

BUSTING MYTHS AND MOVING FORWARD

The reality of UK university approaches to
taking equity in spinouts

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EXECUTIVE SUMMARY

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ABOUT UCI

The Policy Evidence Unit for University Commercialisation and Innovation (UCI) is based at the University of Cambridge and aims to support governments and university leaders in delivering a step change in the contributions universities make to innovation and economic prosperity – nationally and locally – through their commercialisation and other innovation-focused activities and partnerships.

UCI seeks to improve the evidence base and tools available to key decision makers in public policy and university practice as they develop new approaches for strengthening university research-to-innovation and commercialisation pathways. It draws on the latest advances and insights from both academic research and practice, as well as lessons learned from experiences in the UK and internationally.

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We would like to thank all those UK universities that invested their time and effort in completing our questionnaire. They provided a significant level of detail not just on the amount of founding equity their institution takes under different 'typical' scenarios and why they adopt this approach, but also on other key elements of the deal. This has allowed us to present a more rounded picture of the deal. This is critically important to help us understand how equity is positioned against other key terms that shape not just the emergence and development of the spinout but also who benefits, how they benefit, and when they benefit.

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Disclaimer

The views and arguments expressed in this report are of the authors alone. They **do not** represent the positions of organisations or other groups to which the authors belong, the views of the Steering Group or the organisations to which they belong, or the positions of any of the organisations engaging with the study.

The authors have made every effort to accurately capture and analyse the information generously provided to them by university technology transfer offices as part of the study. Any errors in interpretation, analysis, and presentation of this information are the responsibility of the authors.

Executive summary

This report provides an evidence baseline for policymakers, university practitioners, and others on the current state of UK university approaches to taking equity in spinouts and supporting them to commercialise university research.

University spinouts have an important role to play in driving innovation-led economic growth, not least by providing a vehicle to commercialise breakthrough technologies emerging from university research that can open up new wealth-creating opportunities in existing industries, help to seed new markets, and deliver new commercial solutions assisting other companies in raising productivity and efficiency. Once a critical mass is reached, they can also help drive the entrepreneurial dynamism of a local cluster or key industry.

There is currently an intense debate amongst policymakers and others focused on understanding how to strengthen the ability of the UK's research and entrepreneurial innovation systems to produce more, high potential spinouts to unlock new sources of economic wealth and industrial competitiveness.

Discussions, however, are dominated by a singular focus on the level of equity universities take in their spinouts and whether this is conducive to spinout success and the ability of companies to raise external financing to drive their development and growth. The debate is further complicated by the lack of robust and systemic evidence on the reality of *current* UK university approaches to supporting spinouts, *when they are typically deployed* (for example, to commercialise different types of IP), and the *reasoning* behind their approach. Much has been claimed on these topics, but many claims appear to be justified based largely on anecdotes and experiences with specific universities. Little evidence is presented on whether they represent the *typical* experiences and current practice.

Drawing on detailed insights shared by the Directors of 24 UK university technology transfer offices on their approaches to spinning out companies, our report aims to move the debate beyond perceptions of practice to an understanding of the reality of current university approaches to taking equity in 'typical' spinout cases and why and how they seek to support academic founders in commercialising university research. It also seeks to bring clarity to what is inherently a complex process involving multiple individuals and organisations with competing motivations and obligations. Only then can we begin to have a constructive debate about what can be done to improve the status quo.

Our report is set against a backdrop of positive indicators in the development of the UK spinout landscape. Over the period 2012 – 2021, the number of spinout deals has doubled, the amount of investment raised by UK spinouts increased from £970 million to over £5 billion, and leading UK universities with very different approaches to spinout equity have raised substantial amounts of capital dedicated to investing in their spinouts. A major review of UK university-investor links in 2019 by the former Deputy Group CEO of Standard Chartered, Mike Rees, found that the system was not broken, but as with all systems, there are always ways to improve.

