# Growing and diversifying the supply of private equity investment into Oxfordshire-based science companies – a green paper

Advanced Oxford

A GREEN PAPER

Advanced Oxford

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## Introduction

### Background

Oxfordshire's Innovation Engine 2023 (OIE), published by Advanced Oxford in June 2023, examined developments in the equity/investment landscape in Oxfordshire over the previous decade. There have been some significant developments, such as the creation of Oxford Science Enterprise (previously known as Oxford Sciences Innovation) and developments within angel investment systems However, the report also noted weaknesses.

OIE 2023 made a specific recommendation relating to the investment environment within Oxfordshire: *Grow and diversify the number of risk capital investors operating within the region.*

The work by Advanced Oxford to develop this paper is a response to this recommendation.

### The need for change

Access to finance – particularly private capital – continues to be a critical issue in ensuring the success of Oxfordshire's innovation ecosystem. Early-stage funding needs particular attention particularly as we appear to be in a period of resetting, and many young companies are on a continuous treadmill of fund raising. Most government intervention has been to support venture capital, but series B and later stage fundraising is still challenging in the UK – the £40+ million raises - and if companies are to be retained in the region, and indeed the UK, there is still a need to create the conditions that encourage UK institutional investors to back science and technology-based companies.

Economic uncertainty, recession fears, global inflation and rising interest rates have contributed to a more cautious investment approach. This highlights the impact of macroeconomic factors on the ability to raise funding. As this paper is published in October, 2024, there is a sense that the last two years have been very challenging for companies looking to secure private capital, with reports that it is taking a long time to complete funding rounds.

At a global level, reduced US investor activity has been reported, the consequence being that European investors have taken on greater prominence (data from 2023)[1]. For growth stages, the share of total capital invested by US investors has fallen from a peak of 39% in 2021 to just 25% in 2023. This shifting mix of sources is less of an issue for earlier stage companies as early-stage companies tend to attract initial investment from domestic investors. According to the 2023 State of European Tech, investors in Europe, including both domestic and cross-border players, contribute to approximately 80% of the total capital invested in European tech companies during early-stage funding rounds, a share that has stayed broadly consistent over the past five years.

The perception may be that Oxfordshire has a healthy and vibrant investment ecosystem. Throughout the period that Advanced Oxford has been undertaking this work, there have been many announcements of substantial fundraising by companies within the region:

- Ochre Bio – a deal with Boehringer Ingelheim worth $1.3bn, with $35m upfront
- Grey Wolf Therapeutics series B of $50m
- Dendra Systems – $15.7m
- Infinitopes £12.8m
- Theolytics – £19m
- PQ Shield $37m
- Spottit $800k bridge funding
- Beacon Therapeutics series B - $170m
- IotaSciences – undisclosed
- Purple Transform - £4.5m
- FIDO AI – undisclosed series B
- Enara Bio $32.5m series B
- Fluorok £7.7m

Nevertheless, there is a need to see a growth in, and diversification of, finance options within the region, including attracting new players and funders into the ecosystem. There is still a need to see recycling of money made from exits and to encourage new, active angel investors to work in the region. What is more, the region appears to have a twin-track system, where university spin-outs can benefit from support, connections and relationships that will set them on their growth trajectory, while companies with no university heritage have to chart their own path, with patchy support.

## Analysis and recommendations presented as a green paper

Advanced Oxford is presenting our analysis and our findings as a 'green paper'. We have provided a set of recommendations for action, the majority of which could be taken forward

[1] State of European Tech 2023 Atomico https://prismic-io.s3.amazonaws.com/atomico-2023/

within the region. However, there will need to be careful consideration, discussion, undoubtedly debate around the findings. We hope that this paper will prompt a coalition of the willing to come forward to consider how we can turn draft recommendations into a plan for action. It is our intention to share this paper widely, and to connect and convene a wide range of individuals and organisations so that we can move forward together.

We invite you to work with us to develop a forward thinking and ambitious plan. If you would like to be part of this work moving forward, please contact us (info@advancedoxford.com).

# Content

# Chapter 1 – Oxfordshire's investment landscape. A quantitative data analysis

Our approach to quantitative data analysis draws on a number of commercial business research platforms that are available on the market. We have benefitted from access to a number of these either directly, or through Advanced Oxford members who generated reports and summaries using their own licenses and shared the data with the team and Advisory Group.

Our analysis compares data relating to companies that appear to have a location in Oxfordshire – in many instances this is associated with registered addresses for the company, but in other instances, there is some innovation activity taking place within the region. Our searches have also filtered for science/technology/innovation/IP related companies, given that Advanced Oxford's focus is on STEM based companies. We have also used time limited data, focusing on investment activity and data from the last 10 years (2013 to end of 2023). Although our focus has been on science and technology-based companies, given that this is the focus of Advanced Oxford's work, this is by no means to dismiss the importance of private capital flow into companies within other sectors. Clearly, there are many non-science companies that will look for private capital investment to support their growth and it is vital that they can access the investment that they need. It is also worth noting that our research has not examined the use of debt or convertible debt as a category of capital, although it is possible and likely that some of the investment attributed to companies will be debt.

We recognise that there are limitations in using any of these criteria. In particular, there are challenges in identifying companies in a geography, when relying on registered address, as not all companies located in Oxford/Oxfordshire will have a registered address within the county. Similarly, there are companies that have a registered address in Oxfordshire, but no R&D or trading activity within the region. Sector and industry classifications that draw on Standard Industrial Classification codes (SIC) also have limitations, as SICs do not necessarily describe or identify a company as being definitely science or technology based. The problems associated with data collection using these parameters is considered in detail within Oxfordshire's Innovation Engine report[2]. Some of the platforms used, such as Beauhurst, have their own sector classification systems, and in these instances, we have used definitions that fit as closely as possible with science and technology-based businesses. Data was extracted between October, 2023 and February, 2024, based on companies receiving investment any time in the period 2013 to 2023.

[2] Oxfordshire's Innovation Engine, 2023 (https://www.advancedoxford.com/innovation-engine)

Data from Beauhurst, Crunchbase, mnAI and Pitchbook have been used for the quantitative analysis considered within this section of the report.

In some instances, we have divided companies into two broad groups of 'science' and 'technology' to assist in looking for and at any differences in investment activity. There is no consistency of definitions within different platforms, so we have used definitions broadly based on those used by Beauhurst but have adapted these to develop our own definitions. It should be noted that many commentators and organisations use the terms synonymously and interchangeably. A good example relates to life sciences companies, which we have defined as 'science' companies. Some organisations consider life sciences – biotechnology and health tech – as technology companies. Where no division is shown, the data is for all companies.


Figure 1: Summary of key metrics from an analysis of data on investment activity undertaken by Advanced Oxford. Data on investment activity between 2013 – 2023.

It is interesting to see that there is considerable variation in the datasets. Not only are the aggregated data different, depending on the source, but when comparing the data held for each company, different data was found for different companies, whether it be the amounts raised, the number of rounds, number of investors, or who those investors are. As a consequence, we can conclude that there is no one source of wisdom or truth. While investors using these platforms to support scouting or due diligence will undoubtedly use these as one of many inputs, we often see single source analyses that are used to show investment activity and levels. Our advice: be cautious when using and interpreting data from different sources.

A methodology document is provided on Advanced Oxford's website, setting out in detail how datasets have been cleaned, combined and compared, to support the analysis set out in this report. The following points are worth noting however:

- Reliance of data from any one of the databases will only give you a snapshot.
- There is no single source of truth.
- It is challenging to match information for an individual company across different databases.
- It is not obvious when the databases update their data or how/from where they obtain it.

- It is not always possible to match an entry in any one of the databases to information on Companies House due to the use of holding companies etc.
- Sector classification and SIC codes are not necessarily a reliable way of determining the type of company or the nature of its activity.
- It is not easy to distinguish angel investors from founder investment/equity.
- Some 'investors' may hold equity, but they may not have contributed capital, particularly in the case of accelerators.
- In some instances, we use the term funder, as opposed to investor, as non-dilutable sources of funding are also reported, such as Innovate UK grants.

It is certainly the case that any company can potentially use data on who has invested into which companies to try to find connections, however, warm introductions are key. The platforms used by Advanced Oxford throughout this research are expensive, so end users need to be cautious and judicious in their use. With over 3,600 individual funders/investors supporting companies within the region, there are many to choose from. However, it is difficult to gain their attention, let alone secure their support.

## A relatively small pool of companies secure private capital

Different platforms identify different numbers of companies, indeed different companies, when our search criteria were applied – 291, 327, 265 and 241 companies respectively, giving a mean of around 280 companies. Looking at these groups of companies, there are about 665 distinct companies that are being tracked across these four platforms, aligned to our selection criteria. Despite this, there is often little information provided on any investment activity, such as investment raised or active investors, so some of these companies may be appearing in the lists for different reasons altogether, such as being involved in mergers, acquisitions or management buy-outs.

Whichever way you look at it, 665 is a relatively small proportion of all the companies within Oxfordshire; and in proportion to the stock of science and technology companies within the region, it is still small. What is more, many of the companies have exited or may not longer be active, so the pool of companies in any one year that is raising investment is likely to be quite small.

Advanced Oxford's dashboard[3] of data on the region's innovation ecosystem identified around 5,000 companies that are registered in Oxfordshire and meet the Eurostat definition of a high-tech company; 2,950 companies met the high-tech definition and appear on the list of VAT/PAYE firms operating in the region and 1,335 companies were recipients of R&D tax credits (2019/20 data). Our own analysis (in 2023) identified 1,580 distinct companies that were defined as science and tech/innovation companies within the region. By any of

[3] Access the dashboard through https://www.advancedoxford.com/innovation-ecosystem/

these definitions, the pool of companies that are being tracked as investment active, i.e. have been identified as having attracted some form of investment in the last ten years is relatively small. There has been no means of identifying companies that are looking for investment through quantitative methods – an issue considered further below – given that data platforms appear to track only those that have secured some form of investment. There will be a difference between the pool that is looking for investment, versus the numbers that are successful in securing private capital. The 'deep dives' that we have conducted into University of Oxford spinouts and companies seeking angel investment through the region's primary angel network (OION) demonstrate the difference between demand and supply to some extent.

Notwithstanding the comparison of apples and pears, given the dynamic nature of company starts and closures, and the fact that investment could have happened at any point between 2013 and 2023, the table below gives an indication of the population of investment active companies within the region, in relation to the pool of science and technology companies.

| Company definition | Number of companies in Oxfordshire | Proportion of companies that secure investment |
|---|---|---|
| **Eurostat definition of high-tech companies (registered in Oxfordshire)** | 5,000 | 13% |
| **Eurostat definition of high-tech companies (registered for VAT and/or PAYE in Oxfordshire)** | 2,950 | 23% |
| **Unique science and tech companies identified by Advanced Oxford** | 1,580 | 42% |

Table 1: The proportion of science/technology/innovation-based companies that successfully secure private capital, based on data on total numbers of companies within Oxfordshire within different science/technology/innovation definitions, using the 560 unique companies as an indicator of the number that appear to have secured investment. Total company numbers drawn from Advanced Oxford analysis.

## Assessing demand for investment

Any analysis of investment activity is weighted to the supply side, i.e. business analysis platforms collect data on companies that have raised investment, so it can be challenging to assess demand for investment. Yet, if you attend investment-related events, or speak to professional advisors, you will find plenty of companies that are looking for, or struggling to acquire, investment. Equally, demand does not equate to quality. Any demand data will contain companies that are not investible for a variety of reasons. Qualitative data collection, undertaken in support of this paper gives some indication of the level of demand; however, there may be bias - companies that are looking for investment may be more willing to participate in the research.

Analysis of data from companies that register with an angel network may also provide a useful route for assessing demand. These data are examined in more detail within the chapter in

this paper on angel investment. A summary of the data from the period 2013 – 2023 is that 294 Oxfordshire companies were considered by the region's main angel network, Oxford Investment Opportunity Network (OION) and 115 of these companies were invited to pitch at an event. Fifty companies secured some investment following their pitch(es) to OION. On average, around 39% of the companies that are looking for angel investment are invited to pitch and 17% go on to secure some investment from the network (all for companies with a base in the region – the demand in total is much higher, and the likelihood of being invited to pitch is lower for companies not based in the region – further data is provided elsewhere in this paper).

Recognising the difficulty that founders can have in identifying and connecting with investors, Barclays Bank has recently launched its 'Demo Directory', https://labs.uk.barclays/demo-directory/. Although the Directory went live at the end of October, 2023, an Oxfordshire launch event was hosted by Oxford Brookes University in September, 2024. Just over 500 founders from the Golden Triangle of Oxford – London - Cambridge have registered on the platform in the period 30 October, 2023 to 2nd September, 2024, with around 1,150 registrations from across the whole of the UK. Data from all founders on the platform suggests that founders are looking to raise on average around £1.2m.

Innovate UK's Business Connect programme operates across the UK. At any one time, around 350 companies from across the south-east of England (not Oxfordshire alone) engage in this programme and it is estimated that around half are looking for funding or finance of some description, which includes grant funding and debt. Between 2021 and 2023 (inclusive 3 year period) 25 companies from Oxfordshire were supported with 32 fund raising events, ranging from £300k to $12m, with a total of £21.4m raised.

Another indication of demand comes from attendance at events. The Oxford Trust, working in partnership with Oxford Innovation group of companies, and some of the region's professional services firms, have delivered a series of events in the last two years under the branding 'Exit Right'. An investment related event held in October 2024 was marketed to founders and leaders within innovative-focused companies, offering attendees access to investor insight through a panel of active investors, as well as the opportunity to engage directly with investors and funders. Reaching eligible and interested delegates is dependent upon marketing effort, but this event attracted sign-ups from over 200 individuals with at least half of these being company representatives, all of whom were founders or C-suite, and the event attracted individuals who are likely to have an active interest in identifying and securing private capital investment.

## Relationships – innovation and investment

As already highlighted above, data from Advanced Oxford, collated in 2023, suggests that the pool of innovative companies within the region is approximately 1,580. This may therefore

give an indication of demand for investment. However, not all these companies will need or seek private capital, and certainly not at the same time. We have therefore looked again for data that could help to demonstrate demand and a likelihood of achieving investment by examining a number of key indicators relating to innovation. The following data has been compiled by examining all companies/organisations/entities that have received Innovation UK funding/support at any point since the Technology Strategy Board/Innovate UK has been making awards to companies. We also looked at companies that have been awarded patent protection for their intellectual property, using data provided by Elsevier. These data in turn have been cross referenced with University of Oxford spin-outs, companies within the OSE portfolio, and companies that have been tracked by one or more of the business intelligence platforms used in this project. All companies have, or had, a presence in Oxfordshire, either headquarters or a trading/operational address. Given that in some instances data covers a period of over 20 years, not all these companies will still be active. Where companies have changed their name, an attempt has been made to group these into one entity. The majority, although not all, of Innovate UK recipients are companies with some clear relationship to science and technology, but as Innovate UK has provided a variety of programmes and support mechanisms that can be accessed by a wide range of sectors, it is not always the case that companies are STEM-based, and while some cleansing of the data has taken place, not all entities will have been removed. In summary,

- 1,390 separate companies were identified
- 665 have raised private capital in the last ten years
- 710 companies have been recipients of Innovate UK awards (at any point in the life of the Technology Strategy Board/Innovate UK)
- 47 companies have been recipients of Innovate UK awards in 2023/24
- 44% (n=311) of Innovate UK award holders have secured investment
- 354 companies have raised investment but have not received awards from Innovate UK (49% of the Innovate UK award recipients, and 53% of the companies that have secured investment)
- 1,842 projects have been supported by Innovate UK across Oxfordshire, with a total value of £468.414m
- 303 companies hold patents
- 420 companies have investment, but no patents
- ~ 260 of the companies are University of Oxford spin-outs
- 124 of these spin-out companies appear to have secured investment in the last 10 years (49% of spin-outs) NB – in the section on spin-outs, 104 companies have been tracked, where investment information could be found
- 103 spin-outs hold patents
- 88 have received Innovate UK awards

- 64 have investment from Oxford Science Enterprises (NB in the section on super-investors, OSE is identified as having a larger number of investments, but this may be where they appear on the cap table, but have not invested capital.

The region has been successful in attracting funding from Innovate UK (IUK), but less than half the stock of innovative companies has secured funding from this source. Unfortunately, IUK does not publish data on the number of companies that applied for support and were unsuccessful, so it is not possible to determine the demand. While IUK awards are often seen as a benchmark of quality and a useful source of non-dilutable funding, it does not appear to be a determinant in securing private capital.

Having patents is not a prerequisite for securing investment and, given that there are corporates within the list of patent-holding companies, many of the holders do not require private capital. This is not surprising perhaps, given the fact that technology-based companies are less likely than science-based companies to have patents, and there are large numbers of technology-based companies within the region. This finding is somewhat counter to the perception that investors are only interested in companies that have patent-based IP. However, it may be that investors are using the lack of patents as an excuse to reject company approaches.

Around half of University of Oxford spin-outs have secured investment in the last ten years, the period (2013 – 2023) that we have examined. Importantly, this means that only 19% of companies that secured investment were official University of Oxford spin-outs – the majority have been established through other routes, emphasising the opportunity that exists for other companies to be supported on their investment journey.

| |
|---|
| It is difficult, but important to assess demand. It may be possible to build a demand model based on qualitative data, working with professional service providers within the region. |

## Number of fundraising rounds data

As the companies being tracked are of different ages – the oldest company within the dataset was established in 1977, the most recent in 2023 – there is significant variation in the number of successful/discrete fundraising rounds the companies undertake. (Note - Pitchbook does not provide data on number of investment rounds.) There is no difference between the numbers for science and technology-based companies.

For the combined cohort of companies (n=665) the range is between 1 funding round, to 19 fundraising events. The mean number of rounds for science companies is 4 (with a median of 3) and for the technology companies the mean number is 3 (with a median of 2).

| Sector group | Company | Minimum | Maximum | Median | Average |
|---|---|---|---|---|---|
| Science | 344 | 1 | 19 | 3 | 4 |
| Tech | 331 | 1 | 19 | 2 | 3 |

Table 2 – fundraising round data, split between 'science' and 'technology' companies

## Total amounts of private capital raised

How much investment has been raised by companies within the Oxfordshire innovation ecosystem? The short answer, we do not know. As each data platform tracks and reports on different companies, each provides a different total amount of investment raised. As demonstrated in the table below, the total funding raised, as calculated from data from each platform, is widely (and wildly) different. mnAI derives data from accounts submitted to Companies House, and as such is not tracking investment activity, which may explain why the data from this platform is an outlier, but even setting this aside, we can see that Pitchbook reports almost £3bn for 241 companies, while Beauhurst reports £6.4bn across 291. It is also worth noting that Crunchbase reports data in a mix of currencies, including GB £, US$ and Euros.

| Data source | Beauhurst | Crunchbase | MNAI | Pitchbook |
|---|---|---|---|---|
| No of companies | 291 | 327 | 265 | 241 |
| Latest valuation | 10,331,552,862 | 2,977,690,251 | No data | 9,727,260,000 |
| Total funding raised | 6,435,527,529 | 2,977,690,251 | 975,080,925 | 4,042,930,000 |
| No of funding rounds | 1,210 | 506 | 1,138 | No data |
| Company Exit (IPO/acquired) | 11 | 2 | 0 | 0 |
| IPO Value | 5,942,159,421 | No data | No data | No data |

Table 3: Summary data, including total funding raised for a cohort of 665 science and technology companies receiving investment between 2013 and 2023.

Is it possible to draw together data from the 665 individual companies that we have identified across all four platforms? Again, the simple answer is no. Even at the level of individual companies, there is variability in the amounts reported as having been raised. In providing a calculation for the whole cohort, which data should be used? This is perhaps most easily demonstrated if we look at the 15 top ranked companies in terms of total fund raising, as reported by the investment tracking platforms. In some instances, e.g. OMass, the company is tracked across three platforms, and there is close alignment in reported fund raising. For Oxa, data from two platforms aligns and reported total investment raised is similar, but a third platform reports a 10% difference. For Genomics PLC, the difference is almost double between one amount and the other.

| | Source (rounded data in GBP millions) | | | | |
|---|---|---|---|---|---|
| **Company name** | **Beauhurst** | **Crunchbase** | **Pitchbook** | **Mean** | **Mean or best estimate** |
| Oxford Nanopore Technology | 856 | | | 856 | 856 |
| Immunocore | 410 | | | 410 | 410 |
| Nexeon | 224 | | | 224 | 224 |
| Oxa | 185 | 182 | 202 | 190 | 185 |
| Vaccitech | 162 | 216 | | 189 | 189 |
| Reaction Engines | 159 | | | 159 | 159 |
| Olser Diagnostics | 144 | 177 | 142 | 154 | 144 |
| Niox Group | 140 | | | 140 | 140 |
| Mirobio | 133 | 107 | 106 | 115 | 107 |
| Green Biologics | 128 | | | 128 | 128 |
| Omass | 128 | 128 | 131 | 129 | 129 |
| Tokamak Energy | 123 | | | 123 | 123 |
| Oxford PV | 119 | | 130 | 125 | 119 |
| Pepgen | 119 | 160 | | 140 | 140 |
| Evox Therapeutics | 115 | 169 | 115 | 133 | 115 |
| Exscientia | | | 640 | 640 | 640 |
| Beckley Psytech | | 164 | 76 | 120 | 76 |
| ONI | | 109 | | 109 | 109 |
| Genomics PLC | | 135 | 71 | 103 | 71 |
| Sitryx Therapeutics | | 79 | | 79 | 79 |
| Oxular | | 77 | | 77 | 77 |
| Ultromics | | 59 | | 59 | 59 |
| Grey Wolf | | 57 | 97 | 77 | 57 |
| Mind Foundry | | 52 | | 52 | 52 |
| Perspectum | | | 130 | 130 | 130 |
| Refeyn | | | 88 | 88 | 88 |
| Arcturis Data | | | 87 | 87 | 87 |
| Oxford Nanoimaging | | | 86 | 86 | 86 |
| Organox | | | 72 | 72 | 72 |
| **Totals** | **3145** | **1871** | **2173** | **4993** | **4851** |

Table 4: Ranking of the top science and technology companies within Oxfordshire, based on the total amount raised between 2013 and 2023, based on data tracked and reported by different business analysis platforms.

Taking the mean amount for each company, where there is more than one source of data, we can estimate that the total amount across the top ranked companies for investment is £4.9bn. If we take a more cautious approach, when considering variation in data and choose either the mean or lower figure report, the total raised is slightly lower at £4.8bn. Taking data from the cohort of 664 companies, we estimate that the total amount of private investment raised by Oxfordshire based science and technology companies, in the period 2013 to 2023, is likely to lie between £7bn and £8bn, with an estimate based on mean data of £7.48bn and a median of £7.37bn. Note, this does not include investment in public companies or IPOs.

## Funder rankings – who are the most active investors within the region?

Around 3,690 investors have been identified as participating in private capital investment into Oxfordshire based science and technology companies. Our data suggests that just under 125 companies have the participation of one or more angels or business angel networks as investors. Our analysis has identified a small group of 'super-investors' defined as having investments into more than 10 individual companies. These are dominated by university IP focused/University of Oxford affiliated funders/investors. Otherwise, there is a very long tail, with many individual investors having no more than one investment in Oxfordshire – this includes individual angel investors as well as other private capital investors. The data is shown in table x and figure x below. Some of the platforms give names of individual business angels, with others only identifying 'business angel' or angel syndicates. A separate section of this report considers angel investment in more details (see chapter 3).

| No. of different companies that an investor has invested into (companies located within Oxfordshire) | Total no. of individual investors with investments into one or more Oxfordshire-based company/ies | No. of investors, included within the total number (given in the adjacent column) who are angels/ angel groups |
|---|---|---|
| 1 | 3307 | ~100 |
| 2 | 232 | 55 |
| 3 | 55 | 11 |
| 4 | 25 | 5 |
| 5 | 16 | 2 |
| 6 | 7 | 0 |
| 7 | 10 | 1 |
| 8 | 9 | 0 |
| 9 | 3 | 1 |

Table 5: Numbers of investors with the numbers of investments into different companies that they hold. Data does not include multiple investments into the same company.

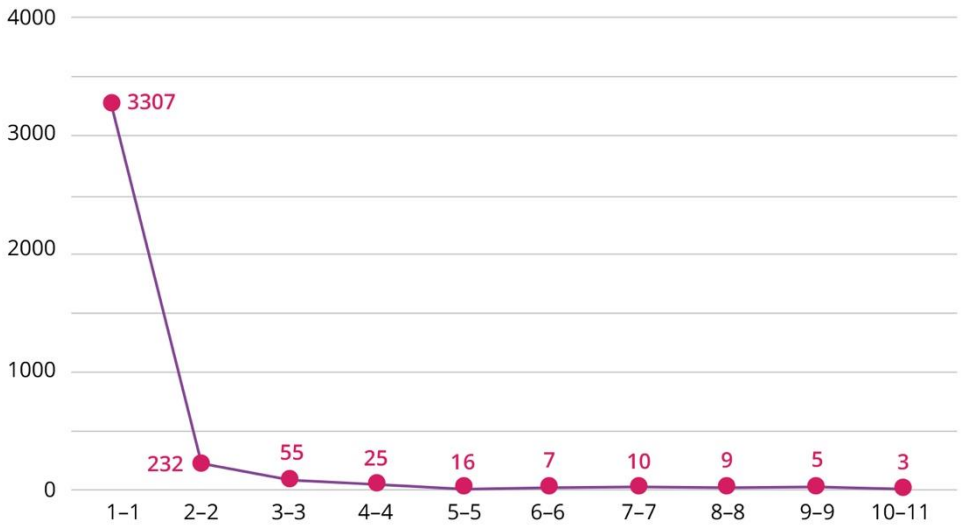



Figure 2: chart showing the number of investors/funders (the term funders is used as the data set also includes some non-dilutive sources of funding, such as grant funding) as a count, based on investments into companies located within the Oxfordshire region.

While the tail is long, there is still a sizeable group of investors – predominantly investment companies/funds, rather than individual angel investors, that have two or more investments within the region. How can we shift some of this group into 'super-investor' category, notwithstanding that investors themselves have limited capacity and are likely to be investing into companies within other geographies? Activities to cultivate relationships should start with these investors – how can we build stronger relationships between them and the region? Can we encourage them to support other companies/explore more deal flow, or can we better understand the types of companies that they might be interested in meeting? It may also be appropriate to select a small group – 10 to 20 – of the investors that have only one investment to explore how they might strengthen their ties to the region. The qualitative research component of this study aimed to engage investors to better understand their activities and perceptions of Oxford and Oxfordshire as a place to invest. While the research provides some useful insight – considered elsewhere in this paper – the use of interviews and questionnaires is different to the proactive development of a 'campaign', aimed at building relationships and connectivity with a pool of investors that might be encouraged to engage positively with the region and with trusted players from within the ecosystem.

## Super-investors

Oxfordshire benefits from having a relatively small group of '*super-investors*' operating within the region, investors that have invested into 10 or more companies. As noted above, the super-investor list is dominated by University of Oxford connected or affiliated investors, and while not included within the data set, Innovate UK is a significant funder within this

group, alongside a number of investors that tend to focus on university derived IP and spin-outs. Information on University of Oxford affiliated funds can be found on the Oxford University Innovations' website.[4]

| Investor | Number of companies into which invested |
|---|---|
| Oxford Science Enterprises | 96 |
| 'Business angels' (where this collective term is used, rather than a named individual or angel group) | 52 |
| Future Planet Capital | 36 |
| Oxford Technology | 34 |
| Parkwalk | 31 |
| Oxford Investment Consultants | 27 |
| IP Group | 19 |
| IP2IPO | 16 |
| Oxford Innovation Finance | 15 |
| British Business Bank | 14 |
| UK Government (other than Innovate UK) | 13 |
| UK Innovation and Science Seed Fund | 12 |

Table 6: The top ranking 'super-investors' within the Oxfordshire region, defined by the number of companies in which they have made investments

While 15 'investors' fall into the category of Oxfordshire super-investor, in reality, it is a much smaller set of organisations, as several of these investors have merged or use a variety of names for funds while operating under one umbrella. Parkwalk, IP2IPO and IP Group is one group. Future Planet Capital and UK Innovation and Science Seed Fund is another. What is more, RT Capital and Midven have also invested into companies, both being part of Future Planet Capital, while Touchstone Innovations, also part of IP Group appears as an investor within the region.

[4] https://innovation.ox.ac.uk/portfolio/funds-and-support/

| Investor/fund | Parent | Number of companies in which invested |
|---|---|---|
| Parkwalk | IP Group | 31 |
| IP Group | | 19 |
| IP2IPO | | 16 |
| Touchstone Innovations | | 9 |
| | **Group total** | **75** |
| Future Planet Capital | Future Planet Capital | 36 |
| UK Innovation and Science Seed Fund | | 12 |
| RT Capital fund | | 8 |
| Midven | | 7 |
| | **Group total** | **63** |

Table 7: Different investors/funds are related with a shared parent

The data does not readily allow examination of syndication or investor-investor relationships, but it is clear that there are well established relationships with certain investors working together to fund companies. However, as far as we can identify, these syndication relationships tend to appear more frequently in relation to spin-out companies.

As identified previously, around 124 (19%) of the 665 companies in the cohort are University of Oxford spin-outs - and it is these companies that have, not only access to the super-investors, but also the support of the university, its tech transfer office, Oxford University Innovations (OUI), the introductions that they can make, and potential access to Oxford Science Enterprises.

We therefore appear to have a two-track system within the region. It is inevitably going to be easier for some of the companies – especially those associated with University of Oxford and in particular those that are formal spin outs – to find investors. Building a syndicate is driven by who you know and interest from one investor will secure interest from others. The need for personal connections and relationships is borne out by the qualitative data collected for this research and is considered further in the section in which we present our analysis of data from company founders and management teams. The question, therefore, is how do we help others to find investors and build relationships? In so doing, might we also encourage other investors to come to the region?

## Super-angels

Table 6 demonstrates that there are numerous angels and angel networks supporting companies within the region. When looking at activity relating to individual business angels, different platforms report data in different ways. Beauhurst, for example, uses the term 'business angel' for individuals – as opposed to networks – whereas it is possible to see named individual angels on other platforms. However, not all named individuals will be private capital investors; some may be founders, directors or employees who have some form of equity share. Through the analysis we have attempted to identify individuals on cap tables that are actual investors.

Unlike VCs/funds where we identify a group of super-investors, we do not see many 'super-angels' operating within the region. Nine individuals had between 5 and 9 investments made in the 10-year period to 2023. It is unusual to find individual angels who have invested into more than 3 companies within the region. Oxford Innovation Finance, presumed to be investment through their EIS funds, appear within the super-investors (table 6), and is the parent company behind Oxfordshire's main angel network, OION.

## Exits

There is debate around the positioning of exits within the region, not least a perception that companies are increasing being encouraged to think about their exit from the outset by investors and this may be influencing companies unduly from the earliest stages. Oxford Nanopore Technologies – one of the region's most successful science companies – has been open in their criticism of a focus on exit, rather than on growing and scaling a successful business. This issue is considered within our qualitative data, where we asked company founders and teams about their perceptions of the need for a clear exit strategy. Whatever your opinion on the matter, it is exits, whether they be acquisition, sale of assets or taking a company public, that gives investors their return and provides the opportunity for capital to be recycled within the ecosystem.

The appetite for taking companies to the public markets through an initial public offering (IPO) has waxed and waned over time, and recently there have been some de-listings of Oxfordshire-based companies from London Stock Exchange/AIM: Velocys, Sensyne Health (now called Arcturis Data) and Oxford Cannabinoid Technologies. This report does not consider IPO as an exit in detail, but it is notable that recent exits have tended to be acquisitions rather than IPOs, and where there have been IPOs, they have tended to be on NASDAQ, rather than on London or European markets.

Oxford Science Enterprises key infographic states that they have had 2 IPOs and 8 exits. It is possible to filter portfolio companies to identify the companies that have exited. These are: Latent Logic, YASA, Base Genomics, DJS and Mirobio, with Barinthus and Pepgen having

exited through IPO. In addition, Oxford Semantic Technology was acquired by Samsung in July, 2024, but this does not yet appear on the OSE website, outside of an individual news story.

