

# TOWARDS A ROADMAP FOR SPINOUT DATA AND EVIDENCE

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**Report by:**

Dr Nicky Athanassopoulou

Dr Imoh Ilevbare

Esdras Paravizo

**With foreword from:**

Joscelyn Miller, UCI

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UNIVERSITY OF  
CAMBRIDGE

Department of Engineering

IfM|Engage

## Foreword

In pursuit of high-value growth, university spinouts are increasingly recognised as a key route for knowledge translation: a distinct, high-potential asset class with the potential for wealth creation and ability to drive our places, sectors and organisations to be more innovative and productive.

Yet until very recently, the national data and evidence base underpinning UK university spinouts was surprisingly thin. Many across the system were well-placed to see first-hand the remarkable companies coming out of our universities. But beyond a handful of well-known success stories, it was difficult to confidently answer simple strategic questions about the national spinout portfolio and pipeline: How many are there? What pathways to success do they follow? How long do they survive?

A handful of relevant data, to begin answering these questions, existed, but was constrained to small samples, highly aggregated, or isolated in silos, dispersed across universities' own records, HESA's HEBCI survey, Companies House and a range of commercial datasets.

To help drive more spinouts to success, it was evident the UK needed better national data, greater transparency on what is and is not counted, and a system-wide commitment to developing meaningful insight into spinout ecosystem health, functioning and performance.

In this respect, a significant step-change was initiated with the Spinout Register. Conceived and delivered by a tripartite consortium of Research England, HESA and UCI, aligned with the recommendations of the Tracey-Williamson Spinout Review, the Register was designed to be the canonical record of the population of UK university spinouts. It was intended to provide both a durable foundation and a springboard for new types of spinout-related datasets, analyses and dashboards.

Still in the early days of its implementation, the Spinout Register continues to mature in quality, as is typical with any novel data. However, following the publication of its first iteration in 2025, accredited as official statistics in development, its value was immediately evident in the confidence it brought to system-level discussions. International interest has also followed, with other countries following the UK's lead; for example Algeria published its own spinout register in early 2026.

As envisaged, the Spinout Register quickly underpinned a wave of new analyses, speaking to various strategic needs across the system, be it developing strategic ecosystem insights, strengthening investment propositions, or meaningfully benchmarking performance for strategic learning. The spinout system now has the solid data foundations it needed: the fundamental plumbing, connecting up previously siloed efforts, to keep the 'analytical taps' on.

What is quite clear though is that the Spinout Register does not mark the end of the spinout data journey. Instead, it reveals the full scale of the opportunity ahead. The questions the sector is facing have now evolved beyond simple counts of companies, to deeper understanding of distinct pathways, and richer storytelling about the imprint these companies



**Joscelyn  
Miller**  
UCI Policy &  
Impact Lead



make on our economy and society. An ecosystem up until now described by lagged annual indicators now requires real-time intelligence to keep pace.

There is now strong momentum to build from the transformation enacted by the Spinout Register, to further accelerate the strengthening of spinout data and evidence. But, without a shared sense of evidence needs, priorities and sequencing, there remains a risk that well-intentioned efforts across the domain could revert to fragmentation, duplication or misalignment.

It was in this context that UCI and Research England convened the sector at The Spinout Data Summit, to celebrate progress and connect spinout data experts, creating space for open discussion on future needs and the shared paths to achieving them. We challenged directors of university innovation offices, funders, policymakers, ecosystem enablers and data specialists to come together for a workshop to prioritise what the specific next steps should be and begin to chart these into a strategic roadmap.