X.1 Headline findings

UK university spinout system is evolving

Our research reveals a UK university system evolving and adapting to changing external and internal conditions and pressures. In recent years, many spinout-producing universities have reviewed their spinout equity and IP policies. Policies typical in the 2000s appear to have changed in many institutions. Some highlighted highly consultative review processes aimed at balancing the competing interests and motivations of key internal and external stakeholders.

To strengthen the UK spinout system, we need to move beyond a singular focus on equity to account for the lifecycle and systems nature of the spinout process

As policymakers review how they can act to strengthen the UK's spinout system, it is important that we account for both the systems-nature of the spinout process, and the lifecycle of the journey from research to commercial application. We urgently need to move beyond a singular focus on the amount of equity a university takes in its spinouts at foundation to understand the wider set of deal terms and conditions that shape who benefits, when, and how. This includes not least license terms and ongoing access to university facilities and expertise), both of which will shape the company's valuation.

Negotiating equity can be challenging, but it is often resolvable. However, setting up spinout companies to commercialise university research face many further barriers that should command our attention, not least the ability to de-risk technologies and the business venture sufficiently before having to incorporate and seek investors; the ability of spinouts to find sufficient talent and expertise – entrepreneurial, managerial, commercial, technical – in their local economies, and access the necessary facilities and equipment to further their development; the investment environment readily accessible to universities and founding teams; and the availability of resources within universities to support increasing numbers of academics seeking to commercialise their research.

We also need to recognise the wider set of stakeholders involved and the risks they bear, in investing in the spinout journey

We must also recognise the individuals and wider organisations that influence and contribute to the research-to-innovation journey of the spinout beyond those directly involved in the negotiations, including research funders, non-founding inventors, TTOs, and their wider university. Pre-foundation some will invest their time, expertise, and money directly to enable the development of the technology or business idea to the point where it can attract commercial investors. Others work to create more conducive and supportive conditions and environments within which the commercialisation opportunity can develop and incubate. Their role post-spinout foundation inevitably changes as other stakeholders enter to drive the future development of the company.

Along the spinout journey the various stakeholders bear different types and levels of risk. Given the long time from research to commercial return,

they also have very different abilities to influence how any rewards are shared over the spinout's lifetime, which may lead to a misalignment between the distribution of lifetime risks and rewards across stakeholders.

Many universities have developed a 'segmented model', with different approaches to equity for different types of spinouts

Many universities have developed a 'segmented model', with different approaches to equity and the wider deal seeking to reflect the circumstances and needs of different types of spinouts. Key factors influencing the level of founding equity sought by universities include the amount and type of IP entering the spinout, the level of support provided (including financial) and the license terms (royalty/fee bearing or free).

Where the spinout is built around significant university IP and has benefited from investment of university resources (in-kind or financial) to develop the technology and/or business, the median level of university equity at foundation pre-money is 33%. Pre-agreed equity pools for an incoming CEO, employee options, or other purposes, typically dilute both the university and founders proportionately. Accounting for these pools results in a median university founding equity position of 20% pre-money. Where universities take this level of equity the IP is often licensed either royalty-free or with favourable terms.

Where the university has made less contribution to the spinout (less IP or investment of support), the median university pre-money founding equity is 10%, reducing to 5% once pre-agreed equity pools are accounted for.

Most universities take ordinary shares that *fully dilute* alongside other founding shareholders. If they cannot co-invest as the spinout grows, their initial stake typically is diluted to single digits once the company scales up.

Universities are increasingly investing to support technology and commercial readiness of spinouts

Many universities generating spinouts have invested actively over the past decade to build up a system of support to help budding academic entrepreneurs develop their ideas into viable commercial opportunity. While much of the support is in-kind (staff time, free/discounted access to facilities, free training and access to mentors etc.) more universities have been creating internally or externally managed funds to invest in the pre-seed/seed stage of the venture, with some of the larger institutions establishing large-scale funds allowing them to follow-on their investments as the company scales.

