



BEST PRACTICE IN EQUITY STAKES FOR UNIVERSITY SPIN-OUTS

POLICY INFORMATION STUDY

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IP Pragmatics (www.ip-pragmatics.com) is a specialist consultancy that provides a range of intellectual property management and commercialisation services to assist universities, government research institutes and companies to increase their commercial revenue from their research, expertise and facilities. The company helps clients to create and realise value from their intellectual property assets through the provision of integrated intellectual property and business development services.

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CONTENTS

1	Executive Summary.....	4
2	Introduction	7
3	University spin-outs	12
4	Approaches to equity sharing.....	15
5	Best practice and good exemplars.....	25
6	International comparisons.....	35
7	Conclusions and recommendations.....	38
	Appendix 1: Acronyms and abbreviations used in the report	42
	Appendix 2: Universities examined and supporting information.....	43
	Appendix 3: Key terms of the equity sharing approaches taken.....	45

LIST OF FIGURES

Figure 1: Regional location of universities examined in detail in the study	9
Figure 2: Approaches to spin-out equity structures	16
Figure 3: Motivations of academics for interacting with external organisations.....	22
Figure 4: Effects of dilution in the Founders Choice model.....	32

1 EXECUTIVE SUMMARY

Research England (RE) has commissioned a desk-based study to inform policy making which will influence the continued evolution of practices within the university environment that ensure that exciting new business ideas are exploited and entrepreneurial researchers supported to make their journey from the lab to the market. The aim of the study is to identify good practice which could be beneficial across the sector, and to understand whether different approaches may be better suited to different situations.

This report summarises existing practices used by selected UK Higher Education Institutions (HEIs) towards the division of equity stakes in spin-out companies, particularly the handling of share ownership between universities and academics. It also considers a wider analysis of how these policies on equity stakes relate to other aspects of commercialisation.

The study takes as its evidence base the information that is disclosed publicly on university websites. A set of 23 universities was selected representing those which are the most active in launching spin-outs and which disclose some information publicly about their policy approaches to spin-out formation. Between them, these universities account for around 63% of spin-out activity, and are spread across the UK. The aim was to identify their policies, procedures, guidelines and other spin-out support materials, which are likely to have been guided by significant experience of spinning-out. It is recognised that the procedures that are used by these universities may not be directly transferrable to universities which only occasionally spin-out companies. It is also very important to ensure that any comparison between universities considers all the different factors which might influence the equity stakes, including external regional circumstances, and uses common definitions and terminology. This has not always been the case in previous studies of this topic.

Key Findings

As the originator of the research and the owner of the university-derived intellectual property (IP), universities have a duty to ensure that the outcomes of their research are applied to achieve maximum impact, and to take responsible decisions surrounding when and how to commercialise this IP through a spin-out. All the IP policies examined explicitly state that the university will be entitled to take equity in any spin-out that is based on their IP, and over 80% give some public expectation of the percentage equity that will be allocated to the university and to the academic founders. Depending on the circumstances of the spin-out, the nominal equity stake retained by the university can range from 5% to 66.7% or higher, with the most commonly quoted position being an equal division of the shares between the university and the founders.

There are a range of interlocking facets which make a simplistic comparison of these headline figures for the equity stake taken by the university or founder meaningless without an understanding of the wider context. There is very little consistency amongst this group of universities in the details of the combination of spin-out approaches that they use to match their particular environment. These details are not always explained fully in the public policies available, making comparisons even more difficult. There were some indications that universities which share similar research profiles and levels of spin-out activity are more likely to use a similar approach to equity sharing, but there did

not appear to be any consistent or significant differences to the approaches taken in different parts of the UK.

We support the conclusions reached by the McMillan review and the Mike Rees report that transparency is key to ensuring a smooth path through the process. Missing, incomplete or confusing information will make it difficult for the university and founders to navigate the negotiation process.

Two separate approaches are taken by the sample universities to the access arrangements for the university IP required by their spin-outs. The universities with higher research activity and more spin-outs are more likely to negotiate a licence to the IP on arms-length terms, such as would be offered to an independent company. Royalty-free licences (or assignments) in return for equity are more common amongst the universities which may find it more challenging to raise funding for their spin-outs. It may be cleaner and easier for all parties to understand and negotiate if the equity allocated for enabling the spin-out to form and for supporting its development are considered separately from the rewards for allowing the IP to be used within the spin-out company. The most important point, however, is that whichever approach is taken, this is made clear and explicit in the policy to allow rational discussions to take place.

Only one university in the sample had an equity allocation process that was non-negotiable. This approach successfully eliminates one source of argument, but it also does not allow for any flexibility to adapt to the different needs of different spin-outs and different founders. Recently, a number of universities have promoted schemes which give academics a clear choice of the level of business planning support and/or translational funding that they accept from the university and the corresponding level of equity that they will receive. This approach has proved popular amongst the academics, and can work well where there is a sufficient level of experience and sophistication amongst the founders, and a supportive local entrepreneurial ecosystem. Where the local ecosystem is not so well developed, this choice may not be possible, as this support can only come from the university. The different routes and scenarios should be clearly explained and simple to understand.

Other important factors that will influence relative equity stakes include whether the figure quoted is measured before or after the first investment into the company; whether there are any mechanisms which allow the university to maintain its equity share through subsequent rounds of investment (non-dilution provisions); and/or other ways in which the founding academic can also benefit from the spin-out, for example through the Rewards to Inventors revenue-sharing scheme.

We support the recommendations of others that there is no single approach to commercialisation in general and spin-out equity stakes in particular that will be suitable for all universities and all spin-outs in all circumstances. One-size does not fit all. The approach adopted will also depend on the particular Knowledge Exchange (KE) aspirations of the university, its goals for spin-out activity, its local environment and its research strengths. An interesting example is given by Ireland, where the HEI community is small and homogeneous enough for a more coordinated approach to be taken. Even here, the guidelines around a common approach to equity stakes are built on flexibility based on individual circumstances, and not on mandated equity shares.

The equity stakes given to incoming investors are a separate issue, which it is generally not appropriate to discuss externally, and is covered in much less depth in the policy and supporting documents that we have studied. Some “ground rules” for this negotiation can be stipulated by the university in their policy documentation, but generally the value ascribed by the investors to the spin-out will be based on the strength and maturity of the business proposition, as well as the capital costs of the next stages of development and the likely size and timing of an eventual exit. The track record of the university and its relationship with the investors will also have an influence on both the valuation and how the transfer of IP into the spin-out company will be handled. More highly active universities with a well-developed pipeline of spin-out opportunities and long-standing relationships with specific investment funds will be in a stronger negotiating position than the universities which only generate occasional spin-outs.

Recommendations

- **Universities should identify and plainly communicate their objectives for spin-out activities**, as part of a clear and easily accessible IP policy, or in dedicated guidance on spin-out procedures.
- **Clarity is essential** to set expectations and allow rational negotiations to take place between a university and the spin-out founders. This will also allow transparent and valid comparisons to be made between different universities. A minimum set of criteria to address is defined.
- **No single approach should be adopted across the sector.** Every university and every spin-out will have different needs and aims; there are too many variables for a rigid standard approach to ever be effective.
- **Some approaches are simpler to understand and implement than others; universities should adopt the simplest practicable approach for their circumstances.** In particular, it is essential that the university is explicit about whether it chooses to use an arms-length commercial licence alongside the university equity stake, or to take additional equity for a royalty-free licence or assignment of the university IP required by the spin-out.
- **Schemes which allow flexibility for more experienced founders may encourage spin-out activity;** however, this type of scheme is likely to work best in environments with higher levels of spin-outs and high quality internal and external support for entrepreneurs.
- **Guidance for equity sharing between the university and founders should not be confused with the equity share to be allocated for incoming investment into the spin-out.** Universities should avoid setting any expectations on equity shares for incoming investors.

2 INTRODUCTION

Research England (RE) has been asked by the Universities Minister, Chris Skidmore, to provide some advice on how best to ensure that the university intellectual property (IP) environment can continue to evolve, and that good practice is identified and adopted beneficially across the sector. One area of particular interest is in ensuring that entrepreneurial researchers with exciting new business ideas are supported to make their journey from the lab to the market.

RE has commissioned a desk-based study to examine the issue of the division of equity stakes in spin-out companies by universities, particularly the handling of share ownership between universities and academics (and later by investors, CEOs etc).

This report summarises existing practices used by Higher Education Institutions (HEIs) in this area, and draws some conclusions on the best approaches that are currently being used and which might be of wider value across the sector. The aim of the study was not to determine a single “best approach”, but:

- to describe the range of relevant and significant considerations that inform different approaches, and which could have valuable resonance for other universities; and
- to assess whether specific approaches are likely to achieve their intended objectives effectively.

2.1 AIMS OF THIS EVALUATION

This study takes as its starting point the findings of the 2019 Rees Review on university-investor links¹ which concluded that it was important to focus on success and best practice. It also followed the 2016 McMillan Review² (University Knowledge Exchange Framework: good practice in technology transfer) in concluding that there was no one size fits all approach that should be adopted across all universities, places, technologies and opportunities. Both reports also commend greater transparency in the policies adopted by universities to guide their Knowledge Exchange (KE) activities. One initiative to increase this transparency for staff and students is the KE Concordat³, which is being developed by Universities UK and currently under consultation. The issue of transparency and clarity of policy approaches is addressed in the current draft of Principle 2:

Principle 2: Policies: *We have clear policies on all types of KE that we undertake and ensure they are understood by staff, students, collaborators and beneficiaries.*

¹ <https://re.ukri.org/documents/2019/advice-on-university-investor-links-mike-rees-pdf/>

² <https://webarchive.nationalarchives.gov.uk/20180405115330/http://www.hefce.ac.uk/pubs/rereports/year/2016/ketech/>

³ <https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2019/knowledge-exchange-concordat-consultation.pdf>

A well-defined set of relevant policies ensures that all parties engaged in KE have a good mutual understanding as to how the university values KE activity.

Institutions could provide evidence of a clear set of policies covering those areas of KE central to the institution's mission and values, and consistent with its charitable status. These might include formal mechanisms/policies covering:

- *IP exploitation, including licensing and spinouts, shareholdings, revenue-sharing, and support available.*

In his recent examination of innovation in Scotland⁴, Muscatelli recommends that approaches which reduce friction in commercialisation processes and increase innovation activity should be identified and encouraged. Equity sharing in spin-outs is one of the facets that he highlights for further examination.

In this report, we examine the policies adopted by universities which relate to spin-outs and shareholdings to identify good practices. It is not assumed that there is a single dimension in which these policies may constitute best practice, and approaches could be “best” in a number of ways. For example:

- being more accessible or better explained;
- identifying clear and beneficial goals or objectives that the policy is intended to achieve;
- clearly setting out how the policy achieves those specific goals and objectives;
- being more practicable;
- reflecting important governance or legal issues.

The focus of the study is on policies concerning how to allocate equity stakes in university spin-outs. However, it also considers a wider analysis of how these policies on equity stakes relate to other aspects of commercialisation, for example, to policies on revenue sharing from licensing income.