I am now pleased to present this report, *Towards a Roadmap for Spinout Data and Evidence*, to provide the navigational chart for this next phase. Authored by IfM Engage, experts in the application of strategic roadmapping for policy and industrial uses, its purpose is not to prescribe the single next step, but to articulate a shared, sector-aligned view of the priority opportunity spaces - the topics where enhanced national spinout data can deliver the most value. It also sets out nine strategic initiatives, arising from the workshop discussions, that address the chosen opportunity spaces and significantly strengthen the national spinout data ecosystem. These span developing a richer set of characteristics about the spinouts themselves, as well wider drivers of success and measures to capture these. Crucially, these initiatives focus on harmonisation to new definitions, interoperability and data linkage – extracting greater value from existing sources through better linking opportunities — rather than increasing statutory reporting requirements for institutions.

And what is pleasing is that some of these initiatives are already underway. Through Research England's national programme for knowledge exchange metrics, important progress continues to be made in improving the quality, connectivity and usability of spinout data and other commercialisation data. UCI is leading the charge here as the unit continues to pioneer new ways to develop national-level data, insights and metrics on university commercialisation and advise Research England on how these can be incorporated into their approaches. Currently, we are working with partners, Glass.AI and the Centre for Business Research, to pilot novel ways of utilising web-based information to provide richer insight on spinout companies. This includes enriching core spinout data with: a bespoke techno-industrial classification system for university spinouts; founder characteristics; and, signals of company development that better capture less-conventional pathways. It is encouraging that these latest initiatives resonate with our convened group of sector experts.

Our direction is, of course, promising. The set of initiatives proposed here builds towards a roadmap, but is not intended to be a static plan. It is designed to provide an initial set of aligned aims that may evolve as the spinout data landscape matures further, as data linkage capabilities improve, and as policy priorities shift. Nevertheless, it provides the sector with a shared starting point for coordinated action. I would implore those of you with a stake in the spinout ecosystem to consider how you could support the next phase of data developments.

The national ambition underpinning this work is clear. We must continue to ensure the UK reaches its full potential to create and scale world-class spinouts. To do this, we must develop the data and evidence base needed to understand what drives their success — and translate this into better policy, better investment decisions, and stronger outcomes across the whole innovation system.

# Executive Summary

The United Kingdom is recognised as one of the world's most dynamic university spin-out ecosystems. It is second only to the United States in overall scale. National data identifies over **2,000 spin-outs have been created by UK higher education institutions** as of 2023/24<sup>1</sup>, with venture capital investment into these companies rising from **£1.6bn (2019) to £2.9bn (2024)**<sup>2</sup>. Spin-outs make a major contribution to the economy<sup>3,4</sup>. For example, spin-outs from Russell Group generate **£17.8bn in annual output**<sup>5</sup>, and University of Oxford spin-outs alone contributed **£3.8bn** to the UK economy in 2021–2022<sup>6</sup>.

The publication of the **Spin-out Register**, in June 2025, represents a world-first national asset, providing visibility on the UK spin-out portfolio and various analytical opportunities to examine the distribution, evolution and impact of UK spin-outs. To identify how this asset and the wider spinout data ecosystem can be strengthened, the Spinout Data Summit brought together stakeholders from universities, government, funders, investors and data providers to co-develop a roadmap for future data enhancements. The discussions focused on identifying and prioritising **opportunity spaces** and **initiatives/data improvements/information gaps** that would enable more effective decision-making, benchmarking, and policy design.

Eleven priority opportunity spaces were identified:

1. Understanding the profile and background of spin-out leaders.
2. Understanding the national and regional economic impact of spin-outs.
3. Understand the industries and sectors that UK spinouts operate in
4. Understanding the role, nature and extent of external investment.
5. Geographical location information.
6. Develop a typology of outcomes (to be able to link to founding, journey, data)
7. Understanding differences between STEM and SHAPE-derived spin-outs.
8. Understanding how policy and funding interventions affect ecosystem health.
9. Understanding post-exit trajectories: What happens when a company is sold. Where do the jobs, IP and money go?
10. What does the university spend to generate a spin-out and what are the potential benefits.
11. Assessment of the degree of university involvement and success measures that can be readily influenced by the university.