Lastly, we must recognise that universities in the UK, while largely publicly funded, are autonomous organisations typically established as 'exempt' charities. This places legal obligations and restrictions on what they can do and how they operate. One such obligation is a requirement to seek financial reimbursement if they use their assets for economic purposes. Spinout equity and IP licensing provide one such mechanism. Moreover, a university has a duty to reinvest any financial returns from success to advance its charitable aims. When reinvested in the commercialisation support and funds, this ultimately helps to reduce the burden on the taxpayer to fund this important activity.

X.2 Findings in more detail

Below we set out in more detail the findings from our study aiming to capture the current state of UK university approaches to taking equity in spinouts.

Barriers and issues facing the spinning out process

Need to broaden focus of barriers to producing and nurturing spinouts away from singular focus on equity

The current debate on how to strengthen the UK system to produce more high potential spinouts is also dominated by a singular focus on the difficulties of reaching an agreement on equity distribution at foundation. However, we know that commercialising research through a spinout is challenging. In our survey, university TTOs articulated a more comprehensive set of barriers beyond negotiating deal terms, including:

- Whether the **technology being commercialised is sufficiently de-risked** to attract investors and whether the **venture is 'commercially ready'**
- The **time, motivation and entrepreneurial capabilities** of the founding teams
- The ability of the spinout to **access the necessary facilities and expertise** (e.g. technical, managerial, commercial) within their local economy to drive the development of the spinout
- The **investment environment** within which the spinout and university are based
- The availability of **university resources** to devote to supporting the spinout, and the **effectiveness of university spinout-related processes** and policies

University TTOs confront a range of issues beyond equity, including ensuring deals meet their institution's charitable obligations

Furthermore, in addition to resolving the equity distribution amongst founders, TTOs have to confront and resolve a broader range of issues during spinout negotiations. These include:

- Ensuring a **fair distribution of equity, managing expectations, and securing buy-in** of the approach amongst key stakeholders
- Addressing **post-spinout equity** considerations such as access to technological improvements and IP pipelines
- Agreeing non-equity related terms such as **license terms, ongoing costs, and future access** to university expertise and facilities
- Navigating and applying **university IP policies**, and ensuring deals comply with the **university's obligations as an exempt charity**
- **Considering the effects of the specific deal on the wider university** community and entrepreneurial and research culture. This will include effects on the research groups and departments of the founders, as well as risks for other partnerships and efforts the university, as a large complex organisation, have underway

University founding equity in spinouts

Equity decisions are often (but not always) tied up with decisions on other terms

Equity is one part of a spinout deal. In many universities, decisions on equity are tied up with decisions on other terms (not least e.g. financial terms on license and future access and support from university), and the type of IP at the heart of the spinout's value proposition and degree of investment (in-kind and/or financial) by the university in helping the spinout to de-risk the IP and become commercially ready.

Universities typically take ordinary shares that are diluted along with other founders

In most cases, universities take ordinary shares in their spinouts, with their equity diluting along with other founding shareholders. Crucially, decisions at foundation on reserving pools of equity for different purposes – e.g. to incentivise incoming CEOs and management (typically 10-15%), to create option pools to incentivise future employees (typically 10-15%), and in some cases, equity to compensate for third party support in developing the company pre-foundation – can immediately dilute founding shareholders.

Equity pools to incentivise CEOs or future employees typically dilute universities and founders proportionately

We found that where universities take higher amounts of founding equity, both universities and founders will see their initial equity shares dilute due to these equity pools. Where they take low equity, these reserved pools of equity are more likely to come out of the founders' shares only. One exception here is any equity taken by universities as part of obligations to research funders to compensate for their investments in the research. These typically dilute the university's share only.

Founding equity can get diluted very quickly once investment enters the spinout

We also show through 'synthetic' examples, based on highly anonymised yet real-world data, how the founding equity for both universities and founders can get diluted very quickly as investment enters the spinout unless they are able to invest alongside investors.

