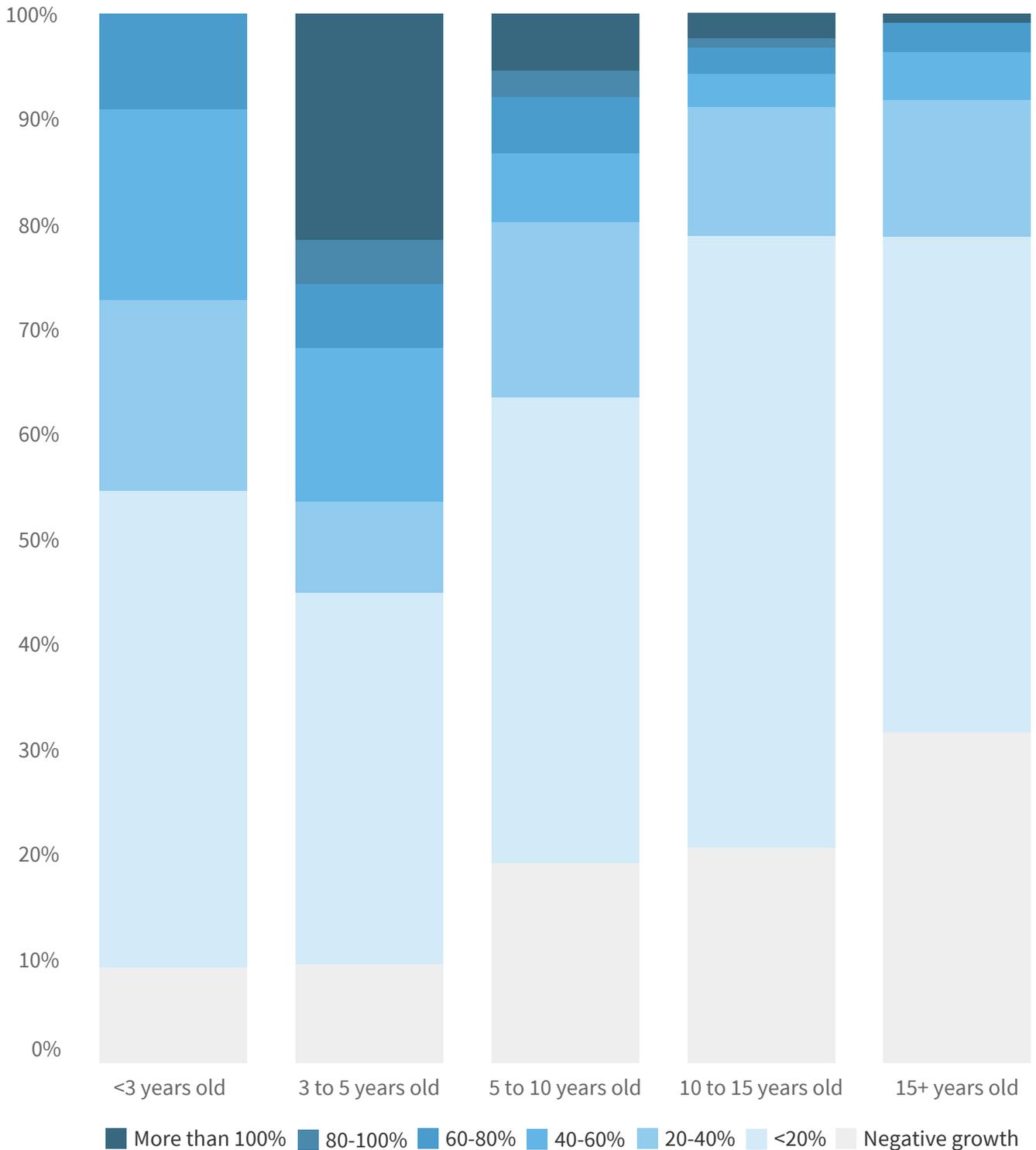
LATEST HEADCOUNT

162

Growth.

Spinout companies between the ages of 3 and 5 years old are growing most rapidly, with over 20% of spinouts at these ages achieving more than 100% growth in employee count.

HEADCOUNT GROWTH BY AGE



Exits.

As in the wider high-growth company population, acquisitions are the most popular form of exit, and saw large growth in number between 2011 and 2017. The seven IPOs by spinouts in 2014 was part of a wider bump in UK IPOs that year – those seven represented 28% of the high-growth IPOs that year. The decline in exits since 2017 will be partly because of the unprecedented amount of private capital available, allowing companies to stay private for longer.