2.2 METHODOLOGY

The study takes as its evidence base the information that is disclosed publicly on university websites; we have not contacted or interviewed members of the institutions directly. The policy adopted should be judged in the context of that university's objectives for KE in general and for spin-outs in particular. No attempt has been made to link the equity-sharing policies identified to the ultimate commercial success of the spin-outs arising from that university. In the first place, “commercial success” is a very subjective measure in this situation and is impossible to define in a meaningful way. More importantly, the equity sharing policy has only a very minor influence on the future path of the spin-out company, which will be determined by a wide range of internal and external factors, most of which are outside the control of the founding university.

⁴ THE MUSCATELLI REPORT: Driving Innovation in Scotland – A National Mission, November 2019.

https://www.gla.ac.uk/media/Media_700300_smxx.pdf

In order to focus on policies which are likely to have been guided by experience of successful (and less successful) approaches, we have examined the set of universities with the strongest track record in spinning-out new companies. It is recognised that the procedures that are used in these universities may not be directly transferrable to universities which only spin-out companies occasionally, and in the analysis we comment on whether different methods may be better suited for these universities. Nevertheless, in order to have a significant effect on spin-out activity in the UK as a whole, ensuring that the most active universities are adopting suitable policies will have the biggest effect.

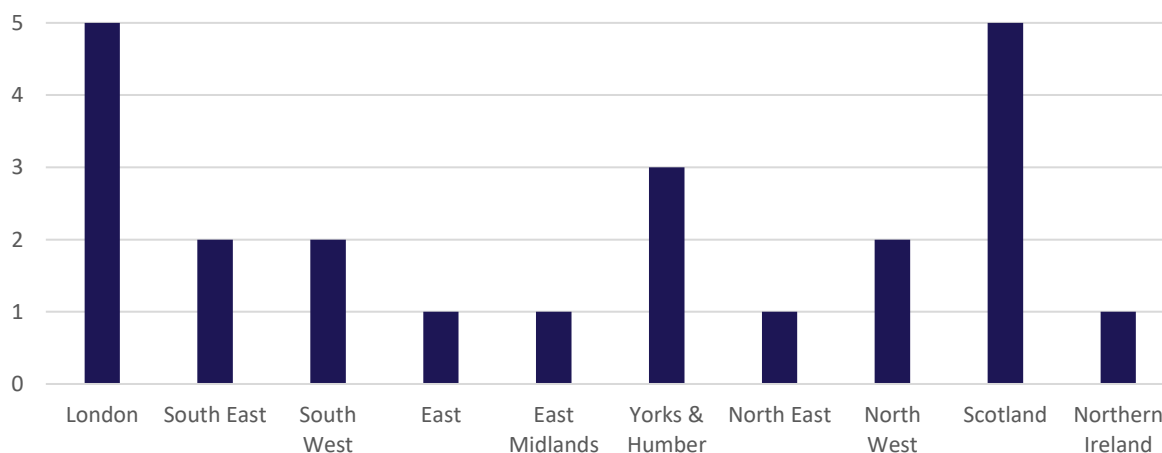
The universities chosen for study were those which met one or more of the following criteria:

- All the universities that have produced 20+ spin-outs over all time (according to Spinouts UK)
- All the universities that reported 10+ active spin-outs that are 3+ years old in the 2017-18 HEBCI survey (excluding the University of Bradford, where there is a discrepancy between these two figures)
- All the Russell Group universities (excluding LSE, which has not produced any spin-outs)

Full details of the 33 universities which fit these criteria, and of the data sources used to select them are given in Appendix 2. Within this sample, 10 universities were found to have either no or very limited information on their approach to spin-outs and equity sharing available in the public domain. These universities were therefore excluded from the detailed analysis.

The approaches used by the remaining 23 universities were examined in detail. Between them, they are responsible for 1,332 (64%) of the 2,083 university spin-outs listed by Spinouts UK, and 563 (62%) of the 914 spin-outs with some university ownership which have been active for 3 or more years reported to the HEBCI survey for 2017/18. They are spread across the United Kingdom, with locations in England, Scotland and Northern Ireland. The two Welsh universities which met the original criteria did not provide sufficient information publicly to be included in the full analysis, although from the limited information that is in the public domain, they appear to be operating in line with their peers elsewhere in the UK. The regional locations of the universities studied are illustrated in the graph below:

Figure 1: Regional location of universities examined in detail in the study



Source: IP Pragmatics analysis

For each of the universities selected, a combination of key word searching, and website navigation was used to identify the documents that were published externally relating to:

- IP policy and guidelines
- Specific policies, procedures and guidelines relating to spin-out companies
- More general guidance on spin-out company formation aimed at academic founders
- Any other relevant documents

This set of documents was then analysed to assess the approaches used by different universities to assign equity shares in their spin-out companies, and to identify areas of best practice in the policies adopted and how they are communicated.

It is recognised that it is very important in such a study to ensure that any comparisons between universities use the same underlying definitions and terminologies. Previous studies of this topic have sometimes failed to ensure that the numbers quoted relate to comparable situations. For example, it is important to understand at what stage of the process this percentage equity is taken and with whom the equity is shared. Other factors include whether there are any provisions in place to maintain the percentages when investment is received (anti-dilution), and whether the stakes are in place of or alongside a revenue-bearing licence (or an assignment) to IP from the university. These factors were assessed in this study.

The analysis also considered how the approach taken to equity stakes relates to other mechanisms surrounding IP commercialisation through spin-out. This includes: how revenues are shared with inventors; ongoing relationships between the university and the spin-out; terms of licensing or assignment of IP to the spin-out; provision of incubator or accelerator support; and the ongoing role of academic founders within the new company.

By analysing as many of these facets as possible, we have tried to ensure that each policy is placed within the appropriate context to allow fair comparisons to be made between the different approaches.

For each of the universities, we attempted to identify the answers to the following questions:

- Is there a clear separate IP Policy?
- Or is it part of a more complex set of rules (Statutes, Ordinances, Research Code, etc)?
- Are spin-out arrangements covered in the IP policy?
- Is there a separate policy/guidance specifically for spin-out arrangements?
- Are the objectives for spinning out specified?
- Does the policy specify that the HEI is entitled to receive equity in the spin-out?
- Is the equity share determined on a case-by-case basis?
- Are the principles surrounding the determination of negotiable equity stakes well explained?
- Is a specific percentage (or range) to be allocated to the university specified?
 - What percentage is retained by university?
 - Is this pre- or post-investment?
 - Any non-dilution provisions?
- Does it specify what this equity is for?
- Is a rationale presented for the approach taken?

- Are different routes and outcomes possible for high/low university support mechanisms?
- Is there a separate arms-length IP licence?
- Is assignment of the IP, rather than licence possible?
- Is the relationship between founders' equity shares and other rewards to inventors specifically addressed?
- Does it specify who negotiates and approves the deal?
- Is a dispute resolution mechanism specified?

3 UNIVERSITY SPIN-OUTS

Like any other employer in the UK, universities by law own the IP that is generated by their academics during their research. The terms of the public and other funding that the universities receive, as well as their role as charitable organisations put a responsibility on them to ensure that the outcomes of their research are applied to achieve maximum impact. This includes the responsibility to decide when and how it may be appropriate to commercialise this IP through a spin-out. Traditionally, the two preferred routes to commercialisation of new ideas and IP generated within a university are either to license to an established company, or to set up a spin-out company to exploit the opportunity directly. The Technology Transfer Office (TTO) within the university is the group that is responsible for identifying, protecting, and commercialising the academic ideas and inventions in order to deliver the maximum positive impact from their research. Different objectives and priorities for knowledge exchange (KE) activity within the university may lead to a different emphasis on licensing vs spinning-out, which will be affected by their location and their disciplinary strengths. This will also be influenced by the particular circumstances of the opportunity. For example, a relatively small technological improvement to existing products with well established companies dominating the market will typically be best exploited by licensing it to a market leader. On the other hand, platform technologies which need to build new market demand, in fragmented markets may be better developed in a spin-out environment.

Whilst every spin-out is different, there are certain key factors that are common to successful spin-out companies:

- A clear unmet market demand
- A credible and competitive solution for this market need
- A well thought out business model
- A strong basis of IP protection
- Committed, experienced people
- Sufficient funding

In this report, we define “university spin-outs” as new companies which are founded with some form of university ownership, usually based on IP that was developed at the university, and with some involvement from one or more academics who were involved with developing this IP. The academics which get involved with ongoing development of the spin-out, and who will receive an equity stake in the new company are referred to in this report as “founders”. Not all inventors of a particular technology will necessarily be founders of the related spin-out, and not all founders need to be named inventors on the patents that are licenced into the company. The ongoing role of the founder in the spin-out will vary, but can include joining the spin-out full- or part-time, consulting for the company, carrying out collaborative research, and/or as a member of the Scientific Advisory Board. Some of the key people who are involved with spin-out formation and their typical roles are defined in the table below:

Personnel	Role
Inventor(s) or Creator(s)	Academic researcher whose research leads to new formal or informal IP which is owned by the university. Inventors are formally defined by the Patent Act as the individuals

Personnel	Role
	who have devised the invention in the patent, for example by having the initial idea, devising the experiments, and/or interpreting the results. Each patent may have a single or multiple inventors.
Technology Transfer Officer	Identifies and manages new university IP, and plans and supports its commercial exploitation, making decisions on IP protection strategy, route to impact, etc in consultation with the inventors. If a spin-out is planned, they may be closely involved with the initial business planning, helping to identify management and funding, etc
Founders	<p>Academics who are closely involved with driving the formation of the spin-out, and are important to its ongoing success. They may stay within academia and act as a consultant to the spin-out, or may join the company full- or part-time.</p> <p>Early career researchers (ERC) such as post-docs are the most likely to move into the spin-out full-time, but this does not happen in every case.</p> <p>A founder does not need to be a named inventor on the patent, but could for example be an academic in the same lab that carried out the research.</p>
CEO/management	<p>Usually external, experienced entrepreneurs who are brought on board either before or during the seed investment to help to shape the business plan, run the company and raise further investment. These typically bring complementary skills and experience from working in industry that are not available within the academic team.</p> <p>In rare cases, an academic founder may take on the role of CEO, but this is usually an interim position.</p>

The University is responsible for funding and achieving impact and needs to determine the allocation of shares to achieve its objectives, including rewarding staff. The university will receive shares including to recognise their support for developing the business proposition, finding management and funding, and for allowing the company to be described as their spin-out. In the UK, TTOs are generally heavily involved in the spin-out process, which may spend several years being gestated and supported within the university before formal launch. To achieve a successful spin-out, the support of the founding academic is often critical, and to reward their ongoing commitments to the spin-out, founders will also receive shares in the new spin-out.