Academic founder career choices, non-founding inventors, and spinout deals

Senior academics founders remain at the university while junior researchers typically join the spinout

Not all academic founders engage with the spinout in the same way. In many universities we found that most senior academics founding spinouts remain in employment with the university and continue to contribute to the company through other means such as consultancy, part-time roles, and secondments. This allows them to continue driving their research endeavours.

By contrast, most early career researchers involved will leave to join the company.

While some approaches treat founders the same, others differentiate between those the leave and those that remain.

While about half of the universities in our sample currently treat founders that leave university employment to join the company the same as those that remain when negotiating terms, about half acknowledge important differences in the levels of risk being taken and reflect these in the equity split between founders as well as in other terms.

Important to recognise and reward non-founding inventors

We must also recognise the importance of academics that contribute to the development of the IP but are not involved in founding the spinout. Failing to appreciate their contributions can lead to adverse effects on the wider research community from which the spinout has emerged. In our sample, these ‘non-founding inventors’ typically benefit through a range of mechanisms, including being allocated equity, benefiting from revenue from any equity sale or royalty and milestone payments, or indirectly through an ongoing relationship with the spinout.

University approaches to taking equity in spinouts

Many universities use a ‘segmented model’ with different levels of equity for different types of spinouts

The current debate over university equity in spinouts leads one to believe that UK universities have a single approach to equity, taking a fixed level of equity in all their spinouts. We show that this is far from reality. Most universities in our sample **have a ‘segmented’ model with multiple ‘typical’ approaches** used in different circumstances. Where multiple approaches exist, they are typically distinguished by the level and type of university contributions to the spinout. Factors driving higher versus lower equity approaches are shown in the figure below (note that the specific combination of factors depends on the particular university).

Figure X1 Factors driving higher and lower equity positions for individual spin-out cases

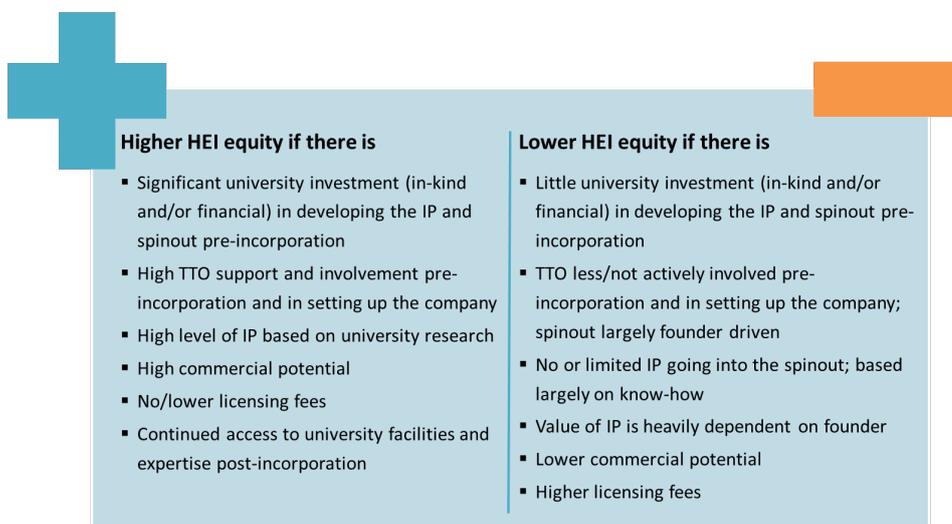
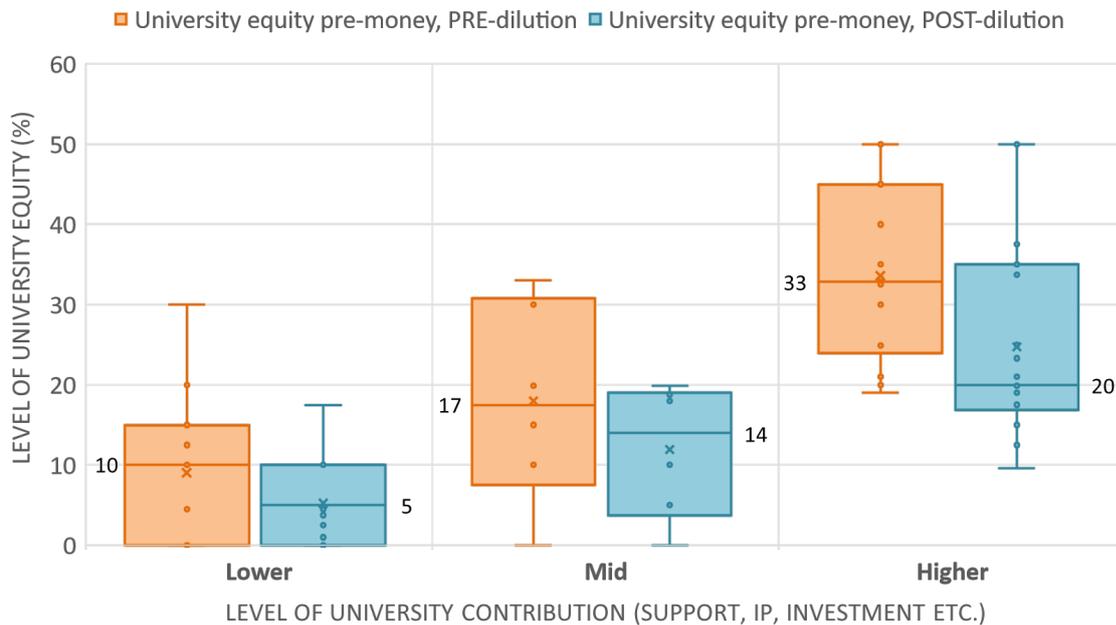