KEY STATS

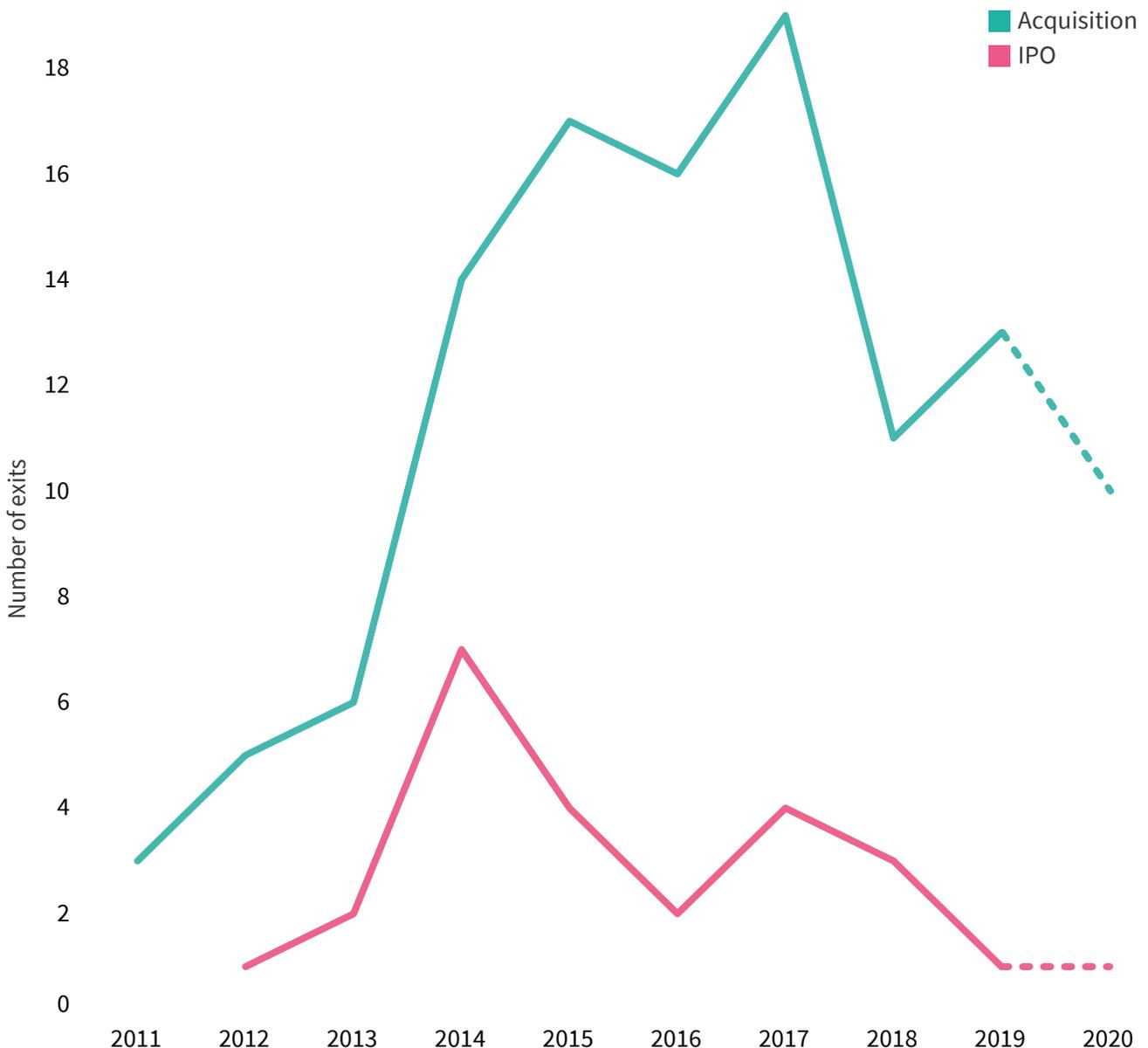
25

number of IPOs

120

number of acquisitions

EXITS OVER TIME



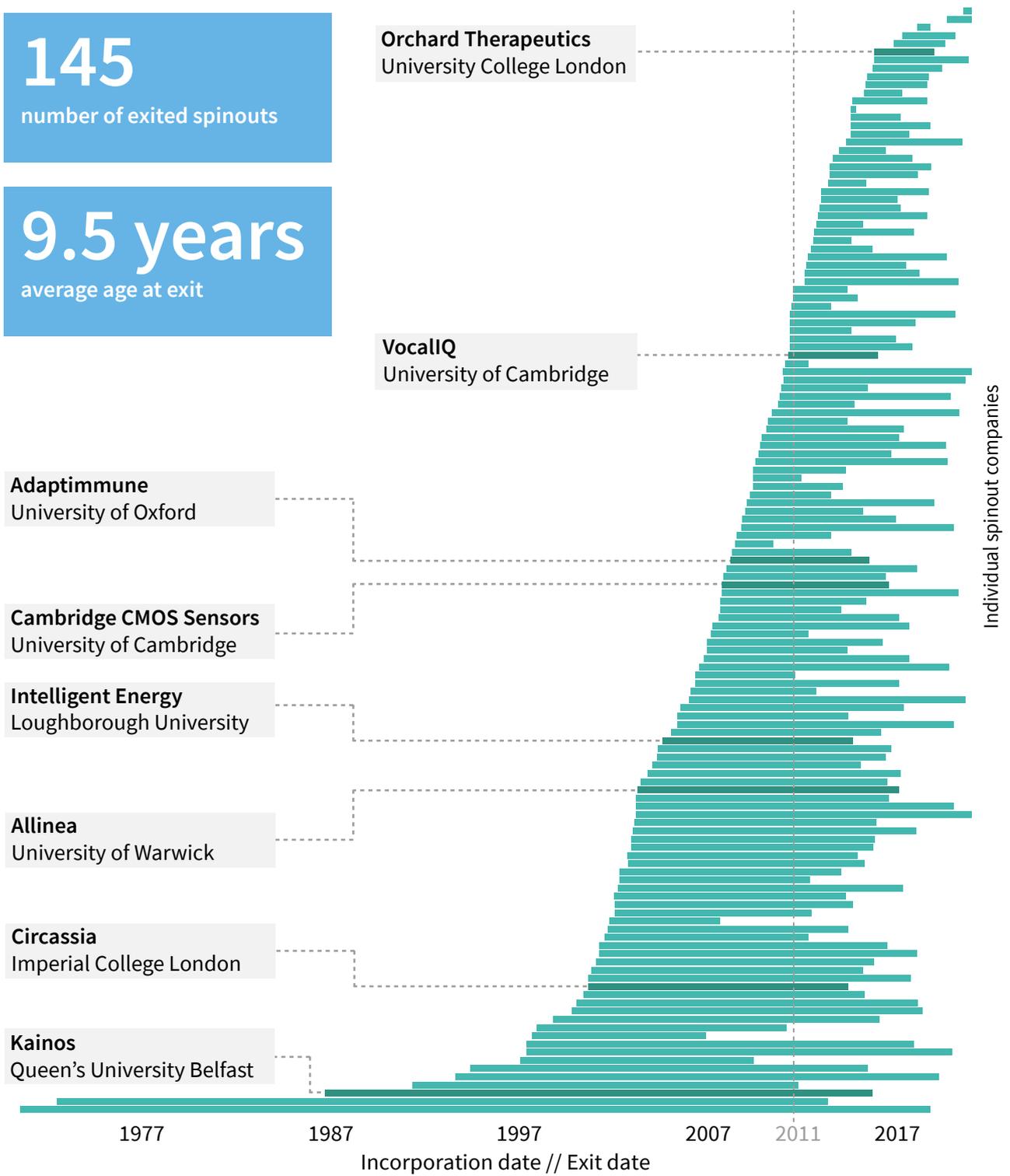
Exits.