Oxford University Innovations provides a function on their website to filter portfolio companies to identify those that have listed, by the year in which they incorporated. Ten companies, formed between 2002 and 2014 are identified, and while the filter is for listed companies, this list of ten includes some that have been acquired. These are:

| Company name | Market or acquirer | Further observations |
|---|---|---|
| Nightstar Therapeutics | Biogen | |
| Intelligent Ultrasound (Medaphor) | | Proposed sale of clinical AI activities to GE Healthcare (2024) |
| AdaptImmune | NASDAQ | |
| Oxford Biodynamics | AIM | |
| Deepmatter (Cronin Group – OAS) | LSE | |
| Velocys | LSE | Delisted and returned to private ownership 2024 |
| Avacta | LSE | |
| Summit | NASDAQ | |
| Oxford Immunotec | Revitty | |
| Oxitec | Precigen | |

Table 8: OUI exits as identified through the filter on OUI's website

Drawing in data from other sources, there is a much larger pool of exits from within the region, including a number of companies that do not owe their founding or heritage to University of Oxford. The number of OUI portfolio companies that have exited is also much greater than the ten identified on the website.

| Company exits – all Oxfordshire companies – typically within the period 2013 – 2024, with the exception of OUI portfolio companies, where some earlier (pre-2013) exits are included | | | |
|---|---|---|---|
| **Company name** | **Market or acquirer** | **Location (acquirer or market)** | **Heritage (University spin-out/OSE etc)** |
| **Nightstar Therapeutics** | Biogen | US | OUI |
| **Intelligent Ultrasound (Medaphor)** | AIM | UK | OUI |
| **AdaptImmune** | NASDAQ | US | OUI |
| **Oxford Biodynamics** | AIM | UK | OUI |
| **Deepmatter (Cronin Group – OAS)** | LSE | UK | OUI |
| **Velocys** | LSE | UK – delisted in 2024 | OUI |
| **Avacta** | LSE | UK | OUI |
| **Summit** | NASDAQ | US | OUI |
| **Oxford Immunotec** | Revitty | US | OUI |
| **Oxitec** | Precigen | US | OUI |
| **Oxford Nanopore Technologies** | LSE | UK | OUI |
| **Immunocore** | NASDAQ | US | OUI |
| **Arcturis Data (previously known as Sensyne Health)** | LSE | UK – delisted in 2022 | |
| **Niox Group (previously known as Circassia)** | LSE | UK | |
| **GENinCode** | AIM | UK | |
| **Barinthus Biotherapeutics (formed from Vaccitech and Avidea Technologies Inc (US)** | NASDAQ | US | OUI and OSE |
| **Adaptix** | Avingtrans | UK | |
| **Argonaut Therapeutics** | IngenOx | UK | Merger with Celleron – another Oxford-based company OUI/OSE |
| **Blue Earth Diagnostics** | Bracco Imaging | Italy | |
| **DJS Antibodies** | AbbVie | US | OSE |
| **Discuva Ltd** | Summit | UK | |
| **Everest Biotech Ltd** | Absolute Biotech | US | |
| **MiroBio** | Gilead | US | OUI/OSE |
| **Oxford Cannabanoid Technologies** | LSE | UK – delisted in 2024 | |
| **Oxford Genetics (OXGENE)** | WuXi Advanced Therapies | US | |
| **Oxford VR** | BehaVR, Realised Care | UK | OUI |
| **PepGen** | NASDAQ | US | OUI/OSE |
| **Plasma App Ltd** | Meta Materials | Canada/US | |
| **Yasa Ltd** | Mercedes Benz | Germany | OUI/OSE |

| | | | |
|---|---|---|---|
| **Base Genomics** | Exact Sciences | US | OUI/OSE |
| **Carbon-Ion incorporating Oxcion** | Corporate Universe | US | |
| **Cerus Endovascular** | Stryker | US | |
| **Ducentis BioTherapeutics** | Arcutis Bio | US | |
| **Hutano Diagnostics Ltd** | EDX Medical | UK | |
| **Izana Biosciences** | Roivant | US | |
| **Oxsed** | DNA Fit/Prenetics | HK | OUI |
| **The Native Antigen Company** | LGC | UK | |
| **Data Interconnect Ltd** | Blackline | US | |
| **Green 4 Solutions Ltd** | Vesta Software Group | UK | |
| **Habitat Energy** | Quinbrook Infrastructure | US | |
| **Oxsensis Ltd** | WIKA | Germany | STFC spin-out |
| **Relayware Ltd** | Zift Solutions | US | |
| **WaveOptics** | Snap Inc | US | |
| **Zafire Group Ltd** | ValSoft | Canada | |
| **Colwiz Ltd** | Taylor & Francis Group | UK | |
| **DeepReason.ai Ltd** | Meltwater | US | OUI |
| **Immersive Interactive Ltd** | Echo Healthcare | US | |
| **Latent Logic Ltd** | Waymo (Google) | US | OUI/OSE |
| **LittleTextPeople Ltd** | Linden Labs | US | |
| **Ox Mountain** | Aurizon Holdings | Australia | |
| **Pixelz.ai** | Storyteq | Netherlands | |
| **Quorbit** | UKG | US | |
| **RealTime Health Ltd** | Allocate Software | UK | |
| **RedKiteCRM** | Infinity Group | UK | |
| **Speik** | Dubber | Australia | |
| **Storageos Ltd** | Akami Tech | US | |
| **Vision Factory/Dark Blue Labs** | Deep Mind (Google) | UK/US | |
| **Oxford Semantic Technologies** | Samsung | South Korea | OUI/OSE |
| **Oxford Gene Technology** | Sysmex | Japan | OUI |
| **Exscientia** | Nasdaq | US – acquired by Recursion | |
| **Saietta** | LSE | UK – ceased trading and assets acquired by EXEDY Clutch Europe (Japan) | |

Table 9: Company exits for Oxfordshire-based companies.

The list above contains 61 companies and due to poor, or lack of data, it is not possible to place a value on many of these exits. Although some may owe their background and heritage to University of Oxford, 24 are identifiable as University of Oxford spin-outs, as defined by the portfolio of companies listed on OUI's website, and nine are part of OSE's

portfolio.  Only one other spin-out – Oxensis, a spin-out from the Science and Technology Facilities Council (STFC) based on Harwell Campus – was identified, meaning that around half of the exits are non-University of Oxford related companies, the majority of which are technology companies.

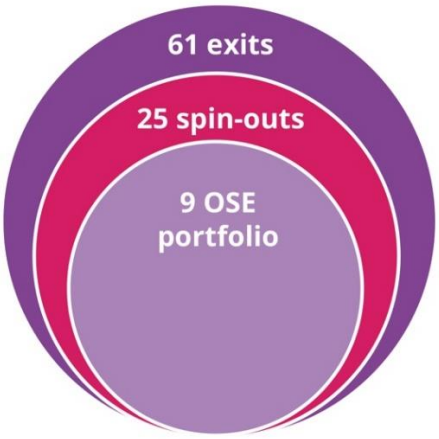



Figure 3: Exits with spin-outs and Oxford Science Enterprise portfolio companies shown

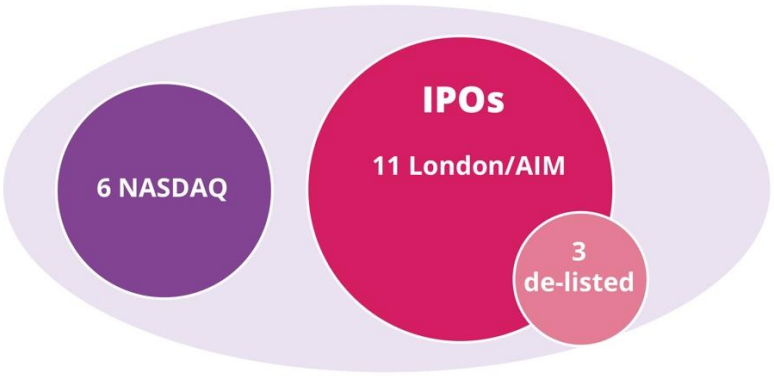



Figure 4: 17 IPOs are identified, of which 6 have been on NASDQ, 11 on London markets, and three of these London listed companies have de-listed.

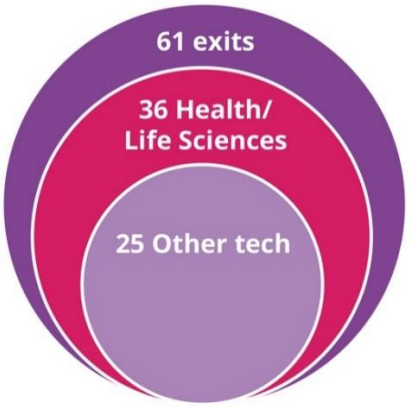



Figure 5: Sectoral share of exits

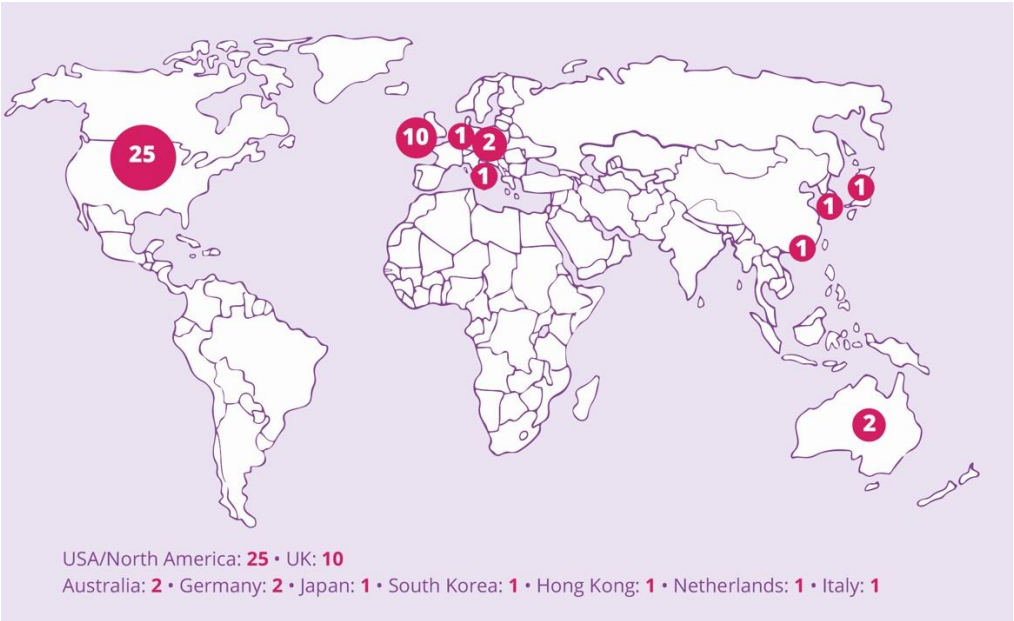



Figure 6: 44 companies have been acquired by other companies with headquarters around the world. The location of the company which acquired an Oxfordshire-based company is shown, with the number of companies acquired by country. Excludes Exscientia, which has been acquired by a US company following IPO and Saietta, which ceased trading on London Stock Exchange but whose assets were acquired by a Japanese company.

Whether a focus on exits encourages particular behaviours in companies and/or investors, communicating and celebrating exits is important, as this demonstrates a track record of return for investors, and it is stories of these successes that will encourage more investors to come to the region to look for deal flow. On the whole, despite these exits, the majority of companies have remained within the region to continue to scale and commercialise their research, so exit plays an important role in providing new capital to companies to support their growth. Better tracking of exits should also allow founders and angels to be identified more readily in order to encourage them to recycle their returns in support of new companies.

## Founders – one shot, or a serial activity?

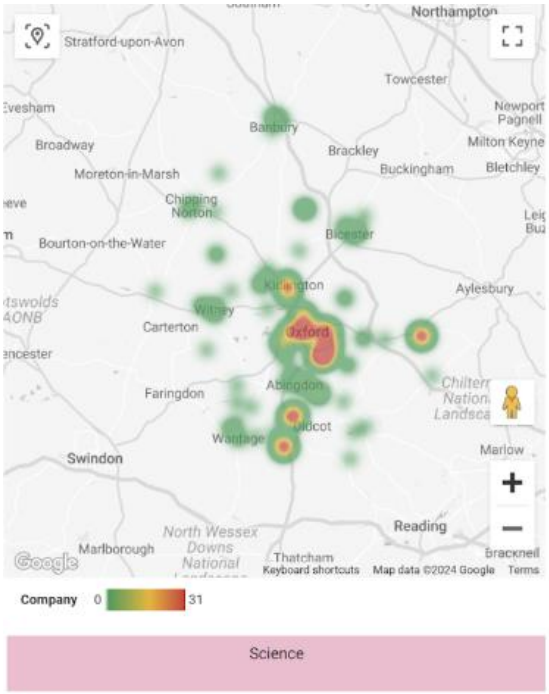
Only Crunchbase lists founders reliably, although even in Crunchbase, not all founders for all companies are listed. We attempted to look at serial founders – who are our serial entrepreneurs? Are we seeing recycling of talent, something that is considered to be key within a successful innovation ecosystem? The answer? - we can't really tell because the data is not reliable, but based on the data we have, it would appear that, no, we do not have a strong system of serial entrepreneurship. There appears to be a small group of individuals who can be identified as founders of at least two companies. Encouragingly, although the sample size is small, 38% of founders questioned for the qualitative data presented in chapter 4 of this paper identified themselves as serial entrepreneurs.

If the data does not help us to look at this question at the moment, it may well be useful to revisit this question in the future.

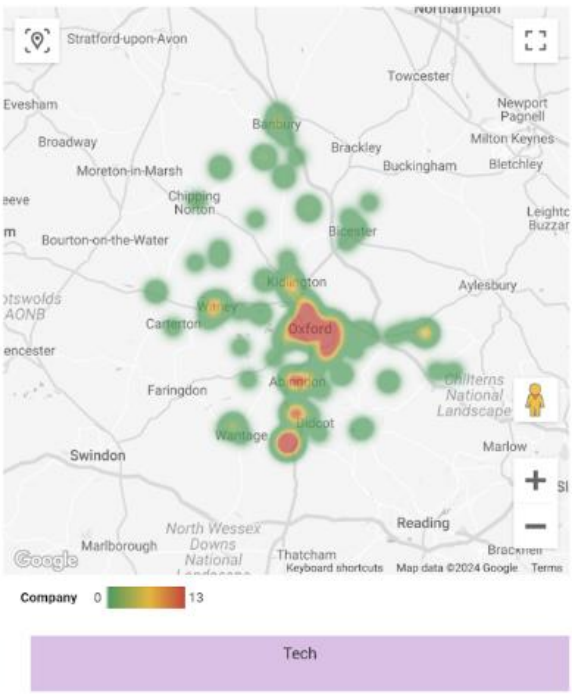
## Oxfordshire – a distributed ecosystem

Data collected and mapped for Oxfordshire's Innovation Engine, 2023, showed how the region's knowledge-based businesses are located across the whole of Oxfordshire as a county. As a result, Advanced Oxford has coined the term, 'a distributed ecosystem' for innovation-led businesses across the region. The data analysis undertaken for this chapter of the green paper enabled us to generate heat maps for locations of companies, which have been separated into science and technology groupings. These heatmaps show the distribution of companies throughout the region. It is interesting to observe slightly more clustering of science companies, and a slightly more disperse group of tech companies.

Heatmaps for companies that have attracted private capital investment in the decade to 2023 (inclusive) – locations in Oxfordshire. Companies split between 'science' and 'technology' using categorisation undertaken by Advanced Oxford




Science




Tech

# Chapter 2 – a closer look at university spin-outs

The quantitative data collected and presented in this paper indicates that there is a considerable advantage when securing investment if a company is a spin-out from the University of Oxford. This is enabled by access to support, guidance and relationships that can be accessed through the university, and through its Technology Transfer Office, Oxford University Innovation (OUI). As demonstrated within the examination of 'super-investors' many of these investors, such as Parkwalk Advisors, only invest in university generated IP and spin-outs. At the same time, it is Oxford's spin-outs that are perhaps the most visible manifestation of region's innovative industrial base, given their association with the university, and the communication power that they can command as a result. In this chapter of the paper, we look at University of Oxford spin-outs, and their investment journey, in more detail.

## Data and Sample

This deep dive into university spin-outs used data obtained from various sources, focusing entirely on University of Oxford spin-outs. While the region's other university, Oxford Brookes University, has good levels of commercialisation activity, University of Oxford has the highest total number of spin-outs of any UK university, as of January 2023, according to the Beauhurst Spotlight on UK academic Spin-outs report of May 2023[5].

Beauhurst describes an academic spinout as, "a company that has been created off the back of university research and IP and developed and commercialised by the institution's enterprise team. Oxford University Innovation's (OUI) definition of a spin out is a company based on academic research generated within and owned by the University of Oxford. These are the companies created by OUI in which the University was entitled to shares.

We restricted the analysis to a 10-year period from 2014-2023, in line with other data examined within this paper, but also because of poorer reliability of investment data prior to 2014. The total number of University of Oxford spin-outs during the period 2014 – 2023 was 161. Spin-out data for the whole of 2023 was not fully represented in portfolio data available on OUI's website at the time this analysis was undertaken[6].

As with other analysis within this report, investment data was drawn from various databases namely:

- Beauhurst
- Pitchbook

[5] Beauhurst, 2023. Spotlight on UK academic Spin-outs , London: Beauhurst

[6] Data sourced via OUI website

- mnAI
- Crunchbase
- Companies House
- Deal Room
- Company websites

Funding raised was tracked across the 161 companies with spin-out data obtained from Oxford University Innovation cross referenced to Oxford Science Enterprises portfolio data, among other sources. As noted in chapter 1 of this paper, a major challenge was that investment data was not consistent across different data platforms, at times complementary but mostly each contains different information. The approach therefore was to aggregate the data from different sources to create a more complete time series dataset or rely on the most complete dataset from these databases. As identified elsewhere in this report, the gap in available data is seen to be problematic, and potentially could hinder investment, as performing due diligence, sourcing deal flow, and any analysis for decision making will inevitably be skewed, based on the database used.

Out of the 161 companies examined, useable funding data could only be found for 104 of the spin-outs, predominantly through commercial databases, again re-emphasising the data gap that exists.

## University spin-outs landscape

According to the Spotlight on UK Academic Spin-outs report[7], there are around 1,718 spin-outs in the United Kingdom as of January 2023, tracked since 2011, of which 1,264 are in England. Oxford is the home of most spin-outs at 97 followed by Cambridge 57, South Cambridgeshire 67 and Camden (London) 57. It should be noted that this data is based on local authorities in which companies are registered and no data was available for other Oxfordshire local authorities in the report. This picture aligns with the independent review of University Spin-out Report 2023 by the Department for Science, Innovation and Technology[8] which highlights that 25% of the spin-outs are domiciled in the southeast of England.

It is interesting to note the difference between the spin-outs numbers reported from the University of Oxford and the 97 identified by Beauhurst as resident in the city. Inevitably some of the companies will appear in locations elsewhere, and spin-outs from other universities may now be located within the region. This research has not examined what lies behind decisions as to where companies locate but it would be interesting to examined whether there a link between where you are headquartered/operate and the ability to raise private capital,

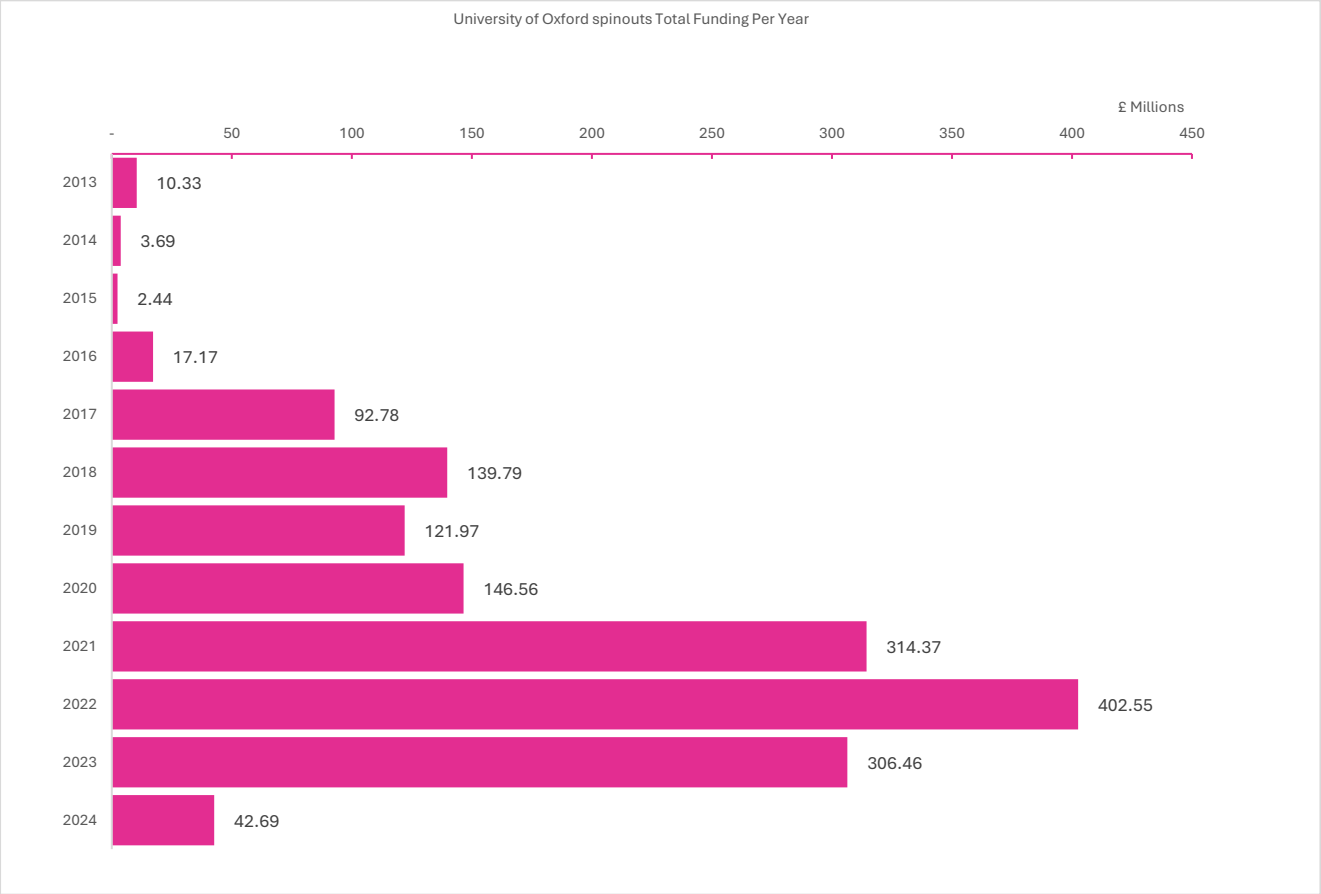
[7] Beauhurst, 2023. Spotlight on UK academic spin-outs, London: Beauhurst
[8] www.gov.uk/dsit Independent Review of University Spin-outs: Insights from a survey of spin-out founders

particularly as so much capital is located within London as the UK's, and indeed Europe's, leading financial centre.

University spin-outs in the UK have raised a total of £12.6 billion between 2013-2022 according Beauhurst[9]. This is lower than the amount raised by start ups in the UK during the same period, which has been calculated as £30.2 billion using average exchange rates for the same period.[10]

Looking at the 104 University of Oxford spin-outs where data could be found, they have collectively raised £1.6 billion between 2014-2023 (see figure 1 below).

Figure 1: University of Oxford spinouts total funding raised per year from 2013- 2024. (n=104)




Note: The chart shows the aggregate funding raised per year by University of Oxford spin-outs. Data compiled from the databases identified in the methodology section.

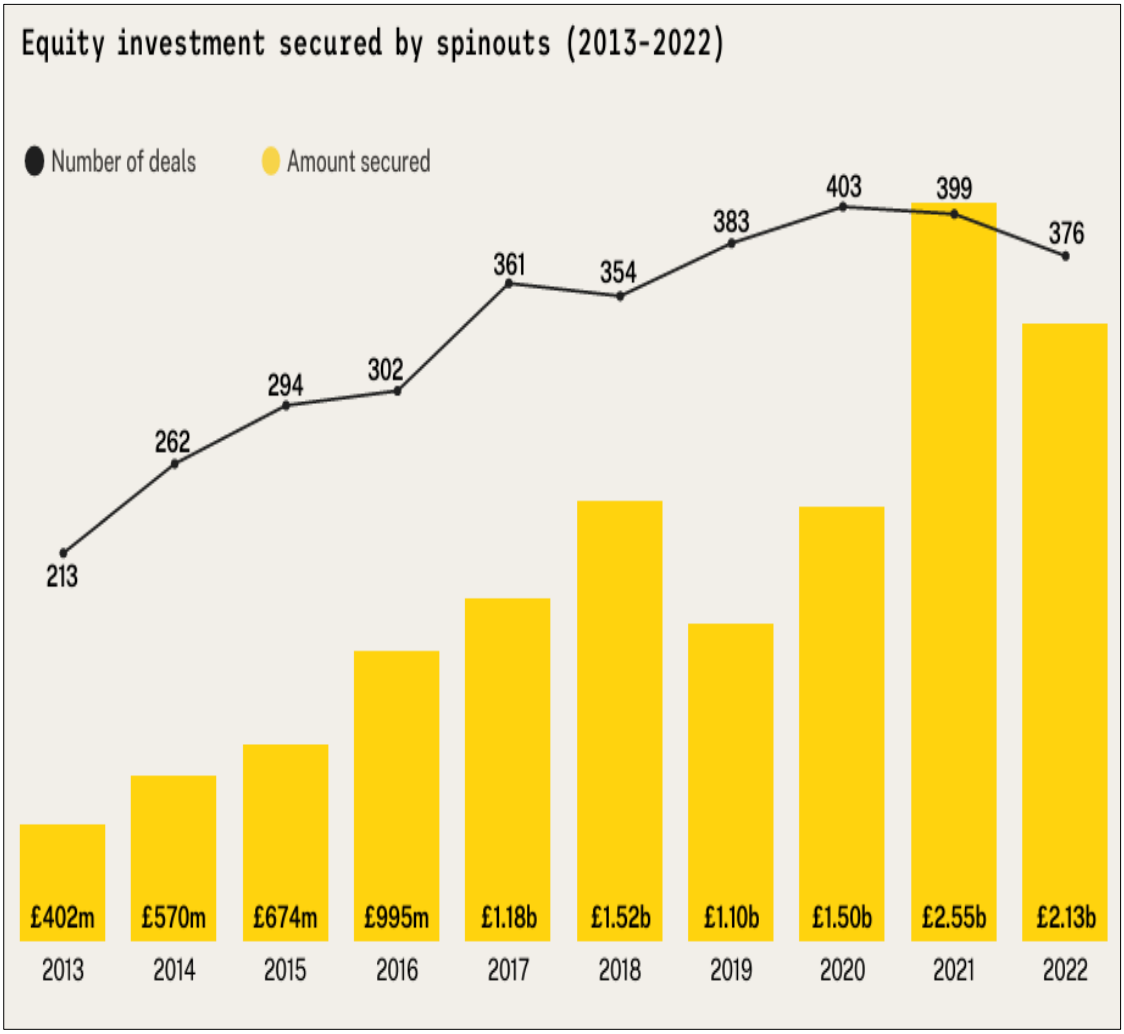
The University of Oxford data is in line with the pattern of funding raised by all UK spin-outs, shown in figure 2 below, with a progressive increase year on year from 2014, peaking in 2021/2 before a decline in 2023.

[9] Beauhurst, 2023. Spotlight on UK academic spin-outs, London: Beauhurst

[10] https://dealroom.co/guides/united-kingdom

The trend described above also mirrors the general private capital deal making in the UK during the period, shown in figure 3. (Data in figure 2 and 3 from Beauhurst[11] and Pitchbook[12] respectively.) The cooling down in 2023 might have been the effects of tech market corrections in 2022 and 2023, which saw a drop in valuations. Economic uncertainty, recession fears, global inflation and rising interest rates have contributed to a more cautious investment approach. This highlights the impact of macroeconomic factors on the ability to raise funding.

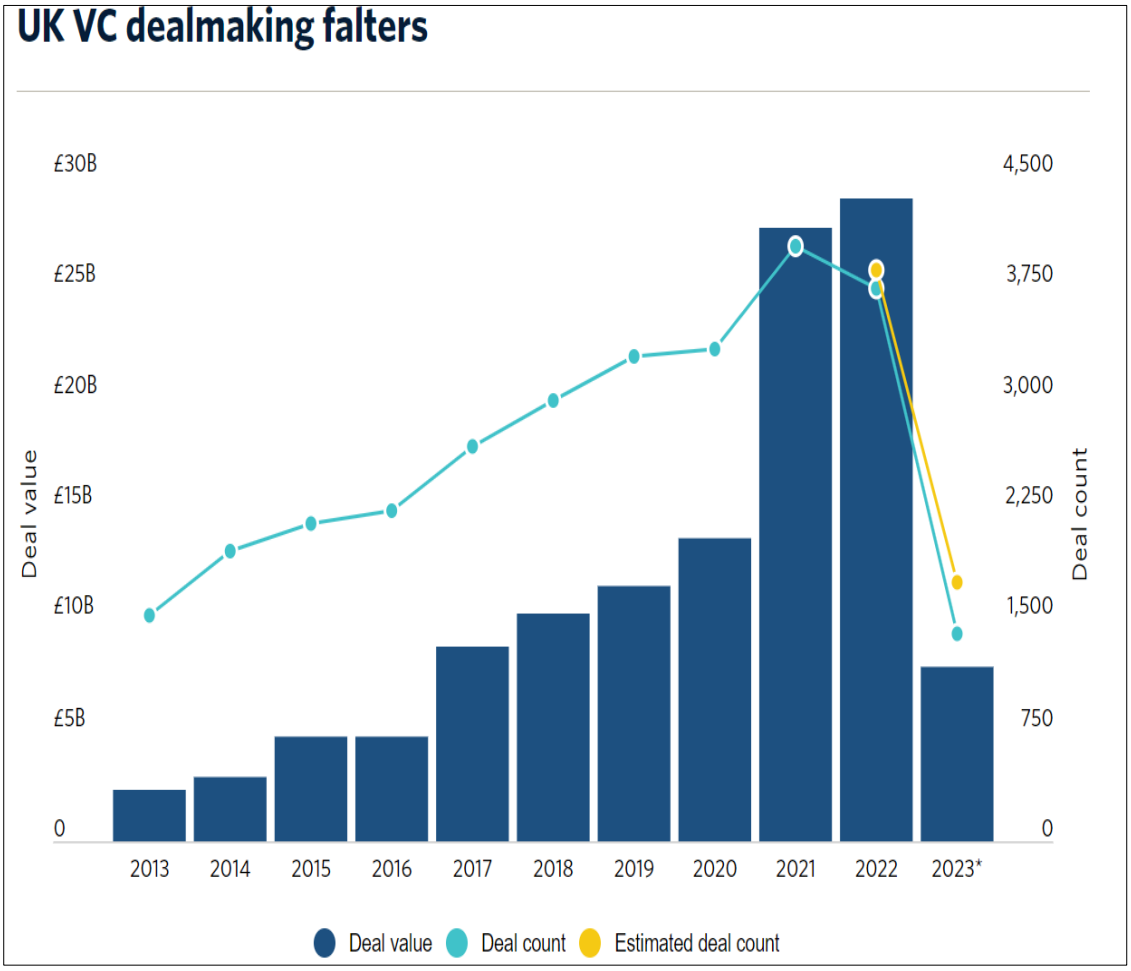
*Figure 2: Spin-Out Yearly Trend of equity Investments raised UK*




Source: Beauhurst 2023

[11] Beauhurst, 2023. Spotlight on UK academic spin-outs, London: Beauhurst
[12] UK Private Capital Breakdown, United Kingdom: Pitchbook 2023.

Figure 3: Venture Capital deals in the UK 2013-2023



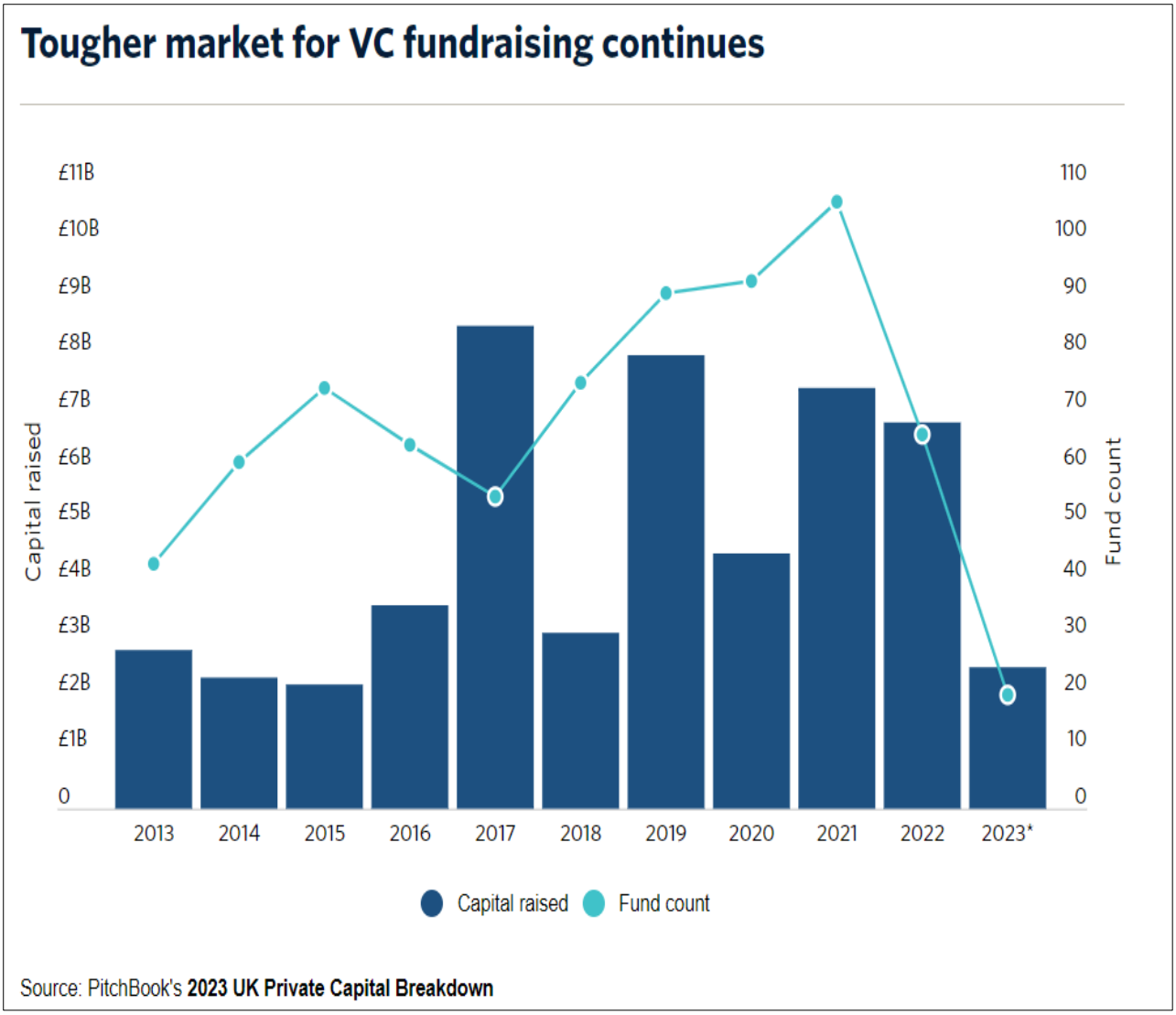

*Source: Pitchbook 2023*

2022 was the highest year on record for the level of private capital investment in the UK and also for equity raising by University of Oxford spin-outs. This being the first full year after the Covid pandemic, this might point towards pent-up capital that was not used during the pandemic, or pent-up demand.