Figure X2 *Level of university founding equity pre-money, pre- and post-dilution equity, for different levels of university contributions to the spinout*



Median university pre-money, pre-dilution equity is circa 33% for spinouts with higher university contributions

Where universities make high levels of contributions to the spinout, they typically take 33% equity at foundation (median) before any money enters the spinout *and* before the dilutive effects of any agreed pools of equity reserved for incoming CEOs, employee options and other purposes are taken into account. If we account for these, the pre-money, post-dilution equity taken by universities where they make higher levels of contribution drops to 20%

Where they make lower contributions pre-money, pre-dilution equity is often less than 10%

Where universities make lower levels of contribution to the spinout, they typically take 10% equity in the spinout at foundation (median) before money and dilution due to reserved equity pools. This reduces to 5% pre-money, post dilution.

Reviews of university approaches and policies

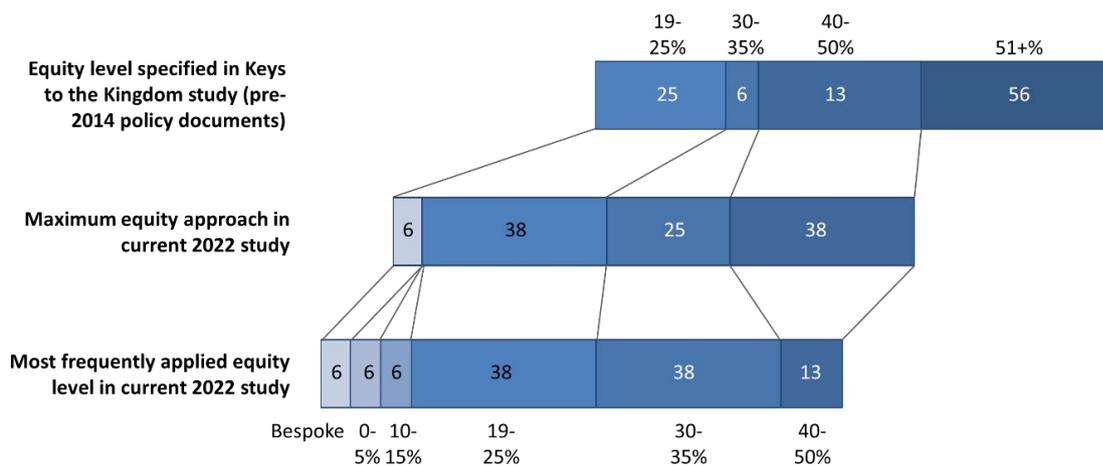
Many universities have recently reviewed their spinout approaches and policies