On average, it takes a spinout company 10 years to exit either by IPO or acquisition. However, this average hides a range of journeys to exit, the shortest of which took five months, and the longest spanning almost 50 years.

EXITED SPINOUTS BY TIME TAKEN TO EXIT (ORDERED BY INCORPORATION DATE)

145
number of exited spinouts

9.5 years
average age at exit



Exits.

Orchard Therapeutics, a University College London spinout developing gene therapies, takes the record for largest known exit among UK spinouts. It floated on NASDAQ in 2018, with a market capitalisation of \$1.21b. VocalIQ, a developer of natural language recognition technology, was acquired by the US tech giant Apple in 2015, at a valuation of £38.7m.

TOP 5 IPOS BY MARKET CAPITALISATION

TOP 5 ACQUISITIONS BY VALUATION AT TIME OF DEAL*



SECTOR
Precision medicine

UNIVERSITY COLLEGE LONDON

VALUATION AT EXIT
£950m



SECTOR
Software & translation services

UNIVERSITY OF CAMBRIDGE

VALUATION AT EXIT
£38.7m



SECTOR
Pharmaceuticals

UNIVERSITY OF OXFORD

VALUATION AT EXIT
£772m



SECTOR
Chips and processors

UNIVERSITY OF CAMBRIDGE

VALUATION AT EXIT
£30.5m



SECTOR
Energy production

LOUGHBOROUGH UNIVERSITY

VALUATION AT EXIT
£639m



SECTOR
Research tools and reagents

UNIVERSITY COLLEGE LONDON

VALUATION AT EXIT
£14.8m



SECTOR
Pharmaceuticals

IMPERIAL COLLEGE LONDON

VALUATION AT EXIT
£581m



SECTOR
Medical devices

UNIVERSITY OF ABERDEEN

VALUATION AT EXIT
£8.4m

**In the vast majority of cases, the price an acquiring company pays for a company is undisclosed. This rank lists the top acquisitions by disclosed valuation at the time of acquisition.*



Leadership

Gender.

Of the 1,113 spinout companies that have available gender data, only 20% have at least one female founder. A majority of these are part of a mixed founding team (70%).

221

female-founded spinouts

20%

of spinouts have at least one female founder

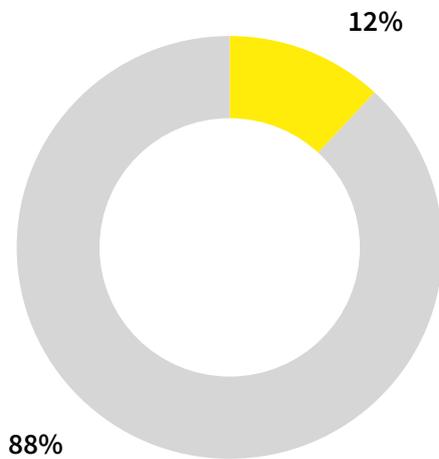
£137m

equity raised by female-founded spinouts
(2019)

13%

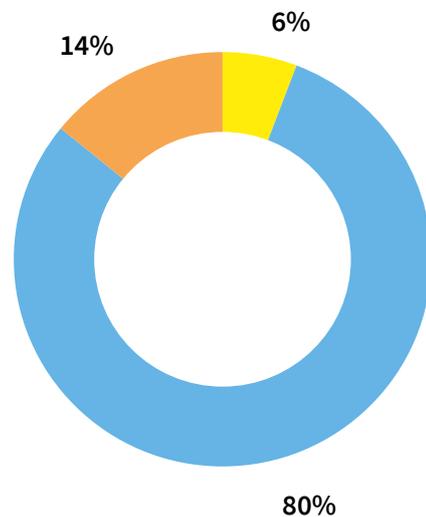
proportion of total equity raised by spinouts
secured by female founded spinouts (2019)