If a spin-out is successful, then both the university and the founders may expect to receive some financial rewards. This may be through royalty and milestone payments from the company and/or from the proceeds of the sale of shares in the company. The return received by the university will be used to reimburse the previous costs of IP protection and other direct costs, to share with others who have contributed to the research (for example co-founders, and according to their rewards to inventors scheme), to support other commercial opportunities through translational funding schemes, and/or to support university research activities or endowments.

This study examines how the relative equity shares in the spin-out are allocated to the university and to the founders in different situations. As the spin-out is set up and then develops and matures, it will usually raise external investment funding, and these incoming investors will also take shares in the company, so reducing the relative stakes of both the university and the founders. This is known as dilution.

For both the university and for the founders, the more that they contribute to the spin-out, the higher the equity stake they might expect to receive. This contribution could be in the form of IP, time, effort or in-kind support, and relates to the underlying university research base and the historical input provided to get the company ready for spin-out, as well as to the future involvement in its ongoing success. At the point of spin-out, these companies are at a very early, high risk stage, and it can be difficult to place a fair commercial value on the proposition.

Some of the considerations which may influence the value of the spin-out, and the proportion of that value which should be allocated to the university and to the founders are highlighted below, and will be considered in more detail in the sections which follow:

- When is the equity stake received? Is it before or after the first significant investment into the company?
- Will the equity stake be diluted by later investments, or will it be fixed until a certain amount of funding has been raised?
- What is being given in return for the equity? Will there be a separate licence for the IP?
- How else might the founder benefit from the success of the spin-out?
- How well developed is the technology and its supporting IP? Is the opportunity ready for market; how much further development be needed to introduce a commercial product or service?
- Has the university helped to develop the business plan, find management, and/or raise funding for the spin-out?
- Will the spin-out benefit from the name and reputation of the university?
- What is the value of the business opportunity in the market? What level of income and profit would it expect to generate, over what timescale?

The inter-play of these factors can make it very difficult to use a formulaic approach to allocation of equity shares, as every case will be unique.

4 APPROACHES TO EQUITY SHARING

The majority of the universities studied (18 out of 23) have a separate IP policy which addresses ownership of intellectual property generated within the university, how it will be managed, responsibilities and expectations for exploitation and commercialisation of this IP, and how any revenues received will be shared. Nearly all these policies are publicly available on their websites. For six universities, the rules relating to handling of IP are contained within a wider set of regulations, statutes or codes of practice. In these cases, it may be more difficult for an academic to locate and interpret this guidance.

Although all the universities have some form of public IP policy, not all of these explicitly address the approach that will be taken to spin-outs. Eight of the policies either do not explain spin-out processes at all, or only address this at a high level. This can be appropriate in a policy document, as long as more detailed guidance is provided elsewhere. Fifteen universities have specific public guidance relating directly to spin-outs, and another states that this guidance is being developed. In other universities, further more detailed guidance may only be available internally.

4.1 RANGE OF POTENTIAL EQUITY STAKES

For all the universities that we investigated, there is a specific statement somewhere within their IP Policy or guidance that the university will be entitled to receive equity in any spin-out that is based on university-derived IP. This is in line with their responsibility to identify, manage and exploit the IP which is generated by their staff. For 19 of the 23 universities studied in depth, an expectation of the percentage equity that will be allocated to the university is given publicly. In some cases, this is given as a range, some describe maximum or minimum stakes, and others give a typical starting point for negotiation. Only one policy specifically states that the equity stake percentages are non-negotiable. Depending on the circumstances of the spin-out, the nominal equity stake allocated to the university can range from 5% to 66.7% or higher. The most commonly quoted equity position is an equal division of the shares between the university and the founders, with 10 universities giving this either as a typical starting position or one possible outcome in a range of potential scenarios. This approach is by no means universal.

However, as introduced in section 3 above, these figures cannot be directly compared one with another unless the wider circumstances surrounding their terms and conditions are understood. A summary of some of the key variables and how these are handled by the universities in our sample is described in the table in Appendix 3, and summarised in visual form in the figure below. In this figure, each column represents a different university, with the colour coding used to group the universities according to their approach to each of the questions listed. This shows graphically how little consistency there is amongst this group of universities in the details of how they structure their spin-outs, with each adopting a combination of approaches to match their particular environment. There were some indications that universities which share similar research profiles and levels of spin-out activity are more likely to use a similar approach to equity sharing. The numbers in the sample are too small and the number of variables too high to draw any firm conclusions on this point. There did not appear to be any consistent or significant differences to the approaches taken in different parts of the UK.

in particular so that these are weighted and timed to occur when the company becomes cash generative. Others may exchange upfront milestone payments for additional equity for the university. For these universities, the equity that they receive in the spin-out is in reward for the underlying research base, for allowing the spin-out to happen, for use of the university name and brand, for the support and internal funding that the university has provided in developing the spin-out, for finding management and funding, and in some cases for past patenting costs. Eight of the universities in the study appear to use this approach.

4.2.2 ROYALTY-FREE LICENCE

Another seven universities instead are thought to receive their equity stake in return for a perpetual, royalty-free licence (or in some cases an assignment) for the underlying IP needed by the spin-out. This approach can be viewed as being more supportive to the spin-out, putting it in a stronger position to progress and raise further finance as it will retain more of its potential profits when it becomes successful. As such, it is more common amongst the universities which may find it more challenging to raise funding for their spin-outs. The equity share for the university will still include some reward for the elements of support outlined in the previous case, which can make negotiation more complicated if it is not clear which part of the equity return relates to the licence and which to the additional support.

4.2.3 NOT SPECIFIED

Eight of the universities either do not specify, or are not clear about which of these approaches they are taking. This is likely to lead to confusion and make the negotiation between the founders and the university much more difficult. If the public documentation that we have identified mirrors the internal guidelines and procedures, then there is a danger that decision-makers in these universities may also not be clear about how to put a value on what they are offering to the new company, or on what basis they should be negotiating their equity stake. This can lead to protracted arguments based more on emotion, rumour and gut-feeling than on rational reasoning.

4.3 HOW MUCH FLEXIBILITY IS ALLOWED ON THE NEGOTIATION OF EQUITY STAKES?

4.3.1 NON-NEGOTIABLE

Only one university in the sample included a specific statement in their IP Policy that the equity shares proposed were not negotiable. Five others gave guidance on the percentage to be allocated to the university, with no indication as to whether or not this could be altered in specific circumstances. A rigid approach should speed up the spin-out process by removing one element of negotiation, and reduce the burden of negotiation on smaller or less experienced TTOs. However, it runs the risk of antagonising those founders who feel that the standard university share does not reflect the relative value of the IP and support that has been given from the university in their specific case. This could discourage some founders from developing their spin-out propositions at all, as no matter how much effort they put into setting up the spin-out, their equity stake will always be capped.

4.3.2 GUIDE FIGURES WITH SOME FLEXIBILITY

The most common approach taken in the sample is to quote a typical starting point for negotiation, or a range of figures with some guidance on the factors that might be taken into account when deciding on an appropriate equity split. This strikes a balance between setting expectations, and showing an openness from the university to adapt to individual circumstances. It is important in this scenario that a consistent approach is taken to similar spin-outs. For example, two different spin-outs which are both developing a drug discovery technology, where the university has devoted significant time and resources into developing the business proposition should each have similar university equity stakes. However, another spin-out which is based on the founder's know-how and has not required much support might have a lower university equity stake.

4.3.3 VARIED ACCORDING TO THE LEVEL OF UNIVERSITY INPUT

Five of the universities in our sample extend this flexible approach to give more formal guidelines for how different types of support will translate into different equity holdings in particular circumstances. In one case, the number of different variables and scenarios is so complex that it makes it very difficult for a founder to understand what to expect in their particular case. Two other examples (see section 5.5 for more detail on one of these), however, have a clear three-tier system, according to whether the spin-out has received internal proof of concept funding, or support for business planning and development of the spin-out proposition, neither, or both. This approach can be helpful in setting expectations for the founders, and allowing them to make informed decisions about their choices and what to expect in the negotiations. The most prominent example of this type of approach is the Founders Choice programme at Imperial College, although this is organised in a somewhat different manner. This example is explored in more detail in section 5.6.

4.3.4 FULLY NEGOTIABLE

Four universities do not give any guidance on typical figures, and offer a fully negotiable approach to equity sharing with the founders. This offers the most flexibility, but also the biggest scope for the founders to be frustrated by unrealistic expectations. This type of approach could be more appropriate for universities which do not handle a high volume of spin-out opportunities, as it allows them the flexibility to treat each spin-out on its own merits. At the other end of the spectrum, this approach is also fairly common amongst TTOs with a lot of experience, as they are likely to see the highest amount of variability amongst their spin-out circumstances.

4.3.5 INCOMING INVESTORS

Several of the universities in the sample studied have a relationship with one or more dedicated investment fund that can provide seed funding for their spin-outs. Sixteen universities in the sample are part of the IP Group. This is a quoted investment company, which set up long-term relationships with many UK universities in the mid-2000s. IP Group has grown over the years by merger or acquisition of other university-focused investment companies, including Techtran, Fusion IP (previously Biofusion), Parkwalk Advisors and Touchstone Innovations (previously Imperial Innovations).

IP Group can provide financial capital from its balance sheet and funds under management, as well as support with corporate strategy, sourcing management, and future fundraising. IP Group has been active in this space for nearly 20 years, but its underlying valuation is still very dependent on a small number of highly valued investee companies (most notably Oxford Nanopore), and it has been hit more recently by its close association with troubled investment firm Woodford Investment Management, which reportedly sold all its holdings in IP Group in June 2019. The focus of the group now appears to be more on managing its existing portfolio than on making new investments.

Typically, the universities which work with IP Group have a pre-determined arrangement on how the initial equity stake will be divided between the university and IP Group, and two of the universities studied specify this split in their public policy documentation. They will also often have a fixed formula for allocating any equity to seed investment which is provided by IP Group, at a pre-determined valuation. This type of approach is much less common now, and most of the newer funds associated with universities have a more informal relationship based on close working relationships, rather than a first right to invest in any new spin-outs. The allocation of equity to this seed investment is also more likely to be fully negotiable, based on the circumstances of the spin-out.

It has been suggested that providing too much information in public about the equity stakes retained by universities could influence the deal that they can strike with an incoming investor, by giving them too much information about what share of the company they may be able to take. In most cases this is avoided as the universities only provide public information about the relative split between the university and the founder. They typically do not address the issue of how much of the company equity they are prepared to offer to an incoming investor. This is a sensible approach, because the value of each individual spin-out at the point of receiving their first investment will vary significantly, depending on their stage of development, the type of IP they hold, the management team involved and the type of market opportunity that they are addressing. It is therefore usually not appropriate to set a pre-determined value that would be applicable to every spin-out.

4.4 WHAT ABOUT DILUTION?

Another key facet of the equity stake negotiation concerns the point at which the stated equity shares are taken, which can have a significant effect on the eventual outcomes. In this case, a more consistent approach is taken by the universities in our sample, with the majority quoting the figures on formation, when the only shareholders in the new spin-out are the university and the founders. When further shareholders are added, for example incoming management or investors, then the assumption is that both the university and the founders are diluted in the same way. Two of the universities make an exception to this rule, and will expect that any equity that is allocated to an incoming CEO or to the option pool for later management will be allocated out of the founders' share of the equity and not from the university stake.