The data on VC fund raising, highlighted in figure 4 below[13], suggests that VCs had money to invest around the time of the pandemic, although VC fundraising has faltered recently.

[13] PitchBook, 2023. UK Private Capital Breakdown, United Kingdom.

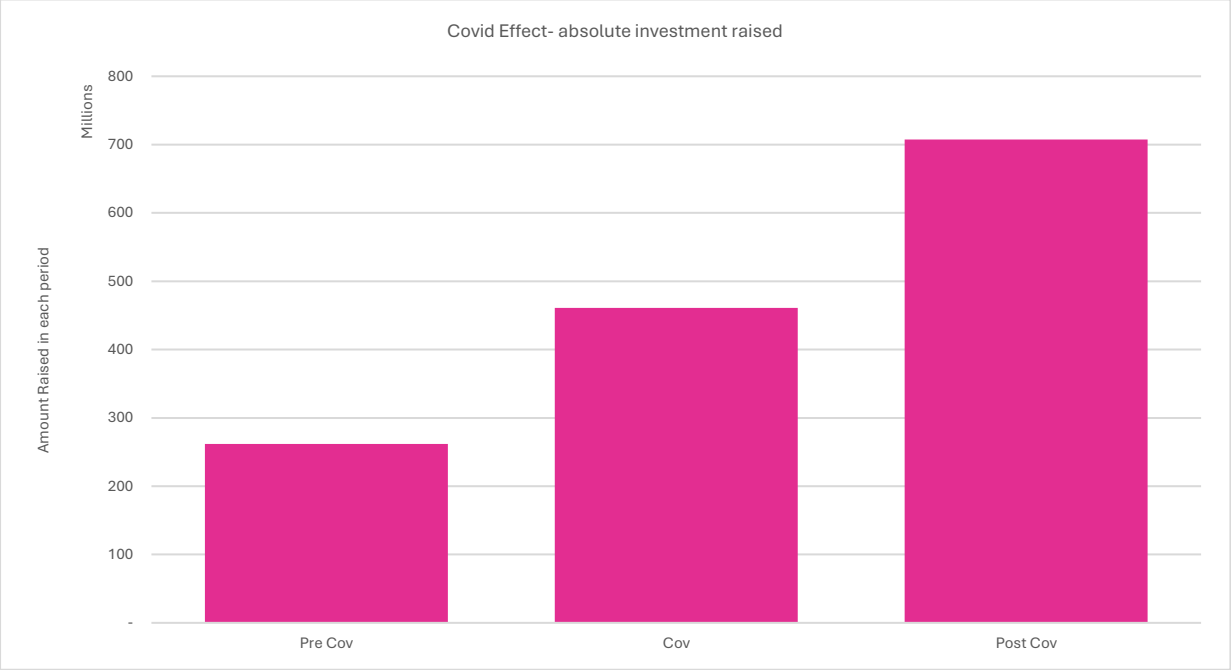
Figure 4: Venture Capital fundraising longitudinal analysis 2013-2024




## The impact of Covid on the fundraising activities of spin-out companies

An analysis of the aggregated annual funds raised by University of Oxford spins outs (n=104) highlighted in figure 1 above, was undertaken, dividing the data into three time periods: two years pre Covid (2018-2019), two years of Covid (2020-2021) and two years after Covid (2022-2023), with data presented in figures 5 and 6 below.

Figure 5: A 3-fold analysis of annual funds raised by University of Oxford spin-outs 2 years before, during and after Covid in £ millions




Source: Advanced Oxford Analysis

Figure 6: Growth rate analysis of annual funds raised by University of Oxford spin-outs, 2 years before, during and after Covid shown as percentage growth


Source: Advanced Oxford Analysis[14]

In terms of the total amount of funds raised by University of Oxford spin-outs, Covid does not seem to have had an impact on the absolute amount raised, as highlighted in figure 5. This appears to be supported by the funds available to venture capital for investment. VC fundraising slowed in 2020 but rebounded in 2021 (see figure 4). There is a direct relationship

[14] Data compiled from Pitchbook, Beauhurst, mnAI, Crunchbase, Companies House and Dealroom

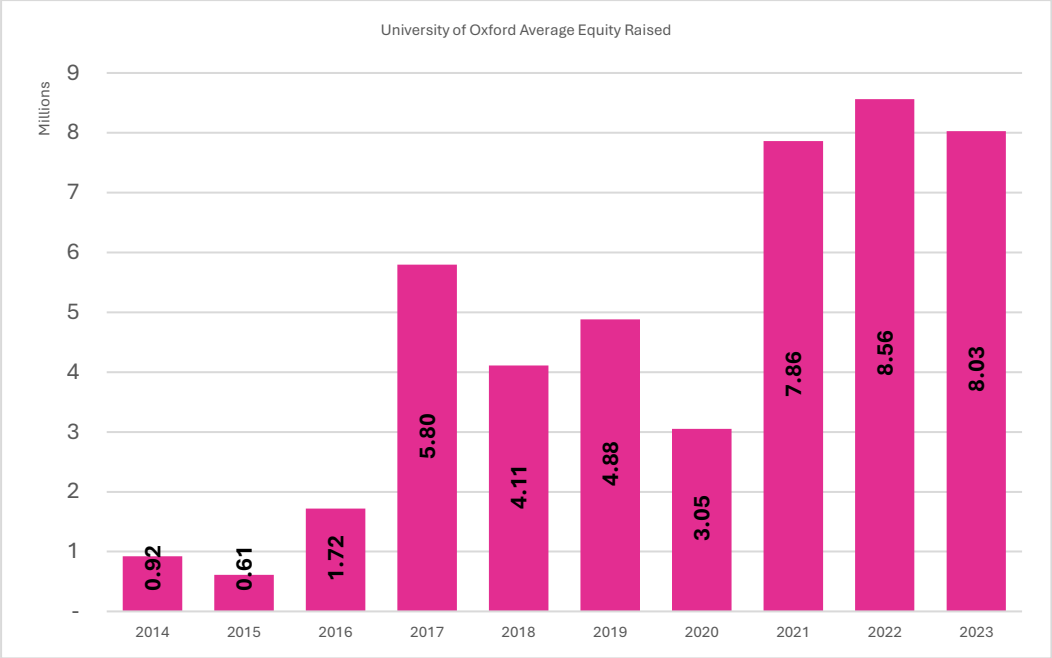
between funds raised by venture capital firms and funds accessible by spin-outs, and indeed any other company regardless of its heritage.

However, the main impact of Covid appears to be a slowdown in the growth rate of investment raised by University of Oxford spin-outs. The growth rate pre-Covid was 138%, in comparison to the period of 2016-2017. The 2-year growth rate dropped to 76% during Covid and further dropped to 54% in 2022/23. As noted in figure 4, this is likely to be due to a reduction in the funding available to VCs for investment, as well as the prevailing macroeconomic conditions.

## Increasing levels of investment are being secured by some university spin-outs

While there appears to have been a slowing of investment for all spin-outs in the last 2 years, it is useful to look at the average size of investment per spin-out per year. This might be affected by outliers but does provide an idea of the spread and size of funding being raised. Figure 7 below, based on data compiled for this report, shows that there has been a general increase in the amounts raised since 2020, which was low in relation to the previous 3 years, and this increase has been sustained in each of 2021, 2022 and 2023. This is the case both for University of Oxford spin-outs and for UK spin-outs in general, as analysed by Beauhurst[15]. For the ten-year period examined, there has been a 770% increase in average size of equity deals secured by University of Oxford spin-outs when comparing year 2023 with year 2014.

Figure 7: University of Oxford spin- outs average funds raised per year from 2014-2023 (n=104). Averaged by dividing the number of spin-outs in the year by the total value raised.

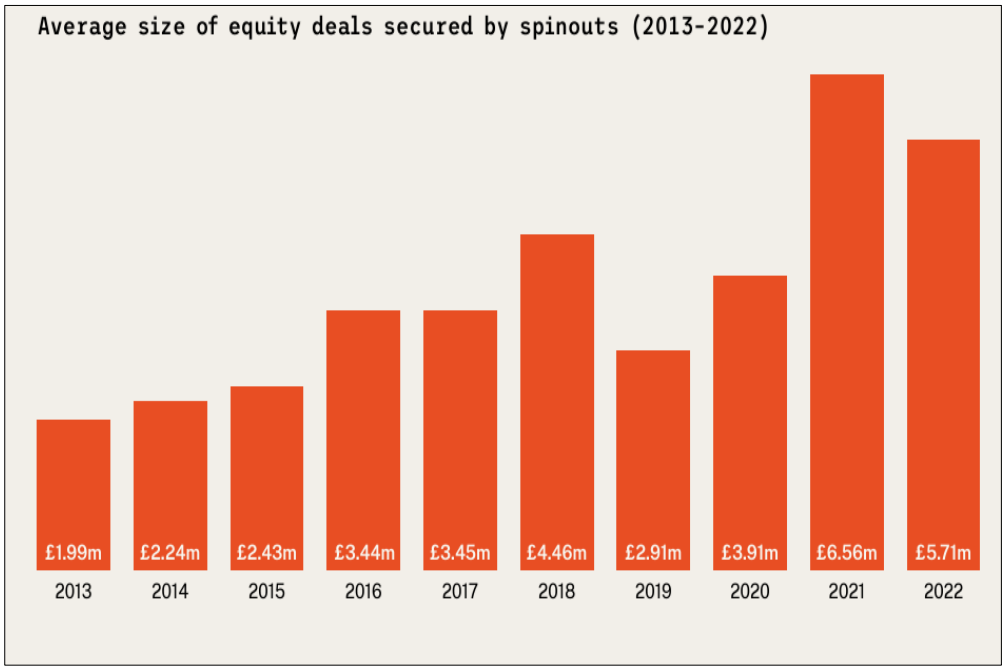



Source: Advanced Oxford Analysis[16]

[15] Beauhurst, 2023. Spotlight on UK academic spin-outs, London: Beauhurst

[16] Data compiled from Pitchbook, Beauhurst, mnAI, Crunchbase, Companies House and Dealroom

Figure 8: Average equity deals by spin-outs in UK from 2013-2022.




Source: Beauhurst 2023

There may be many reasons for this growth: increased deal size might mean increased confidence, with investors willing to put in higher amounts; it might point to higher valuations, particularly as the pool of spin-outs matures, with more scaling companies demanding higher levels of investment; or there may be fewer good companies to invest in and hence increased competition among investors.

However, this data may also point to a potential funding imbalance, where smaller or early-stage companies struggle to secure funding as investors focus on larger, more mature companies. Analysis of qualitative data undertaken by Advanced Oxford as part of this research would suggest that availability of early-stage capital/seed funding is still an area of weakness within the ecosystem and many companies struggle to secure their first private capital (see chapter 4). What is more, our analysis of angel investment, (see chapter 3), suggests that angels favour certain sectors/ verticals over others, further reinforcing the challenge for companies, particularly those that do not have heritage as University of Oxford supported spin-outs or start-ups. An analysis undertaken by Pitchbook (2023)[17] suggests that the level of angel and seed funding, as a share of all UK private capital, has stayed static and the proportion has not grown in the ten-year period to 2023. While there is variation in the proportion of private capital invested into companies year on year, on average, about 10% of funding falls into the angel/seed stage, as defined by Pitchbook[18]

[17] Pitchbook, 2023. UK Private Capital Breakdown, United Kingdom

[18] Angel is defined by Pitchbook as A high-net-worth individual who makes direct investments into early-stage companies. https://pitchbook.com/blog/private-equity-and-venture-capital-glossary

The jump in average investment round size from 2016 to 2017, and the upward trend, may also show the effect of capital available to some University of Oxford spin-outs from the establishment of Oxford Science Enterprises (OSE) (previously know as Oxford Science Innovation) in 2015. With large amounts of capital to deploy, and an intention to be patient with capital, it may not be surprising that we see increasing levels of investment into University of Oxford spin-outs.

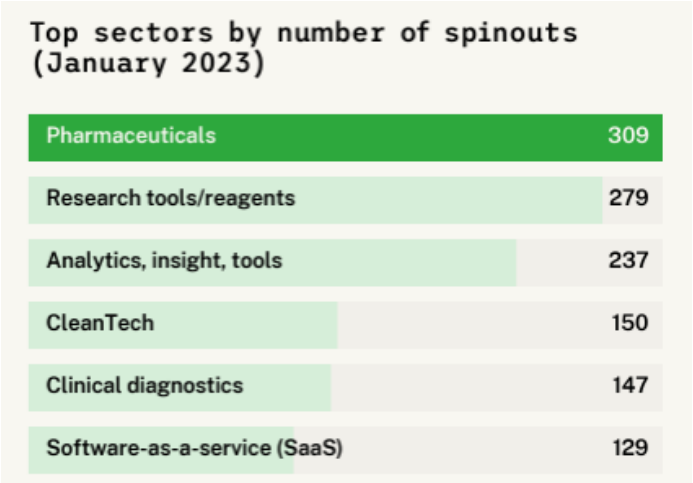
## Sectors fare differently when raising investment

A deeper understanding of where money found a home can be found by looking at funding into different science and technology verticals/sectors.

Figure 9: University of Oxford spin-out sectoral analysis of % funds raised by each sector from 2013-2024 (n=104)


Source: Advanced Oxford analysis. NB – OUI provides sector descriptions for spin-out companies. The data above is based on these sector definitions but does not use the same groupings or terminology. (Purple=biotechnology/pharma; pink=renewable energy; light blue=IT; darker blue = manufacturing).

Figure 10: UK sectors with the largest number of spin-outs from 2013-2013. Source: Beauhurst




Our analysis, (figure 9), highlights that the biotechnology/ pharma sector, throughout the sample period, takes the greatest share of the funds raised, followed by information technology, based on the University of Oxford spin-outs that have been tracked in this analysis (n=104). This is not surprising as it reflects the fact that the majority of spin-outs, not only in Oxfordshire, but the UK as a whole, are from these two sectors as highlighted in figure 10[19]. The dominant sectors based on number of spin-outs are Pharma (309), research tools/reagents (279), AI (156), clinical diagnostic (147) and medical devices (127). These numbers represent up to 60% of all the spin-outs in the country.[20]

Figure 11: Sectoral analysis of University of Oxford spin-out companies by year from 2013-2023 (n=104).

| Spin out Year | Manufacturing | Renewable Energy | Biotechnology | Information Technology | Grand Total |
|---|---|---|---|---|---|
| 2013 | | | 3 | | 3 |
| 2014 | 2 | | 3 | 2 | 7 |
| 2015 | 2 | 2 | 4 | 1 | 9 |
| 2016 | | | 12 | 4 | 16 |
| 2017 | 3 | | 9 | 5 | 17 |
| 2018 | 2 | 1 | 8 | 4 | 15 |
| 2019 | 1 | | 5 | 4 | 10 |
| 2020 | 1 | | 5 | 3 | 9 |
| 2021 | 1 | | 7 | 4 | 12 |
| 2022 | 1 | | 1 | 2 | 4 |
| 2023 | | | 2 | | 2 |
| **Grand Total** | **13** | **3** | **59** | **29** | **104** |

Source: Advanced Oxford Analysis. NB Taking the period 2013 – end of 2023 (inclusive), where OUI reports around 160 spin-out companies, 57 companies were in the therapeutics and biotechnology category; 10 were medtech. If all technologies applied to life sciences and health are grouped together, 42% of the official spin-outs fall within this group.

[19] Beauhurst, 2023. Spotlight on UK academic spin-outs, London: Beauhurst

[20] Beauhurst, 2023. Spotlight on UK academic spin-outs, London: Beauhurst.

Despite the strength in life sciences, when looking at the sector distribution of fund raising for University of Oxford spin outs (n=104) in the figures below, split across the three time periods relating to Covid, it appears that information technology related companies are increasingly attractive to investors (shown in darker blue on the charts below).

Figure 12: University of Oxford spin-outs distribution of funds raised per sector pre Covid (2018-2019) (n=104)

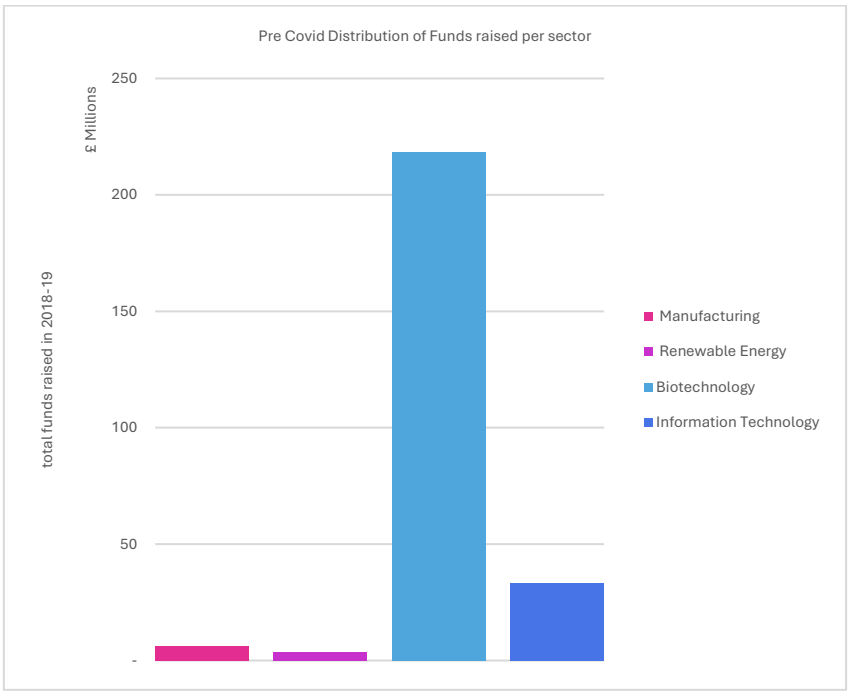



Figure 13: University of Oxford spin-outs distribution of funds raised per sector during Covid (2020-2021) (n=104)

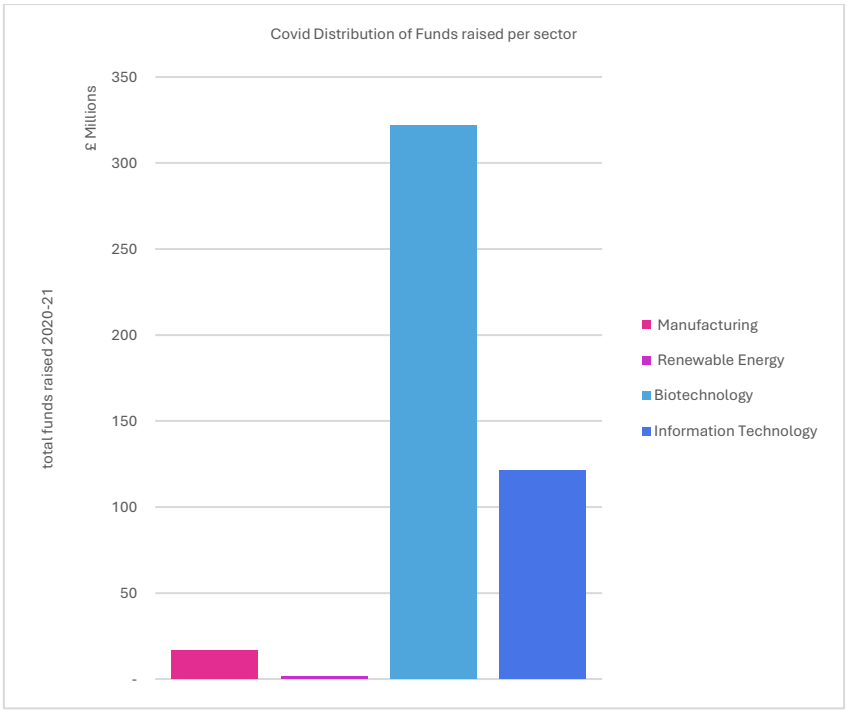
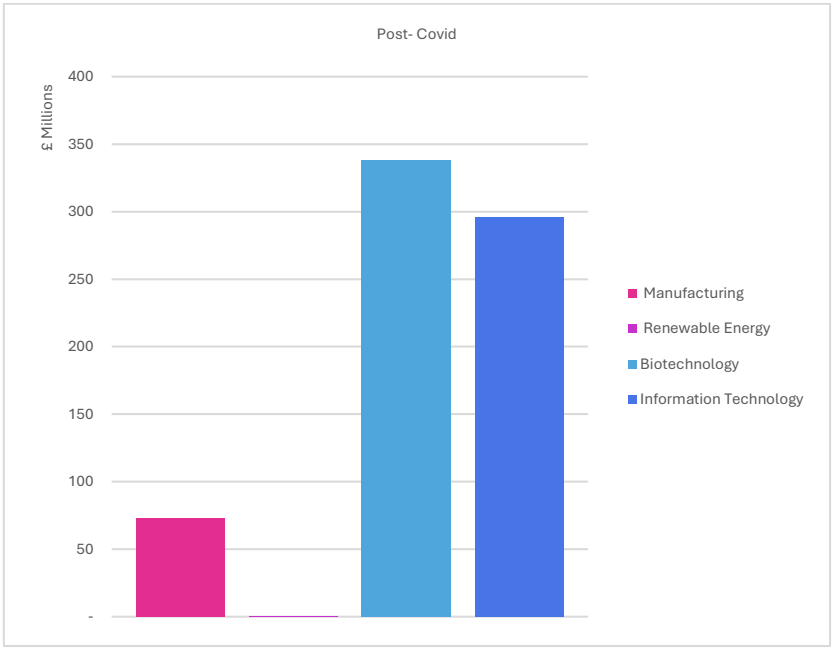


Figure 14: University of Oxford spin-outs distribution of funds raised per sector post Covid (2022-2024) (n=104)



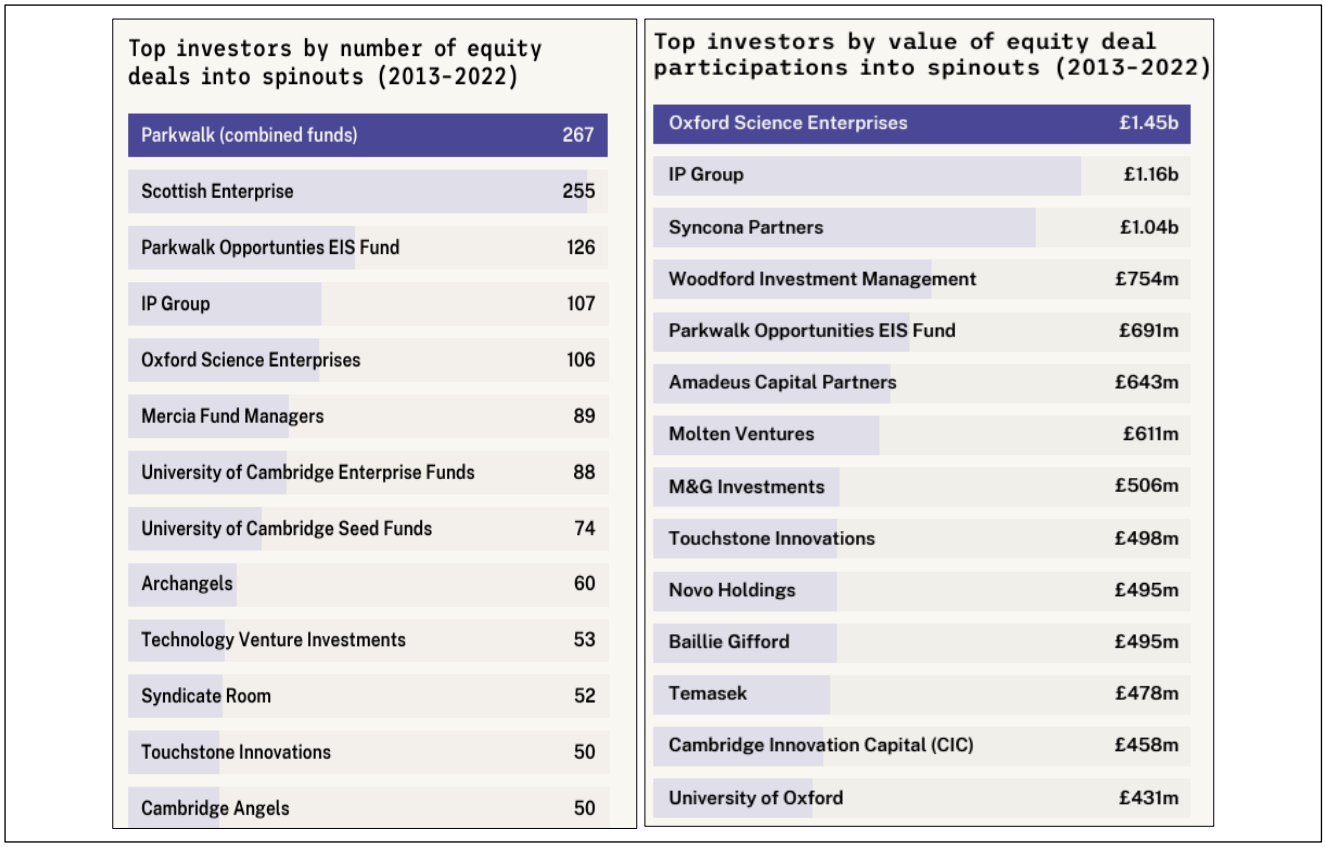

Source: Advanced Oxford analysis

It is particularly interesting to note the jump in investment into the information technology sector post-Covid. While it is not possible to determine why this is the case, notwithstanding the fact that there is now a pool of spin-outs within this sector for investors to consider, prevailing economic conditions in the post-Covid period have been challenging, and the shorter development times and lower risk associated with IT related companies may be a factor in the growth of investment. It is interesting to note that funding into the manufacturing sector also increased post Covid.

## Sources of Funding

In light of the findings relating to the growth of average investment per company, it is important to consider the main source of funding for university spin-outs. There were a total of 157 unique investors during the sample period, which contrasts starkly with the very large pool of investors (>3.6k across all companies) that are considered in chapter 1 of this paper. As noted in chapter 1, some of these investors are also connected to each other, e.g. Parkwalk Advisors and IP Group. Innovate UK is also an important source of funding for spin-outs and during the period, 47 projects were supported across the 104 companies within the group being examined.

Figure 15: Top Investors in UK university Spin-outs from 2013-2022 by deal and value.




Source: Beauhurst 2023[21]

Due to the increase in average deal size seen over time, it is perhaps not suprising to find the bigger equity funds topping the list of investors into UK spin-outs (figure 15).

It is interesting to see that the lists of investors, across the UK, whether they be ranked by number of deals or total investment made, are strongly associated with specific geographies, and certain institutions (e.g. Universities of Cambridge and Oxford). This suggests that money follows good science but it is also challenging from a levelling up perspective and it will be interesting to see if larger, university-affiliated funds, such as Northern Gritstone, start to draw funds into spin-outs in other geographies. Turning to the University of Oxford spin-out investors (figure 15) it is clear that investors with an association and/or affiliation with University of Oxford are supporting their own companies and there is a strong geographical presence of local investors in the top investors list.

Two angel networks, Archangels and Cambridge Angels, appear in the top 15 investors into all UK university spin-outs, by number of deals, but unsurprisingly, given the role angels play in seed/early stage capital, not by total equity invested. It is interesting to note that Oxfordshire's most active angel network – OION – does not appear in this list, despite it having been identified by Beauhurst as the UK's mosts active angel network (see chapter 3 on angel investment for further details). This is almost certainly because OION is investing into a wide

[21] Beauhurst, 2023. Spotlight on UK academic spin-outs , London: Beauhurst.

range of companies, with diverse heritage, and does not focus on university spin-outs. Further data relating to angel investing and OION's investment activity can be found in chapter 3.

According to Beauhurst,[22] angel networks have participated in 352 funding rounds for spin-outs, which is 10.5% of all spinout deals by number, during the sample period, data further supported by the Pitchbook Private Capital Breakdown report 2023[23]. It would appear that this gap in angel funding for spin-outs has, at least for the Universities of Oxford and Cambridge, been covered by Oxford Science Enterprises with 63 early seed deals and University of Cambridge Enterprise fund with 49 deals.

## Survival rates for University spin-outs

Is there a link between raising seed funding and survival rates of University of Oxford spin-outs? This is important as it may signal how important a role seed capital plays in the life cycle of a university spin-out. We approached this by looking at the companies spun-out each year from 2014- 2024 (see figure 11) from the University of Oxford, making the assumption that any funding raised in that year is seed or early stage funding. We looked at the average funding received each spin-out year and tracked whether the companies are still operational as of the time of the study (figure 17).

*Figure 16: Total dissolved University of Oxford Spin-outs per year per sector, based on the year the company span-out, rather than the year they dissolved.* Source: Advanced Oxford analysis

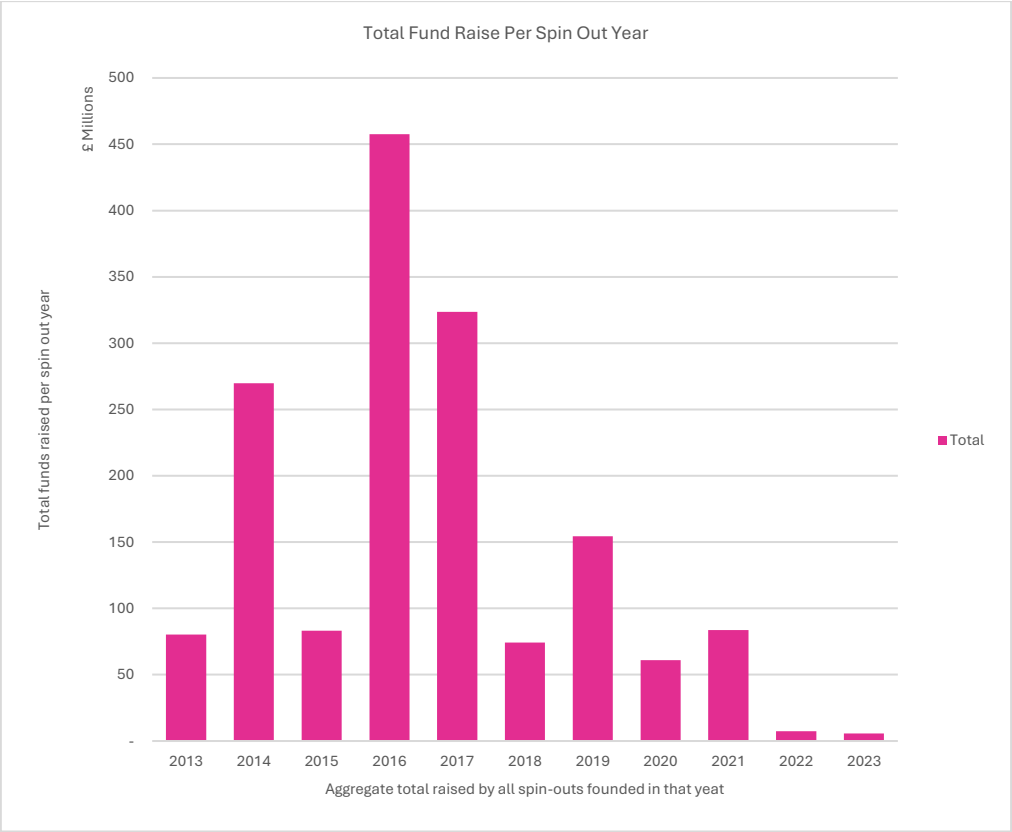
| Year | Manufacturing | Renewable Energy | Biotechnology | IT | Total | % of Annual Spin-Outs |
|---|---|---|---|---|---|---|
| **2014** | 1 | | | | 1 | 14% |
| **2015** | | 1 | | | 1 | 11% |
| **2016** | | | 1 | 1 | 2 | 13% |
| **2017** | | | | 1 | 1 | 6% |
| **2018** | | | 2 | 3 | 5 | 33% |
| **2019** | | | 1 | | 1 | 10% |
| **2021** | | | 1 | | 1 | 8% |
| **Grand Total** | 1 | 1 | 5 | 5 | 12 | |

2018, in particular, stands out - of the 15 University of Oxford spin-outs from 2018, (see figure 11), 33% are now dissolved, where the average is 10% in other years (figure 16). 2017 had the same number of spin-outs, but only one company has dissolved. Why might 2018 be so unusual?

[22] Beauhurst, 2023. Spotlight on UK academic spinouts , London: Beauhurst.
[23] PitchBook, 2023. UK Private Capital Breakdown, United Kingdom

Looking at the absolute value of investment raised by spin-outs, it seems that 2018 performed fairly well, and certainly in line with 2020/21/22 (figure 17, shown below). However, data shown in figure 18, identifies the average investment per company, taking into account the number of spin-outs per year. 2018 spin-outs raised the least amount of money on average and this might explain why the spin-outs in this year have the highest death rates. What is more, there are sector differences, which will affect the amount of investment needed by companies to get going. 59% of the companies created in 2018 were in life sciences, although other years also saw large numbers of companies formed within this sector (2015, 42% (n=15); 2016, 70%, (n=39); 2017, 56% (n=22). While the average investment into 2018 companies was the lowest in the ten-year period examined (to 2023), average investments into companies for years 2016 and 2017 were significantly higher (figure 18).