SPINOUTS WITH
AT LEAST ONE FEMALE DIRECTOR



Has at least one female director
All male directors

SPINOUTS WITH
AT LEAST ONE FEMALE FOUNDER



Female founding team
Male founding team
Mixed founding team

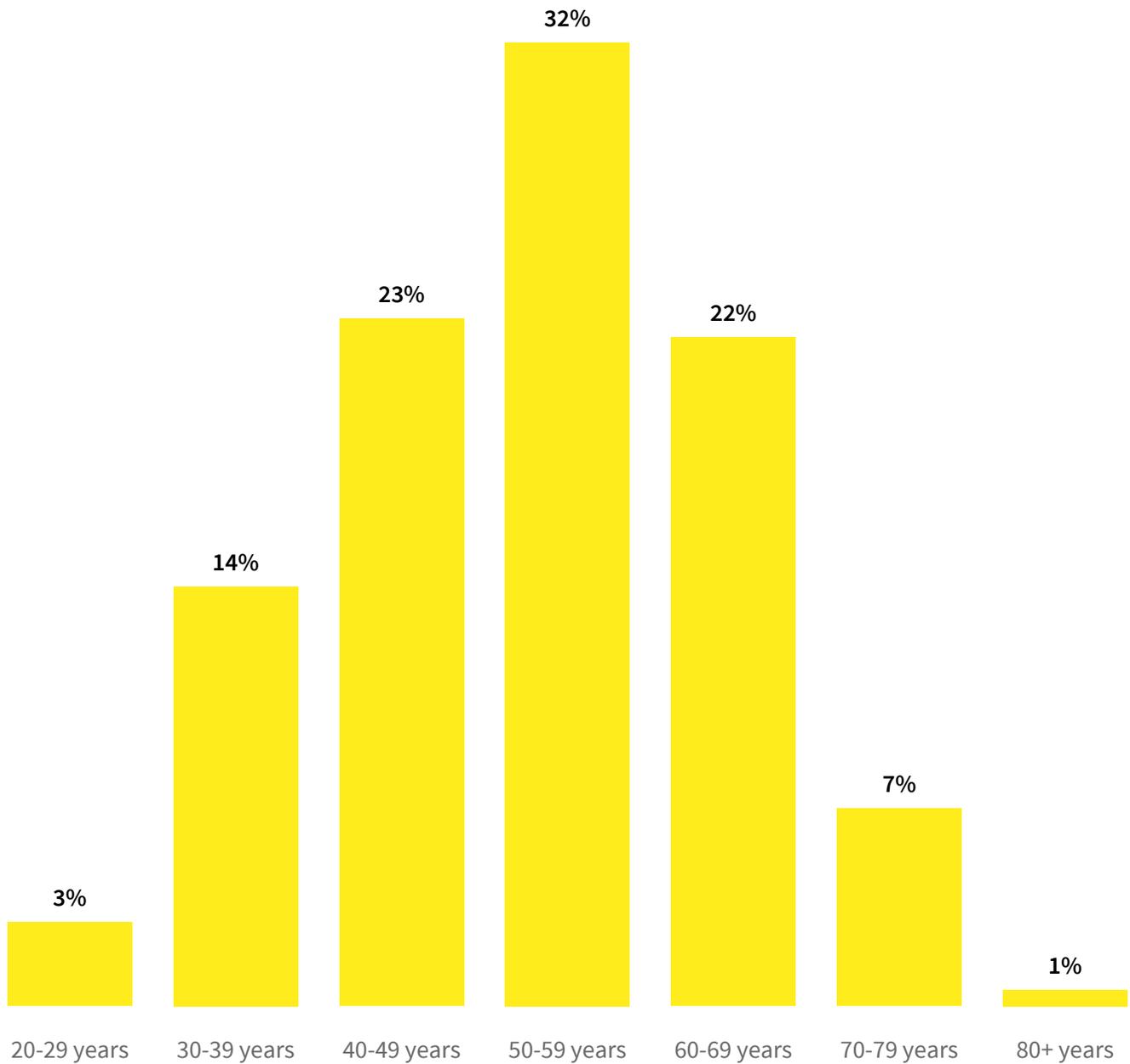
Age.

The majority of spinout directors are over 40 years old. Those under 30 make up just 3% of the spinout director population.

52

mean age of a spinout director

DIRECTOR AGE DISTRIBUTION



Nationalities.

The majority of UK spinout directors are UK citizens. After the UK, the most common origin nations among spinouts directors are the United States, Germany and China.