In response to the priority opportunity spaces listed above, nine strategic initiatives were proposed:

<sup>1</sup> Ulrichsen, T.C. and Miller, J. (2025). *Powering Ideas to Innovation: The significance, structure and dynamics of the UK university spinout ecosystem*. Policy Evidence Unit for University Commercialisation and Innovation, University of Cambridge and <https://www.hesa.ac.uk/news/05-06-2025/2269-university-spin-out-companies-new-register>

<sup>2</sup> Ulrichsen, T. C. 2026. Investing in Success: A quantitative analysis of the structure, dynamics and links within the UK university spinout and investor ecosystem. A Technical Report for Research England.

<https://www.ukri.org/wp-content/uploads/2026/01/RE-200126-Ulrichsen-InvestinginSuccess-Report.pdf>

<sup>3</sup> Ulrichsen, T.C. ,& Roupakia, Z. (2024). *Spinning out Success: Demystifying UK university spinout trends, equity and investment*. Policy Evidence Unit for University Commercialisation and Innovation, University of Cambridge.

[https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2024\\_UCI\\_Spinning\\_out\\_success\\_FullReport.pdf](https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2024_UCI_Spinning_out_success_FullReport.pdf)

<sup>4</sup> Ulrichsen, T.C. and Miller, J. (2025). *Powering Ideas to Innovation: The significance, structure and dynamics of the UK university spinout ecosystem*. Policy Evidence Unit for University Commercialisation and Innovation, University of Cambridge.

[https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2025\\_UCI\\_Powering\\_Ideas\\_to\\_Innovation\\_SpinoutsReport\\_vPublished.pdf](https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2025_UCI_Powering_Ideas_to_Innovation_SpinoutsReport_vPublished.pdf)

<sup>5</sup> Spotlight on Spinouts 2024, Beauhurst - <https://www.beauhurst.com/research/spotlight-on-spinouts-2024>

<sup>6</sup> Written evidence submitted by the University of Oxford (IGR0076) -

<https://committees.parliament.uk/writtenevidence/135461/pdf/#:~:text=A%20recent%20analysis%20underscores%20the.and%20implementing%20innovation%20friendly%20regulations> .



1. **Develop a new techno-industrial classification system for spinouts and relevant downstream sectors**
2. **Skills and competencies linkage** using existing personnel and career datasets.
3. **Equity position at founding** to understand value capture and ROI.
4. **Systematic collection and evaluation of qualitative evidence** (case studies, surveys, narrative insights).
5. **Linking existing data** from relevant commercial datasets **to the Spinout Register**.
6. **Refined definition and categorisation** of spin-outs (IP-intensity, exclusion of corporate spin-outs).
7. **Measures of spin-out maturity** (funding rounds, capital raised, headcount, revenues).
8. **Degree of university support** (courses, incubators, investment, board roles).
9. **Geography of investors** to map capital flows, regional disparities, and scaling pathways.

Across short-, medium- and long-term horizons, participants emphasised that progress will require improving data quality, linking fragmented data sources, managing confidentiality risks, and embedding common standards across institutions.

Collectively, these requirements and initiatives outline a clear pathway for integrating the Spinout Register into a comprehensive national research and policy infrastructure. It can enable robust benchmarking and support targeted interventions. Further, by enriching national spinout data (more widely), improving interoperability, establishing consistent standards, and incorporating both quantitative and qualitative insights, the UK can greatly enhance its understanding of how spin-outs drive economic, technological and societal value and strengthen its position as a global leader in knowledge translation and commercialisation.