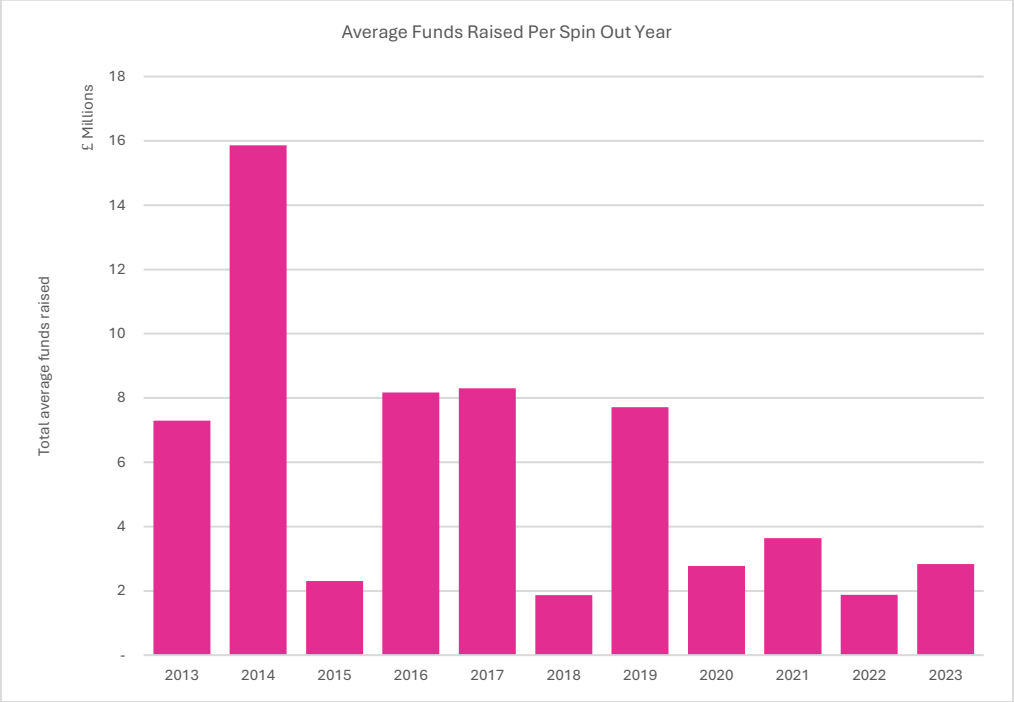
Figure 17: Aggregate total funds raised per University of Oxford Spin-out by year company was founded from 2013-2023 (n=104) e.g. company founded in 2013 raises 10m in 2013, 20m in 2014 and 5m in 2018 therefore total funds raised = 35m.




Source: Advanced Oxford analysis[24]

[24] Data compiled from Oxford University Innovation, Oxford Science Enterprises, Pitchbook, Beauhurst, mnAI, CrunchBase, Companies House and Dealroom.

Figure 18: Average funds raised per University of Oxford spin-out, by year company was founded, from 2013-2023 (n=104)




Source: Advanced Oxford analysis

The data suggests that there may be a relationship between the amount of investment and survival. Given the average size of investment into companies formed in 2022, it will be interesting to see if this year is similarly affected. However, the number of spin-outs in 2022 was low (n=6) and only one of these was a biotechnology company.

## Reflections

Data presented within this chapter clearly demonstrates significant growth in the flow of equity capital into the university spin-out ecosystem over the sample period. In the UK, this flow peaked at £2.55 billion in 2021, accounting for 9% of total deal-making by venture capital (VC) firms and an impressive 33% of all early-stage VC investments[25]. This trend underscores the growing recognition of university spin-outs as sources of innovation and commercialisation. However, while this paper is focused on the development of the Oxfordshire investment ecosystem, the concentration of this capital flow in specific regions, such as Oxford and Cambridge, raises questions about the broader distribution of funding and the potential for growth across other regions.

Despite the substantial growth in the overall volume of funds, a closer examination reveals a slowing growth rate in equity flows into university spin-outs. From a high of 138% growth pre-pandemic, the rate has now fallen to 54% over a two-year period. This could indicate a shift in investor focus, where spin-outs emerging from industries outside favored sectors—such as

[25] https://dealroom.co/guides/united-kingdom

life sciences—may be struggling to attract investment. This skewed distribution may highlight a potential imbalance in funding for spin-outs in other sectors.

Another significant trend observed in the Oxfordshire region is the increase in average deal sizes, which could suggest growing investor confidence in the quality of university spin-outs. While this is a positive sign, it also points to a potential funding gap at the seed and early-stage levels, where smaller ticket sizes are needed to support the next generation of spin-outs. This imbalance could hinder the ability of newer companies to secure the capital needed to prove their concepts and scale.

The data also underscores the importance of diversified funding sources. Although the flow of equity funding is growing, it remains heavily reliant on local private equity and regionally focused investors. Venture capital firms dominate the funding landscape, but many of them have high minimum ticket sizes, further exacerbating the imbalance in seed and early-stage funding. This pattern is mirrored in Oxfordshire, where most of the capital is sourced from venture capital investors and university affiliated investors. The lack of diversity in investor profiles and stages of investment raises concerns about whether there is sufficient capital available to support university spin-outs across their entire lifecycle, particularly in the early stages.

Risk capital is crucial to the survival and growth of spinouts, as evidenced by the higher survival rates among companies that have secured early-stage funding. To maintain the momentum of innovation and growth, it is imperative to expand the pool of early-stage funding.  We need to create a more balanced investor ecosystem. In doing so, the UK can foster a more diverse and resilient innovation ecosystem, ensuring that university spin-outs across all regions and sectors have access to the capital they need to grow and thrive.

An additional, yet crucial, finding of the study is the notable absence of structured data sources. Data is fundamental to the investment decision-making process, as it directly influences the ability to attract capital. Investors rely on robust, transparent, and accessible data to assess the viability, risk, and potential return of investment opportunities, particularly in complex sectors like university spin-outs.

Moreover, data availability plays a vital role in effective policy formulation. Policymakers need access to reliable data to assess funding landscapes, identify gaps, and craft targeted policies that foster innovation and growth. In the absence of reliable data, the ability to design interventions that address funding imbalances or support emerging sectors is significantly weakened. Clear, organised, and publicly accessible data sets would not only help investors but also allow government bodies and other stakeholders to create policies that effectively support the development of a vibrant and diverse innovation ecosystem.

## A note on sector policies

UK Government policies have significantly bolstered the life sciences sector, making it one of the best supported and rapidly growing sectors in the country. This contrasts with other sectors that, while still receiving government support, do not benefit from the same level of targeted funding and incentives. The combination of government support, funding, and tax incentives has created a favorable environment for university spin-outs in the pharmaceutical and biotech sectors.

The life sciences sector, in the tax year 2021-2022, had significant R&D tax credit claims £1.5 billion, but not as high as manufacturing (£3.8 billion) or professional services[26], However, for the same period 2021/22 life sciences dominates Patent Box claims at £1.1 billion[27], suggesting that a significant portion of R&D activities lead to patentable innovations like new drugs or medical technologies. This is much higher than in other sectors, indicating the high commercial value of innovation in pharmaceuticals as well as reflecting the highly patent-driven nature of this sector.

Higher patent claims signal that a country is not only investing in research and development but also converting that R&D into tangible, commercially viable innovations. This drives economic growth by generating revenue, attracting investment, creating high-value jobs, and positioning the country as a leader in global innovation. While R&D claims show a commitment to innovation, patent claims demonstrate the economic realisation of that innovation[28].

The Government has published a green paper on a new industrial strategy for the UK. Government will consult on the strategy. The green paper, Invest 2035: The UK's Modern Industrial Strategy can be found here: www.gov.uk/government/consultations/invest-2035-the-UKs-modern-industrial-strategy

[26] https://www.gov.uk/government/statistics/corporate-tax-research-and-development-tax-credit
[27] https://www.gov.uk/government/statistics/patent-box-statistics
[28] OECD (2004), "Patents and Innovation: Trends and Policy Challenges.", WIPO (2020), "World Intellectual Property Report 2020: The Role of Intellectual Property in Technology Markets."

# Chapter 3 - Angel investment

## Introduction

Oxfordshire's Innovation Engine 2023 (OIE) looked at changes in the equity/investment landscape in Oxfordshire over the last decade. Some significant developments were noted, including within the region's angel investment networks. This was seen as being of great importance given the valuable role that angels can play in getting companies started, not only through the investment that they make, often at the earliest stages of a company's development, but also in the guidance, support and expertise that angels provide to businesses. Angels investment is also considered to be a source of private capital which respects founders and can be an attractive route for companies that want to preserve founder equity at the beginning of their journey.

Oxfordshire is fortunate to have an active and vibrant angel community. Equally, Oxfordshire, through its universities, facilities and innovation assets, in the form of places such as the Harwell and Culham campuses, is a uniquely productive region of innovation, science-rich start-ups and commercialisation. To serve this economically vibrant eco-system, provision of early-stage finance, of the kind that is often provided and led by angel investors, is needed. In this chapter of our paper, we recognise the need to support and further expand the angel community in order to serve the economic potential of Oxfordshire and its role in supporting UK national economic growth.

When interviewed for the Oxfordshire Innovation Engine report in 2023, Jens Tholstrup, Executive Chair of Oxford Innovation Finance, and a member of the Advisory Group for the project behind this report, noted that all angel networks need heavy-hitters – angels who can make and lead substantial early-stage investment into companies and help support their development. Although Oxford Innovation Finance possesses a large and active pool of angel investors, it would greatly benefit from growth in the number of 'heavy hitter/lead investor' individuals, particularly those that have successfully exited other science and tech businesses.

In this section of our green paper, we consider angel investment and how the region might encourage the growth, diversification, identification of lead angels, and grow the pool of early-stage money available to entrepreneurs.

## Summary of key issues

Angel investors are often the only source of external funding for start-ups and early-stage businesses. In addition to financial investment, angel investors can play a pivotal role in supporting the development, commercialisation and growth of early-stage businesses and

therefore play a vital role in underpinning a successful ecosystem that brings innovation to the market and economic growth to the area in which those businesses are located.

Oxfordshire is home to a vibrant and supportive angel community and in OION has the longest standing and most active angel network in the UK. Despite this, more needs to be done to expand the size and depth of the angel community including, importantly, to increase the diversity of the angel community and especially to attract more female investors and a wider age range.

There is an urgent need for successfully exited entrepreneurs and businesses to recycle capital into Oxfordshire's early-stage businesses, bringing not only much needed investment, but also their expertise and support. What is more, this recycling activity needs to be extended into retention of talent and greater levels of serial entrepreneurship within the region.

While government support has rightly sought to address regional inequalities, it is striking that there is no government support to angel activity and communities within the region. There is an opportunity to accelerate economic activity and growth within the region and a clear need to develop and grow angel investment. As a consequence, the British Business Bank should include Oxfordshire within regional support programmes and develop co-investment mechanisms that could sit alongside existing angel activities.

Resource should be allocated to recruiting, training and supporting potential angel investors. This should also include trialling alternative ways to engage and cultivate a cadre of lead angels and super-angels within the region.

A thriving ecosystem needs the support of all players, including County and District Councils, given their responsibility for business support across the region. To date, local government has not been engaged in the development of the investment ecosystem.

## Setting the scene – angel investment within the UK

Risk capital comes in different forms and from different sources. The source is typically related to the stage of a company's development, their pathway to commercialisation and this is very sector dependent. According to the UK Private Capital Breakdown Report 2023[29], the early VC and late VC stages appear to invest most of the funding needed by companies, (figure 1) as a percentage of the total amount of investment raised per annum.

[29] Pitchbook, 2023. UK Private Capital Breakdown, United Kingdom: Pitchbook.

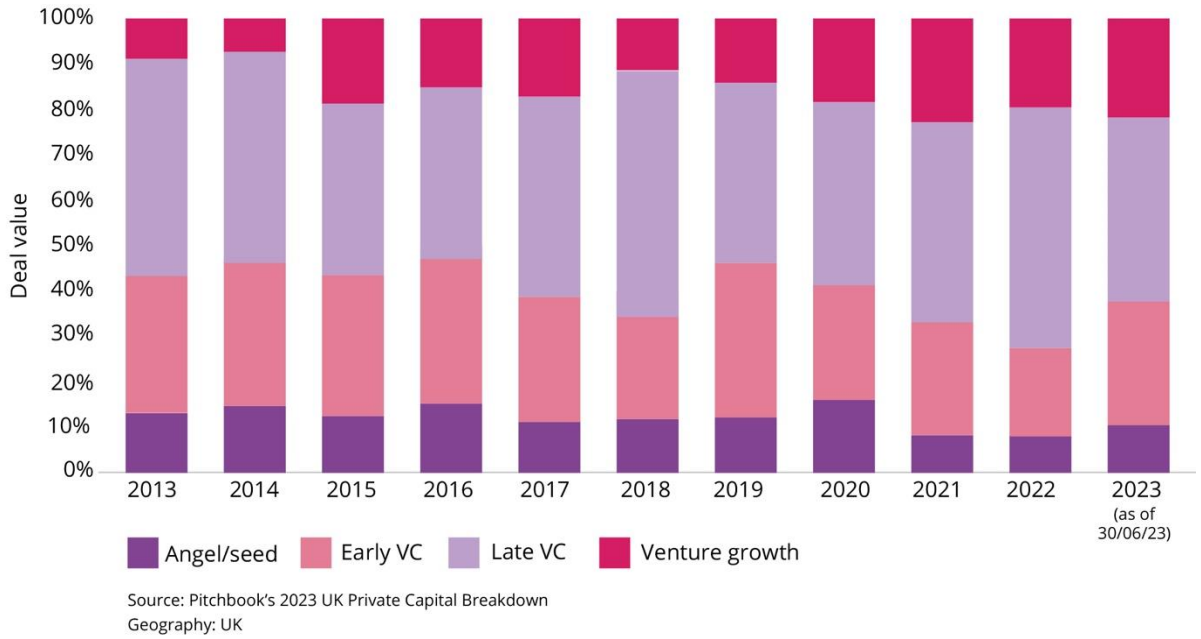



Figure 15: Deal value per stage of business growth as a percentage share by different types of investment (2013-2023), Source: Pitchbook 2023 UK Private Capital Breakdown. 2023 data to 30/6/2023.

Other data from Pitchbook (2023)[30] suggests that the level of angel and seed funding, as a share of all UK private capital, has stayed static and the proportion has not grown in the ten-year period to 2023. While there is variation in the proportion of private capital invested into companies year on year, on average, about 10% of funding falls into the angel/seed category, as defined by Pitchbook[31]. Note, as terms are used interchangeably at times, some definitions are provided at the end of this chapter.

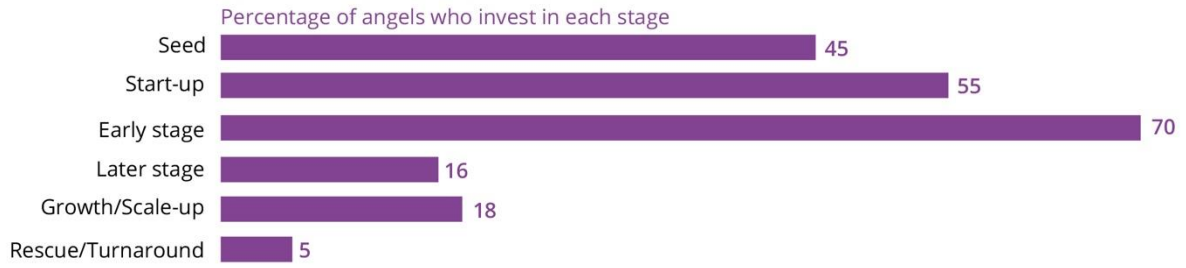



Figure 16: Stage of growth preferred by Angel Investors shown by % of angels investing at each stage, based on 2019 survey data. Source: UKBAA 2020 The UK busines market report

Angel investors provide valuable, and much-needed capital to start-ups at their earliest stages, often when they have not yet generated significant revenue or reached profitability. This

[30] Pitchbook, 2023. UK Private Capital Breakdown, United Kingdom
[31] Angel is defined by Pitchbook as A high-net-worth individual who makes direct investments into early-stage companies. https://pitchbook.com/blog/private-equity-and-venture-capital-glossary

funding helps start-ups develop their products, conduct market research, and build their teams, all of which are essential for growth and survival.

Angel investors often invest locally, supporting startups within their communities. This local investment can act to stimulate regional economic development, create jobs, and foster a supportive entrepreneurial environment and a sense of place.

The UK Business Angels Association (UKBAA) Business Angels Market Survey 2020[32] demonstrates that the majority of angel investors invest in the seed, start-up and early-stage phases of company growth. This is also supported by a Beauhurst report from 2023[33] that highlights that 43% of businesses that received angel funding were operating at the seed stage at the point of investment.

This analysis supports the proposition that angel investment flows, crucial to the innovation economy, remain a relatively modest proportion of total early-stage investment and are relatively static, despite the growth in early-stage investment opportunities. Critical as these angel investors are both for their advice and counsel to the growing companies as well as for their risk capital invested, the local economy would greatly benefit from more angel finance, either from more angels or more 'heavy hitter investing angels'.

## Angel networks in Oxfordshire

Angel investment may take place at the level of an individual, but networks of angels are well established in the UK and provide opportunities for angels to access deal flow and be connected to selected, pre-vetted companies. As one Oxfordshire-based investor noted, Angels are time poor, which impacts on due diligence and their understanding of the technology and the market. Information is key this is often what is missing. Local clustered activities through networks can assist with information gathering and opportunities to work within groups or syndicates, where expert angels can support those who prefer or need to take a more passive role, is a key benefit of working within a network. Equally, visible, accessible angel networks are valuable to entrepreneurs, as they typically invite companies to apply for pitching opportunities, and provide information on investment criteria and priorities, which can guide founders and management teams to potential sources of investment. There are three main, organised angel networks in Oxfordshire. These are:

(i) OION
(ii) WOTAN
(iii) Henley Business Angels

[32] UK Business Angel Association, 2019. The UK Business Angels Market Survey, London: British Business Bank.
[33] Beauhurst, 2023. Spotlight on UK academic spinouts, London

## OION

The Oxford Investment Opportunity Network (OION) is the business angel platform of Oxford Innovation Finance and is Oxfordshire's principal angel network. It has been in operation since 1994 when it was one of the UK's first business angel networks and today OION is one of the largest angel networks in the UK, focusing on technology companies from Oxford, Oxfordshire and across the country. OION's approach is to bring in as many investors as possible; people who can support companies, not just with investment, but also with expertise and the network numbers around 500 members.

OION is one of the oldest angel networks in the UK, is based in Oxford and, according to a report by Beauhurst[34], they are the most active angel network operating in the UK.

OION merged with Oxford Angel Network (OAN), part of Oxford University's commercialisation arm, Oxford University Innovation, in January, 2020. The rationale behind the merger was to create a more coherent early-stage funding platform for the Oxford ecosystem.

A recent development has been the establishment of investment funds, which have been transformative. Oxford Innovation EIS Growth Fund 4 is now investing. These annual funds are selective in terms of investment but can be flexible on ticket size and the fund is able to co-invest alongside OION angels as well as other investors, like OSE and Longwall. As examined in more detail later in this section of the report, not all investments have been into Oxfordshire companies and the network will accept applications to pitch from anywhere in the UK. OION runs pitching events throughout the year – typically 7 a year. While meetings used to be held face to face, since Covid, the majority have been held on-line. Where face to face meetings do take place, OION occasionally holds these outside Oxford, in locations within the Thames Valley, e.g. Reading.

## WOTAN - the Wider Oxford Technology Angel Network

WOTAN is a group operated by Oxford Technology. Oxford Technology has operated a business angel network for around 30 years. Oxford Technology enables founders of businesses seeking capital, either to start or to expand, by presenting their investment cases to individual investors, pre-Covid, in person, usually in London, but over the last four years, via monthly on-line presentations. In January 2024, new rules were announced governing who in the UK was allowed to make business angel type of investments. Under the new rules, investors would be allowed to make investments in unquoted companies if they had been members of a business angel network for six months. Oxford Technology responded to these proposed changes by formalising their network into **WOTAN—the Wider Oxford Technology**

[34] https://www.beauhurst.com/blog/top-angel-networks-uk/

**Angel Network.** Similar to OION, there is no fee or annual subscription and six months after joining, members will be permitted to make angel investments as a Sophisticated Investor.

## Henley Business Angels

Henley Business Angels was established in 2016, is an angel investment network that operates out of Henley Business School at the University of Reading. The network's aim is to both facilitate opportunities for members to invest in and mentor (S)EIS-registered early-stage businesses and to support and champion entrepreneurs to continue the growth of the early-stage investment ecosystem. Henley Business Angels look to invest in new and early-stage, high-growth businesses raising £50,000 to £500,000 to accelerate the growth of their business.

Henley Business Angels operates with a Thames Valley focus, investing in start-ups and early-stage businesses based in the region. As a network, HBA is also particularly interested in investing in clean/green tech, life-science, biomedical, new technologies such as robotics, and SaaS businesses.

Henley Business Angels hosts four company presentation events each year, providing the opportunity for pre-selected founders to pitch to the network. Angels should have, or should wish to have, a connection with the University of Reading and Henley Business School.

## Different angel networks deploy different operating and funding models

It is interesting to look at a different model to that used by OION. A useful comparator is Cambridge Angels. OION takes a success fee from companies that raise funding but requires no upfront payment from companies. In contrast, Cambridge Angels' funding comes through a membership model with an annual membership fee paid by angels. Cambridge Angels have no upfront fees for companies that are pitching or any fee charged to companies that raise investment through the network.

Cambridge Angels currently has 58 members of which 11 are female, with a ceiling of 60 individual members in total at any one time. Again, this is very different from the approach used by OION, where there are in excess of 500 members within the network. Cambridge Angels membership is by invitation only. This creates an exclusivity within the membership. About 38% of the participants are not based in Cambridge but live and work outside of the Cambridge ecosystem. In addition to the paying members, there are a small number of emeritus members and six corporate members which are Albion, Amadeus, Cambridge Enterprise, IQ capital, Parkwalk, Angel Co Fund and Martlet (now EMV). Approximately 75% of members are exited entrepreneurs, a percentage which is maintained and is seen as a key strength of the membership.

The pitching model is also somewhat different, in that events are organised around dinners. There is one dinner a month and typically one informal session which is held online. Pitches are made to the dinner audience, but an invitation to pitch generally requires one of the membership to identify themselves as a potential lead angel, who will champion a particular company. This is an important differentiator because it means that there is already at least one member of the angel community who is strongly supportive of the company and has indicated a willingness to invest. The companies that are pitching do so before the dinner, have the opportunity to meet with dinner participants informally over drinks, but leave before the dinner takes place, at which point there is discussion on the merits of the companies and their investability. A couple of the dinners each year are held in London.

According to Cambridge Angels' chair, Pam Garside, approximately half of the members regularly attend a dinner although Pam noted that in reality about 60% of the membership is active, i.e. those that are actively investing. There are various ticket sizes between these different individuals. While the model encourages identification of a lead angel, Cambridge Angels acknowledges the challenge of finding someone who is keen to take the lead on a deal. This is an issue also identified by OION.

The organisation has a board of nine people including the chair and a full-time managing director funded by annual membership fees.

Similar to Oxford, there is a desire to have a more diverse group of angels. The age group of members is typically between 50 to 70, although Cambridge Angels have just added two new members aged 28 and 33 respectively, but the mean age of participants is 57. The current Chair expressed the personal view that female only investor groups are not the answer, although acknowledged that this is an approach which is in favour at the moment, believing that it perpetuates the problem rather than addressing participation and representation of women in angel groups.

Like Oxford, Cambridge is a complex environment, with many organisations and institutions operating within the knowledge economy. Members of Cambridge Angels that we spoke to for this research noted a sense of cross fertilisation in Cambridge. For example, members of Cambridge Angels are also on the board of Cambridge Enterprise seed fund. Despite this sense of a 'more joined up environment', the Chair of Cambridge Angels, who has taught at Judge Business School for 25 years, still feels that there are parts of the ecosystem that she has yet to discover.

The issue of recycling of capital is considered as crucial for both OION and Cambridge Angels networks and an issue that both networks identify as critical to an effective business angel system. Perhaps the fact that 75% of the Cambridge Angel members are exited entrepreneurs is one of the ways in which recycling of capital and expertise is encouraged by Cambridge Angels. It was also acknowledged that there is a pressure for companies to exit early and perhaps an over focus on exits. What is clear is that given the model, Cambridge Angels operates a much more exclusive approach than OION. The number of companies that are

invited to pitch is much smaller per annum; nevertheless, there is a strong focus within Cambridge Angels on face-to-face contact, through the dinner model, rather than online pitching, which has been embraced by OION since COVID.

## Improving diversity within Oxfordshire's angel population

Historically angel investors have tended to be much less diverse than the entrepreneurial community. In particular, female investors are very underrepresented amongst angel investors. At a UK level, the Women Backing Women campaign, led by the Women Angel Investment Taskforce, has been seeking to address this issue. Both Oxford Innovation Finance and Cambridge Angels identified the challenge of attracting a more diverse group of angel investors, particularly noting issues around gender and age. In the autumn of 2023, a group of women leaders[35] from Oxfordshire's innovation ecosystem, convened by law firm Mishcon de Reya, started to explore the challenge of widening female participation in investment activity within the region, with a particular focus on expanding the number of female angels. This working group – now termed Oxford Female Investor Network - has been developing an initiative to target potential female angels in Oxford and Oxfordshire, recognising that:

- There is no distinct, organised female angel / investor network in Oxfordshire.
- Women within the region may have wealth due to a variety of reasons and these reasons may influence motivations and interest in investing. As a consequence, there is likely to be a need to use different approaches when targeting individuals, and in communication and messaging.
- Experience with investing will vary.
- As with any angel, individuals may have specific sectors or verticals which are of particular interest, while others may take a more generalist approach.
- There is little data on levels of interest in investing, or areas (sectors/verticals) that may be of interest.
- An interest in investment may not translate into active investment as an angel but may nevertheless provide a route into other forms of investment.
- For individuals who may want to investigate into areas of special of interest and/or wish to build networks for potential syndication with others with similar interests, there is no mechanism in place to encourage this, given that OION showcases take a generalist approach and do not themed pitching events around sectors or verticals.
- There are no exiting mechanisms in place to inform and share knowledge about how to become an angel investor without joining a pre-existing network, such as OION.

[35] Membership of the group included James Cowper Kreston, Mishcon de Reya, Oxford University Innovation, University of Oxford, Oxford Brookes University, Advanced Oxford, Oxford Innovation Finance, Longwall Ventures.

The group concluded that a useful starting point would be to design and deliver a pilot event, which would address the informing and knowledge sharing issue, with signposting to Oxfordshire's main angel network, OION, as a starting point. This would provide an opportunity to test a format which included practical information about investing/investment, such as an introduction to SEIS and EIS and gather helpful feedback on levels of interest and appetite. The group held this first, invitation-only event, entitled *Empower Her: Unlocking Female Investment* on 21st May, 2024.

Feedback from attendees was positive and a new set of activities are now being planned for late 2024 and 2025. The feedback from those who attended, and importantly those who were unable to join the May event, was that there is appetite for a repeat of the workshop but on a larger scale. Collaboration with other relevant groups is also being explored.

A series of special interest dinner meetings are also being scoped, which would aim to bring together around 15 to 20 participants around particular investment topics/verticals, by invitation, bringing together existing investors, potential new investors and entrepreneurs.

While the work of the Oxford Female Investor Network is still in its early stages, it provides a route for engaging and encouraging greater levels of female participation in early stage and angel investment within the region, and potentially provides an opportunity to test some alternative models for connecting investors and entrepreneurs, while still supporting the OION network and its current model.

## A deep dive into angel investment within Oxfordshire

As OION is the primary angel network within the region, a deep dive into the activity of this network is helpful in providing insight into how well the angel investment system in Oxfordshire is working. In particular, this project was interested in determining to what extent OION is supporting the capital needs of companies within the region. If you pitch to OION, are you likely to raise investment? What happens to companies post-pitching? Does engagement with OION support the survival and growth of companies?

What is more, given that any analysis of investment activity is weighted to the supply side, i.e. business analysis platforms collect data on companies that have raised investment, it can be challenging to assess demand for investment. Qualitative data collection undertaken in support of this paper gives some indication of the level of demand, but analysis of data from companies that register with an angel network provides a useful route for assessing demand.

OION supported this deep dive by providing Advanced Oxford with two key sets of data:

- Companies that registered through the OION website from 2014-March 2024[36], representing the pool of companies looking for angel investment.
- Companies that pitched at an OION event in the period 2014-March 2024, representing the pool of companies screened as being investible propositions that might be of interest to the OION network.

The analysis primarily looked at risk capital flow from angel investment into the Oxfordshire region for the period 2014 to the end of 2023.

Our quantitative approach followed a longitudinal analysis, as one of the goals was to identify the dynamic evolution of risk capital in the Oxfordshire region and the survival of companies seeking angel investment. However, as noted above, OION's activities have developed and evolved in the period being examined. Two notable changes are the merging of Oxford Angel Network (OAN), part of Oxford University's commercialisation arm, Oxford University Innovation, with OION in January, 2020. The establishment of investment funds by OION has also been a significant development. These changes are likely to have influenced some of the data and findings. No data from OAN's activities, pre-2020, have been used in this analysis.

## Data and Sample

The total number of companies registered through the OION website during the sample period was 4,720, but in addition to these companies a further (approximately) 2,000 companies were referred directly to, or engaged with, OION. These companies have not been included as they may either result in duplication of data, or conversely, as a result of their engagement with OION, their interest in angel funding may have progressed no further. In common with other angel networks, OION reviews companies that register or are referred, and only a proportion of these are invited to pitch to OION's community of investors. The investor community for OION is made up of approximately 500 investors, and includes some family offices, seed stage VCs as well as high net worth individuals. OION also has a growth enterprise investment scheme (EIS) fund which provides a platform for them to invest directly into companies. The EIS funds (1,2 and 3) have raised around £6m, all of which has been invested in the last three years, and OION has just completed raising EIS fund 4, which is of a similar size, (~£2m).

Longitudinal study of the fate of companies was facilitated by access to a range of data, either available directly to Advanced Oxford, or through our members and the Advisory Group established to support this work. This included the following sources:

- Beauhurst
- Pitchbook

[36] This data relates to registrations by companies via the website and not companies that have been referred directly to OION investment managers, or engaged informally with OION investment managers. OION estimates that the number of these referral interactions is approximately 2,000 over the ten-year period being examined.

- mnAI
- Crunchbase
- Companies House
- Deal Room
- Company websites

## General Overview – the path from registration to fundraising

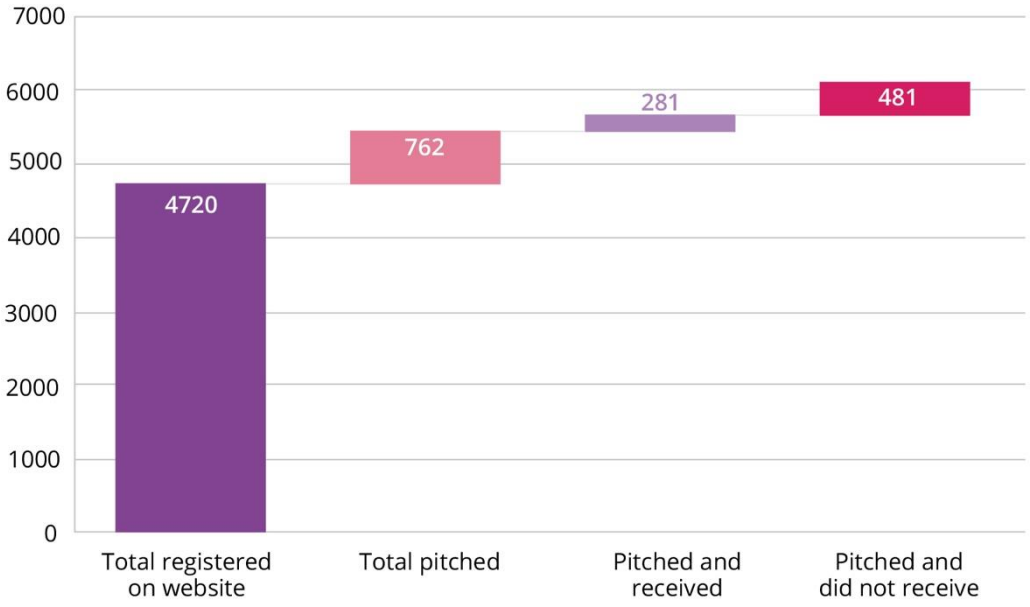



Figure 17: OION company data overview 2014-2023 (n=4720) highlighting the path from registration to fund raising. Source: Advanced Oxford analysis.

Figure 3 provides an overview of the pathway from registration with OION, to pitching, to securing investment. 4720 companies registered via the OION website, of which 16% (n=762) were selected to progress to the pitching stage where they present to the network of angel investors. This seems to be on the low end of, but in line with, the industry conversion rate of registration to pitch. In the UK, the conversion rate is typically around **15% to 30%.** In Europe, the conversion rate from registration to pitching can range between **10% to 25%**. In the US, the conversion rate can vary widely but is generally in the range of **15% to 35%**[37]. There is no evidence that increasing the number of companies that are able to pitch each year would result in more investment from the network. It is also worth noting that companies may be invited to come back to OION if they are able to demonstrate progress in achieving certain milestones.