A striking result emerging from our study is that far from being static and fixed over the long term, most universities have relatively recently reviewed their spinout-related policies and approaches or are about to do so. Moreover, many universities in our sample are reviewing their policies within 5-year timeframes. In reviewing approaches, some highlight their active attempts to benchmark and consult with key internal and external stakeholders.

This has significant implications for relying on evidence from more than 5 years ago

Overall, our evidence suggests significant changes in policies over the past decade, with many universities adopting lower equity positions than previously. **A crucial implication of this is that we need to be cautious about relying on evidence and claims about university spinout equity approaches from more than approximately 5 years ago as they are likely to be out-of-date.**

Figure X3 Comparison of pre-2014 equity policies and current most frequently used approaches (percentage of universities seeking equity within the given range)



Relationship between equity and university performance in generating spinouts

Little evidence of a negative relationship between university equity and university spinout performance

This study focuses on setting out how universities currently support their spinouts and identify the equity they typically take at foundation under different circumstances. While we did not explicitly focus on investigating the relationship between a university’s founding equity in spinouts and its ability to generate ventures able to raise external financing, our study tentatively suggests that there is little evidence of a negative relationship once the scale of the research base is controlled for.

Approaches that took 19-25% equity generated slightly higher spinouts per research investment than those that took 30-35% (6.7 versus 5.8 per £100 million research income) and the spread is higher in the latter. However, due to the small samples involved we cannot be at all certain these differences would be statistically significant.

But universities that take high levels of equity exhibit much higher variations in performance than

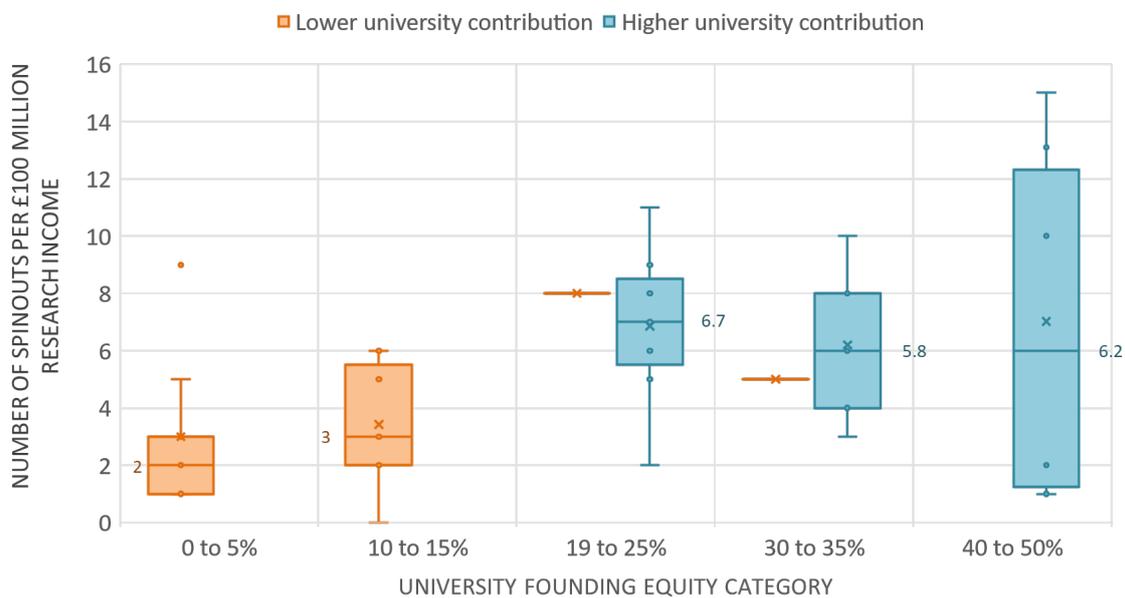
Also striking was that where universities take high levels of equity (40-50%) the median number of spinouts generated per £100 million of research income is similar to approaches where universities take much less equity, but the spread of performance is much higher. This suggests that while