One university takes a different approach, and defines the equity stake that they will take as a maximum figure **after** the first round of investment. The only scheme which specifies a longer period of non-dilution is the Founders Choice scheme described in section 5.6.

Five universities do not specify whether the figures that they suggest are before (pre-money) or after (post-money) the spin-out takes in external investment. For most of these cases, this is appropriate, because the university offers a fully negotiable approach to allocating their equity stakes. However, when a specific equity figure is suggested, it is important to also specify when this stake will be taken and whether or not it will be diluted by any later incoming investment. Although most of the sample universities also specify that the university and founders' stakes will be diluted equally by later investment, eight are not specific about this future dilution.

The policies and guidelines that we examined, as would be expected from internal documents, focus on the mechanisms for sharing equity between the founders and the university. When seed investors put money into the new spin-out, a separate commercial negotiation will be required, based on the risks and rewards for all parties. The equity share for the investors will depend on factors including the size of the commercial potential for the opportunity, the stage of development and the additional input that will be required before it reaches commercial success.

4.5 REWARDS TO INVENTORS

The focus on equity stakes for founders also tends to ignore the additional rewards that may come to a founding inventor through the relevant university's Rewards to Inventors scheme.

These schemes are set up to reward academics who have made inventions which are successfully commercialised and bring in revenues to the university. In the case of a spin-out, there are three ways in which an inventor could potentially receive a share in the proceeds that come from the spin-out:

- From their own founder's equity shares in the spin-out;
- From a share in the royalties and milestones received from a separate licence to the spin-out;
- From a share in the exit proceeds received by the university when the spin-out is sold or floated.

There is considerable variety in the approaches taken by the universities in our sample to this question. The most common approach (9 universities) is for the founder to receive proceeds only through their own shareholding, and for other types of reward to be specifically excluded in the policy. Five others allow a founder to benefit from both individual equity stakes and licence revenues. As might be expected, these two approaches are broadly linked to the mechanisms used for licensing. If the licence is negotiated at arms-length, and the equity shares do not reflect the IP, then it is reasonable for the inventor to receive both types of reward. If, however, the university equity stake is in return for a royalty-free licence, then there would be no returns expected from the licence anyway.

Seven universities either do not address this issue in their public documents, or give information which is unclear or contradictory. This will again make negotiation of equity stakes with the founders more complicated, as they will not be clear about what types of reward they stand to gain.

4.6 APPROVAL MECHANISMS AND DISPUTE RESOLUTION

Seven of the universities studies either do not provide any information in their public documents, or only give incomplete explanations as to the processes and approval mechanisms needed to form a spin-out from the university. Six do not specify how any disputes will be resolved.

This may be because this information is available in the internal documents only, but these are both important areas which should be made clear to the academics.

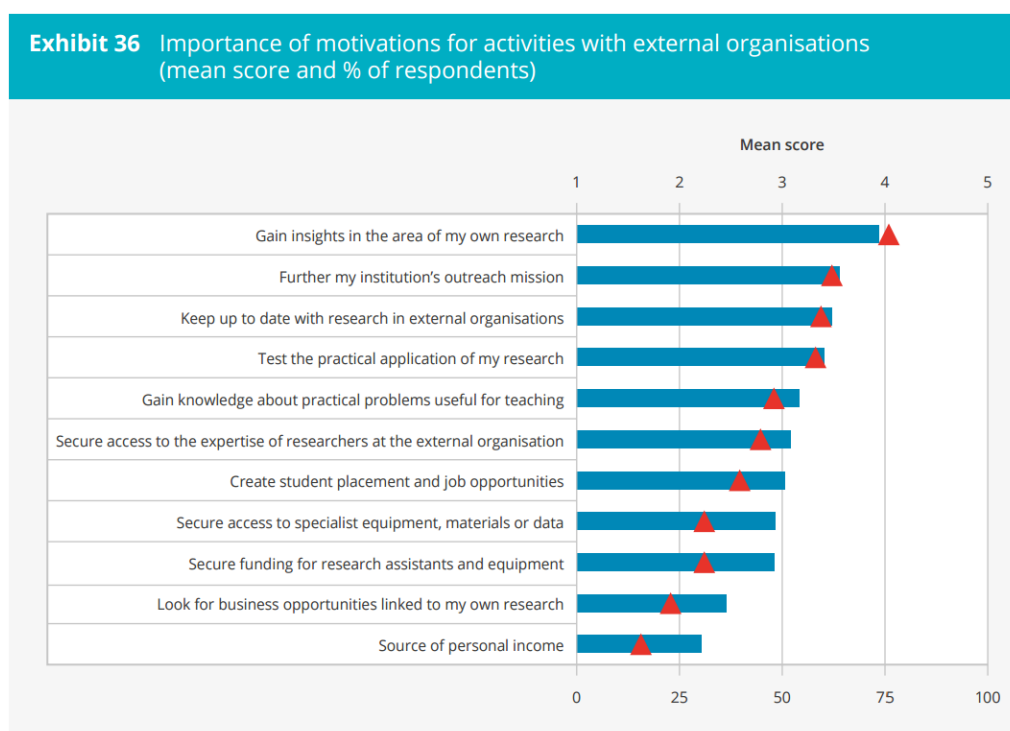
4.7 WIDER FACTORS

The factors discussed above are the most important facets which have an influence on the division of internal spin-out equity. Many other external aspects also impact on spin-out activity, and on the ultimate success of the company.

For academic founders, the motivation to found a spin-out often comes from a desire to ensure that their research is used in a practical way that will have a positive impact. Equity stakes in the spin-out may bring an eventual financial reward, but this not by any means the only benefit. As well as expanding their commercial experience, spin-outs can bring new opportunities for an academic, in terms of flexible secondment support, ongoing collaborative research funding, consultancy payments, or membership of the scientific advisory board. The National Centre for Universities and Business (NCUB) carried out a survey in 2016 of 18,000 academic researchers in the UK to investigate the changing state of knowledge exchange activity⁵. Their survey results showed that financial returns were low on the list of motivations for external engagement (including with spin-outs), with the highest emphasis on improving the quality of their research:

⁵ <http://www.ncub.co.uk/reports/national-survey-of-academics.html>

Figure 3: Motivations of academics for interacting with external organisations



Source: NCUB

Similarly for universities, financial return from their equity stake is usually a minor consideration, although they do have an obligation from their public funders and their charity remit to ensure that a reasonable commercial return is obtained from their investment of public funds into the underlying research and spin-out development. Having paid the initial costs, and taken the risks of spinning-out, the university should not give up all the benefits to others. The university also needs to consider its priorities and sustainability, and considerations may include the level of support that the university provides, for example providing legal documents, payment of historical patent costs, access to academic consultants, access to facilities or incubator space, and provision of non-executive directors. There may also be a pipeline agreement which allows the spin-out to access future related IP arising from the university; in many cases, this will take the form of an option to a further licence on terms to be agreed.

As for academics, ensuring that the research is translated into tangible positive impacts is a key motivator for a university. Depending on their particular mission, the university may also be looking to improve the local economy, to increase student and staff employment opportunities or to stimulate an entrepreneurial environment. In a very small proportion of really successful spin-outs, an opportunity may exist to contribute significant sums of money to the university endowment, which may flow from the accompanying royalty revenues from the IP licence or from the realisation of value from the university equity holding. The balance between equity and royalty returns will depend on the spin-out circumstance and the approach that is taken to licensing the IP.

Of course, for both founders and universities, the equity stakes that they receive is not only linked to potential financial rewards, but also the level of influence they will have on the path of the spin-out company.

The success of a spin-out will be enhanced where a wide range of local support mechanisms are available, such as:

- proof of concept funding
- venture finance
- management capability
- accelerator programmes
- start-up friendly space and access to suitable facilities
- well trained staff
- access to customers (whether consumers or large business)
- innovation-friendly ecosystems
- dedicated investment funds
- etc

In some parts of the country, some or all of these mechanisms will exist outside the university. In other areas, however, the university itself may need to provide some of these types of support to nurture their spin-outs. These variables are very important to the future of the spin-out development, but will only have an impact on how equity stakes should be shared in the cases where they form part of the university support.

The attitude of incoming investors may be influential, however. For an investor, future contributions to the company are more important than historical rewards, so they tend to favour higher equity stakes for founders who will be actively involved in the spin-out and lower stakes for a university which will play a minor role in the future development. The stake that a university takes could also be influenced by whether or not they are able to invest into later funding rounds from their own reserves or from dedicated investment funds. This would allow them to protect themselves by later dilution from new investors, which the founders are unlikely to be able to do. This option is more likely to be available to the higher rated universities.

The needs and expectations of investors also become an important factor, especially when the transfer of the founding IP is managed as part of the overall investment deal. Different investors take different points of view on their attitudes to arms-length vs royalty-free licensing of IP into a spin-out. As a consequence, our experience is that the universities with a lower track record of spinning out companies are often under more pressure from external investors to licence or assign the founding IP to the company and for this value to be assumed within the university's initial shareholding. In general, it is good practice not to assign the IP to the company at the point of spin-out, and to only allow assignment in circumstances where the university is reassured that the spin-out has a sound financial future. Some UK universities have a policy of never assigning their IP, and this is the approach taken in the US. The larger and more active universities with an attractive pipeline of potential new spin-out opportunities may be in a stronger position to influence the IP terms with investors, especially when they have a close relationship with the fund.

Another factor is how the founders share will be split in the case of multiple founders. The most common approach is for this to be determined by the founders between themselves. Founders in this case do not necessarily have to be named inventors on any patent(s) destined for the spin-out. Most universities offer a dispute mediation process if the founders are unable to agree. Some

universities will not get involved in these decisions at all, and will only proceed with exploitation if the founders are able to agree. In others, the university will make the determination, with a suitable resolution mechanism in case of disagreements. A small number specify that the shares will be divided equally between the founders.

A parallel situation exists for universities where third-party funding terms or joint IP ownership are involved, which can affect the equity stakes that must be allocated. These divisions are usually governed by a funding contract or joint ownership agreement, which sets out contractually a particular sharing mechanism between the university and other interested parties. In these cases, the “university” equity will be shared, which may require the university to take a higher initial stake in the business in order to satisfy these external obligations.

Although less relevant to this study, most universities also include in their IP policies a mechanism to handle the situation where the university does not wish to exploit a particular opportunity. In this case, any IP can be formally handed back to the relevant academic(s), with an appropriate licence to allow ongoing academic and research use by the university. In many cases, the university will not expect any return if the academic then goes on to successfully exploit this IP, but some do request a modest share (usually 5-10% of the revenues or of the equity if exploitation is via a start-up company).