[37] https://www.eban.org/eban-annual-statistics-compendium-for-2022/

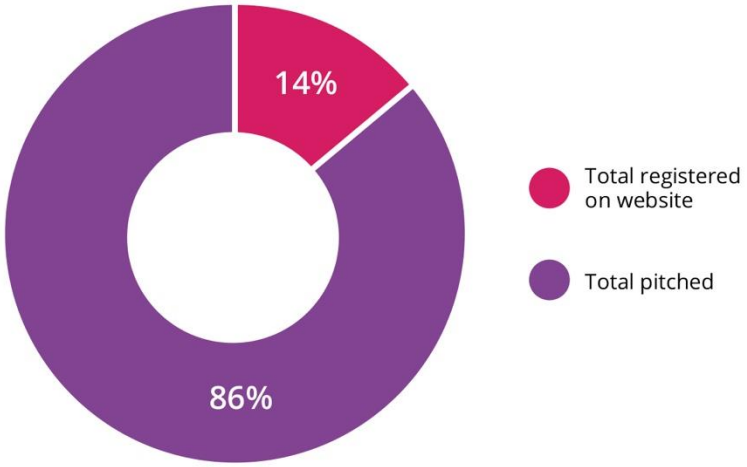



Figure 18: Analysis of companies registered via the OION website versus those that pitched, from OION data from 2014-2023 (n=4720)

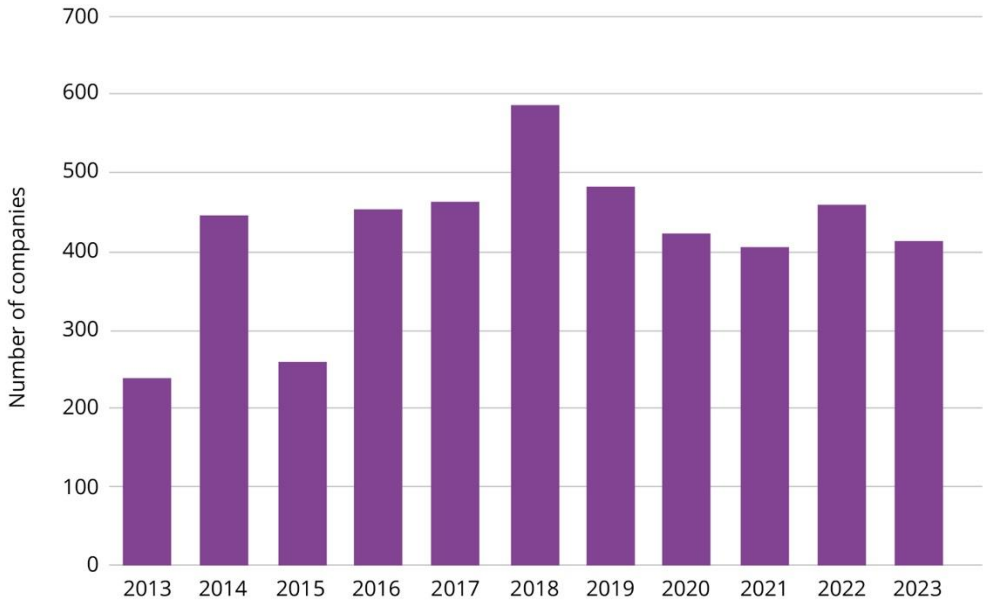



Figure 19: Number of companies registered via the OION website per year from 2013-2023 (n=4720)

Removing outliers, where the timeframe from registration to pitching was greater than 365 days (1 Year), the average period from registration to pitching is relatively short, at only 32 days, when compared to UK and European standards.[38] This time allows application reviews, due diligence, pitch preparation and network scheduling[39].

[38] https://www.eban.org/eban-annual-statistics-compendium-for-2022/
[39] https://www.british-business-bank.co.uk/business-guidance/guidance-articles/finance/angel-investment

Looking at the breakdown of pre-Covid, Covid and post Covid, in relation to registrations to pitch, shown in figure 6 below, we find that the number of companies seeking angel investment had been on a growth trajectory, with a notable jump of 27% between 2017 and 2018. However, at the onset of Covid, registrations dropped by 12% and by a further 4% in the two years post 2019. This has not fully recovered as the cumulative decline post Covid is -19% to 2023.

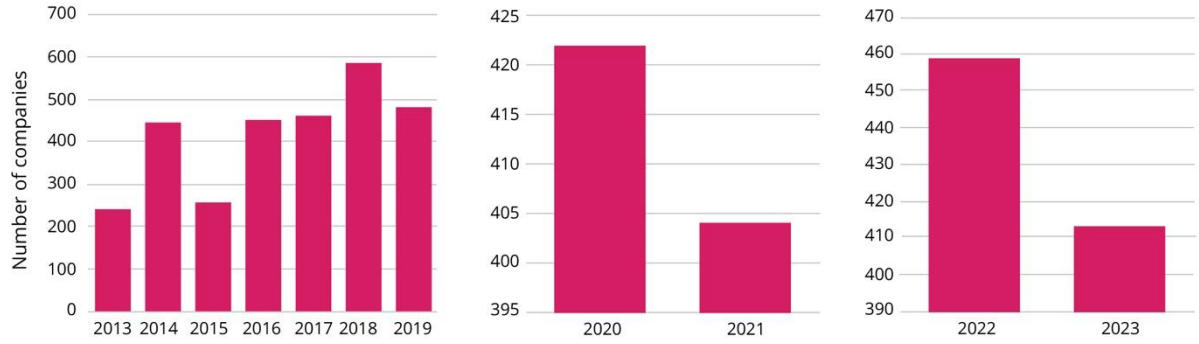
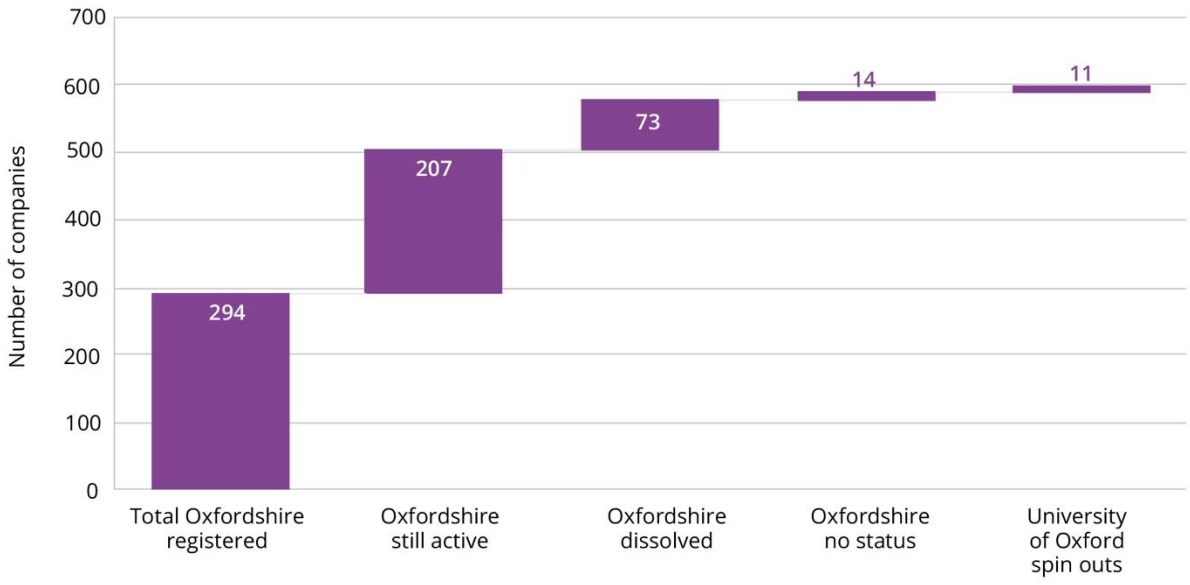
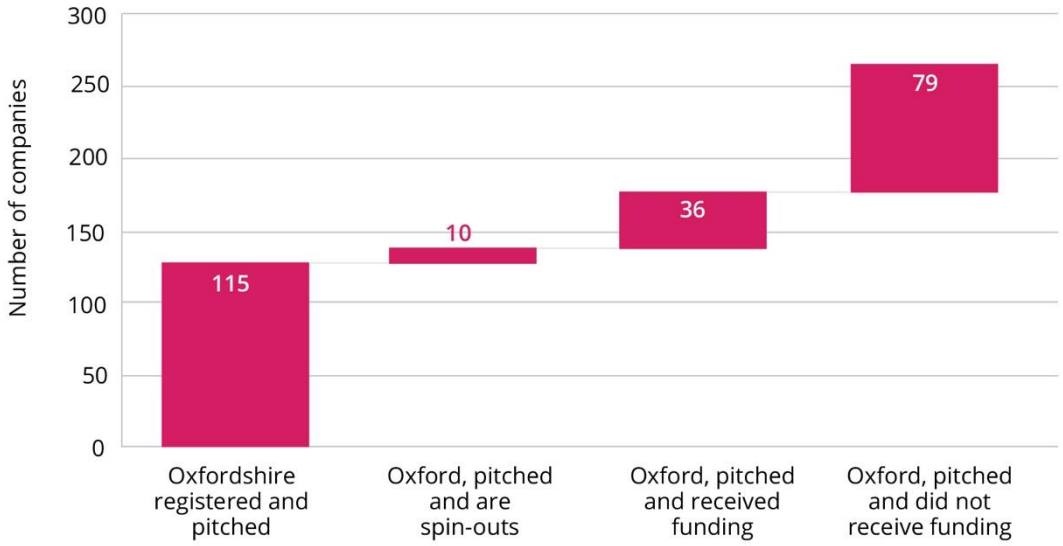



Figure 20: Three Covid related time series data for registrations via the OION website pre-Covid (2013-2019), two years of Covid (2020-2021) and two years after Covid (2022-2023)

## An overview of companies registered with OION located in Oxfordshire

Since our work is particularly focused on the Oxfordshire region, we sought to identify Oxfordshire based companies within the data set. It is important to note some of the data given on registration with OION is missing postcodes, therefore the data is based on available geographical information. It should also be noted that the analysis is based on location of the company at the time of registration. Our analysis has not looked at whether companies registering with OION have subsequently moved out of, or into, the Oxfordshire region.






Figures 21 (shown as two charts): Oxfordshire company registration to pitching life cycle analysis based on OION data from 2013-2023 Source: Advanced Oxford analysis[40] NB – the term 'Oxford' actually refers to the whole of Oxfordshire

Of the 4720 total companies registered, only 6.2% (n = 294) are from the Oxfordshire region. Many angel networks have a strong regional focus, for example Cambridge Angels network makes 57% of their investments into Cambridge-located businesses[41]. OION is location-neutral in its approach with regard to attracting companies that are looking to raise finance, and as such, OION may be unusual in its approach to geographical criteria. This can be contrasted with Henley Business Angels, that not only has a geographical focus – operation within the Thames Valley – but also requires angels to have or establish a connection with Henley Business School and/or University of Reading.

Of the 294 companies that registered, where data on the companies could be found, 207 are still active (70%) and 73 have subsequently dissolved. Of the 207 active companies, only 11 are University of Oxford spin-outs and of the 73 dissolved, only 2 are spin-outs[42]. This rather low number of University of Oxford spin-outs registering for angel financing is perhaps surprising, as it represents less that 5% of the total number of University of Oxford spin-outs during the time period examined. This may be as a consequence of the presence of Oxford Science Enterprises, which has raised nealry £1bn to invest exclusively in University of Oxford spin-outs and therefore science and technology spin-outs may tend not to seek angel funding. It is also worth noting that prior to 2020, Oxford University Innovation ran their own network,

[40] Spin out refers to University of Oxford spin outs. Pitched means a company delivering a pitch at an OION network event. Status data is taken from Companies House website. Data compiled by OION. Oxford means Oxford and Oxfordshire-based companies.
[41] https://cambridgeangels.com/infographic
[42] Beauhurst describes an academic spinout as, "a company that has been created off the back of university research and IP, and developed and commercialised by the institution's enterprise team. OUI definition of spin out is companies based on academic research generated within and owned by the University of Oxford. These are the companies created by OUI in which the University was entitled to shares.

OAN, and spin-outs may be missing from OION's data, which only relates to their own activity pre-2020.

As noted above, the average conversion rate from registration to pitching for all companies, regardless of location, is 13%, however for Oxfordshire based companies it is 39%, which is positive and suggests that the quality of local companies, using their local angel network, is high or there is better alignment between the investment criteria used by OION and the companies that register.

## Pitching companies come different geographies

The 762 companies invited to pitch at an OION event come from a range of locations, with over a half of companies located outside the Golden Triangle of Oxford – London - Cambridge.

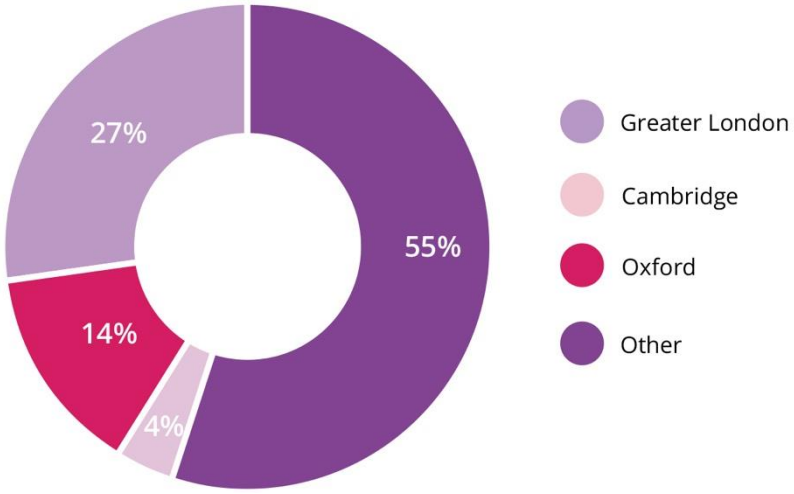



Figure 22: Regional analysis of companies that pitched and companies that raised funding from OION from the period 2013-2023 (n=762)

Of the 762 companies making it to the pitching stage, 29% (n=223) are from the Greater London region, 15% (n=115) are from Oxfordshire, 5% (n=35) from Cambridge, with the rest spread across the UK. As already noted, this further highlights the differential approach taken by OION in comparison to other more geographically orientated angel networks, which tend to focus investment activity on their local ecosystem.

## Sector preferences for investment activity

It is also interesting to look at which sectors appear to be attractive to angel investors, based on the data provided by OION. Healthcare and bio/pharma raise the most funding (figure 9), in line with UK-wide data collected by the UKBAA (figure 11). However, OION appear to favour manufacturing and engineering related companies followed by environment and green

energy, but also follows the national trend with investment into software and medtech companies.

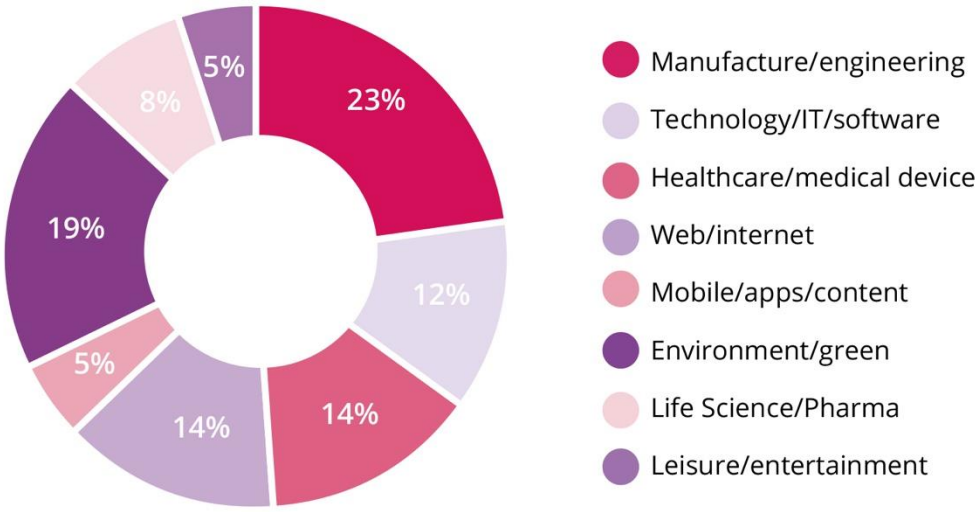



Figure 23: OION network investment per sector % share of investment from 2013-2023 Oxfordshire Region Source: Advanced Oxford analysis[43] Note: figure 9 shows the amount of direct investment from OION to various sectors for the Oxfordshire region

| | Percentage of angels who have invested |
|---|---|
| **Software as a service** | 38 |
| **Healthcare, Digital health and MedTech** | 34 |
| **Bio tech, Life sciences and Pharmaceutical** | 31 |
| **Financial technology (FinTech)** | 26 |
| **E-commerce** | 22 |
| **Digital media and content** | 21 |
| **Energy, Environment and Clean Tech** | 20 |
| **Manufacturing, materials and engineering technologies** | 18 |
| **Security and cyber security** | 16 |
| **Electronics and hardware** | 15 |

Figure 24: Sectoral split of investments by angels as a % of total angel investment from 2011-2019. Source: UK Business Angel Association [44]

[43] Data compiled by OION, Pitchbook, Beauhurst, mnAI, CrunchBase, Companies House and Dealroom

[44] UK Business Angel Association, 2019. The UK Business Angels Market Survey, London: British Business Bank

Data presented in figures 9, suggests that companies that pitch from leisure, consumer/retail and 'other' sector grouping are not favoured by angel investors, and looking at the Oxfordshire based companies, no companies within these sectors were able to raise funding through OION, although the numbers of these companies invited to pitch is relatively low in comparison to science and tech related sectors.

Software, healthcare and bio/pharma raised the most funding from angels in the UK from 2011 till 2019, according to the Business Angel Market Survey report,[45] highlighted in figure 10 above. There also appears to be an increasing trend in investment into the software sector, with an increase to 44%[46] and health/medtech also appear to be sectors that are attractive to angel investors.

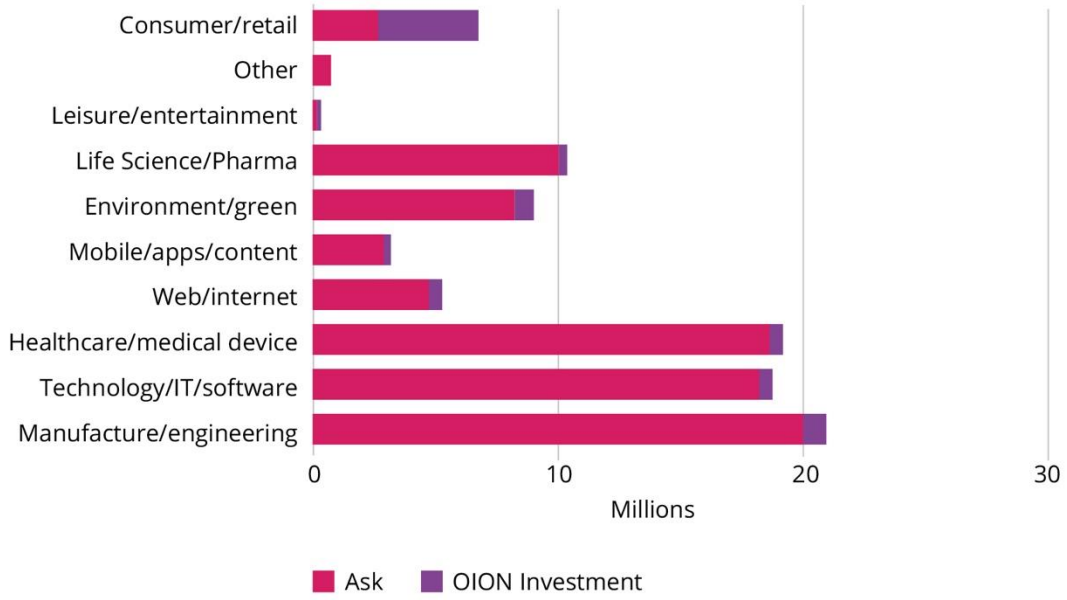



Figure 25: Sectoral analysis of amount of 'Ask' vs amount raised 'Raise' where the amount is in £millions for companies from the Oxfordshire region from 2013-2023 (n=115) Source: Advanced Oxford analysis

As highlighted in chapter 2 of this report, most University of Oxford spin-out are in pharma/biotech and such companies typically need large amounts of long term, patient capital, and are inherently risky with long lead times before commercial activity and income generation and therefore are less likely to attract angel investment.

## Survival rates of companies and the influence of angel investment

Of course, having raised early-stage capital through angel investors, companies need to survive and thrive for angels to see a return on their investment. We therefore turn to survival rates after raising funding. We looked at whether the 760 businesses that pitched to OION

[45] UK Business Angel Association, 2019. The UK Business Angels Market Survey, London: British Business Bank

[46] https://www.beauhurst.com/blog/top-angel-networks-uk/

were able to go on to raise additional funding, and since the focus of this report is on the Oxford region, we looked in more detail at the 115 Oxfordshire based companies that pitched for investment.

Of the 762 companies that pitched at an OION event, 281 were able to raise funding – from all investors, not just through OION - which is a 36% success rate. This aligns with a Goingvc report that shows that, whereas VCs are only funding 1% of start-up ventures, angels are funding up to 30% of opportunities presented in the UK[47]. From our analysis, companies only received on average 32% of what they were seeking as a result of their pitch to OION.

A random sample of 100 companies was taken, including some from Oxfordshire, from the 762 companies to infer their fate after pitching, and found, shown in figure 13, that 60% are still active, roughly 30% have dissolved and for about 10% of the companies, we could find no information on their status. This 60% survival rate appears to compare very favourably with the survival rate of 40% for all start-ups in the UK[48]. Although, as noted from data on Oxfordshire-based companies that registered with OION, the survival rate for this group of companies is higher, with 70% of companies still active.

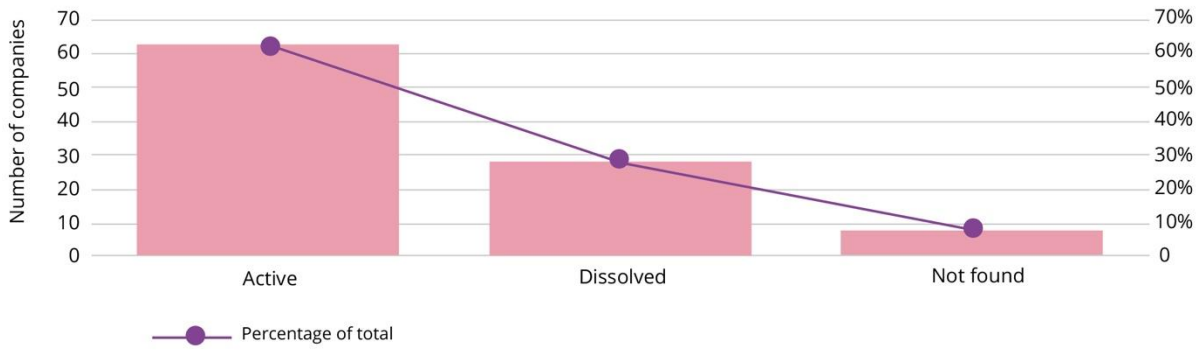



Figure 26: Status of sampled 100 companies from the ones that pitched (n=100) to OION from 2013-2023 Source: Advanced Oxford analysis[49]

47 https://www.goingvc.com/post/angel-investing-in-the-uk-an-in-depth-analysis
48 https://www.beauhurst.com/blog/startup-fail-scale-exit/
49 This data was compiled from the OION, Pitchbook, Beauhurst, mnAI, CrunchBase, Companies House and Dealroom.

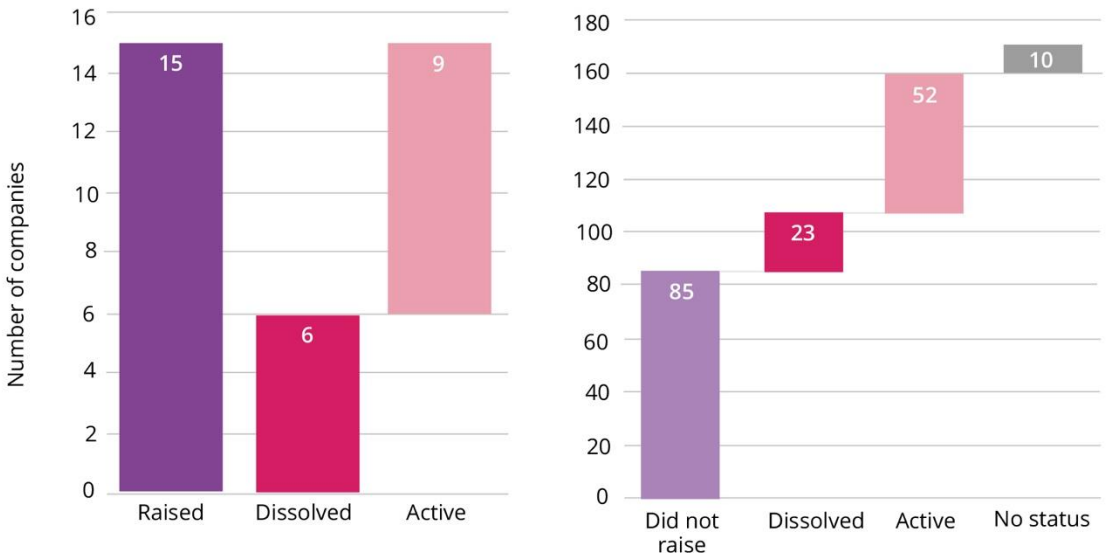



Figure 27: Overview of sampled companies (n=100) that pitched to OION network from 2013-2023 highlighting success rate and survival rate

Looking at the fate of the companies within the sample, it is interesting to note that the survival rate, whether funds were raised or not, is the same. Being selected to pitch therefore seems to be positive for companies because it provides external validation of the business – the company is likely to have a good quality proposition and business model. What is more, it is likely that companies benefit from the experience of being selected to pitch, with support provided such as pitch training and assistance in preparing good quality pitch documents/presentations, even if they do not end up raising from OION and/or its network. It is probably not surprising that being selected means you are more likely to survive. The endorsement from OION – even if companies do not achieve their investment goal – is a good benchmark for other investors.

As it appears that OION is rarely able to supply all the investment sought by individual companies, based on the amount identified within their pitch (see figure 11), it is clear that companies need to find other investors to join the round. While OION already has some relationships with other angel investment networks and early venture capital firms, further developing these relationships to develop wider syndicates would be beneficial, particularly as it appears that OION is good at identifying investible and robust companies.

One investor interviewed during Advanced Oxford's project highlighted Cambridge Angels as having strong relationships with co-investment funds, suggesting that there was a more established pathway through seed and Angel funding, into early venture capital funding, onward into Cambridge Investment Capital and other major funds. This was described as a well-trodden path.

## Oxfordshire-based companies appear to fare well with their local angel network

As this research is particularly interested in the experience of companies from the Oxfordshire region, outcomes for the 294 companies that registered with OION, and were from Oxfordshire, (data from registration 2014 to the end of 2023), were examined in more detail:

- 39% proceeded to pitch, (n=115),
- Of the companies that pitched, 31% (n=36) were able to raise a total of £4.064 million from OION, versus an ask of £21.8 million
- This was 13% of the amount the companies were seeking, which is significantly lower than the average of 32% of 'ask' raised across the whole cohort of 762 that pitched.
- These companies (n=36) subsequently and additionally raised £42.1 million over and above what was raised during the OION pitch event, from the time of the pitch to the end of 2023.

The Oxfordshire-based companies that received funding, having pitched, were also examined to determine their fate (figures 14 and 15). Were they able to raise more funding and are they still active?

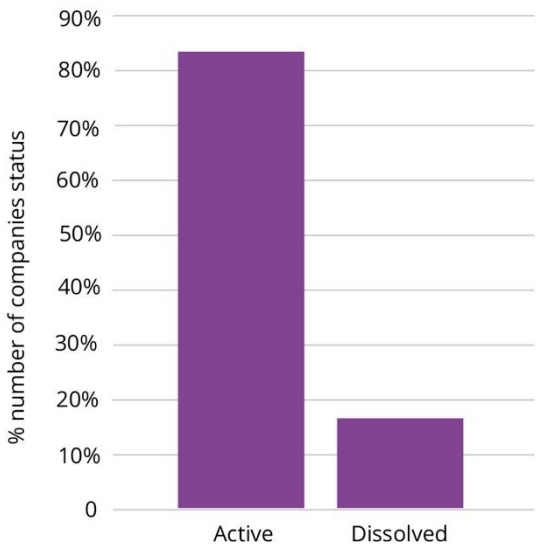



Figure 28: Status of Oxfordshire companies that pitched at OION event from 2013-2023 (n=36) and raised funding. Source: Advanced Oxford Analysis[50]

[50] Data compiled from OION, Pitchbook, Beauhurst, mnAI, CrunchBase, Companies House and Dealroom.

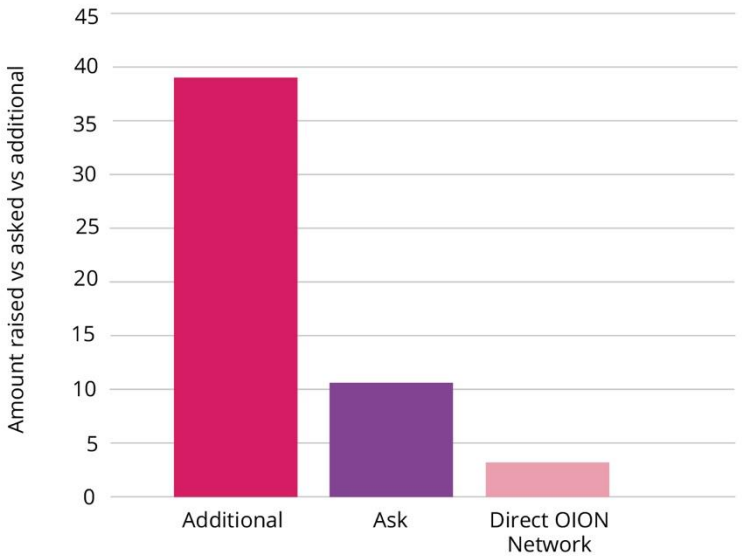
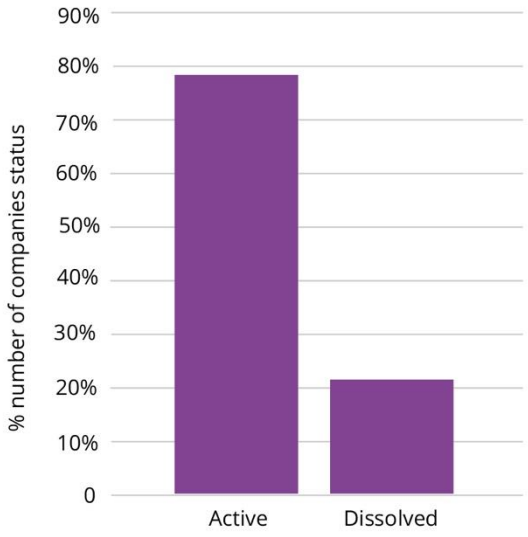



Figure 29: Breakdown of fundraising data, showing the total 'ask' (shown in purple) at OION event, total amounts raised at OION event (shown in pale pink) and additional funding that was subsequently raised outside of OION event (shown in pink); analysis for Oxfordshire-based companies between 2013-2023 (n=36) in £ millions. NB additional funding could have been raised at any point following pitching and no data on multiple rounds has been tracked. Source: Advanced Oxford analysis[51]

The picture is positive. Firms that received funding were able to go on to raise subsequent and additional funding and 80%+ are still active. Companies were able to access not only the additional funding needed to cover the gap between the ask and investment received from OION, but were able to go on to find further capital needed to expand and grow their businesses. The Oxfordshire-based company survival rate is also considerably higher than the average of 60% for all companies that pitched to OION, regardless of their location.




[51] Data compiled from OION, Pitchbook, Beauhurst, mnAI, CrunchBase, Companies House and Dealroom.

Figure 30: Status of Oxfordshire companies that pitched at OION event from 2013-2023 (n=79) and did not raise funding. Source: Advanced Oxford Analysis[52]

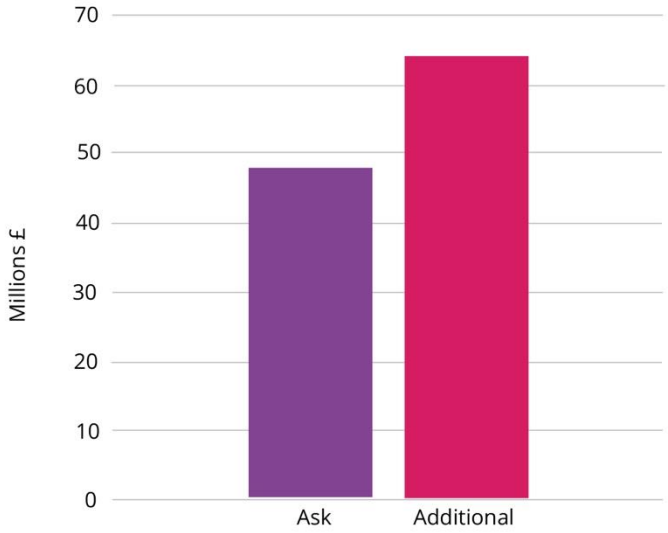



Figure 31: Total investment sought (Ask) at an OION event (total all companies), and additional funding raised outside of OION events; analysis of Oxfordshire-based companies between 2013-2023 (n=79) in £ millions. Source: Advanced Oxford Analysis[53]

57% of the companies that pitched did not receive funding from the OION angel network. These companies, however, subsequently went on to raise £64 million from various other sources. The survival rate is marginally lower than the ones that received angel funding from OION but is also much higher than the whole cohort data, supporting the view that being selected to pitch is positive for companies, regardless of outcome from the actual pitch event.