those with lower levels

some universities are making the higher equity approach work, others may be struggling. This may, of course be due to other factors, not equity, and is worth further examination.

Furthermore, where universities make low levels of contribution to their spinouts, approaches that take 10-15% equity in their companies appear to generate more spinouts controlling for the scale of the research base than approaches that take 0-5%.

Figure X5 Distributions of spinouts generated per £100 million research income associated with different university equity approaches, for spinouts with low university contribution (left-hand orange boxes) and high university contribution (right-hand blue boxes)

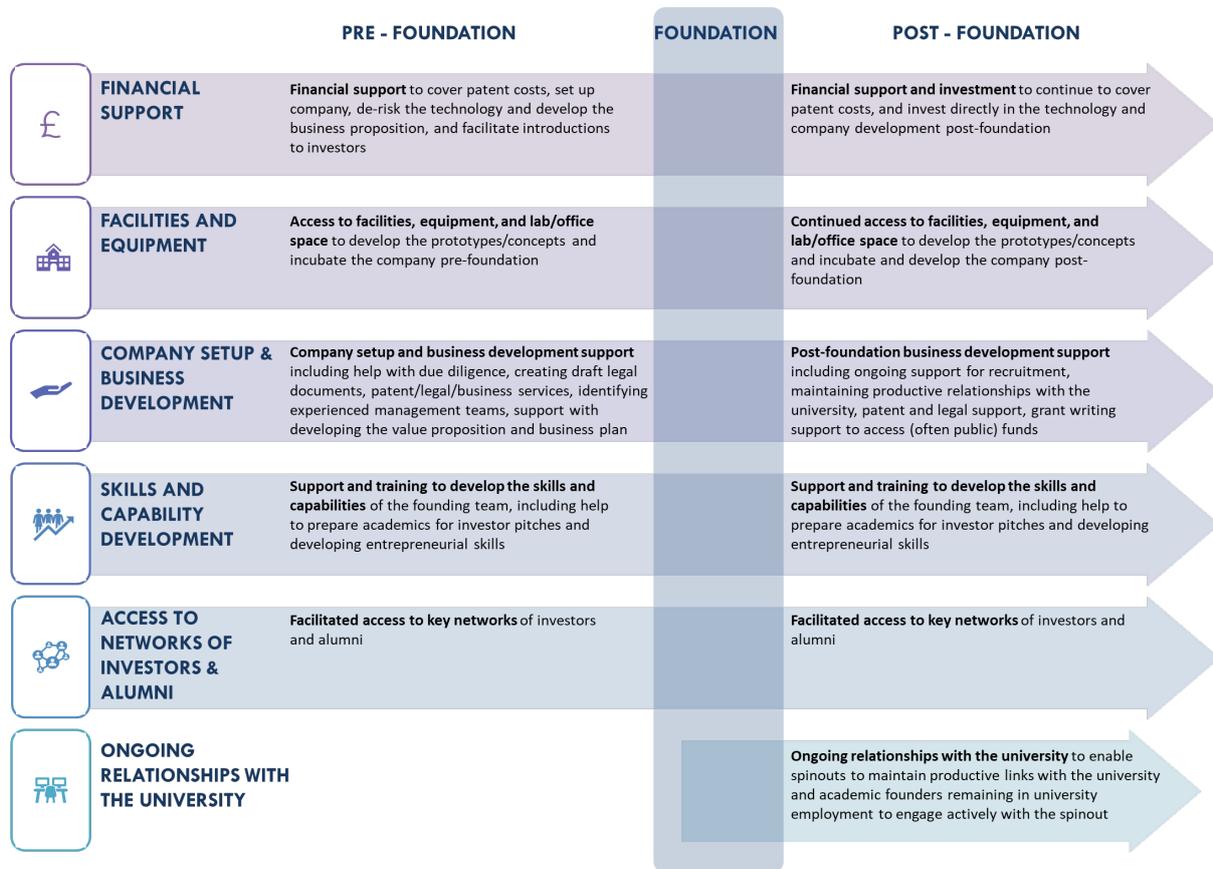


The nature of university support for spinouts

Increasingly, universities are not passive by-standers in the development of spinouts. Those with some degree of spinout activity have been investing to build a system of support – in some cases direct financial support – to help academic entrepreneurs (particularly first-time entrepreneurs) increase the technology and commercial readiness of their venture pre-foundation, improve their entrepreneurial capabilities, and help them secure investment. Much of this support is provided for free to academics prior to founding the company. This costs money to put in place and sustain. Our study reveals the variety of support available to academic entrepreneurs in some universities (Figure X6). Importantly, university support for spinouts does not typically end with the incorporation of the company. Many continue to provide some level of support post-foundation.

Note that we do not explore the scale and quality of each type of support in different universities.

Figure X6 Variety of pre- and post-foundation support being put in place across some UK universities



Universities are increasingly investing financially in spinouts

Many universities have been increasing the levels of direct financial support available to academic entrepreneurs to invest in the development of their idea into a spinout company (or other commercialisation opportunities). Just over half of the universities responding have put in place funds to support the translation and proof of concept of the IP, and almost 60% have funds in place to support the development of the commercial value proposition, business planning and costs of starting the company. Universities that generate higher numbers of spinouts are more likely to have put in place dedicated internally and/or externally managed investment funds (pre-seed/seed) to co-invest alongside early investors.

Helping founders become investor ready and secure investment