5 BEST PRACTICE AND GOOD EXEMPLARS

The sections above include some commentary on approaches which can be helpful, and the circumstances in which they may be applicable. The evidence that we have gathered stems from the higher research intensity universities which have spun-out the most companies. The approaches that these organisations have evolved may not always be the most appropriate for smaller, less active universities. For example, a university which does not have many spin-outs may wish to be more supportive of a new spin-out to give it the best possible chance and to encourage other academics to follow. This support could include putting more time and effort into building up the business proposition, taking a smaller equity stake, or taking on more of the costs (patenting, legal documents, access to facilities) of starting up the company.

The range of different spin-out and university circumstances are much too variable for a specific fixed equity share to be appropriate in all cases. However, clarity and transparency in the approach that is being taken and why this is so will always help to dispel suspicion and improve the negotiation process. In this section, we explore some examples of good practice in different dimensions of the spin-out process and the determination of relative equity shares.

5.1 WHY SHOULD YOU SET UP A SPIN-OUT?

Surprisingly, not many of the universities studied give a positive statement about their reasons for supporting spin-out creation, and the benefits that they anticipate from the process. This may be because we have most commonly had access to policy documents, and this type of information perhaps sits more comfortably within guidance which may only be available to internal audiences.

One clear example comes from the University of Nottingham:

WHY SPIN-OUT?

- wealth creation for the academic founders and the University
- as a mechanism of technology and knowledge transfer
- as a conduit for academic entrepreneurs
- to contribute to the Knowledge Economy
- to improve the economic profile of the region
- to enhance the University's profile
- to attract investment

Source: A Guide to Internal Processes around Spin-out company formation
Version 3, July 2011, University of Nottingham

5.2 SPIN-OUTS VERSUS LICENSING

The two most common mechanisms used by universities for commercialisation of their research are licensing the technology to an established company, and setting up a spin-out company. Different universities will have different priorities within their approach to knowledge exchange which may influence which of these is seen as more appropriate for a particular opportunity. This could be because they wish to support their local economy by providing more employment opportunities, or because they wish to foster deeper research relationships with a particular industrial partner.

The choice of licence versus spin-out is also very much dependent on the nature of the underlying opportunity, with some technology opportunities more suited to spin-out than others. This example from the University of Exeter explains some of the factors that should be considered:

CIRCUMSTANCES IN WHICH A SPIN-OUT STRATEGY MAY BE CONSIDERED:

- The IP has many potential applications and the market(s) are not dominated by a limited number of large players
- A stronger impact case study can be developed through creation of a new venture rather than by licensing
- The IP is too early in its development to attract a licensee and requires investment to realise commercial exploitation
- There is no existing route to market for the IP but clear evidence of market need
- Both the University and an external partner wish to combine IP / know how for commercial exploitation and believe this is best realised through either a joint venture or spin-out company

Additionally the following criteria should also be met:

- The inventors are able to commit time and energy to the new venture.
- There is a clear route to early revenue generation to enable the venture to become self-sustaining and not reliant on repeated investment cycles in order to survive.

Source: <http://www.exeter.ac.uk/business/research/ippolicy/#a5>

5.3 CLARITY

As discussed in section 4, a 50% shareholding for each of the university and founders can have very different outcomes, depending on whether this figure is quoted pre- or post-investment, whether there are any non-dilution provisions, whether the licence is royalty-free or arms-length, and whether the founder can receive any additional benefits through the rewards to inventors scheme.

It is therefore good practice to ensure that any spin-out policy is clear and explicit about each of these facets, and any others that may impact on the equity shares.

If the university is also offering other incentives and support mechanisms to help the spin-out in the early years, it would also be relevant to ensure that these are clearly articulated and understood.

The founders can then view the entire support package in its totality, rather than focusing on their equity stakes in isolation. Newcastle University has a particularly well-developed and explained strategy for supporting its early-stage spin-outs.

SUPPORT FOR SPIN-OUT COMPANIES

The University, principally through its BDE and Legal teams, provide support to a prospective Spin-Out both before and after the company creation stage. Support can be across a number of areas but will typically include the following.

Pre Spin Out:

- An exclusive, royalty free licence to commercially exploit specific University IP, in exchange for shares in the Spin-Out;
- Where required, assistance in the recruitment of a business manager (typically a CEO) to take the business forward through the investor readiness and, subsequently, the company trading phases;
- Provision, if available, of a Northern Accelerator grant to assist in such recruitment;
- Signposting and introductions to sources of seed capital funding;
- Provision and utilisation of Spin-Out legal documentation;
- The securing of required background legal agreements with other collaborators and / or licensors;
- Payment normally, of up to £15,000 of historical patents costs;
- General business and business planning assistance and guidance.

Post Spin Out:

- Subject to approval by the relevant Head of Unit, a consultancy contract for one of the founder academics to work for the Spin-Out, free of charge, on a 20% FTE basis for the 12 months post Spin Out company formation;
- Subject to approval by the relevant Head of Unit and with regard to the University's Health and Safety responsibilities provision of suitable, and limited, University facilities, including space, access to available equipment, general (not specific) technical support, in which the Spin-Out can operate, free of charge, for up to 12 months post Spin Out company formation; and the option of an extension at reasonable (cost recovery) rates for up to a maximum two years further; Approval will be in the form of a legal document indicating the relevant roles and responsibilities of the Spin-Out and University working together.;
- Provision of non-executive director assistance to the Spin-Out on a case by case basis as required by the University or requested by the Spin-Out.
- Any further University resource which the Spin-Out wishes to access will be subject to the negotiation of commercial terms for such access.

Source: Policy on ownership, protection and exploitation of Intellectual Property for employees. Appendix E, Newcastle University, 2018

5.4 GUIDELINES FOR NEGOTIATION

For the universities that allow an element of negotiation, it is good practice for the key parameters that will influence that negotiation to be properly explained to the founder. The following is a fairly comprehensive example from the University of Oxford:

RESEARCHER AND UNIVERSITY SHARES OF EQUITY IN A NEW SPINOUT COMPANY

Principles

To reach shared understanding about the equity split between the participating researchers and the University for founder equity in a proposed new spinout company, we work within the following principles:

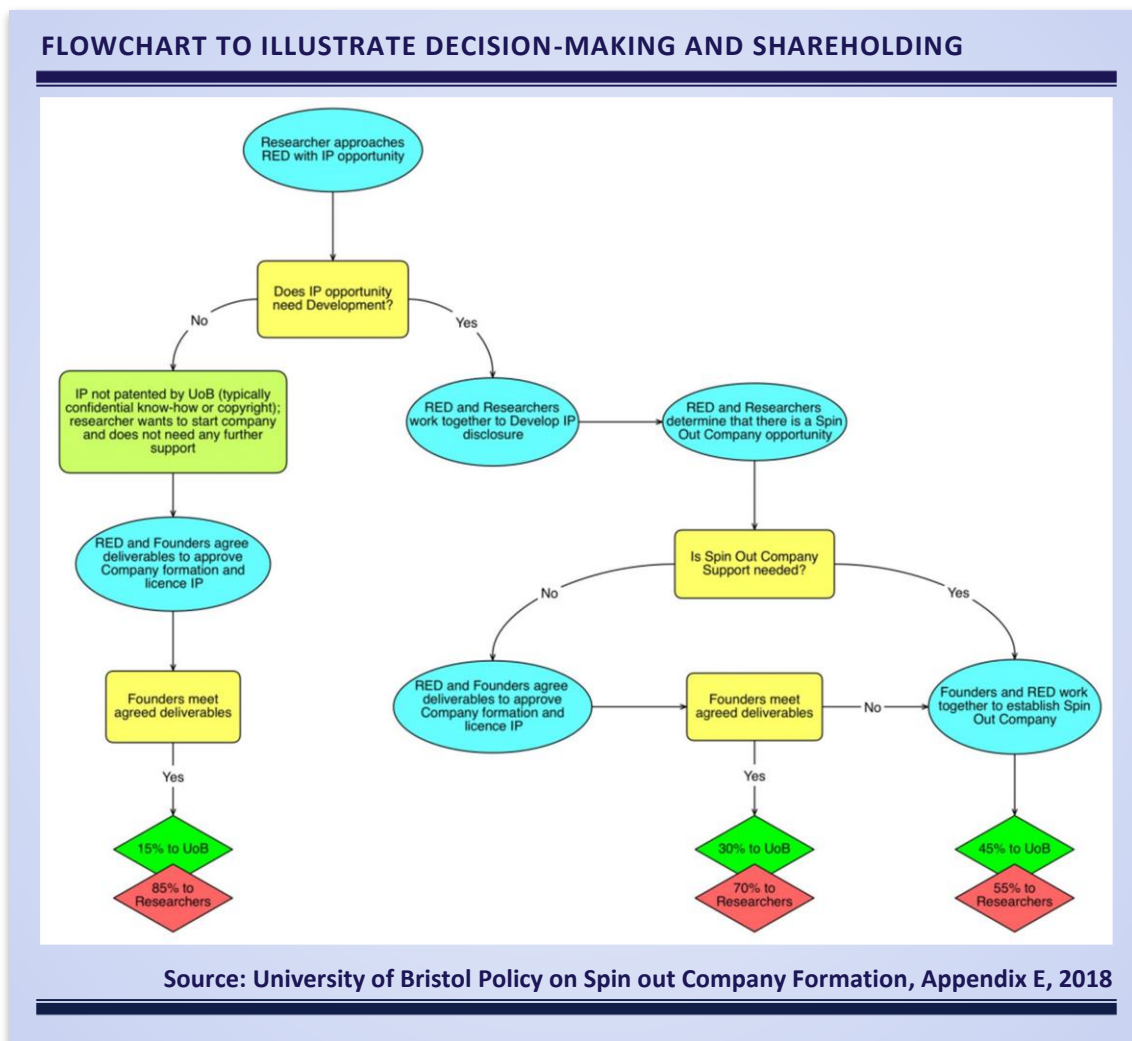
Decisions about equity are based on the facts in relation to:

- The research that forms the basis for the new business and any intellectual property relating to it;
- The connection to the researchers' academic environment and work, and the extent to which the new business will commercialise the outputs of that environment;
- The roles that the researchers have played during the preparation of the opportunity, and are anticipated to take after the new business is established;
- The institutional practical support and permissions that are provided, including support from Oxford University Innovation (OUI);
- The proposals for the spinout management and any equity set aside for managers;
- Any other material facts that are relevant to the decision e.g. rights of funding bodies, other institutions or third parties.

Source: <https://innovation.ox.ac.uk/university-members/commercialising-technology/starting-company/oxford-universitys-procedures/>

5.5 TIERED EQUITY LEVELS

If, instead, the university provides guidelines for different levels of equity stakes to be allocated to the university, depending on the level of input it has provided, then it is very important that this should be transparent and easy to interpret. The founders are then able to take rational decisions on how to approach their particular opportunity, depending on their needs. The following flow chart provided by the University of Bristol makes the decision-making process and the consequent effects on equity shares easy to interpret.