*Additional funding raised by companies that pitched to OION and raised through OION (Oxfordshire-based companies)*

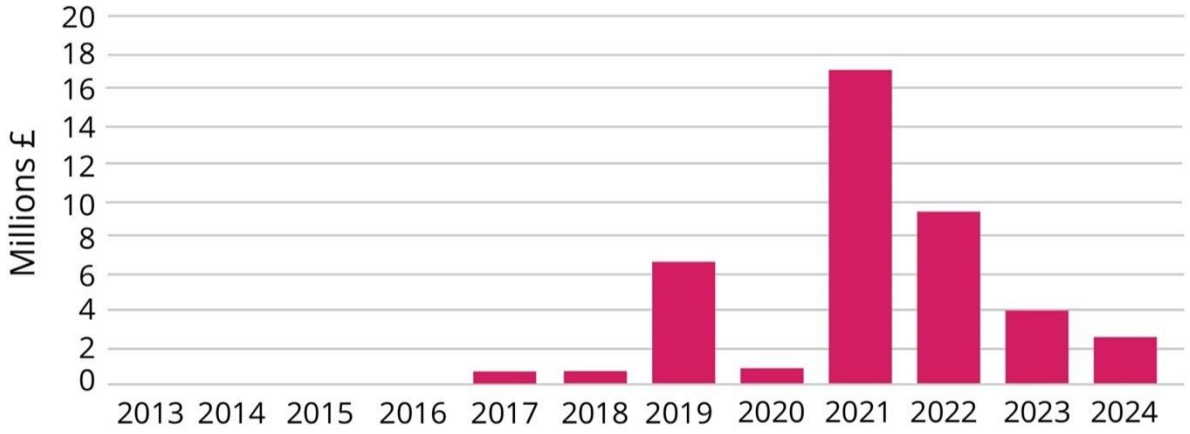



Figure 32a

[52] Data compiled from OION, Pitchbook, Beauhurst, mnAI, CrunchBase, Companies House and Dealroom.
[53] Data compiled from OION, Pitchbook, Beauhurst, mnAI, CrunchBase, Companies House and Dealroom.

*Additional funding raised by companies that pitched to OION and did not raise through OION (Oxfordshire-based companies)*

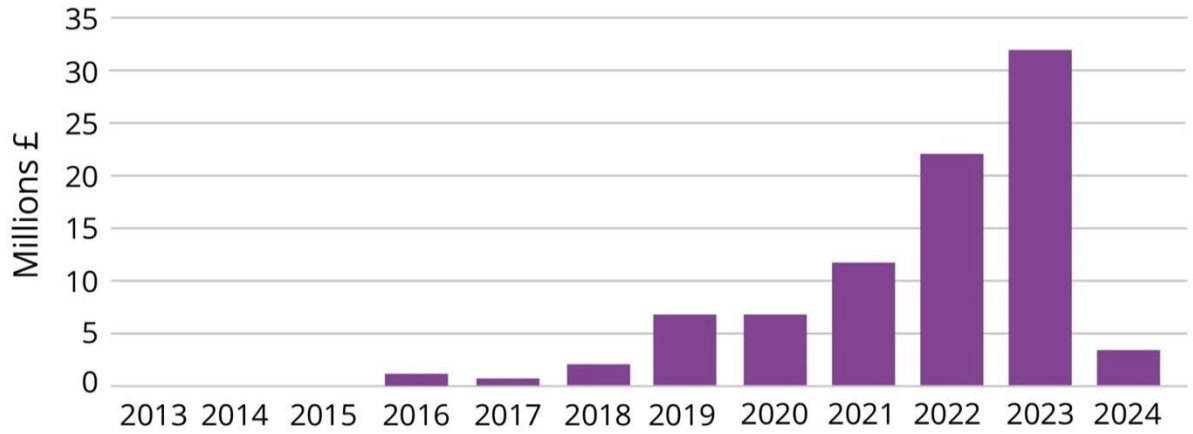



Figure 32b

Figures 32a and 32b: Additional funding raised per year by companies that successfully received investment when pitching to OION (32a) versus companies that did not receive investment through OION but nevertheless went on to secure investment elsewhere from 2013-2023 (32b). Oxfordshire-based company data (n=115). Source: Advanced Oxford analysis[54]

Although, some companies that did not raise through the OION pitch did go on to raise investment elsewhere, on average companies that received funding from OION angels went on to raise slightly higher additional funding. Taking the total additional funding raised by companies, we find that those that raised funding from OION raised an average of £1.4 million compared to £811k for those who did not secure any investment from OION.

## Reflections on next steps and possible actions

The demand for angel investment is high, despite having diminished during the height of the Covid pandemic. Angel networks are very selective, but OION appears to be good at selecting robust companies and there would seem to be value in engaging with angel networks even if you are not successful in securing funding immediately. Although OION is location agnostic, the network is serving the Oxfordshire companies well and, whether the general quality of companies within the region is higher than the norm, or whether there is a better fit between companies within the region and OION's investment criteria/preferences, companies within the region have a good chance of being selected to pitch for investment.

[54] Data compiled from OION, Pitchbook, Beauhurst, mnAI, CrunchBase, Companies House and Dealroom.

OION does not seem to be serving University of Oxford spin-outs, but this may be for very cogent reasons such as access to alternative funding options through OUI funds and connections/introductions to investors, and for some companies, alignment with OSE's investment interests. On the other hand, given that so many investor relationships and options are geared towards University of Oxford derived and affiliated companies, it is good to see that angels are serving the broader ecosystem of innovative companies.

Despite the generally positive picture, there are some key questions, some of which are also being explored by other angel networks. These are:

(i) Is there an argument for some form of more exclusive approach to help draw in new angels, and identify and nurture a cadre of lead angels?

(ii) Would having sector specific events – which in turn may introduce more exclusivity in network arrangements - be useful?

(iii) Given that we need to draw in more angels/recycled money should there be events that are focused on attracting, informing and connecting with angels, held outside of regular pitch events?

(iv) Has a shift to on-line events, post-Covid, had any impact on investment behaviour withing the angel community?

(v) How can we encourage a focus on diversity and draw in a broader group of angels, with a particular focus on age, gender and ethnicity?

(vi) Given OION's ability to select and support companies, is there a way that we could introduce 'office hours' or 'clinics' that provide guidance to companies to help improved quality?

Of course, organised angel networks like OION are commercial entities and they need to deploy a business model that allows them to operate effectively and cover all overheads. Any development of the activities and services provided by an angel network, like OION, will need to be commercially viable, therefore, funding options will need to be explored, particularly to any that support entrepreneurs within the ecosystem more generally.

**Definitions**

The terms 'seed funding' 'early-stage funding' and 'angel' investment can at times be used interchangeably and synonymously. Note figures 1 and 2, from Pitchbook and UKBAA respectively, where angel/seed are grouped, and seed, start-up and early-stage are identified separately. There is no one clear definition for each. The term 'pre-seed' is also used regularly, although not within this chapter.

**Seed stage**- can be considered to be funding to a business where a relatively small amount of capital is needed to be used for activities such as product development, market research or business plan development, it's called a seed round. As its name suggests, a seed round is often the company's first official round of institutional funding. Seed round investors are typically given convertible notes, equity or preferred stock options in exchange for their investment.

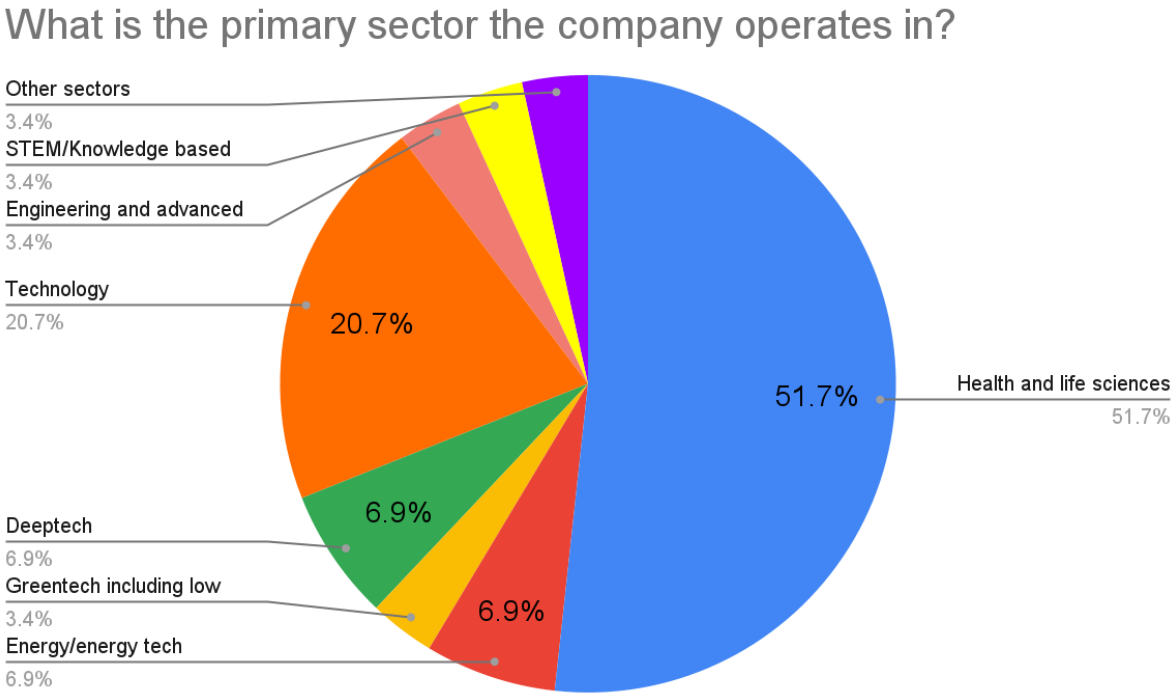
**Early-stage** – can be considered as capital intended for companies in the development phase. This stage of financing is usually larger in sum than the seed stage because new businesses need more capital to start operations once they have a viable product or service.

**Angel** – angel investment is private capital provision to companies by an individual using their own money, typically from a high net worth individual. Angel investment is differentiated from Venture Capital not by the amount of investment made, but by the fact that the angel is investing their own wealth whereas Venture Capital invests other people's/companies' money.

# Chapter 4 – Founders and management teams – data and response summary

In the next two chapters of this paper, we turn to qualitative data. Advanced Oxford conducted research using a mix of questionnaires and structured interviews to explore a range of issues, including perceptions of the Oxfordshire ecosystem, experience of raising investment and identification of any barriers within the Oxfordshire landscape. In this chapter, qualitative data draws on the experiences of companies operating within the region, with responses from management representatives and/or company founders. Data was collected between 1st May and 28th June 2024.

29 companies participated in the research. 26 responded to all questions and three provided partial responses. All companies were based, or had been based, within Oxfordshire and all were science and technology-based companies. At least one company had ceased trading, and one had exited. Responses were received from companies working across a range of sectors/verticals, but just over half were operating in health and life sciences.



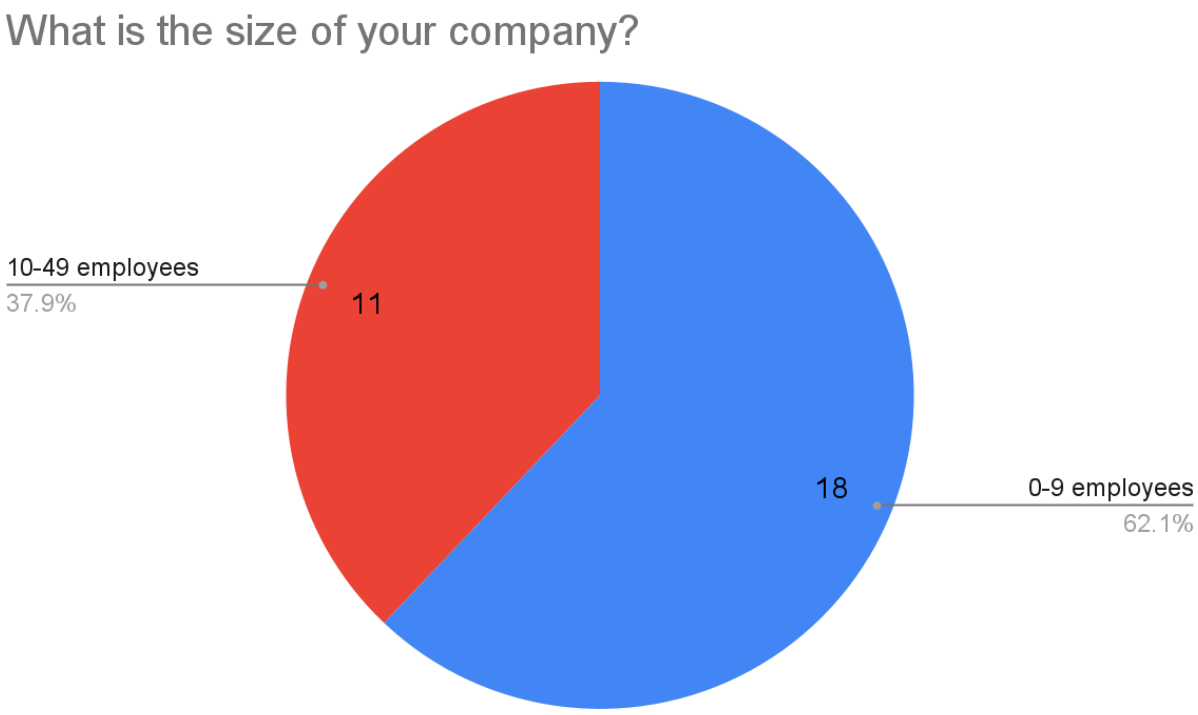
## Companies participating in the research are at an early-stage in their investment journey

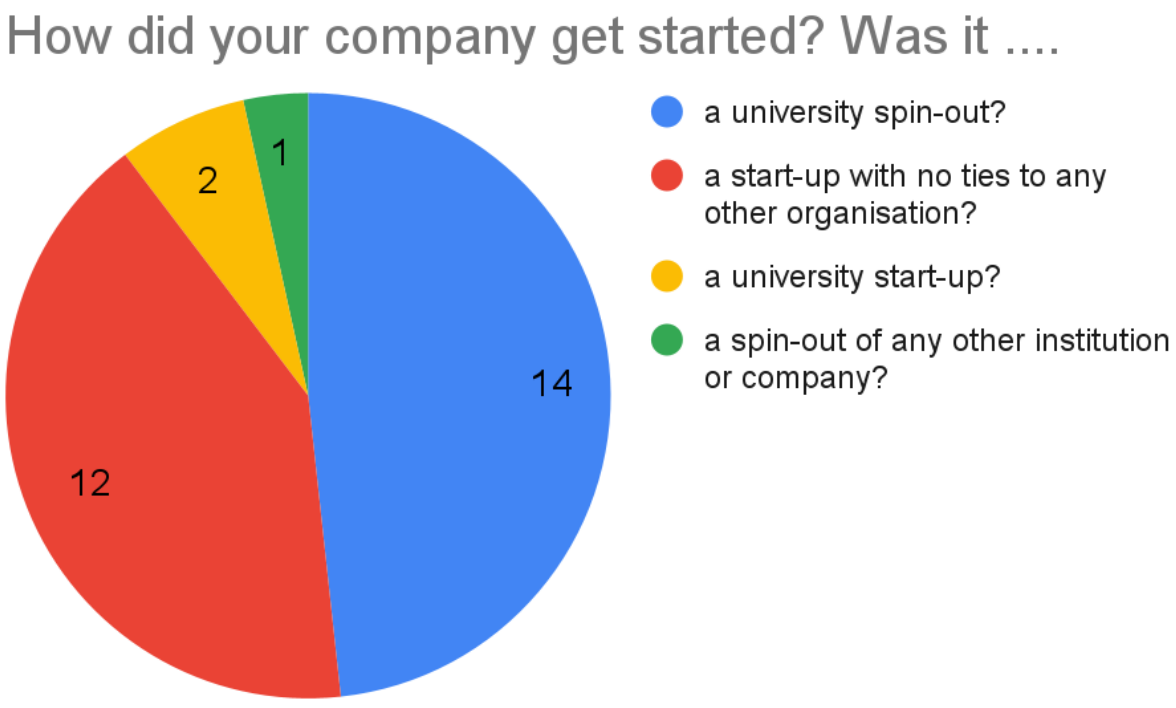
Although the data collection was open to companies of any size, respondents tended to come from smaller, earlier-stage companies, as reflected in both the size of the company in terms of number of employees, and in the stage of funding. Approximately half of the companies were university spin-outs, with the rest having started through a range of other routes.

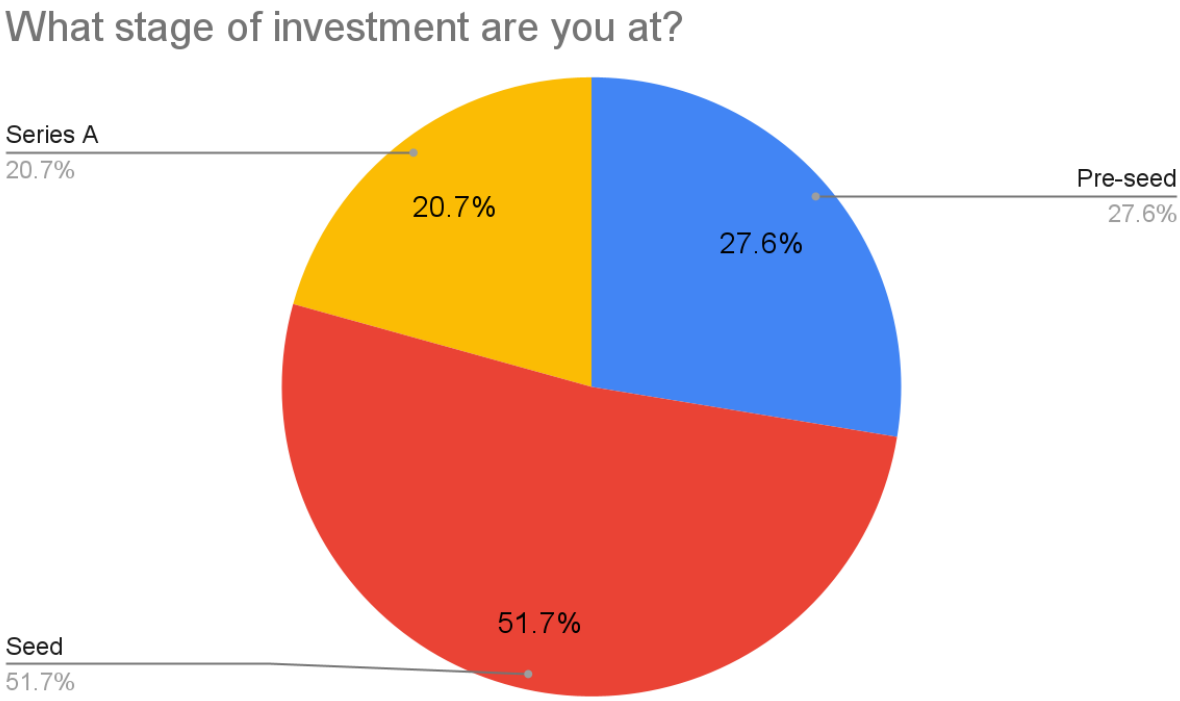
We expected that we might receive responses from more mature companies, it is perhaps not surprising that the responses were weighted towards earlier stages of investment activity, as these companies are highly motivated to share their experiences and to contribute to activities that might improve opportunities for their company. The majority of companies participating in the research were actively fundraising at the time of the research.

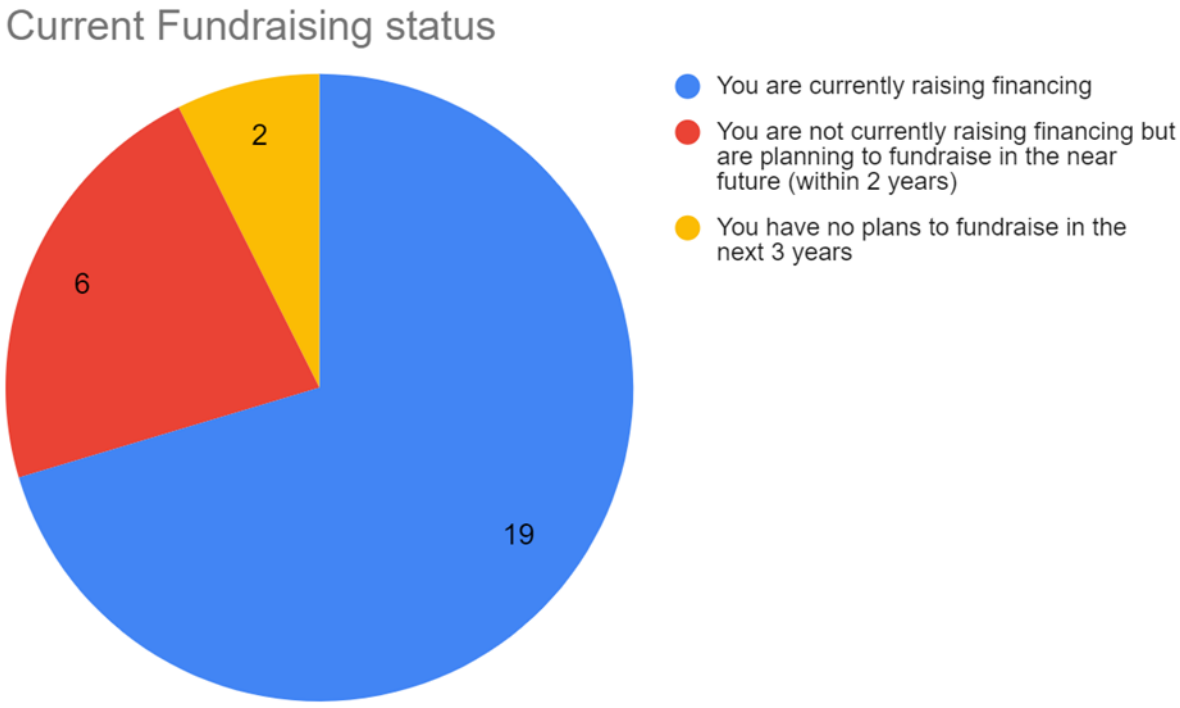
It appears to be these earlier stage companies that find it most challenging to identify and secure investment, whereas, more mature companies, looking for series B and beyond, have well developed research and development programmes, products and, in some instances, revenues, alongside relationships with existing investors, all of which they can draw on to leverage and secure larger pools of private capital. One CEO of a well-established company recently noted, there are large pools of international capital that you can tap into for later stage investment (personal communication); whereas one of the interviewees for this research had a very different view of the environment for securing early-stage finance: “it’s just brutal out there”.

It should be noted that, when considering the question of investment round descriptors such as ‘seed’, series A etc, definitions are somewhat subjective. Notwithstanding the sequential nature of rounds, and the expectation that the quantum of money raised each time is likely to increase, we have not sought to define the investment stage of companies, so the responses shown below are each individual company’s view of their stage of financing.


What is the size of your company?
10-49 employees
37.9%
11
18
0-9 employees
62.1%


How did your company get started? Was it ....
1
2
14
12
a university spin-out?
a start-up with no ties to any other organisation?
a university start-up?
a spin-out of any other institution or company?


What stage of investment are you at?
Series A
20.7%
Pre-seed
27.6%
Seed
51.7%
20.7%
27.6%
51.7%


Current Fundraising status
You are currently raising financing
You are not currently raising financing but are planning to fundraise in the near future (within 2 years)
You have no plans to fundraise in the next 3 years
2
6
19

## Company Founders

Of the 29 responses, only 2 companies no longer had any of the founders still participating within the company (7%), with 27 companies (93%) retaining at least one founder. 62 founders were still part of the companies participating in the research. Of the 29 responses, 20 had lost none of their founders (69%). Nine companies had lost founders and a total of 15 founders had left these companies.

80% of the respondents (23 out of 29) were founders of the company. 38% (11 out of 29) described themselves as serial entrepreneurs in that they had founded at least one other company, prior to, or since founding the company for which they were responding. Although the sample size is small, this is encouraging, as the quantitative data collected for this research was not helpful in identifying serial entrepreneurs. As identified within the chapter on angel investment, recycling of talent and capital, is very important within successful innovation ecosystems.

## Companies are using a range of different sources of funding

We asked companies to identify all sources of funding used at any time in the company's life. When reviewing the results, our Advisory Board had a debate about the differentiation between angel investment and family and friends investment and suggested that these two data points (family and friends, n=9; and angel investment, n=10) should be pooled. Entrepreneurs and founders often find angel investors among their family and friends, whereas we assume that where respondents have identified 'angel investment' as a funding source, this has been from high-net-worth individuals with whom they have no other relationship beyond company and investor. We note that the line between the two groups can be blurry, but we have shown the data points separately. It should also be noted that the investor's involvement may have been a one-time infusion of money, or there may have been multiple rounds of investment, however this is not shown from this data.

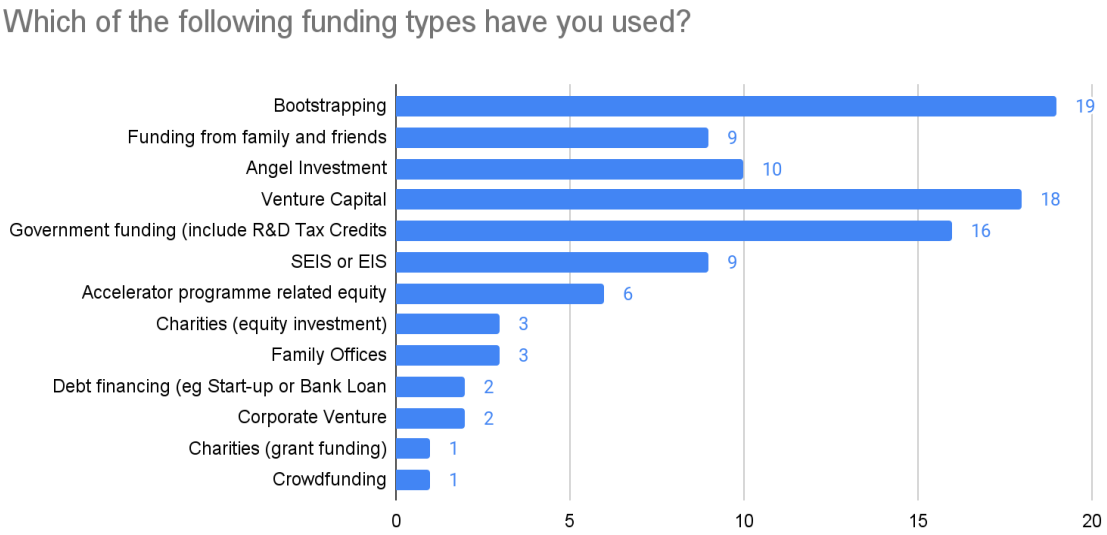
As expected, debt financing is not used to a significant extent, whereas many companies boot strapped their early activity. Equally, crowd funding is not a significant contributor, with only one company using this as a means of securing capital. On the other hand, Government funding mechanisms and venture capital are important sources of funding.

An expectation on the part of the research team was that Family Offices would not appear as a significant funding source for the region's science and technology companies. Family offices are a fast-growing segment of the wealth management industry. A single-family office is an investment structure that manages the money of an ultra-high-net-worth-individual and their family, while a multifamily office is responsible for the wealth of several families

under one umbrella[55]. Family Offices are typically established when a pool of wealth grows to a size that a family's investment needs are best met by a tailor-made institutional setup. Family offices are a well-established structure in Europe and the US. In emerging markets, such as Asia and the Middle East, the family office is a relatively new structure that is gaining traction.

Our expectation, relating to low involvement of Family Offices within the funding mix, was based on a presumption that entrepreneurs are not necessarily aware of Family Offices, nor do they know how to identify and connect with them. There are some Family Offices that participate in Oxfordshire's main angel network, OION, however, it has been difficult to determine how strong a presence they are within the region. Several attempts were made to engage Family Office representation in the qualitative data collection relating to investors, (see chapter 5), but these were mostly unsuccessful. Only three companies (10%) identified Family Offices within their funding mix. However, where companies were asked to rate their experience in raising funding as positive or negative, seven companies responded in relation to Family Offices, and their experience was positive, on the whole. In fact, Family Offices scored most highly in terms of experience, despite being a relatively small part of the funding mix.

Data (presented below) looked at <u>any</u> investment or funding that had been received by the company. We also asked about active investors, i.e. those that still have investments within the company. There were a mix of responses, but on average, companies had seven active investors (range 0 – 20), with the majority (67%) identifying between 1 and 10 active investors (based on 24 responses in total). 82% of companies had not seen any investors exit. A small number of companies had yet to secure external investment, but on average, companies participating in the research had raised 1.8 rounds of finance.

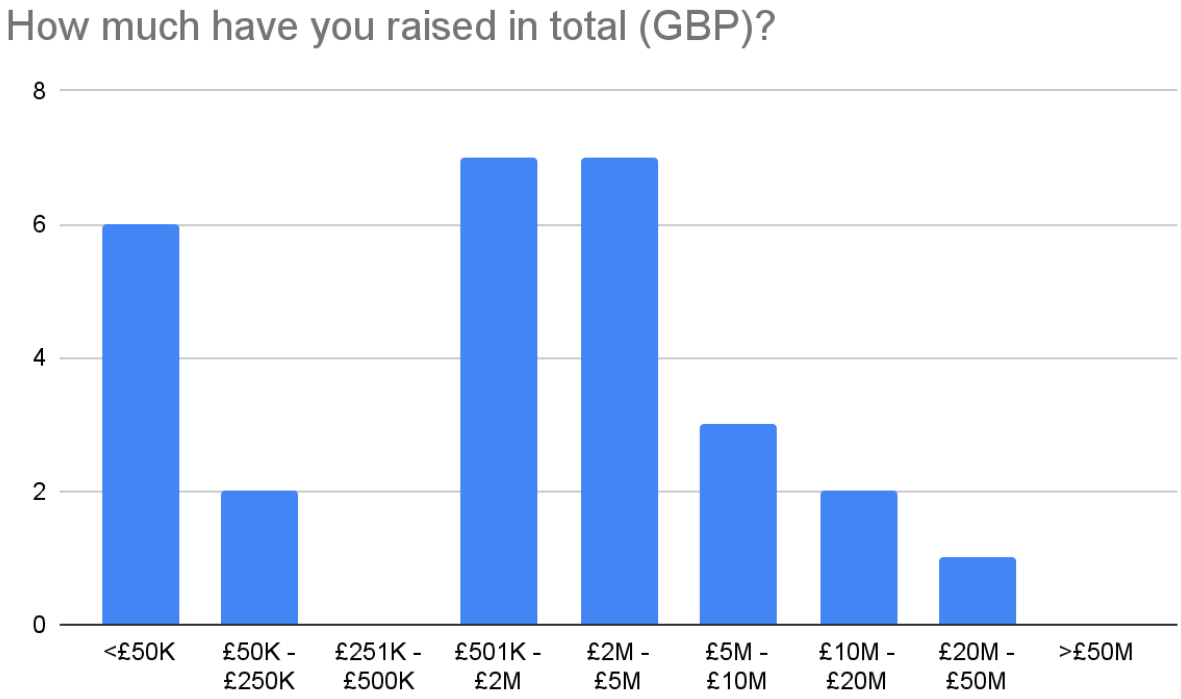


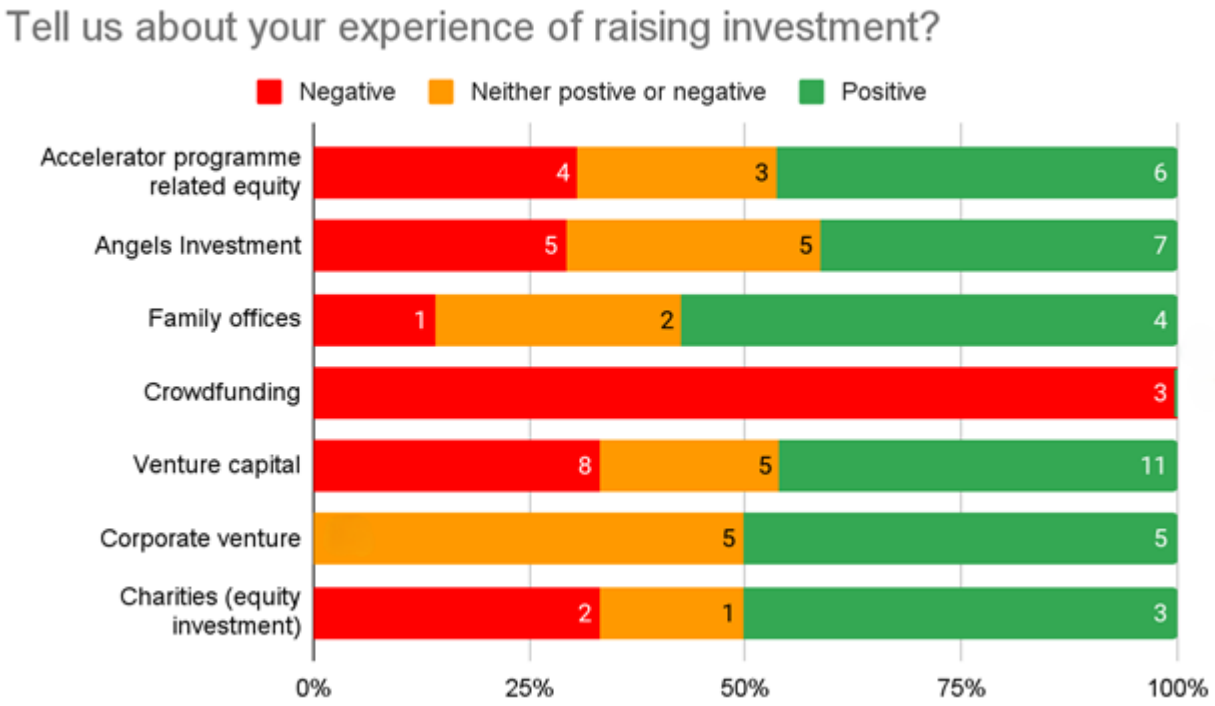

[55] Definition HSBC.com

## Raising investment

As noted above, each company defined their own stage of investment, and these descriptors are self-defined by the company. As a consequence, we also asked companies to identify how much investment they had raised to date. As at least two of the companies had experienced some form of exit or closure, the data for these companies is total amount of investment raised prior to the exit/closure event. The data, as shown in total investment received, aligns well with the stage data, and again is heavily weighted towards earlier stage companies, with eight companies (29%) falling into the pre-seed stage (< £250k) and 13 (46%) having raised at least £2m.