ACTIVE SPINOUT DIRECTORS BY NATIONALITY

2,505

number of directors from the UK

1,159

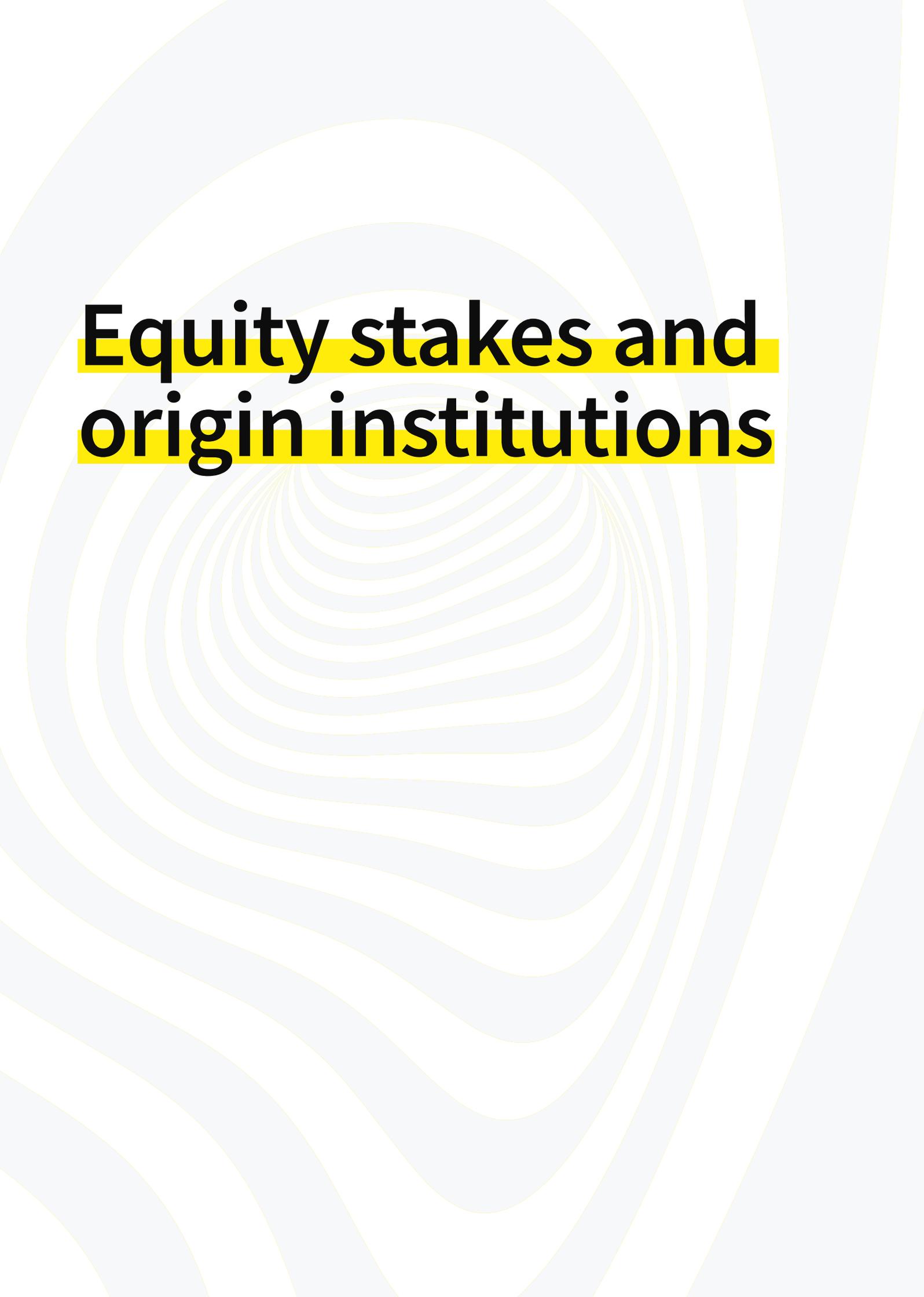
number of directors from outside the UK

NUMBER OF SPINOUT DIRECTORS BY CONTINENT (EXCLUDING THE UK)

Europe (excluding UK)	418
North America	218
Asia	164
Oceania	40
Africa	13
South America	8

NUMBER OF SPINOUT DIRECTORS BY COUNTRY (EXCLUDING THE UK)

United States	189
Germany	72
China	65
Ireland	56
Italy	47
France	38
Australia	34
Spain	30
Netherlands	30
Canada	25

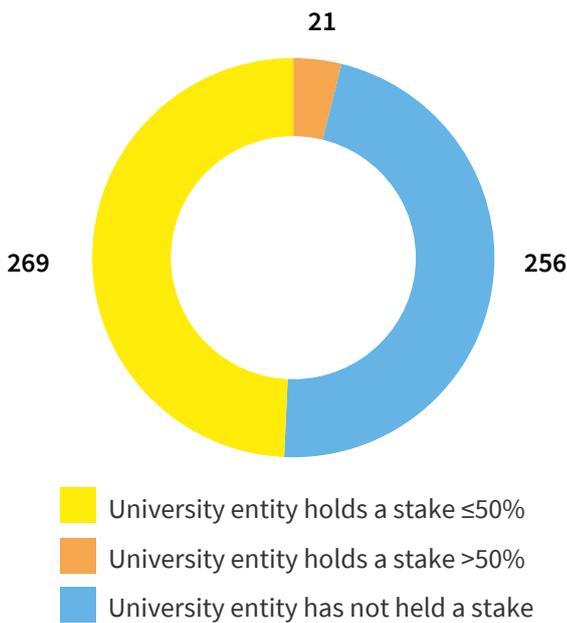


Equity stakes and origin institutions

Equity stakes.

For spinouts incorporated since 2015, the mean equity stake taken by university entities was 22.0%. This figure is based on analysis of the 269 spinouts where university entities held a stake $\leq 50\%$. The 256 spinouts where no university entity held a stake were omitted, as were the 21 spinouts where university entities held $>50\%$.

NUMBER OF SPINOUTS INCORPORATED SINCE 01/01/2015 BY UNIVERSITY EQUITY STAKE



HOW ACADEMIC INSTITUTIONS DERIVE COMMERCIAL BENEFITS FROM THEIR SPINOUTS

Taking equity stakes in spinouts in order to benefit from potential capital appreciation is just one way academic institutions derive commercial benefits from their spinouts. Analysis of 546 spinouts incorporated since the beginning of 2015 shows that there were 256 companies where no discernible university entity (the university itself or its technology transfer office) held an equity stake.

For these spinouts, it is likely that the university chose to license intellectual property in return for fees or via revenue or profit-sharing agreements. So while examining how universities and founders split equity in spinouts provides some insight into how academic institutions harness innovations, it is not the full picture.

AVERAGE INSTITUTIONAL EQUITY STAKES FOR 269 SPINOUTS INCORPORATED SINCE 01/01/2015

22.0%

mean stake taken by universities in the year of spinning out

AVERAGE INDIVIDUAL FOUNDER EQUITY STAKES FOR 269 SPINOUTS INCORPORATED SINCE 01/01/2015

22.2%

mean stake of an individual founder in the year of spinning out

19.4%

median stake taken by universities in the year of spinning out

16.7%

median stake of an individual founder in the year of spinning out

14.7%

standard deviation in mean stake taken by universities in the year of spinning out

19.9%

standard deviation in mean stake of an individual founder in the year of spinning out

Equity stakes methodology.

Analysing the equity stakes taken by academic institutions and founders in spinout companies involves several complexities. To create a sample that is representative of contemporary approaches to dividing equity, we analysed the 546 spinouts that had been incorporated since the beginning of 2015. Some key methodological considerations are outlined under the headings below.