5.6 EFFECTS OF DILUTION

The Founders Choice model⁶ from Imperial College, London, was developed in line with advice provided to HEFCE from the heads of the TTOs at Stanford and MIT⁷, and has been praised by Mike Rees, amongst others for offering a clear distinction for their academics on the level of support that they need from the university, and the implications that this will have on the shareholding that they will receive in the spin-out. This model differs from the usual approach taken by UK universities, in that one alternative provides an element of protection for the university from dilution by later funding rounds.

⁶ https://www.imperialinnovations.co.uk/media/uploads/files/Founders_Choice_Miniguide_web_june_2017.pdf

⁷ “Are US university spin-out processes really better than those of UK universities?” Lita Nelsen and Katharine Ku. HEFCE. <https://re.ukri.org/documents/hefce-documents/ke-good-practice-ukus-spin-outs/>

Founders Choice is a pilot programme which was launched by Imperial Innovations in August 2017, and now operated by Imperial College London. The pilot was scheduled to run for 18 months, but we have not been able to identify any formal report of the assessment of the outcomes from the project. An interim review reported that the initiative had been positively received by the academic community, and that a significant number of spin-outs were now opting to take the “Founder Driven” route⁸. We understand that the scheme has now been fully adopted across the university, and that similar schemes are under development elsewhere.

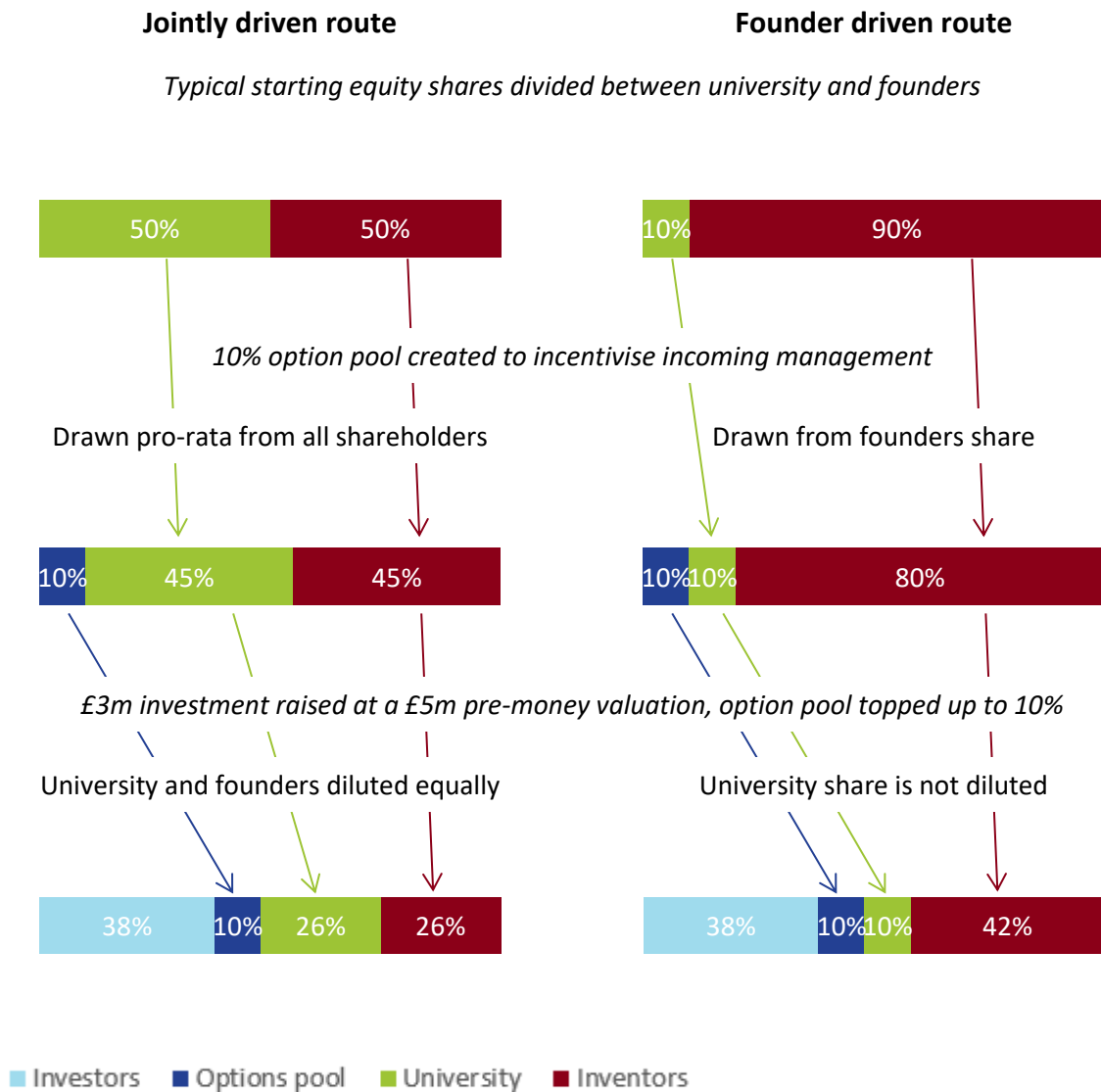
Under Founders Choice, the spin-out process begins in the normal way, with an assessment of the potential commercial opportunity and its suitability for spin-out. When the university and founders are agreed that a spin-out opportunity exists, the founder has a choice of two different routes. In the jointly driven route, the academic receives the usual support from the university in building the business proposition, finding management and investment, and supporting the venture in its early years. In this model, the typical starting point for negotiations on equity split is 50:50 between the university and the founders. The Founder-driven route is led by the academic, with a lower level of support from Imperial, and consequently the academic receives a higher initial stake in the spin-out, with the university taking 5-10%. However, this university stake is non-dilutable up to the point when the spin-out has received a pre-agreed total investment amount of between £3m-£15m. This level will be set depending on the technology opportunity area, and in particular on how much money it is likely to need before it becomes self-sustaining.

The introduction of this two-tier support is in recognition that the ecosystem at Imperial has now matured to the point where there are many academics with sufficient experience of starting and growing businesses, and with the personal support networks needed to create, manage and attract investment to a new business. Even if the university support is not used, there is a large amount of general advice and guidance available to the academics on the Imperial website, through various enterprise support programmes, and from the local investment community. As discussed in section 4.3.2, a few other universities also offer a tiered support scheme leading to different equity stakes, but the scheme at Imperial has the highest external profile and branding. This type of “hands-off” approach will only be suitable for certain types of academic, and would not necessarily be appropriate at other universities which do not have such a well-developed track record and ecosystem surrounding their spin-outs.

Although the academics which take the founder-driven route have a very high equity share on start-up, the figure below shows the effect of the non-dilution provisions on the relative university:founder shareholdings as the company evolves through different stages. In this specific example, under the jointly driven route, the ratio of university equity to founders’ equity remains constant at 1:1, whilst under the founder driven route, the ratio reduces from 1:9 to 1:4, and could reduce still further with additional fundraising.

⁸ Imperial College London, Review of Enterprising Activity 2017–18
https://issuu.com/imperialcollegelondon/docs/review_of_enterprising_activity_201

Figure 4: Effects of dilution in the Founders Choice model



Source: IP Pragmatics analysis, based on the Founders Choice equity modelling tool

https://www.imperialinnovations.co.uk/media/uploads/files/Founders_choice_tool_FINAL_June17.XLSX

5.7 DIFFERENT APPROACHES FOR DIFFERENT TYPES OF IP OR TECHNOLOGY

Another tiered approach is taken by UCL, with different approaches applied to different types of IP and underlying technology. While a more traditional approach is taken to exploitation of patented technologies, UCL Portico Ventures⁹ is specifically aimed at supporting academics who have created non-patentable intellectual property such as software, know-how, algorithmic methods. These types

⁹ <https://pvp.uclb.com/about-portico-ventures/>

of IP tend to be easier to exploit, and typically exist in a fast-moving market, where speed and flexibility are more important than formal IP protection. As with the Imperial Founders Choice model, there are two routes to exploitation, depending on the level of support that is needed from UCLB to develop the opportunity. As neither route requires significant investment in patenting or business development activities, both routes result in a high proportion of the spin-out equity being allocated to the founding academic.

EQUITY ARRANGEMENTS – THE TWO-TRACK MODEL

In the case of the founder driven track, the spinout will receive an exclusive commercialisation licence to the UCL IP, in exchange for UCLB holding 5% (fully diluted) equity in the company as calculated at the point the company has accumulated its first £1million in equity funding. The founding team can distribute the remaining 95% equity among themselves (and any other stakeholders, such as early investors), but should include a minimum 10% option pool to incentivise initial employees, advisors, non-executives etc.

In the case of the tailored-UCLB support track, the spinout will receive an exclusive commercialisation licence to the UCL IP plus hands-on support UCLB to progress the opportunity pre-incorporation and beyond, in exchange for UCLB holding 10% (fully diluted) equity in the company as calculated at the point the company has accumulated its first £1million in equity funding. The founding team can distribute the remaining 90% equity among themselves (and any other stakeholders, such as early investors), but likewise should include a minimum 10% option pool to incentivise initial employees, advisors, non-executives etc.

Source: <https://pvp.uclb.com/about-portico-ventures/>

After a successful one year pilot run within the Department of Computer Science, the approach is now available more widely across the university, and is being rolled out to departments which traditionally do not produce patent-protectable IP.

5.8 REWARDS TO INVENTORS

As discussed in section 4.5, different universities take different approaches to how they share out the returns that they make from their spin-outs in different ways. If the equity stake for the university is clearly separated from an arms-length licence, then it may be appropriate for a founder-inventor to benefit both by receiving shares in the spin-out and by sharing in any royalties and milestones that may arise from the licence. The rewards for their role in setting up and continuing to support the spin-out are seen as separate from their rewards for the original invention. This approach is taken by Imperial, who use the term “inventors and creators” to cover the originators of all types of IP, including patents, copyright, design or know-how:

SHARING IN ROYALTIES AND OTHER IP-RELATED REVENUES

At Imperial, all inventors share in any proceeds from the commercialisation of IP. This includes founders of spinout companies who also receive equity in spinouts. In simplistic terms the policy at Imperial is as follows:

- All inventors & creators receive founding equity in spinouts (relative proportions are determined through negotiation between the inventors)
- Inventors & creators receiving equity do not also share in the University equity (shared between the College/Imperial Innovations) as they have their own, personal stake. This also applies to dividend payments on such shares.
- Inventors & creators receiving equity also share in any proceeds from royalties or other payments received in connection with the licensing of IP (e.g. cash fees, milestone payments, annual fees etc.). Some universities do not allow inventors to 'double dip' by sharing in such royalties, but Imperial considers it an important part of the rewards mix and inventors do share in such proceeds (which are non-dilutive in nature).

Source: https://www.imperialinnovations.co.uk/media/uploads/files/A_Founders_Guide_to_Spinouts_-_Second_Edition_WEB.pdf

Other universities view these two potential revenue streams as being rewards for the same endeavour, and so will specifically disallow a founder from receiving both. This type of approach is outlined by Heriot-Watt University below. When the university is giving a royalty-free licence to the spin-out, there may not be any licence-derived revenue for distribution to the inventors anyway. Occasionally, a university may allow their founders to elect which type of reward they can receive.