Participants were asked to score their experience of raising investment as positive, neither positive nor negative, or negative across a range of different investor categories. Companies rating their experience of raising investment gave positive scores around (slightly less than) half of the time, with around 45% scoring their experiences as positive when looking at all investment types. Family Offices, as noted above, scored positively, whereas the experience with crowdfunding was entirely negative, although only three companies scored this source of funding. The experience with accelerators, angel investment and venture capital is more mixed, and this probably reflects the extent to which companies have been successful in securing investment from these sources. These three categories elicited the highest number of responses, with venture capital being scored by 24 companies, angel investment by 17 companies and accelerator-related investment by 13 companies.



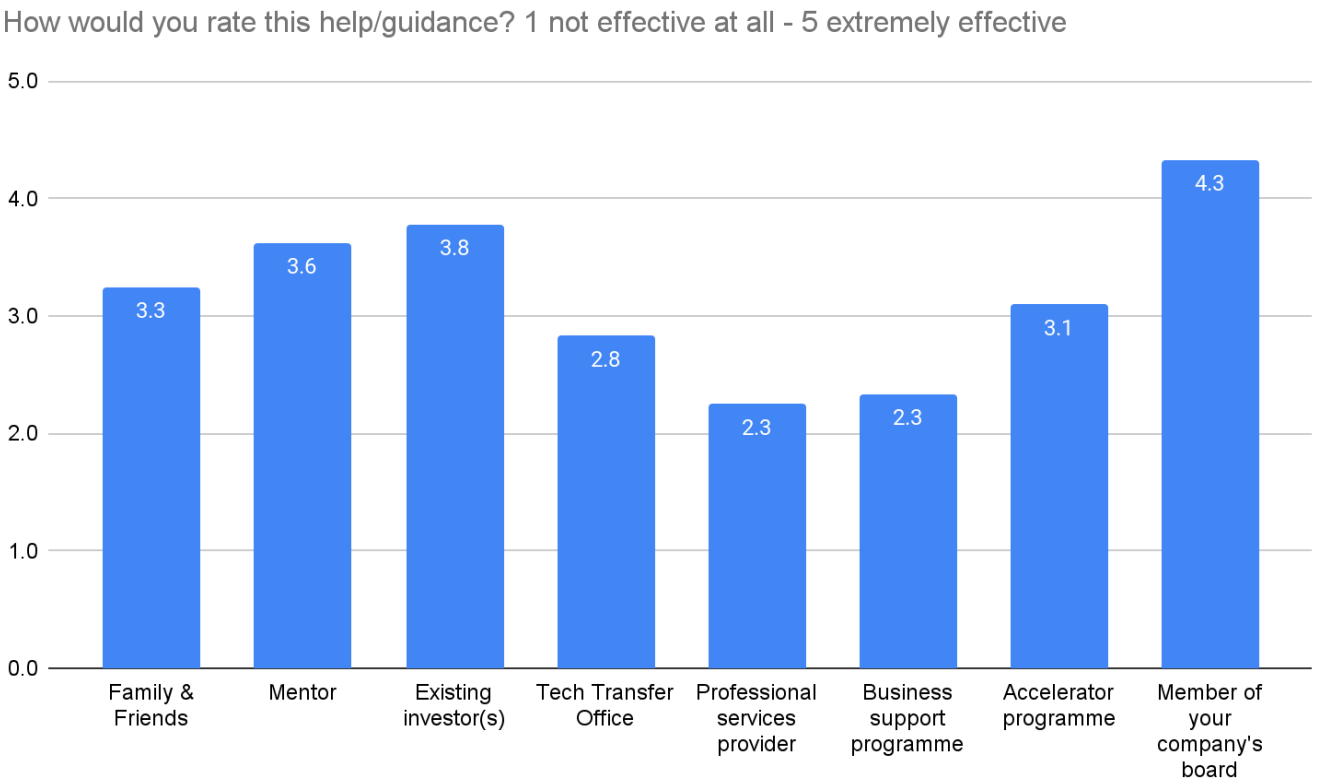



We were interested in understanding sources of advice and support for companies, particularly as our quantitative data analysis had suggested that there may be a difference in levels of support available to companies that have an affiliation or clear connection with the University of Oxford, and the associated programmes, initiatives and services available through the university.

Companies draw on a wide range of support mechanisms, with a relatively small number (4 companies) stating that they received no support at all. Only 6 companies identified a technology transfer office as being a source of help or guidance, despite just under half identifying themselves as a university spin-out (n=14) and a further two companies identifying as a university start-ups, giving a total of 55% with a university connection. It should be noted that, while the companies participating in the research are Oxfordshire-based, it cannot be presumed that this university connection is to either of the region's universities. Mentors and existing investors rate well as sources of help and guidance. On the other hand, only one company had used a commercial consultant.

The highest scoring category of help and guidance was accelerator programmes, which is notable, given this research, and previous research undertaken by Advanced Oxford, has shown that the region has rather patchy provision of incubation and/or acceleration programmes. What is more, noting that there was the option for respondents to identify 'other' help and guidance, two 'accelerator' programmes were identified within this category too, one of which no longer operates. Additional responses to the question relating to 'other' help and guidance suggested that some individuals had previous relevant experience or industry contacts that they could draw on.


Did you receive any help or guidance when you started looking for investment? Tick all that apply
10
8
6
4
2
0
Family & Friends
Mentor
Existing investor(s)
Tech Transfer Office
Professional services provider
Commercial consultant
Business support programme
Accelerator programme
Member of your company's board
Other (please specify)
No help or guidance received


How would you rate this help/guidance? 1 not effective at all - 5 extremely effective
5.0
4.0
3.0
2.0
1.0
0.0
3.3
3.6
3.8
2.8
2.3
2.3
3.1
4.3
Family & Friends
Mentor
Existing investor(s)
Tech Transfer Office
Professional services provider
Business support programme
Accelerator programme
Member of your company's board

While a range of help and guidance was identified, this does not necessarily mean that it was effective, so it is interesting to look at ratings for this support. We see that company board members are rated most highly in terms of help and guidance, while support from professional services firms and business support programmes are viewed equivocally. Given that accelerator programmes were the most frequently cited sources of help and guidance, it notable that they also showed the most variation of score. For the 10 respondents identifying accelerators, experiences appear to be mixed in terms of assistance in sourcing investment, although 7 identified the assistance as being moderately to extremely effective.

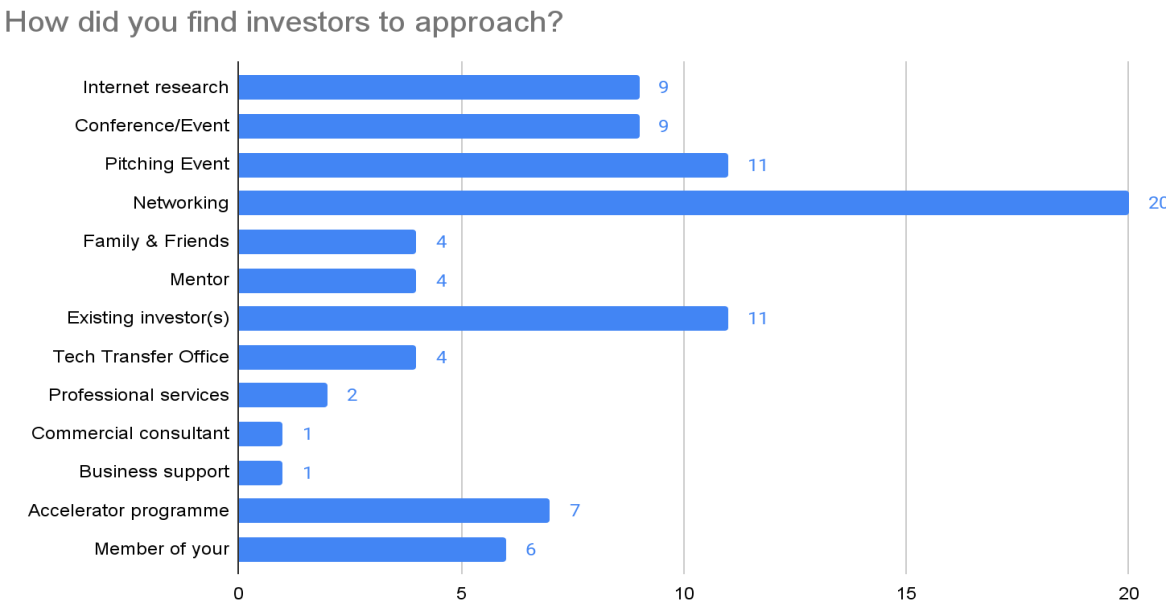
| **Rating the effectiveness of accelerators as a source of help and guidance in looking for investment** | **Number of responses/percentage** |
|---|---|
| Not effective at all | 2/20% |
| Slightly effective | 1/10% |
| Moderately effective | 3/30% |
| Very effective | 2/20% |
| Extremely effective | 2/20% |

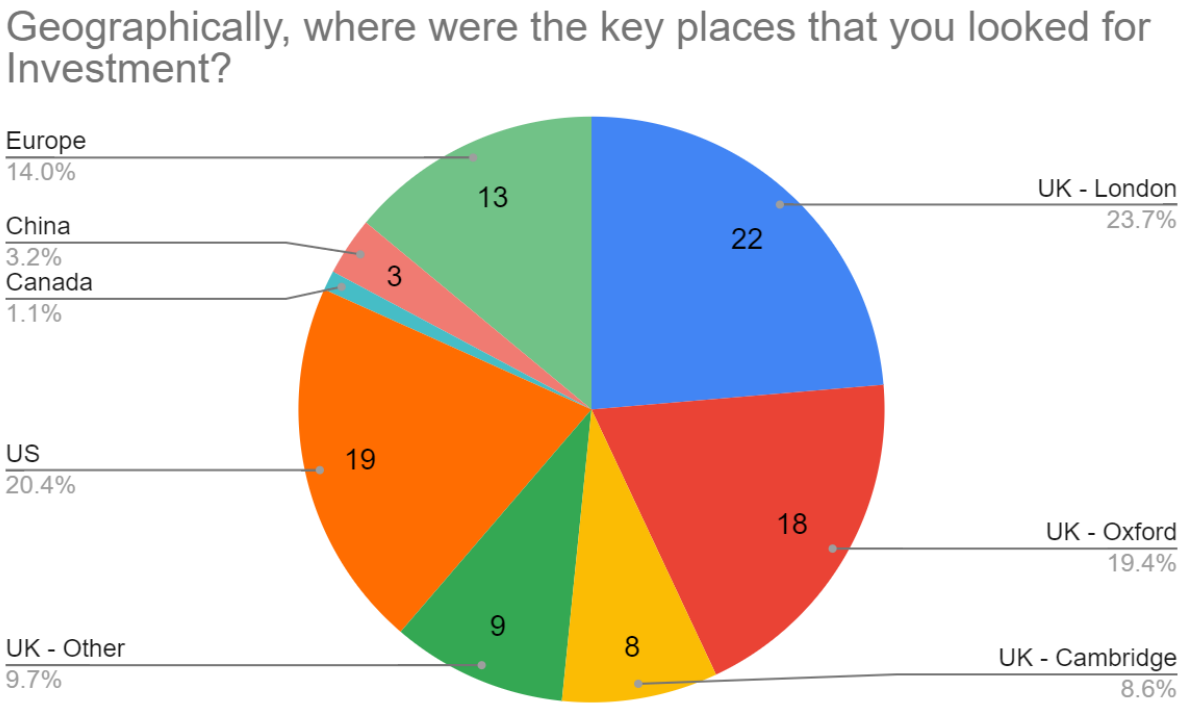
We asked companies 'what would have helped you?' where companies were able to suggest up to three things that would have assisted them. Although 'warm introductions' is identified separately, and the score is relatively low in comparison to other factors, it seems that access to resources, advice and support is seen as critical, including assistance with making connections and identifying potential investors that would be a match for the company.

| **Sources of help identified by respondents** | **Count of responses relating to the source of help** |
|---|---|
| Access to resources, advice and support | 19 |
| Improved commercial support through a university | 6 |
| Improved investment ecosystem | 12 |
| Networking and pitching opportunities | 8 |
| Warm introductions | 8 |

When it comes to finding investors, networking is by far the most significant route, although, again, existing investors are identified as being important, as are pitching events. The UK is

the most important geography for the earlier stage companies that participated in this research, but companies also look to other geographies, with 20% of companies looking to the US to find investors and investment.

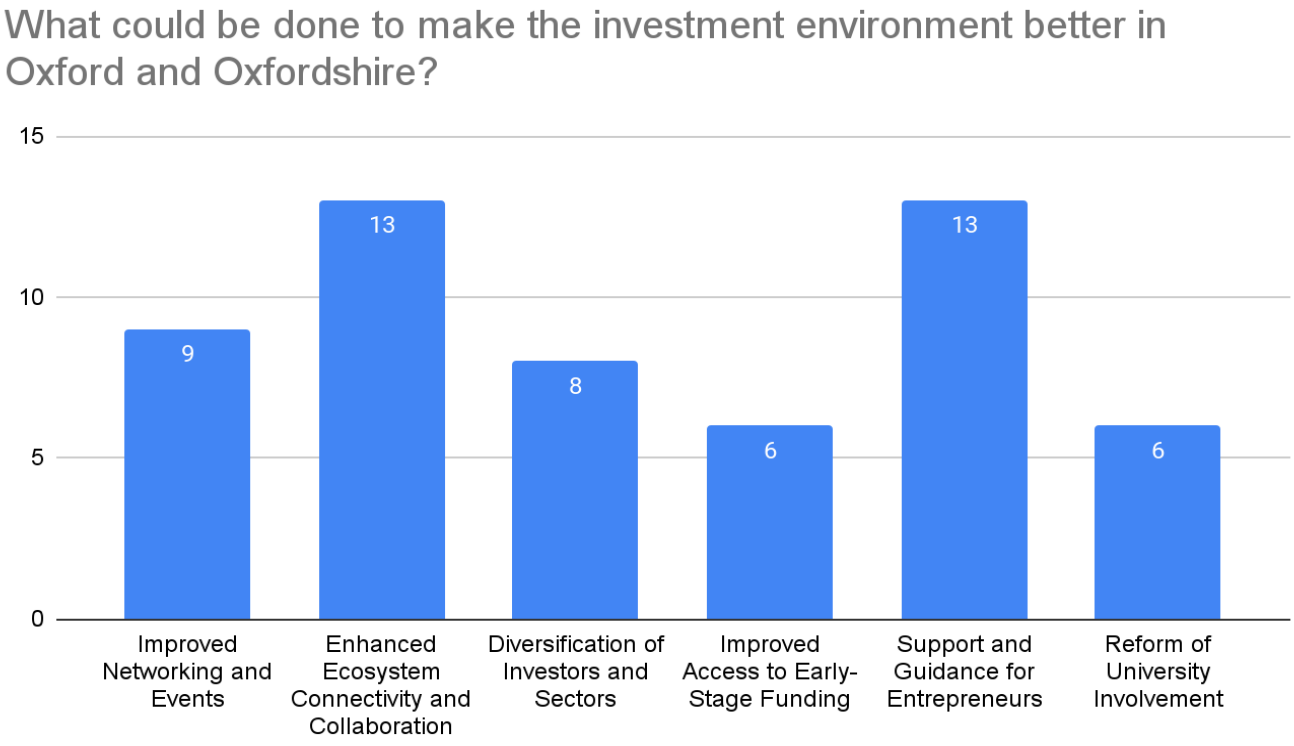


## The region's investment ecosystem

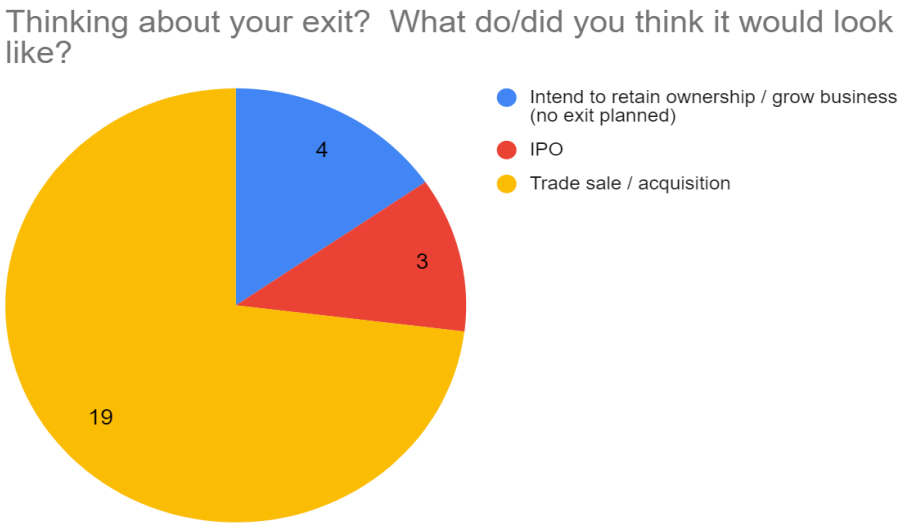
When asked what would help companies when looking for investment, an 'improved investment ecosystem' was the second highest scoring issue. When asked what could be done to make the investment environment better in Oxford and Oxfordshire, an ecosystem which supports connectivity and collaboration was identified, alongside support and guidance.

The issue of connectivity and collaboration is interesting to see represented in the data below. While the data presented in this chapter is based on responses to a formal and structured set of questions, a recurring issue, raised through communications with Advanced Oxford and through research undertaken for other projects, such as the Oxfordshire Innovation Engine (OIE 2023) report in 2023, is a view that the ecosystem is fragmented. Entrepreneurs and innovators perceive a difficulty in 'breaking in', or 'breaking through', into communities, networks, and particularly into the university ecosystem. OIE 2023 noted that Oxfordshire's innovation ecosystem is distributed widely throughout the region, and while there is some clustering, companies are located throughout the county. This can also be seen in the location heatmaps presented at the end of chapter 1 of this paper, which focuses on the quantitative analysis undertaken in support of this project. While the distributed nature of the region is positive from an economic perspective, with science and technology companies contributing across the region, when it comes to connectivity, signposting, finding help and resources, collaboration opportunities etc., it can be a disadvantage.

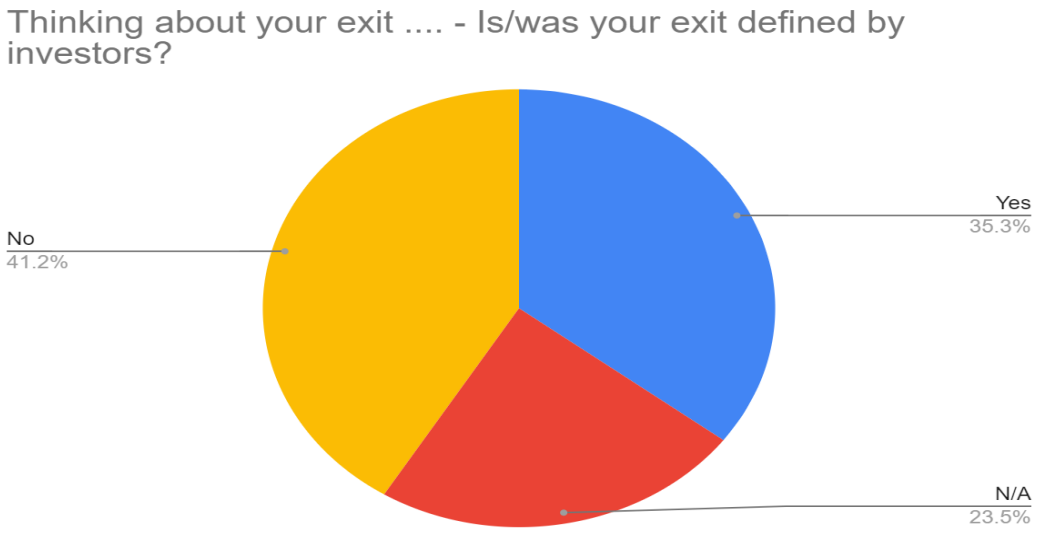


## Exits

We asked whether having a clear exit pathway when raising investment was important. All the respondents identified it as being important to some extent, with over half of companies (54%) saying it was very, or extremely important. Trade sale/acquisition is seen as the most likely exit for companies participating in the research.




Only three companies identified IPO as a potential exit route, and for these companies, when asked which stock market they would choose for flotation, only the US markets (New York Stock Exchange and Nasdaq) were identified. On the other hand, the extent to which investors are defining exit strategies elicited a much more mixed response.



## Summary of key themes from respondents

We used free text questions throughout the questions. In this final section of this chapter, we draw out the key themes identified across respondents, alongside examples of soundbites to illustrate the views expressed. This section particularly focuses on issues or measures for improving the investment environment and support for startups in Oxford and Oxfordshire. The responses reflect the complex interplay between university involvement, funding accessibility, infrastructure needs, and the broader economic environment that shapes the region's startup ecosystem.

### Theme 1. Networking and connections

- Importance of warm introductions and well-connected contacts emerged strongly, even though warm introductions did not score as highly as might have been expected in questions about what would help companies.

- The need for better networking opportunities with investors was a key message

- A need for better collaboration and connectivity among organisations was identified

*"Warm introductions are the golden ticket in Oxford's investment landscape."*

### Theme 2. University involvement

- Issues were raised relating to university equity stakes and the extent to which they were hindering further investment

- The importance of clear guidance from Technology Transfer Offices (TTOs) was called for

*"The university's stake can be a double-edged sword - it lends credibility but can make it difficult to bring in other investors."*

### Theme 3. Access to resources and support

- There is a clear demand for mentorship and advisory support

- A need for technical, regulatory, legal, and financial advice was also identified

- The importance of grant application support was flagged

*"Academic founders need a lot of hand holding. Business skills aren't valued as highly as the technical."*

### Theme 4. Investment ecosystem improvement

- There was a call for more local VCs and early-stage funding. The critical need for accessible early-stage funding was seen as particularly important

- The importance of curated investor data was highlighted, particularly to understand what investors are looking for, and to identify those that are open to new investments

- There needs to be a more inclusive ecosystem, especially for those not associated with the university

*"Unless something is done to make first money available easily, along with lots of tailored advice and coaching, the British startup environment will remain hostile and hopeless."*

*"The hardest thing is finding people who are actively doing deals. Investors are risk averse."*

*"If you are not associated with the University of Oxford, it is very difficult to break through closed doors."*

### Theme 5. Infrastructure and environment

- The need for low-cost lab space was identified

- The importance of creating a better environment for women to raise investment was flagged

- Given that around half of the companies that responded were from life sciences/health, it was interesting to see the necessity of hospital engagement for healthcare startups identified as an area of potential support

- The challenges in recruiting and retaining talent due to housing affordability are key issues

*"Oxford needs to compete…particularly with modern sustainable transport infrastructure."*

*"We often hear that there are key differences between Oxford and Cambridge. We have not encountered any major differences at all."*

## Theme 6. Government support

- The need for more government understanding and support was identified

- The role of public money in supporting startups was identified, particularly during economic downturns when securing private capital is challenging. This extends beyond grant funding, which was seen as incredibly important, but also to measures such as the R&D tax credit regimes

"When private equity declines, public money is needed to plug the gap. Good companies should not fail because of bad luck alone."

# Chapter 5: Investors experiences and perceptions– data and response summary

As in the previous chapter of this paper, the data presented below is qualitative data, this time focusing on the experience and perceptions of investors. Advanced Oxford conducted research using a mix of questionnaires and structured interviews to explore a range of issues, including perceptions of the Oxfordshire ecosystem and identification of any barriers within the Oxfordshire landscape. Data was collected between 1st May and 28th June, 2024.

26 individuals responded, with 23 completing all questions and three providing partial responses. A mix of different investors participated in the research, and they were drawn from several locations, with some being Oxfordshire-based. Venture capital (VC) firms, corporate VCs, the investment arm of a charity, and angel investors were among those participating in the research. The data was further validated by a small number of interviews (n=4), which are not included in the 26 responses which form the basis of the charts and tables below, but were used to add weight to some of the narrative responses that were collected through the questionnaires and structured interviews.

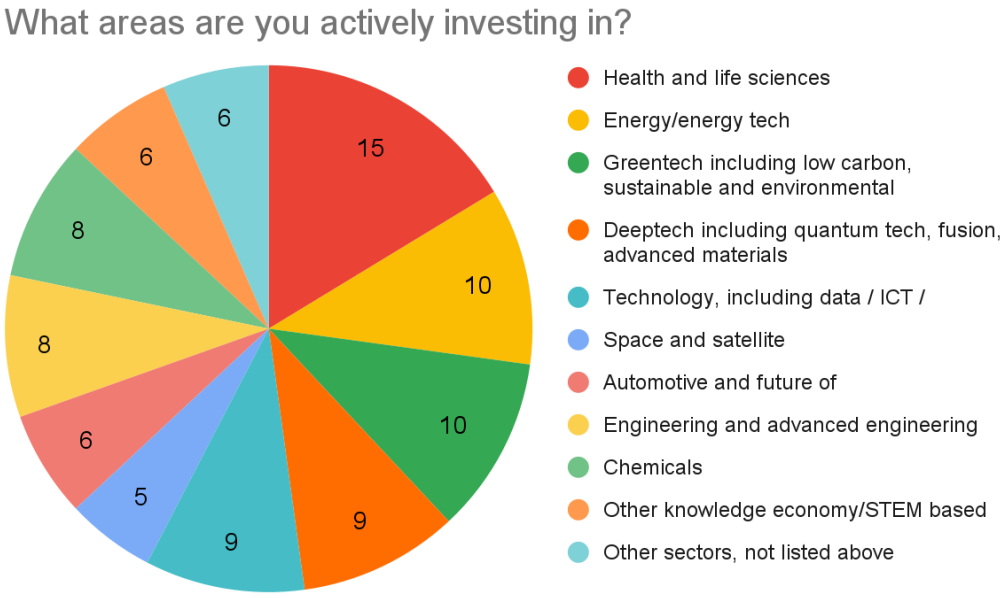
An attempt was made to engage as widely as possible, to draw in perceptions and experiences not only from investors that are already working within the region, but from others that appeared to have no activity within Oxfordshire; however, this proved to be extremely difficult. According to a report by HSBC and Dealroom[56], the UK is home to thousands of venture capital firms. A search using data platform mnAI produced a list of over 4.3k companies that have the standard industry classification (SIC) code 64303 (venture and development capital companies). Cleaning this list further resulted in a list of over 3.6k companies that appear to be active, although this included duplicates where an investment firm may have more than one registered company. However, it was clear that not all of these companies are active, venture focused, or active investors. This list was further interrogated using scraping methods to find those with some form of on-line presence, where a website and/or a LinkedIn page was determined to be the most likely way in which active firms would promote themselves or communicate their interests and to find relevant contacts. A sample of around 40 companies were approached, particularly targeting individuals where there may be a connection to Oxford/Oxfordshire, such as university alumni, appealing to their good will to support the research. Unfortunately, no responses were forthcoming. Consequently, and unsurprisingly, all the respondents to the investor-related questionnaire have some form of relationship or connection to Oxford and Oxfordshire already, which inevitably will influence their views and responses.

[56] UK Innovation update Q1 2024

## Sectors/verticals of interest

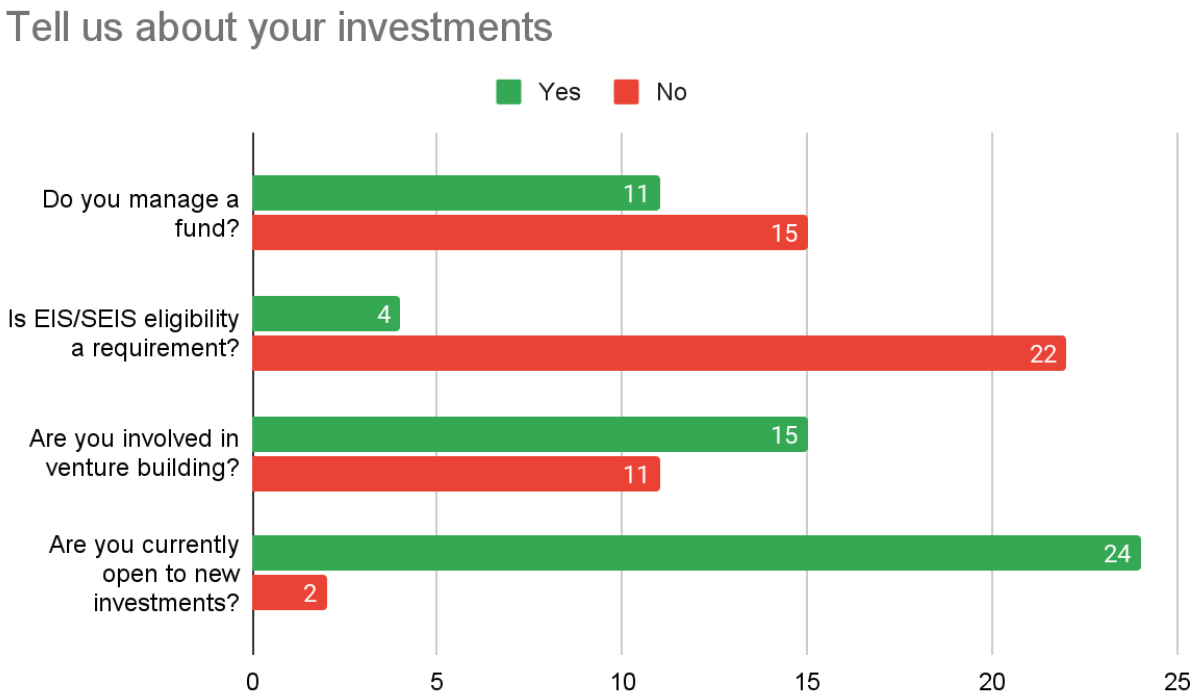
Investors participating in the research have a wide range of sector and technology interests, both in terms of investments they would consider and where they have investments.

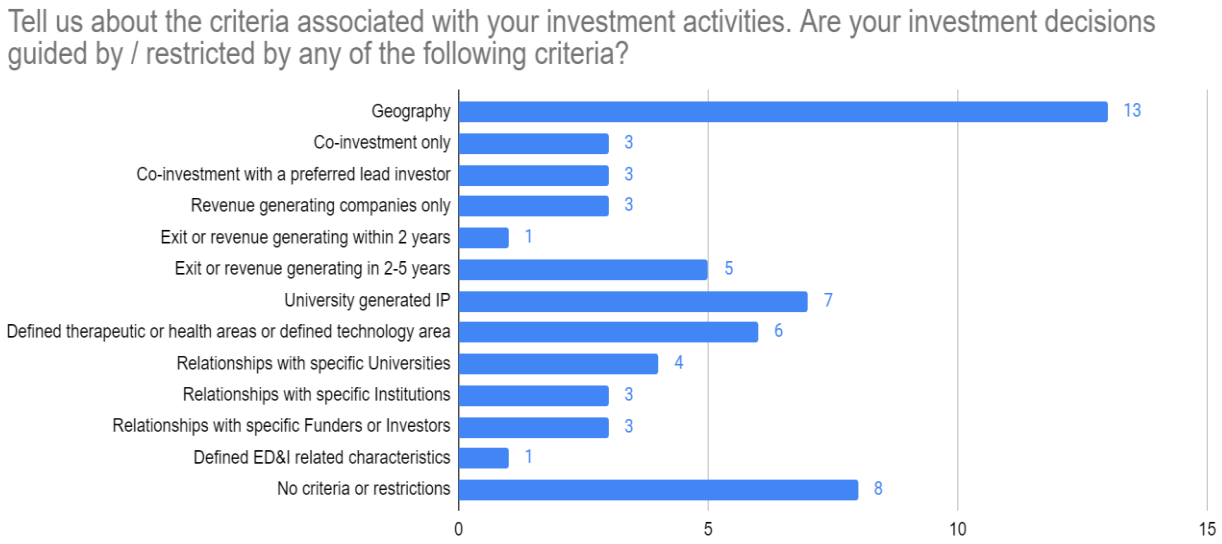
| What sectors are you interested in investing into? | Actively investing | Would consider | Have previously invested |
|---|---|---|---|
| Health and life sciences | 15 | 3 | 1 |
| Energy/energy tech | 10 | 5 | 1 |
| Greentech including low carbon, sustainable and environmental | 10 | 6 | 1 |
| Deeptech including quantum tech, fusion, advanced materials | 9 | 5 | 1 |
| Technology, including data / ICT / software / SaaS / digital tools and platforms | 9 | 5 | 2 |
| Space and satellite | 5 | 6 | 0 |
| Automotive and future of transport/mobility | 6 | 6 | 0 |
| Engineering and advanced engineering | 8 | 5 | 1 |
| Chemicals | 8 | 3 | 0 |
| Other knowledge economy/STEM based | 6 | 6 | 2 |
| Other sectors, not listed above | 6 | 3 | 3 |




## Investment activity

The majority were open to new investments, and over half (58%) were involved in venture building.