INSTITUTIONAL HOLDINGS VERSUS CAPTIVE FUNDS

When an academic institution and its technology transfer office own shares in a company, their shareholdings have been counted in aggregate as being the academic institution's equity stake. The stakes held by captive funds, such as Oxford Sciences Innovation (OSI), have been excluded because those stakes are received in exchange for external investment.

SPINOUTS WITHOUT UNIVERSITY SHAREHOLDERS

An academic institution does not necessarily have to have an equity stake in a company for the company to be considered a spinout (please see page 45 for a definition of a spinout). An academic institution may choose to license intellectual property to a company without taking equity. Out of the 546 spinouts incorporated since the beginning of 2015, there are 256 that do not appear to have had an academic institution as a shareholder and so have been excluded from the equity stake analysis.

RELIANCE ON CONFIRMATION STATEMENTS

UK companies are required to file a confirmation statement once a year with Companies House. The confirmation statement provides a snapshot of a company's shareholders at the time of filing but does not necessarily account for changes to shareholdings that occur between filings. For example, a company could spinout, split equity between founders and the academic institution, and raise dilutive external investment in the space of a year. While in practice this seems to be relatively rare, such a case would make the founder and institutional stakes smaller in the first confirmation statement than the stakes had actually been at the point when the company spun out.

EXCLUSION OF MAJORITY INSTITUTIONALLY OWNED COMPANIES

In the case of 21 companies in our sample of spinouts, the academic institution holds more than 50% of the equity. For newer spinouts, this may be due to the time lag between a company spinning out and filing a subsequent confirmation statement where the institutional stake has been reduced below to 50% or below. Because these companies are nominally subsidiaries of the institution, they have been excluded from this analysis.

NO PROVISION FOR OPTION POOLS

The equity stakes in this analysis do not account for option pools that may exist at the spinout. The stakes we've used represent the present truth of the company's capitalisation table, but if an options pool exists, it is likely that the technology transfer office and founders will be anticipating this dilution.

Equity stakes by university.

Of the six universities with the largest spinout populations, the University of Cambridge took the lowest average stake in spinouts of 10.1%, while Imperial College London took the highest average stake of 24.4%. However, this analysis is based on a low number of spinouts per university and does not necessarily represent each university's current or historical approach to equity allocation.

SPINOUT EQUITY STAKES TAKEN BY THE SIX ACADEMIC INSTITUTIONS WITH THE LARGEST SPINOUT POPULATIONS

ACADEMIC INSTITUTION	MEAN %	MEDIAN %	SD %	ELIGIBLE SPINOUTS*	TOTAL SPINOUTS
University of Oxford	16	14	10	67	156
University of Cambridge	10	8	8	9	140
Imperial College London	24	24	21	9	92
University College London	16	9	14	17	68
University of Edinburgh	21	15	15	5	52
University of Bristol	22	24	13	17	51

* Number of spinouts incorporated since the start of 2015 where a university entity held a stake of $\leq 50\%$ in the year of spinning out.



A COMPLICATED PICTURE: UNIVERSITY EQUITY STAKES IN SPINOUTS

The analysis of university and founder equity stakes shows large variations in how universities choose to derive commercial benefit from spinouts. Lack of visibility into licensing arrangements and option pools makes it difficult to draw generalisable conclusions about how to approach the challenge of splitting equity.

Pages 40 to 43 look at the top 10 universities by total number of spinouts created and examines publicly available qualitative sources for insight into how equity is split. A recurring theme in universities' approaches is that the nature of the research that underpins the spinout and the role researchers or founders play has a significant impact on the final outcome.

Hopefully the analysis here can give some additional insight into what can be an opaque process.

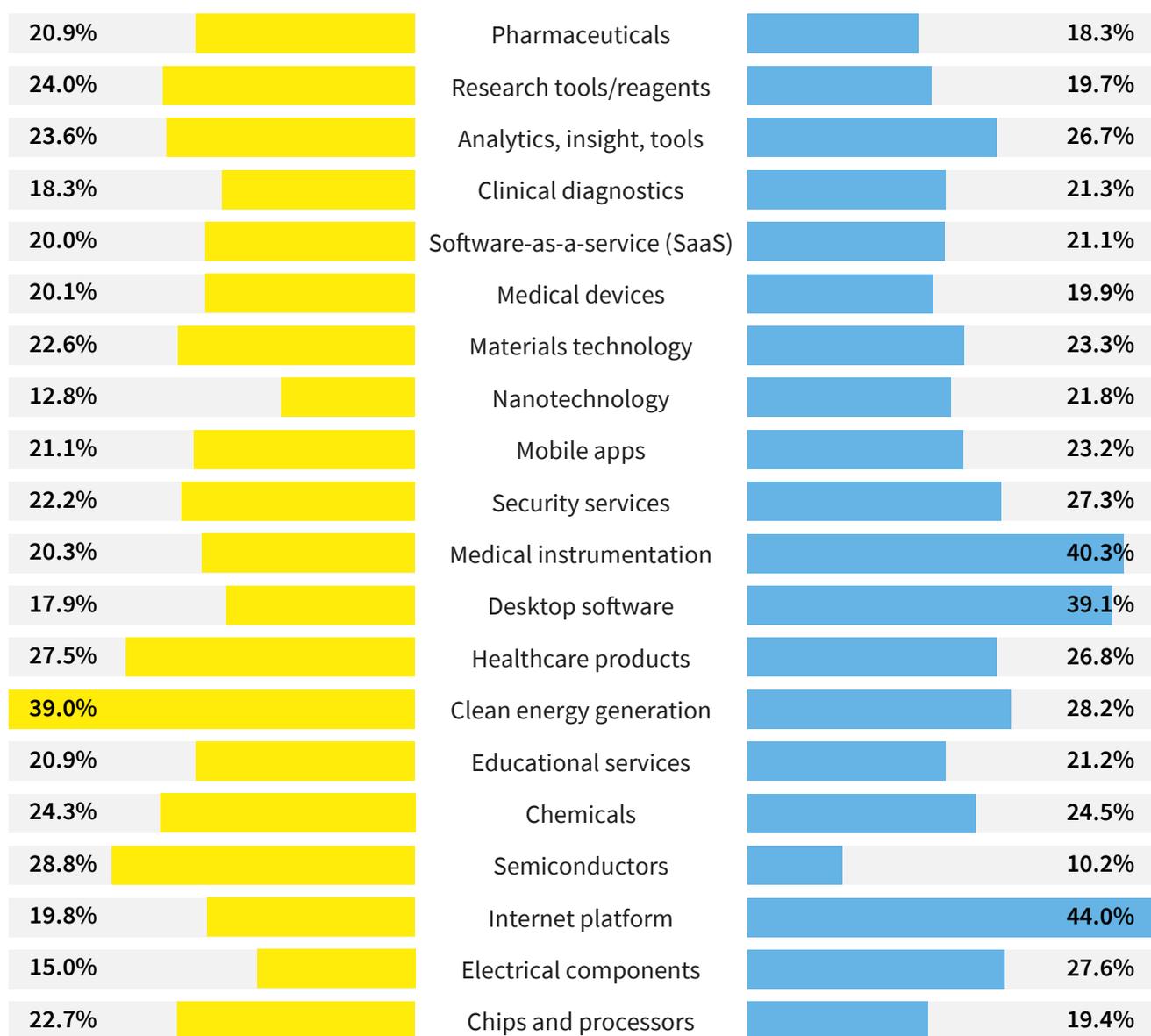
Equity stakes by industry.