WHAT ABOUT NEW COMPANIES?

...

- No shares may be held by any members of staff who weren't involved in the invention or who aren't involved in the management of the company

...

- In the interests of fairness, if an inventor is receiving income from the company they are expected to forego their share of any royalties from that work that are distributed by the university internally. This avoids them being paid twice – once by the company, and once from the share of the royalties that the company pays to the university. Instead their internal university share will go to their School.

Source: [Intellectual Property in Heriot Watt – A Guide to the Policy
https://www.hw.ac.uk/documents/IP-Policy-Guide.pdf](https://www.hw.ac.uk/documents/IP-Policy-Guide.pdf)

Any combination of sharing of the returns from the spin-out may be appropriate for a particular university spin-out approach. It is good practice to ensure that the approach taken by the university is clearly explained and consistently applied.

6 INTERNATIONAL COMPARISONS

The focus for this study was the processes and procedures that are in place in a selection of UK universities. We did not look in depth at international practices, but some observations about the typical approaches taken elsewhere in Europe, and in the USA, are given below, drawing on IP Pragmatics' existing knowledge and experience. One important difference when comparing quoted figures for equity stakes is that in Europe, it is more usual for the equity negotiation to take place before the company raises initial investment, and the quoted share proportions are pre-investment money. In parts of the US, it is more common for a spin-out company to build its business plan and identify investment before it negotiates with the university, and the share proportions quoted are more often post-investment money and may also include further anti-dilution provisions. This means that the equity figures quoted for university shareholdings in US spin-outs may appear to be lower than those quoted for their UK counterparts, but do not reflect the relative returns that each will receive on exit.

6.1 IRELAND

In 2017/18, IP Pragmatics undertook a review of intellectual property management and conflicts of interest within higher education organisations in Ireland. The study, which was commissioned by Knowledge Transfer Ireland (KTI) and the Higher Education Authority (HEA), included an analysis of the procedures in place for forming spin-out companies from universities and Institutes of Technology (Research Performing Organisations or RPOs) within Ireland¹⁰. One of the recommendations contained in this report was:

***Common principles underpinning spin-out formation:** The individual circumstances surrounding the formation of each spin-out are too variable for fixed equity shares for the HEI or founders to be predetermined within the IP policy. However, there should be a set of common national principles that explain the basis upon which equity shares are taken and the consideration involved. KTI, in consultation with HEA and others, should lead the definition of these principles as part of the ongoing development of the national IP Protocol.*

This recommendation has been taken forward by KTI, and the recent update of the KTI National IP Protocol 2019¹¹ includes a "Framework for Spin-Out Company Formation". This gives guidelines that are consistent with the objectives of the overall national policy for research commercialisation, and which steer the expectations and of founders, HEIs and incoming investors on what to expect from the HEI spin-out process.

¹⁰ <https://www.knowledgetransferireland.com/News/Archive/Review-of-Intellectual-Property-Management-and-Conflicts-of-Interest.html>

¹¹ <https://www.knowledgetransferireland.com/Reports-Publications/Ireland-s-National-IP-Protocol-2019-.pdf>

Some of the key points in this Framework which relate directly to equity stakes in the spin-out are highlighted in the extracts below:

SELECTED EXTRACTS from: FRAMEWORK FOR SPIN-OUT COMPANY FORMATION

- The RPO shall take equity in the spin-out company recognising the environment it has created in which the original idea developed and was supported and to incentivise future entrepreneurial activity.
- Where the spin-out is dependent on access to RPO IP, this shall be offered by way of a licence.
- At the time the RPO formally approves the spin-out company, the RPO shall agree with the company the level of equity the RPO will hold. At that time, “the company” will typically involve those directors named on the company registration documents, usually the founders. The equity for the RPO should be set relative to a specific and realistic level of investment to be achieved or company valuation to be attained.
- Agreeing equity share in a company is a commercial negotiation based on risk and reward. Equity share for the RPO should depend on the specific proposition and commercial potential, the stage of development and “commercial readiness” and the resources that will be required, including skills, financial and time, to achieve commercial success. When negotiating its equity stake the RPO shall take into account state support for the research underpinning the commercial prospect and shall seek a fair return that balances the contributions to date from the State and RPO (financial and in-kind) against the future commercial development required. Ultimately the RPO shall act to maximise the overall economic and social benefits for Ireland.
- The share of equity with founders should take into consideration their contribution to the creation and subsequent development of the company, the risk taken (and intended to be taken), any personal financial investment, the level of commercial readiness of the proposition and the downstream effort required to bring success.
- In negotiating equity share, the parties should be able to describe the logic behind their positions.
- A commercial licence to any intellectual property required from the RPO should be negotiated by way of a separate agreement to the Shareholders Agreement.
- In some situations the commercial terms agreed for the IP licence may involve equity.
- Revenue return to the RPO from licensing shall be distributed internally according to the RPO’s policy for IP commercialisation that takes into account inventors and contributors to the commercialised IP.
- Where such inventors or contributors also hold founders equity in the spin-out to which the IP has been licensed, their right to enjoy a share of such licence revenue shall be determined by the RPO’s policy for IP commercialisation.

Source: Ireland’s National IP Protocol 2019

6.2 EUROPE

Elsewhere in Europe, the approach is more diversified. Some universities, for example at the University of Copenhagen and the École polytechnique fédérale de Lausanne, do not support spin-

out formation at all, and do not influence the equity stakes in the spin-out. In these cases, the founders' equity stake is independently negotiated by any investors and entrepreneurs involved.

Others, such as KU Leuven and the University of Oslo get more involved in shaping their spin-outs, and share the equity with their founders in a way which reflects their broader Rewards to Inventors revenue sharing policy.

6.3 USA

In parts of the US, a more hands-off approach is often taken to spin-outs, and a (relatively small, 5 or 10%) fixed percentage of equity may be taken in return for permission to spin-out the company. The main return to the university comes from a separate arms-length licence to the IP on full commercial terms. In the past, this model has been held up as evidence that the UK approach is out of step. However, in fact it is only used by a handful of high-profile US universities, and is not widely adopted across the country.

Particularly in the most established universities (eg Stanford, MIT) in areas of USA with plentiful venture capital, a spin-out company may build its business plan and identify investment before it negotiates with the university, and the share proportions quoted are more often post-investment money. This university equity stake may also include further anti-dilution provisions, and so will remain the same after additional investment money is brought into the spin-out. In some cases, this stake will remain at the same level right up to the point of sale or exit of the company. These universities are located in innovation communities that are so active that the TTO involvement is limited to issuing an IP licence to ready-made teams of founders/investors/entrepreneurs. This different approach is highlighted in the name of the office handling this commercialisation, which in the US is more often called the Technology Licensing Office.

Outside these powerhouse US universities, however, a wide variety of equity sharing policies are adopted, with many taking a more hands-on approach to developing their spin-outs. This is then typically reflected in higher equity stakes being allocated to the university in the spin-out companies.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

Our investigation into the publicly available information from a group of 23 universities which are active in spin-out formation has concluded that whilst there is some commonality to the approaches taken to determining equity splits between the university and the academic founders, the details of how this is handled in practice are very different. We do not have the evidence to draw any conclusions on whether these differences actually lead to different levels of academic involvement, different rates of spin-out formation, or different success rates for the companies. The eventual commercial success of the spin-outs, in particular, cannot be reliably linked to the original policy on equity sharing, because of the timescales involved, and the much greater effects of wider influences on later success.

We support the conclusions reached by the McMillan review and the Mike Rees report that there is no single approach to commercialisation in general and spin-out equity stakes in particular that will be appropriate for all universities and all spin-outs in all circumstances. One-size does not fit all. We also strongly support their findings that transparency is key to ensuring a smooth path through the process. Within the information sources that we examined, there were several cases of missing, incomplete or confusing information which makes it difficult for the university and the founders to navigate the negotiation process.

An interesting example is given by Ireland, where the HEI community is small and homogeneous enough for a more coordinated approach to be taken. Even here, the approach to equity stakes is built on flexibility based on individual circumstances, and not on mandated equity shares. Their National IP Protocol now includes some helpful guidelines for founders, HEIs and investors on what to expect, and what not to expect, from the spin-out process.

The report has identified several interlocking facets which make a simplistic comparison of the headline figures for the equity stake allocated to the university or founder meaningless without an understanding of the wider context. These variables are not always explained in detail in the public policies available, making comparisons even more difficult. For universities which have a lower level of spin-out activity, it may be more appropriate to keep the guidance general and to take an individual approach to each spin-out. This is also the approach taken by some universities with a large portfolio and a wide diversity of different spin-outs. For organisations with many spin-outs, however, it is important to be very specific about all the different facets that make up the decision-making process for assigning university and founder equity stakes.

There are two separate approaches taken by our sample universities to the access arrangements for the university IP required by their spin-outs. The universities with higher research activity and more spin-outs are more likely to negotiate a licence to the IP on arms-length terms, such as would be offered to an independent company. Royalty-free licences (or assignments) in return for equity are more common amongst the universities which may find it more challenging to raise funding for their spin-outs. This might then be expected to be linked to a correspondingly lower typical percentage stake retained by the university in the first case, and a higher level in the second. There is some evidence to support this – the highest quoted university equity percentages are from universities

which provide a royalty-free licence. However, many universities with lower stated percentages also offer a royalty-free licence. This is likely to also be influenced by the stronger negotiating position of the more active universities, with lower incentives to nurture every spin-out.

For both the university and for the founders, the more that they contribute to the spin-out, the higher the equity stake they might expect to receive. The university equity share ultimately derives from their ownership of the underlying research and IP, and their responsibility to achieve maximum impact from these. In our practical experience, it is cleaner and easier for all parties to understand and negotiate if the equity allocated for enabling the spin-out to form and for supporting its development are considered separately from the rewards for allowing the IP to be used within the spin-out company. The IP may be accessed through additional equity in return for a royalty-free licence, or through a fully commercial licence, which might include an increase in the university equity stake in lieu of up-front milestone payments. The most important point, however, is for the university to be clear about which factors should be considered in allocating the relative equity stakes, and which are covered by other mechanisms.

The university equity stake can then be considered within three categories:

1. Equity for instigating the spin-out, the base of research and university “brand identity”.
2. Equity for the effort and resources that have gone into making the specific spin-out happen, including patent costs, translational funding, business planning, accelerator programmes, tied investment funds, finding management, legal company setup documentation, etc.
3. Equity for the IP itself, which will vary depending on the type of the underlying technology. If an arms-length licence is used, there would be no equity in this category; others choose to exchange their IP for equity and do not receive royalties and milestones.