Universities are also putting in place support to help founders access investors and become ‘investor ready’, through mechanisms such as investment showcases and making ‘warm’ introductions to potential investors, helping founders prepare for investor pitches, facilitating informal feedback from investors on a spinout’s value proposition, and building and maintaining networks of investors locally, nationally, and increasingly, internationally.

X.3 Moving forward

As policymakers and others look to review how they can act to strengthen the UK's entrepreneurial and innovation systems to accelerate the production of more high-potential spinouts in areas such as artificial intelligence, digital / software, life sciences, fusion energy, it is crucially important they adopt an approach that accounts both for the *lifecycle of the journey* from research-to-innovation and the *systems-nature of this journey*. They must also account for the complexities of deals and the interdependencies between terms rather than focusing solely on equity.

This will allow us to make better judgements at both the system level and individual deal level about how rewards from spinout success should be distributed to compensate organisations and individuals for the risks they bear. It will also allow us to identify appropriate mechanisms for achieving this. If decisions are made that significantly overcompensate one set of stakeholders over another, this may lead to them withdrawing their effort and resource from future commercialisation opportunities and lead to lost economic opportunities over the longer term.

They must also identify and examine the full set of barriers and issues, well beyond equity negotiations, faced by universities and founding teams when setting up and developing spinout companies to commercialise research. This includes the ability to de-risk technologies and the venture sufficiently before incorporating and having to seek investors; the ability to find sufficient talent and expertise in their local economies and access the necessary facilities and equipment to further development; the strength of the investment environment readily accessible to the university and founding teams; and the availability of sufficient resources within universities to meet increasing demand from academics seeking to commercialise research.

Only by taking a lifecycle and systems-wide perspective and broadening our attention beyond equity will we be able to pinpoint where key problems exist and how to alleviate them. This will help to make individual deals happen more effectively while ensuring that the system as a whole is able to come together more effectively for the long term to produce, nurture and scale more high-value spinouts able to unlock value for local, national and global benefit.



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