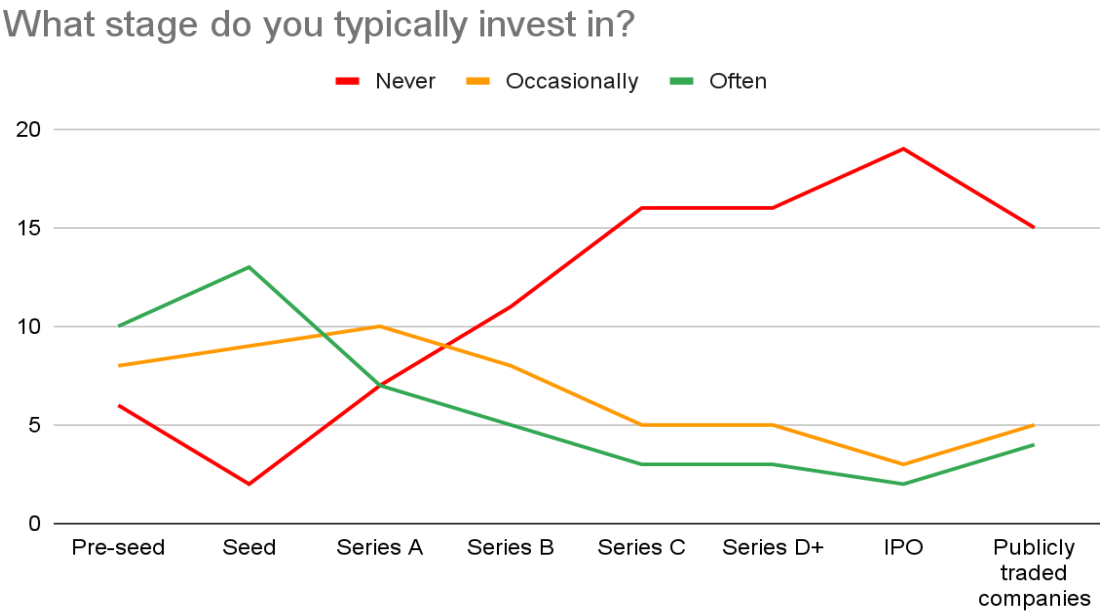



When asked about criteria used in decision making there was a range of responses, with geography being the highest scoring criterion. There was the opportunity to identify other criteria, not included above. Responses included:

- A rich IP background with more than one potential route to market - a 'plan B'
- A focus on Series A+ investments, although the investor can make exceptions
- The key is how derisked is the technology and the customers

When asked about the stage of investment, 23 responses were received

| What stage do you typically invest in? | Never | Occasionally | Often |
|---|---|---|---|
| Pre-seed | 6 | 8 | 10 |
| Seed | 2 | 9 | 13 |
| Series A | 7 | 10 | 7 |
| Series B | 11 | 8 | 5 |
| Series C | 16 | 5 | 3 |
| Series D+ | 16 | 5 | 3 |
| IPO | 19 | 3 | 2 |
| Publicly traded companies | 15 | 5 | 4 |




The preferences for early-stage to series A, among the investors participating in the research, can be more readily seen from the chart above, although all stages of investment were covered by the responses.

As noted in earlier chapters of this paper, we did not define stage of investment within the questions, so this was open to interpretation by respondents, but when looking at minimum and maximum amounts of investment per company / per year that respondents would consider there was a very wide range. (Data shown in £ GBP).

| | **What is the minimum investment you can make per company, per year?** | **What is the maximum investment you are can make per company per year?** |
|---|---|---|
| Lowest response provided | > 1 | 100,000 |
| Highest response provided | 30,000,000 | 280,000,000 |
| Average across all respondents* | 4,725,000 | 58,465,000 |

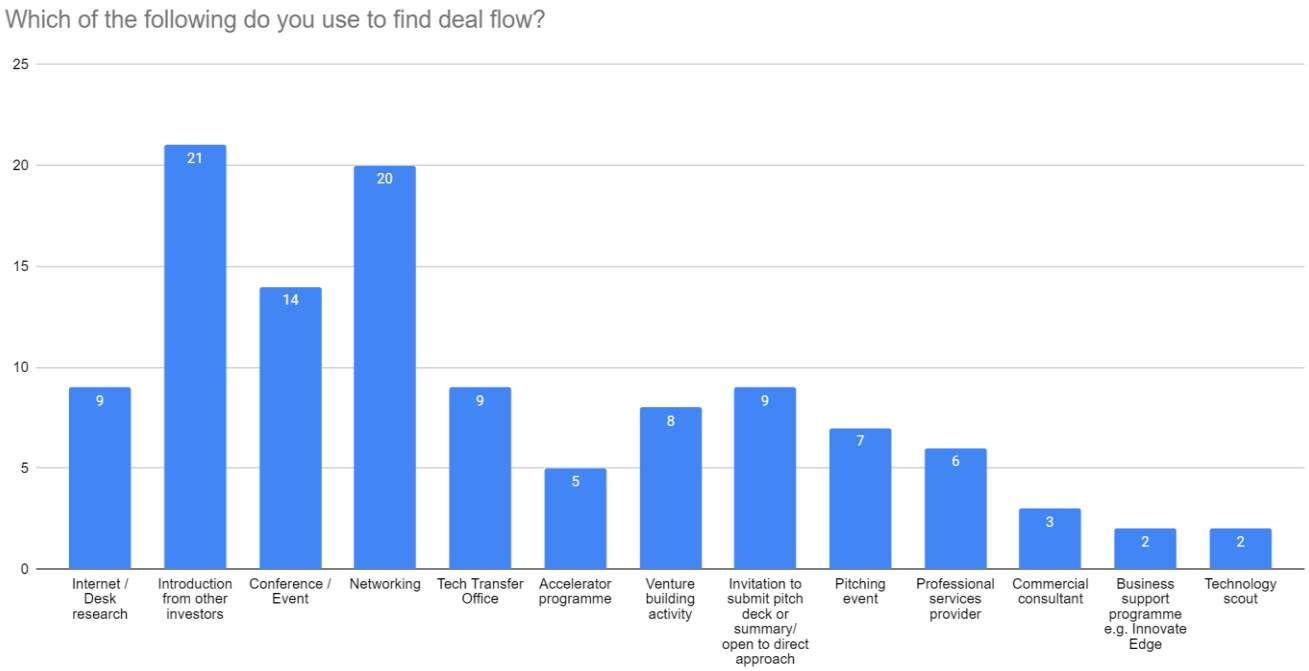
NB from the responses, we inferred that at least 3 angels responded to this question. These responses were removed from analysis.

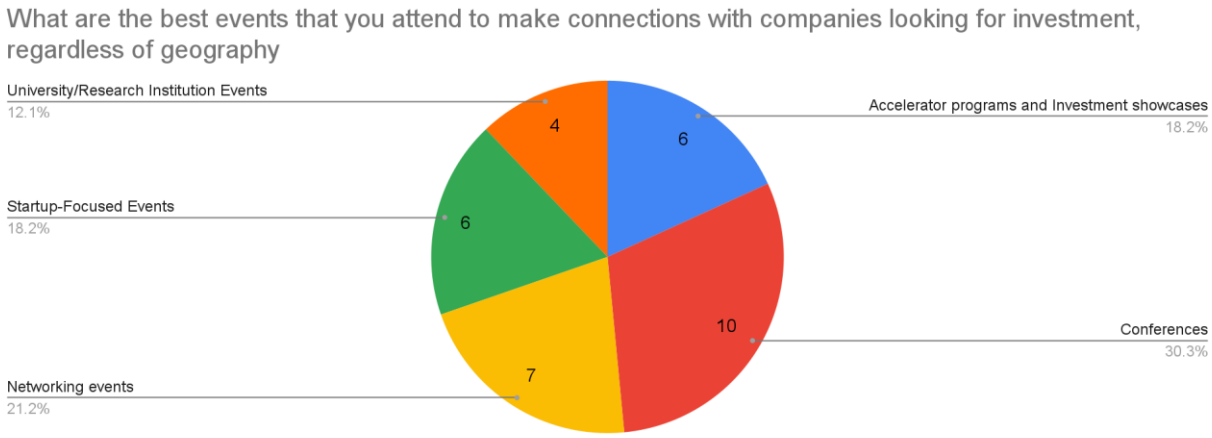
## Finding companies and investment opportunities

In the following questions we turn to the ways in which investors find and connect with companies and investment opportunities, as well as their geographical preferences. Respondents were invited to identify as many ways and as many places as appropriate. It is notable that the highest scoring responses, in terms of finding deal flow are (i) introductions from other investors (n=21); (ii) networking activities (n=20); with (iii) conferences and events the third highest scoring method (n=14). These results underscore the relationship-based nature of investment activity. They also align well with the experiences and responses of entrepreneurs, set out in the previous chapter. Some investors do offer the opportunity for submission of pitch decks and/or to make direct approaches, but this does not score as highly, again reinforcing the findings of the research with founders and management teams that assistance with connections, introductions, mentors and experienced board members can help enormously.

Although the qualitative data analysis at the beginning of this paper identified a cadre of 'super-investors' that have strong connections to the University of Oxford and/or have roots in the Oxfordshire ecosystem, the investors participating in the qualitative research rely much less heavily on connections to technology transfer offices, which is encouraging for innovators who do not have a heritage within the university.

While accelerator programmes appeared as a source of help and guidance for entrepreneurs, albeit the view of their effectiveness was mixed, many in the group of investors responding to this research do not see accelerators as being means of finding deal flow.

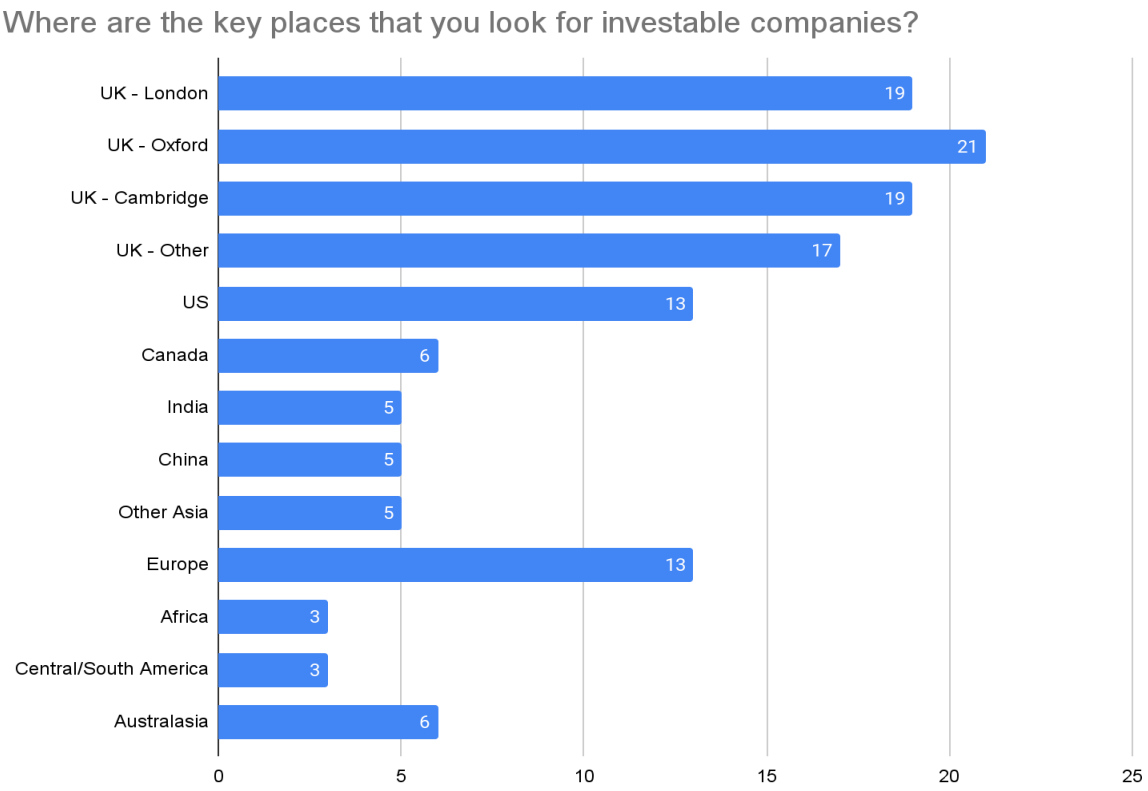





As networking, relationships and personal connections are so important, we asked which events respondents attended in Oxfordshire. The following were identified regularly in responses. Events run by:

- Oxford University Innovation
- Oxford Science Enterprises
- OION (angel nework events)
- North Oxford Investment Club
- Oxford Science Park
- Said Business School/Creative Destruction Lab
- Prof Sir John Bell and Baroness Nicola Blackwood were also identified as individuals that would make events attractive to attend

Turning to the question of geography, the results show a clear focus on the UK for the majority, with a slight preference for the Golden Triangle of Oxford – London – Cambridge. Many of the investors that responded also look for investments outside the UK and the US and Europe are key places.




Although Oxford scored highly within the list of key places that investors look for investable companies, we wanted to understand how well-placed is Oxfordshire among other locations within the UK? Respondents were asked to name the three best places in the UK to invest. There was a very strong preference for the south-east of England.

| Location | Number of responses |
|---|---|
| Bristol | 1 |
| Cambridge | 9 |
| London | 16 |
| Manchester | 1 |
| Oxford | 10 |
| Scotland | 1 |
| Cornwall | 1 |

The responses were based on free text, and no options were offered to guide responses to this question; further supplemented by the ability to set out why the location was rated

highly in comparison to others.  The key themes and issues for London, Oxford and Cambridge, underpinning their success as investment destinations, are set out below.

## London

**A global hub**: London is a global hub with unparalleled access to funding, talent, and a diverse range of opportunities across multiple sectors.

**Depth and breadth**: The city's depth and breadth of opportunities, along with its critical mass of support specialists, make it a prime location for startups and investors alike.

**A connected ecosystem**: London is a well-connected ecosystem, bolstered by strong networks and events.  This ensures a steady flow of deal opportunities and access to top-tier talent.

## Oxford

**Knowledge and innovation**: Oxford is renowned for its deep source of intellectual property and significant research resources, driving recent medical innovations and technological advancements.

**Critical mass and quality**: The region's critical mass of high-tech firms, combined with quality [science] infrastructure and funding, supports a thriving investment environment.

**Life Science – a strength**: Oxford's strength in life sciences, coupled with numerous innovation initiatives and a robust technical talent pool, makes it a key destination for investors.

## Cambridge

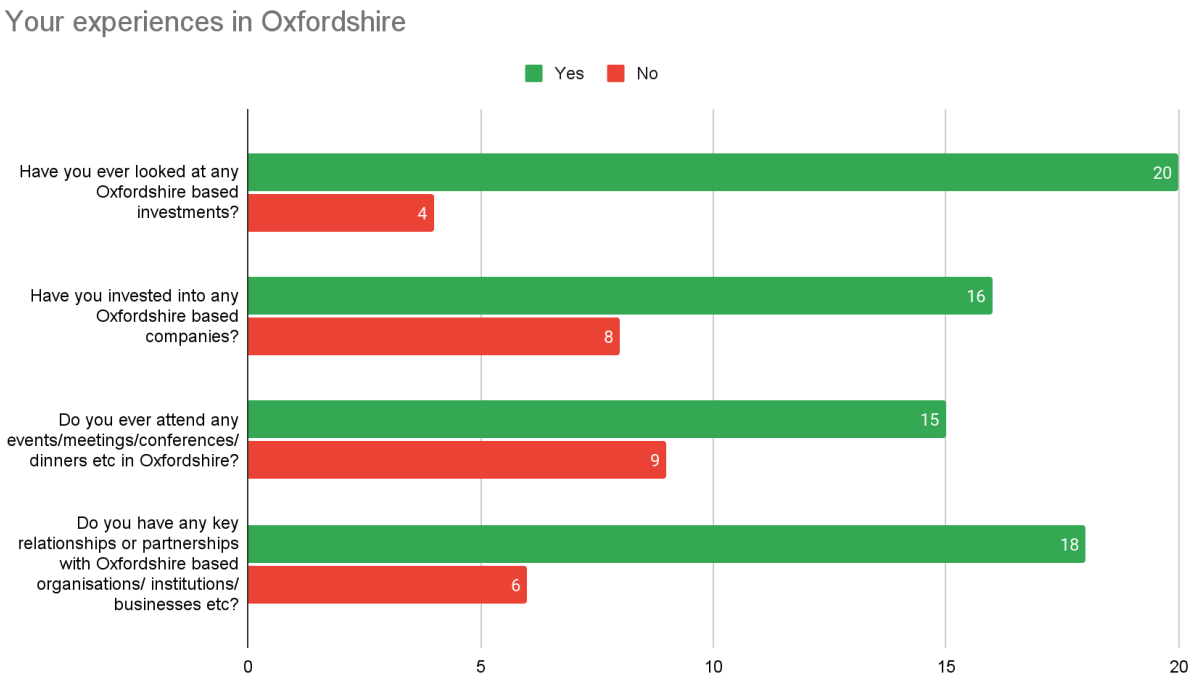
**A vibrant ecosystem**: Cambridge boasts a vibrant ecosystem with a strong focus on life sciences and deep tech, supported by a dynamic exchange of knowledge and ideas between academia and industry.

**Critical Mass and talent**: The region's critical mass of talent and funding, combined with its established science parks, makes it a powerhouse of innovation.

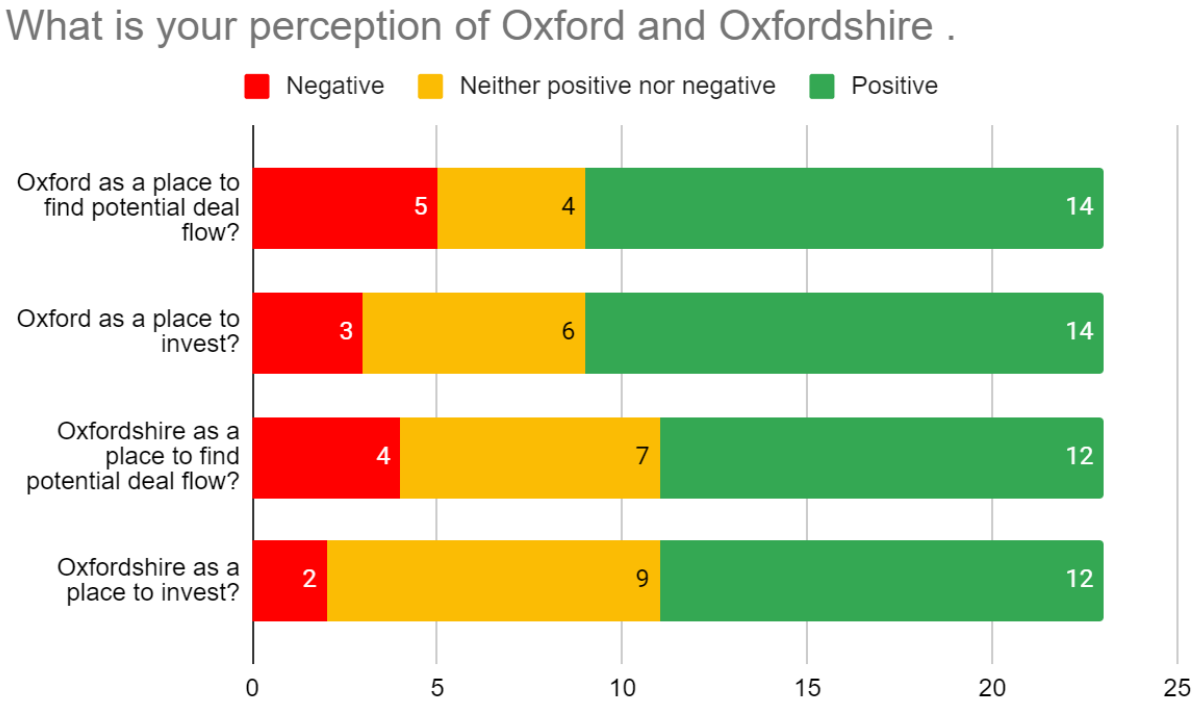
**Quality and infrastructure**: Cambridge's high-quality research and infrastructure, including the presence of leading institutions like the University of Cambridge, create an ideal environment for investment.

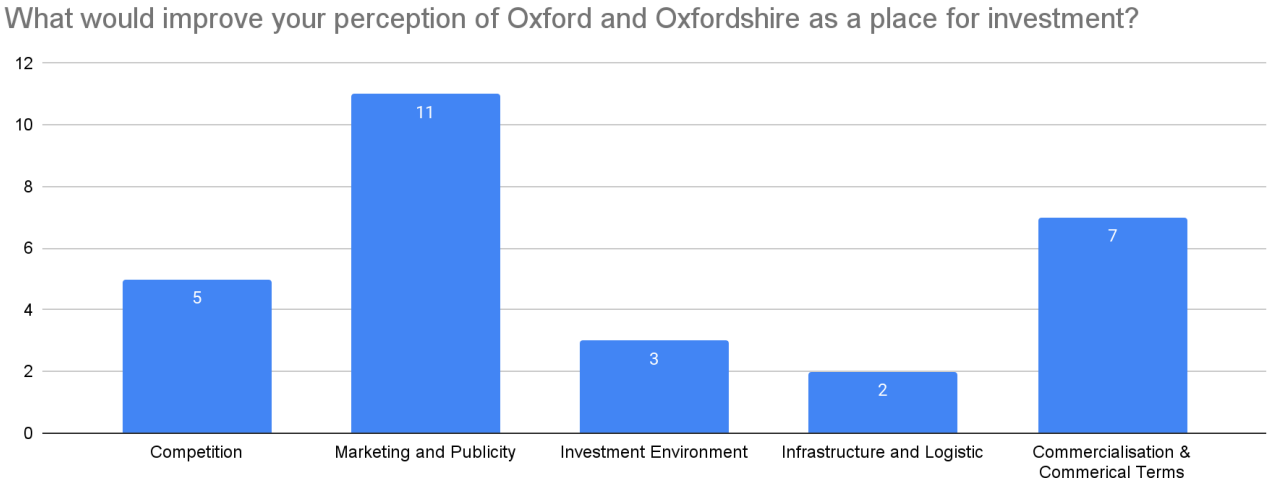
## Experience and perceptions of Oxfordshire

As noted previously, the respondents were biased towards a group of investors that are familiar with the region, likely have some connection to it, and were presumed to have engaged within Oxford and Oxfordshire when looking for companies and investment opportunities. This was supported by data which looked at experiences of working with and within the Oxfordshire ecosystem.




As many of the research participants had direct experience of working and connecting within the region, we turned to question of their perceptions, asking investors to rate their perceptions of Oxford – the city – and Oxfordshire, the region. As noted previously, the innovation ecosystem within Oxfordshire is widely distributed and there are clusters across the region. It is encouraging to see that the perceptions are broadly positive for both the city and the region, with 14 individuals (60%) rating the city as positive for finding deal flow and as a place to invest. The county scores slightly lower, but still has scores of 52% positive perception. However, while the negative perception scores are relatively low (22% of participants had a negative perception of Oxford as a place to find deal flow) the number who are equivocal is notable, particularly at the level of the county (39% neither negative nor positive).




Having given their perception ratings of Oxford and Oxfordshire, we asked respondents to suggest one thing that would improve their perception of the region as a place for investment. The responses are given above. Although the question asked for one response, as this was a free text question, a small number of participants gave more than one suggestion. Improved marketing of the region and publicity was identified by around half of the respondents.

Finally, although many had experience of investing within the region, we asked respondents to identify the main reasons for not investing in Oxfordshire-based companies. The reasons

fell into two broad groupings, (i) lack of engagement and awareness; (ii) mismatch between opportunities and the investment interests/priorities of the investor.

*"…didn't know how to engage with the ecosystem"*

*"No historic link to the ecosystem"*

*"Not seen deals from there"*

*"Haven't seen any opportunities"*

*"Looking for one that is in scope"*

*"Explored at least one company, but not aligned to corporate VC priorities"*

# Draft Recommendations

## National policy recommendations

- Continue with the Mansion House compact at pace
- Early stage and seed investment support is needed, in addition to growth financing. The British Business Bank should have more interventions to support early stage and seed investment such as programmes to support a more diverse group of emerging managers. Co-investment funds, like the Innovate UK investor partnerships, that could be accessed by established angel communities would be advantageous and would rebalance funding to help founders and innovators to get started and would help to encourage more inception stage angel investment activity.
- Oxfordshire needs to be recognised as a region that should be supported alongside other geographies, given the growth potential within the region.
- SEIS and EIS should be expanded to encourage new sources of capital to be invested into supporting innovative start-ups, such as extending SEIS and EIS eligibility to Family Trusts.

## Angel investment

- Regular informal education and introduction to angel investment events, led by experienced angel investors, should be developed within the Oxfordshire region, to be delivered, initially at least twice a year, to widen the pool of individuals that might consider becoming angel investors (e.g. current founders, management and executive teams, senior academics, clinicians etc.) and to help connect them to others, including active angels and potential syndicate members.
- Regular syndication of events with other national and global angel networks and VC scout programmes should be considered to help share best practices, promote the Oxford/Oxfordshire opportunity and expose founders to a wider group of potential investors.
- A regular 'clinic'/ 'office hours' service should be considered to help founders to better understand what angel communities are looking for and to help them to prepare for approaches to potential investors.
- Regular special interest/sector focused dinners and/or informal events should be trialled to (a) introduce a degree of exclusivity into angel activities, and (b) to help to identify and encourage lead angels for the best companies looking for angel investment.

## Broadening the pool of investors that are engaging in the region

- Better signposting is needed that communicates that Oxfordshire is THE place to find innovative talent, to both start and to scale companies. A campaign should be developed to encourage a wider pool of occasional national and global investors to develop and deepen their relationships with the region, including actively targeting them to establish an on the ground presence, connecting them into angels, founders, academics and companies, including companies that have no affiliation to the University of Oxford.
- The campaign identified above should include a place-based component, which introduces Oxford and Oxfordshire as the 'place to be'. This should include identifying a small number of high quality and vibrant hubs that investors are encouraged to use as their base of operations in Oxford/Oxfordshire, where they can work, hold meetings, engage with the ecosystem and get to know key players and start to connect with founders and management teams. These places should be a blend of co-working space and college common room in a small number of key thematic locations, e.g. central Oxford proximate to the train station, Oxford Brookes Enterprise Centre and the Harwell Campus.
- The message should be communicated by all parties that you are welcome here, that the entire ecosystem is fully open for business at any stage of investment from a first discovery cheque to growth.
- Family Offices provide useful pools of private capital but can be difficult to engage and relationships with the region are still weak. Ways to encourage more Family Offices to engage with the region should be explored, including inviting relevant Family Offices to participate in specialist/sector focused events.
- Real estate investors frequently sit within larger investment companies which have private capital divisions that could potentially invest into companies within the region. However, there may be no established relationship between the real estate investment division and the private capital division, so connectivity with the region is poor. Given that real estate investors into Oxfordshire have a real interest in having a population of well-funded science and technology companies, effort should be made to engage with the private capital and encourage it to sit alongside place-based investments.
- Better story telling is needed about exits. These need to be collected and celebrated just as good news stories about growth and scaling companies, with key commercial success, should be told. Although there are mixed feelings in the region about the role of exits, and a perception that companies are pushed towards exit and founders replaced prematurely, rather than supported on a growth trajectory, it is important to communicate successful exits, as they show the potential of returns for investors. At the same time, there should be more showcasing of companies that are 'in it to grow' to encourage and attract patient capital to the region.

## Building a better environment for everyone to flourish

The change of focus of the Local Enterprise Partnership and diminishing regional development funding, driven by the loss of European funding and devolution models in the UK, has reduced the level of business support available for early-stage companies and, in particular, has resulted in a reduction in innovation-focused support and activities. There are few sources of impartial guidance, support or signposting for founders, academics and innovators. This is true for companies in the University of Oxford ecosystem but is worse for companies that sit outside of the support mechanisms and resources that are available to University of Oxford connected or founded companies. As most successful investment relationships are established through warm introductions and established connections, many companies are unsupported and find it difficult to get started and to break through with investors.

- A consortium of interested parties should come together to establish and deliver an honest brokerage services for all companies, to provide clinics, reviews of business plans/pitch materials, training, signposting, quality assurance, and, where appropriate, introductions to investors. Ideally, these activities would have a place-based component to them and would align with the 'place to be' offer made to investors.
- The city's business schools are currently semi-detached from innovators and investment activity, despite some services and programmes being delivered, e.g. Help to Grow and the Scale-Up Network at Oxford Brookes Business School and Oxford Venture Builder at Said Business School (only open to students and staff). Can these sources of expertise and research be better integrated to support local businesses?
- Development and alumni offices of academic institutions should be engaged to draw in a wider group of globally innovative alumni back to the city to support, fund and guide founders and companies.
- There are surprisingly few incubator and accelerator programmes operating within the region. There is evidence that these programmes provide invaluable support to get companies started, with connections to advice, mentoring and support and a number of the region's innovation-based companies have benefitted as participants. Although the commercial model can be challenging and a variety of programmes have started and stopped over the last decade, it is surprising that a centre of innovation such as Oxford/Oxfordshire, has so few incubation and acceleration activities and it striking that our companies tend to go to London, Boston or San Francisco to access such support, with the risk that they are lost from the region.

# Acknowledgments


## Advisory Board

Advanced Oxford has assembled an expert Advisory Board to support this work. The role of this group has been to guide the project; assist in defining the scope; to advise on research activities, including access to data; to provide knowledge and connections/introductions to support qualitative data collection and analysis. Our advisory board is:

- Jens Tholstrup, Executive Chair, Oxford Innovation Finance; Advanced Oxford board member; Trustee International Institute for Strategic Studies (IISS); Chair of Governors, St Clare's, Oxford; Visiting Fellow at Kellogg College, Oxford
- David Ford, active angel investor with over 25 years of global asset management experience, across both public and private markets
- Andre Wierzbicki, corporate lawyer, asset management and private markets
- Susannah de Jager, public markets investment management background, advisor to BOOST (Best Out Of Science and Technology) project and Founder of *Oxford +* podcast
- Ceri Morgan, Leading advisor in public market Life science industry, portfolio NED and head of growth strategy for US, Canadian and UK companies
- Peter Crane, former Venture Capital and CEO of a University of Oxford spin-out company (Caeruleus Therapeutics)
- Nicki Campling, Director of Innovation and Operations, The Oxford Trust, formerly Barclays Corporate Banking and Ecosystem Manager, Barclays Oxford Eagle Lab
- Nicola McConville, Partner, Mishcon de Reya, advisor to start-ups, spin-outs and companies raising investment; angel investor.
- Jim Wilkinson - CFO, Oxford Science Enterprises
- Sarah Haywood, Managing Director, Advanced Oxford

We are extremely grateful to all of them for their support throughout.

## Data

We are very grateful to all the people who supported the production of this green paper by giving their time to contribute to our data collection. We benefitted from interviews and questionnaire responses from a group of companies and from a group of investors. We thank them for the time they gave to share their views.

As noted throughout, we have drawn on a variety of platforms to support our work. We are very grateful to Prof. Simonetta Manfredi at Oxford Brookes University for supporting our

analysis with data from the Beauhurst platform. Thank you to Dr Peter Crane who supported our analysis with data from Crunchbase. Nicola McConville and Dan Sinclair from Mishcon de Reya receive our thanks for supporting our analysis with data from Pitchbook.

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## Team

Sincere thanks to the team who have worked to draw together data and undertake analysis in support of this project: Rachel Jannaway, Reginald Kadzutu and Prabhat Gupta.

# About Advanced Oxford

Advanced Oxford is a not-for-profit membership organisation with members drawn from R&D based/innovative companies working across Oxfordshire. Our membership includes companies, Oxford's two universities, the NHS through the Health Innovation Network and providers of innovation infrastructure and support.

Advanced Oxford is research-led, providing analysis and a united voice for our members on the key issues affecting the development of the innovation ecosystem in the Oxford region. We generate our own research and work to support and inform key stakeholders involved in the development of the business environment, infrastructure, and policy. Advanced Oxford is working to support the long-term development and success of the Oxford region as a place to live and work. We do this by drawing on our collective experience of setting up, running, or working in knowledge-based, innovation-focused businesses and organisations. We use our connections to other businesses to generate evidence and undertake research.

Advanced Oxford was set up in response to the Oxford Innovation Engine Update report. Published in 2016, the report identified the need for stronger engagement from the innovative businesses in Oxfordshire in the work to develop the region as a centre of excellence and an engine room for innovation. Work to scope and set up Advanced Oxford started in 2017. Further information about Advanced Oxford, our members and our work can be found on our website, www.AdvancedOxford.com. You can follow us on X @advanced_oxford and on LinkedIn https://www.linkedin.com/company/advanced-oxford


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