Only one university in the sample had an equity allocation process that was non-negotiable. This approach successfully eliminates one source of argument, but it also does not allow for any flexibility to adapt to the different needs of different spin-outs and different founders. Just as not all spin-outs are the same, neither are all founders. The Founders Choice scheme at Imperial has proved popular because it gives academics a clear choice of the amount of support they accept and the corresponding level of equity that they will receive. A number of other universities have adopted a similar approach in which the level of equity allocated to the university is varied according to the level of business planning support and/or translational funding that they provide. This approach can work well where there is a sufficient level of experience and sophistication amongst the founders, and a supportive local entrepreneurial ecosystem. But there is also a risk that some of the founders that would benefit the most from external support may be the least likely to seek that help. Where the local ecosystem is not so well developed, this choice may not be possible, as this support can only come from the university.

Whilst guidelines linking levels of input to expected equity stakes with room for negotiation is a flexible and adaptable approach, care should be taken not to make these guidelines too complex. A complicated set of rules and scenarios that can influence the eventual equity split will be difficult to understand and may confuse and put off less experienced founders.

The discussion in this report has focused on how to assign equity stakes in spin-out companies between the founding academics and their university. It is appropriate for the university to be as

transparent as possible on how these decisions will be made and what will influence the eventual outcome. How generous a particular university will be towards its academics will depend on their particular motivations and goals for spin-out activity, as well as how flexible they can afford to be. The equity stakes given to incoming investors are a separate issue, which it is generally not appropriate to discuss externally, and is covered in much less depth in the policy and supporting documents that we have studied. Historically, some tied investment funds, and in particular the IP Group, have mandated a set seed investment for a set equity percentage in the spin-out. This approach is less common today, although it is still used by some accelerator programs. Some “ground rules” for this negotiation can be stipulated by the university in their policy documentation, but generally an incoming investor will be very well aware of how both the university and they will value the spin-out. This will be based on the strength and maturity of the business proposition, as well as the capital costs of the next stages of development and the likely size and timing of an eventual exit. The track record of the university and its relationship with the investors will also have an influence on both the valuations and how the transfer of IP into the spin-out company will be handled. More highly active universities with a well-developed pipeline of spin-out opportunities and long-standing relationships with specific investment funds will be in a stronger negotiating position than the universities which only generate occasional spin-outs.

7.2 RECOMMENDATIONS

- **Universities should identify and plainly communicate their objectives for spin-out activities;** these goals will influence the best approach and associated policies to achieve these aims. The objectives will also guide the most appropriate measures of success for spin-out activities for that organisation. This information may be provided as part of a clear and easily accessible IP policy, or in dedicated guidance on spin-out procedures.
- **Clarity is essential** to set expectations and allow rational negotiations to take place between a university and the spin-out founders. This will also allow transparent and valid comparisons to be made between different universities. As a minimum, we would recommend that the spin-out policy explicitly addresses:
 - Objectives for spin-out activities
 - Approach taken to determining equity shares (eg case-by-case, typical starting points, guidelines depending on input levels, pre-defined)
 - Factors to be taken into account when negotiating from this starting point (if applicable)
 - Whether any guide percentages quoted are before or after the first investment
 - Whether there will be any additional protection against future dilution of the university stake
 - How IP will be licensed to the spin-out (eg fully commercial terms vs royalty-free, any adjustments to help the spin-out to conserve cash in the early years)
 - Eligibility for founders to receive related benefits from the same spin-out through the Rewards to Inventor scheme
 - Approval mechanisms for spin-out and dispute resolution procedures
- **No single approach should be adopted across the sector.** Every university and every spin-out will have different needs and aims; there are too many variables for a rigid standard approach to ever be effective. A diversity of different approaches across the sector is likely to be the most

effective way to fit the different aims and circumstances of different universities, as well as meeting incoming investor expectations.

- **Some approaches are simpler to understand and implement than others; universities should adopt the simplest practicable approach for their circumstances.** In particular, it is essential that the university is explicit about whether it chooses to give an arms-length commercial licence alongside the university equity stake, or to take additional equity for a royalty-free licence or assignment of the university IP required by the spin-out. . Complicated rule-based approaches to equity shares are likely to lead to confusion.
- **Schemes which allow flexibility for more experienced founders may encourage spin-out activity;** however, this type of scheme is likely to work best in environments with higher levels of spin-outs and high quality internal and external support for entrepreneurs.
- **Guidance for equity sharing between the university and founders should not be confused with the equity share to be allocated for incoming investment into the spin-out.** Universities should avoid setting any expectations on equity shares for incoming investors, as this should be specific to the particular spin-out – its type of technology, size of its commercial opportunity, development status and business plans.

APPENDIX 1: ACRONYMS AND ABBREVIATIONS USED IN THE REPORT

Acronym	Description
HE	Higher Education
HEA	Higher Education Authority (in Ireland)
HEBCI Survey	HE Business and Community Interaction (HEBCI) Survey
HEI	Higher Education Institution
HEP	Higher Education Provider
HESA	Higher Education Statistics Agency
IP	Intellectual Property
KE	Knowledge Exchange
KTI	Knowledge Transfer Ireland
RE	Research England
RPO	Research Performing Organisations
TTO	Technology Transfer Office
UCL	University College London

APPENDIX 2: UNIVERSITIES EXAMINED AND SUPPORTING INFORMATION

The universities chosen for examination in this study are listed below, together with data about their level of historical spin-out activity. The universities which met the following criteria were investigated:

- All the universities that have produced 20+ spin-outs over all time (according to Spinouts UK)
- All the universities that reported 10+ active spin-outs that are 3+ years old in the 2017-18 HEBCI survey (excluding the University of Bradford, where there is a discrepancy between these two figures)
- All the Russell Group universities (excluding LSE, which has not produced any spin-outs)

Key and data sources

RG: Members of the Russell Group of research-intensive, world-class UK universities¹²

Active spin-outs: Spin-offs with some HEP (higher education provider) ownership - number still active which have survived at least 3 years. Source: HESA HE Business and Community Interaction (HEBCI) survey 2017/18¹³

Total spin-outs: total number of spin-outs based on university IP founded since 2000. Source: Spinouts UK¹⁴

Organisation	RG?	Active spin-outs	Total spin-outs
University of Oxford	Y	70	163
University of Cambridge	Y	54	135
Imperial College London	Y	54	124
University of Edinburgh	Y	47	82
University College London	Y	42	101
University of Manchester	Y	33	87
Swansea University		29	48
University of Birmingham	Y	28	31
Cardiff University	Y	27	42
Queen's University Belfast	Y	25	59
University of Leeds	Y	22	56
University of Aberdeen		21	35

¹² <https://russellgroup.ac.uk/>

¹³ <https://www.hesa.ac.uk/data-and-analysis/business-community/ip-and-startups>

¹⁴ <http://www.spinoutsuk.co.uk/listings/university-listings/>

Organisation	RG?	Active spin-outs	Total spin-outs
University of St Andrews		21	29
University of Glasgow	Y	20	41
University of Warwick	Y	19	68
University of Nottingham	Y	19	44
University of Bristol	Y	17	56
Newcastle University	Y	15	47
University of Surrey		15	35
Heriot Watt University		15	34
University of Dundee		15	30
Ulster University		15	27
University of Strathclyde		14	61
University of Sheffield	Y	14	37
Royal College of Art		12	39
Durham University	Y	12	36
University of Exeter	Y	12	24
University of Southampton	Y	11	38
King's College London	Y	10	33
University of Liverpool	Y	10	25
University of York	Y	9	27
Queen Mary University of London	Y	9	19
Lancaster University		7	25

APPENDIX 3: KEY TERMS OF THE EQUITY SHARING APPROACHES TAKEN

Note: The universities are presented in random order

University code #	Percentage allocated to university	Is this pre- or post-investment?	Any non-dilution provisions	Arms length or royalty-free licence?	Are there different stakes for high/low support mechanisms?	Can the inventor benefit from: * equity * licence revenues and/or * exit proceeds?
1	24.9 maximum	post	Dilutable	Royalty free	No	Equity only
2	20 Minimum	pre	Dilutable	Not clear	No	Equity only
3	50 typical, or 33 if management are also involved	pre	Dilutable	Arms length	No	Equity returns handled as for other revenue
4	40 (founders share to include incoming CEO)	pre	Only for incoming CEO, otherwise dilutable	Royalty free	No	Equity but not licence. Exit not clear
5	60+ for IP-based 40-60 for service-based	pre	Dilutable	Not specified	Not specified	Not specified
6	66.7 Minimum, of which 13.3% is allocated to IP Group	pre	Dilutable	Royalty free implied, but not specific	No	Equity only
7	60	pre	Dilutable	Royalty free	No	Equity only
8	Negotiable	Not specified	Not specified	Arms length	Yes	All income falls under revenue share
9	50	pre	Not specified	Arms length implied but not specific	Not specified	Equity and licence revenue, but not exit
10	Negotiable	pre	Dilutable	Not specified	Not specified	Equity only
11	"Small"	Not specified	Not specified	Not specified	No	Not specified

University code #	Percentage allocated to university	Is this pre- or post-investment?	Any non-dilution provisions	Arms length or royalty-free licence?	Are there different stakes for high/low support mechanisms?	Can the inventor benefit from: * equity * licence revenues and/or * exit proceeds?
12	50 (typical)	pre	Dilutable	Arms length	No	Equity and licence share, but not exit
13	50 (starting point) under high support route 5-10 for low support route	pre	Non-dilutable in some circumstances	Arms length	Yes	Equity and licence, but not exit
14	Not stated	Not specified	Not specified	Not specified	Yes in some circumstances	Not specified
15	15, 30 or 45% depending on level of input	pre	Dilutable	Royalty free is typical	Yes	Equity only
16	60 (50 to Uni, 10 to IP Group)	pre	Not specified	Royalty free implied, but not specific	No	Information is contradictory
17	50 minimum	Not specified	Not specified	Royalty free implied, but not specific	No	Equity only
18	Complex and rule-driven, depending on input and proof of concept funding. Range is 7.5 (no input) - 60%	pre	Dilutable	Not specified	Yes	Not specified
19	50 (38 to Uni, 12 to IP Group)	pre	Dilutable	Not specified	No	Equity, but not exit. Licence revenues are not addressed
20	10, 30 or 50, depending on whether the spin-out benefits from internal funding (£50k+) and/or BD support, neither or both	pre	Not specified	Not specified	Yes	Not specified

University code #	Percentage allocated to university	Is this pre- or post-investment?	Any non-dilution provisions	Arms length or royalty-free licence?	Are there different stakes for high/low support mechanisms?	Can the inventor benefit from: * equity * licence revenues and/or * exit proceeds?
21	50 (typical)	pre	Dilutable	Arms length, but some milestones may be taken in equity rather than cash	No	Can choose equity OR licence revenue
22	24	pre	Dilutable, except that any option pool would be expected to come from the founders' share	Arms length with terms that conserve cash in the early years	No	Equity only, but can be varied if deemed unfair
23	25 default, but may be increased where the university has provided patent costs, BD support and/or internal pump-priming funds	pre	Not specified	Royalty free	Yes, but no formal formula	Equity only