On average, universities take a stake equal to one-fifth of a company in the year of spinning out. Of the most populated spinout sectors, universities take the largest average stake in spinouts developing clean energy generation and the smallest in spinouts developing nanotechnology.

AVERAGE INITIAL STAKE TAKEN BY UNIVERSITY AND FOUNDERS FOR MOST POPULATED SECTORS (SEE PAGE 12)

Average initial institutional stake

Average initial individual founder stake



These averages include spinout events where the following are true: a) the university entity had taken a stake that was equal to 50% or less, and b) the spinout was incorporated after the beginning of 2015.

Intellectual property policies.

A quick look at the intellectual property policies of the top 10 academic institutions by number of spinouts.



156

spinouts tracked since 2011

£2.4b
equity investment
raised since 2011

“Turning university ideas into billion-dollar companies is the focus of the OUI Investments and New Ventures team.”

- Oxford University Innovation¹

The University of Oxford’s technology transfer and innovation function was formalised as Oxford University Innovation in 1988² and has been commercialising the breadth and depth of the university’s research ever since.

Equity splits between researchers and the university are based on a number of principles including the nature of the research that underpins the spinout; the role researchers had in developing the opportunity; and the amount of institutional support that has been received³.

Since the beginning of 2011, University of Oxford spinouts have completed more than 450 rounds of equity investment, cumulatively raising £2.4b⁴.



140

spinouts tracked since 2011

£1.9b
equity investment
raised since 2011

“Cambridge has a worldwide reputation as a place where new technologies emerge, companies are born and products that transform society are developed.”

- Cambridge Enterprise⁵

Cambridge Enterprise began offering seed funding in 1995 with a £2m fund⁶ and has since been involved in more than 100 deals involving University of Cambridge spinouts⁷. Notable spinouts include gene therapy company Quethera, genetic abnormality screener BlueGnome and DNA sequencer Solexa.

Founding researchers and external management negotiate equity splits on a case-by-case basis with Cambridge Enterprise⁸. The nature of the technology being licensed and the number of founders are just some of the factors that feed into the final decision⁹.

Companies spun out from the University of Cambridge have raised £1.9b in equity investment in more than 400 rounds¹⁰.

Intellectual property policies.

**Imperial College
London**

92

spinouts tracked since 2011

£1.1b

equity investment
raised since 2011

“Today, we have a thriving entrepreneurial ecosystem: a home for businesses, researchers and the next generation of innovators.”

- Enterprise at Imperial¹¹

Imperial College London commercialises technology via its Enterprise team. It formerly conducted technology transfer via Imperial Innovations which was founded in 1986 and in 2006 listed on the London Stock Exchange’s Alternative Investment Market¹².

Since 2017, Imperial College London has offered university researchers two options for splitting equity in spinouts via its Founder’s Choice programme. Researchers can select a founder-driven pathway to receive 90-95% of the founding equity in the company. Otherwise, researchers can choose a jointly driven pathway to receive more support and a more traditional equity split¹³.

Spinouts from Imperial College London have raised £1.1b in over 220 fundraisings since 2011¹⁴.

 **UCL**

68

spinouts tracked since 2011

£661m

equity investment
raised since 2011

“As drivers of innovation, we use our expertise to commercialise the exceptional ideas of UCL researchers, to benefit society and the economy.”

- UCL Business¹⁵

University College London’s first technology transfer office was formed in 1993, becoming known as UCL Business (UCLB) in 2006¹⁶.

Last year, University College London launched a new IP commercialisation programme called Portico Ventures. Similar to Imperial University’s approach, the programme offers a founder-driven track where the university will hold 5% equity fully diluted at the point the company has received a total of £1m in equity investment¹⁷. Founders opting for greater support agree to a 10% fully diluted stake for the university in exchange for the IP licence and UCLB’s assistance¹⁸.

Intellectual property policies.



THE UNIVERSITY
of EDINBURGH

52

spinouts tracked since 2011

£114m

equity investment
raised since 2011

“The creation of a successful spin-out company is good for the individuals involved, the local and national economy, and the University.”

- Edinburgh Innovations¹⁹

The University of Edinburgh’s first spinout, Reynolds Medical, was created in 1967 to commercialise a portable heart monitor²⁰. Spinouts now enjoy support via Edinburgh Innovations, including the opportunity for investment from the university’s venture fund, Old College Capital²¹.

The university expects to take an equity stake equal to that of the founders, though factors including the IP, the role of individual researchers and any investment in the project pre-company formation will determine final equity stakes²².

Since 2011, spinouts from the university have raised £114m via more than 120 fundraisings²³.



University of
BRISTOL

51

spinouts tracked since 2011

£216m

equity investment
raised since 2011

“Research and Enterprise Development (RED) supports, and works closely alongside the academic, student and entrepreneur communities to help sustain, and grow, activities that create the culture, reputation, and impact that define the University of Bristol.”

- RED Bristol²⁴

The University of Bristol’s commercialisation arm RED has a detailed policy on spinout formation, including likely equity stakes based on the contributions of the university and the researchers.

Where no development activities have occurred and no university support is required, the university will take a 15% stake leaving the rest to the founders²⁵. At the other end of the spectrum, where development activities have occurred and the further support is required, the university will take a 45% stake in the company, leaving the remaining 55% stake to the researchers²⁶.

Intellectual property policies.



Swansea University
Prifysgol Abertawe

48

spinouts tracked since 2011

Since the beginning of 2011, spinouts from Swansea University have raised £20.6m via 35 fundraisings²⁷. The university says that it typically takes a 5-20% stake in spinout companies²⁸.

The Start Up and Early Stage Capital Fund, which is managed by the Development Bank of Wales, is the top investor by number of deals and by the total value of the deals it has been involved in²⁹. Since 2011, it has backed nine deals with a total value of £4.24m³⁰.



43

spinouts tracked since 2011

Queen's University Belfast's commercialisation arm QUBIS was founded in 1984³¹. QUBIS starts equity discussions with a hypothetical even split between founders and the university³² before factoring in past effort and likely future effort by the spinout's founding team. The presence of know-how or patented intellectual property are also factored in.

The approach is designed to achieve a structure that rewards value-creating effort.



The University of Manchester

39

spinouts tracked since 2011

The University of Manchester (UOM) provides commercialisation services via The UOM Innovation Factory.

University and founder equity stakes are dependent on a number of factors including the channel through which IP is commercialised and the amount of proof-of-concept funding provided³³.



THE UNIVERSITY OF WARWICK

38

spinouts tracked since 2011

The University of Warwick commercialises research via Warwick Innovations (formerly Warwick Ventures), which was established in 2000³⁴.

Since the beginning of 2011, spinouts from the University of Warwick have raised £113m via 95 fundraisings³⁵.

Intellectual property policy sources.

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31. QUBIS - [About us](#)
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THE UNIVERSITY OF MANCHESTER

33. The University of Manchester - [Intellectual Property Policy](#)

THE UNIVERSITY OF WARWICK

34. Warwick Innovations - [About us](#)
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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 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](#). Companies that spun out of an academic institution prior to 1 January 2011 may still be included in this report if they achieved one of the other seven triggers after 1 January 2011 and then were subsequently determined to be a spinout.

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

35,000+
tracked companies

EQUITY INVESTMENT

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

- Secured by an academic spinout (as defined above)
- Some form of equity investment
- Secured by a non-listed UK company
- Issued between 1 January 2011 and 31 December 2019

1,417
academic spinouts

HIGH-GROWTH TRIGGERS



Equity investment



Academic spinouts



Scale ups



High growth lists



Accelerator attendance



Major grant recipients



MBO/MBI



Venture debt

Appendix.

INSTITUTIONS WITH FEWER THAN 5 SPINOUTS EACH

INSTITUTION	SPINOUTS
De Montfort University	4
Nottingham Trent University	4
Oxford Brookes University	4
University of Hertfordshire	4
University of South Wales	4
Aberystwyth University	3
Keele University	3
Royal Holloway, University of London	3
Sheffield Hallam University	3
St George's, University of London	3
Staffordshire University	3
University of Essex	3
University of Wolverhampton	3
Cranfield University	2
Falmouth University	2
Goldsmiths, University of London	2
Rutherford Appleton Laboratory	2
University of Greenwich	2
University of Huddersfield	2
University of Kent	2
University of the West of England	2
University of the West of Scotland	2
Anglia Ruskin University	1
Babraham Institute	1
Birmingham City University	1

Appendix.

INSTITUTIONS WITH FEWER THAN 5 SPINOUTS EACH (CONTINUED)

INSTITUTION	SPINOUTS
Cardiff Metropolitan University	1
Centre for Ecology & Hydrology	1
Culham Centre for Fusion Energy	1
Defence Science and Technology Laboratory (Dstl)	1
Institute of Cancer Research	1
John Innes Centre	1
MRC Laboratory of Molecular Biology	1
Liverpool John Moores University	1
London School of Hygiene and Tropical Medicine	1
Moredun Research Institute	1
MRC/Cancer Research UK/BHF Clinical Trial Service Unit & Epidemiological Studies Unit	1
National Health Service (NHS)	1
National Oceanography Centre, Southampton	1
National Physical Laboratory (NPL)	1
Queen Margaret University	1
The Rowett Institute	1
Royal Veterinary College	1
St Mary's University, Twickenham	1
The Francis Crick Institute	1
University of Central Lancashire	1
University of Lincoln	1
University of Northampton	1
University of Portsmouth	1
University of Reading	1

About the authors.

Beauhurst

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 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.

Our data is also used by journalists and researchers who seek to understand the high-growth economy, and powers 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

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