# Table of Contents

<b>Foreword</b> .....	<b>ii</b>
<b>Executive Summary</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>7</b>
<b>Background</b> .....	<b>7</b>
<b>The Spinout Register and Spinout Data Summit</b> .....	<b>8</b>
<b>Workshop goals and aims</b> .....	<b>9</b>
<b>Key Workshop Outputs</b> .....	<b>10</b>
<b>Opportunity spaces</b> .....	<b>10</b>
OS18. Understanding the profile and background of the leaders of spinouts across UK clusters in different industry/technology groups at different stages.....	11
OS3. Understand and improve regional economic impact and competitiveness of UK spin-outs .....	11
OS1. Understand the industries and sectors that UK spinouts operate in .....	13
OS2. Understand the role, nature and extent of external investment .....	13
OS4. Geographical location information.....	14
OS20. Need typology of outcomes (to be able to link to founding, journey, data) .....	15
OS6. The difference between STEM and SHAPE sourced spinouts in contribution to socioeconomic growth .....	16
OS16. Understanding how different policy or funding interventions are supporting growing and healthy ecosystems.....	17
OS10. Post-exit trajectories: What happens when a company is sold. Where do the jobs, IP and money go? .....	18
OS12. What does the university spend to generate a spin-out and what are the potential benefits? .....	18
OS11. Assessment of the degree of university involvement and success measures that can be readily influenced by the university.....	19
<b>Identifying possible improvements to the Spinout Register</b> .....	<b>21</b>
PI1: Develop a new techno-industrial classification system for spinouts and relevant downstream sectors .....	22
PI31: Skills and competences.....	22
PI26: Equity position of university at founding.....	23
PI7: Systematic collection and evaluation of qualitative evidence .....	24
PI8: Linking existing data to the Spinout Register .....	24
PI13: Expand the definition and categorisation of spin-outs.....	25
PI22: Measures of spinout maturity: funding round, money raised, people employed .....	26
PI23: Degree of university support.....	27
PI30: Geography of investors.....	27
<b>Cross-cutting issues to be considered</b> .....	<b>28</b>
Normalisation strategy for the spinout data .....	28
Risks associated with collecting and making data available.....	28
Tracking exit strategies and spinout evolution .....	29
Connectivity of funding/IP .....	29
<b>Conclusions and next steps</b> .....	<b>30</b>
<b>Appendices</b> .....	<b>31</b>
<b>Appendix 1: Workshop methodology and agenda</b> .....	<b>31</b>
Phase 1: Scoping and design .....	31
Phase 2: Strategic roadmapping workshop.....	31
Phase 3: Reporting and review .....	31
<b>Appendix 2: Opportunity space areas definitions</b> .....	<b>32</b>
<b>Appendix 3: Full list of opportunity spaces proposed</b> .....	<b>33</b>
<b>Appendix 4: Full list of improvements proposed</b> .....	<b>35</b>
<b>Appendix 5: Subset of “relevant”, “critical” and “match” improvements linked to prioritised opportunity spaces</b> .....	<b>37</b>

# Introduction

## Background

Spin-outs are defined as ‘firms founded primarily to commercialise the intellectual property (including ideas, information, and knowledge) created by university staff, where the IP either belongs to the university under general law or under the terms of the contract of employment, or the member of staff has assigned the IP to the university to enable it to be commercialised, or where significant university resources (e.g. funding, facilities) were used to generate the IP’<sup>7</sup>. The most recent update of the UK university Spinout Register (released in September 2025) identified **2,307 unique spin-outs** emerging from UK universities.<sup>8</sup>

The United Kingdom is acknowledged as one of the leading global nations in university spin-out activity, trailing only the United States in overall scale<sup>9</sup>. **Venture capital investment into university spin-outs** increased from £1.6 billion in 2019 to **£2.9 billion in 2024**<sup>10</sup>, with the 2023 Tracy-Williamson review of university spinouts positioning the UK as “second only to the US”. Previous UCI analyses<sup>11,12</sup> further emphasises that, once adjusted for research income, the UK and US produce spin-outs at about equivalent rates, demonstrating the UK’s efficiency in commercialising research.

The UK not only matches the United States in spin-out creation productivity per research pound, but also realises significant economic value from these ventures. Its institutional ecosystem is therefore among the most effective internationally in converting public research into commercial ventures.

Some previous attempts to estimate the economic contribution of spin-outs, includes a study of the 24 institutions in the Russell Group universities (2024) that estimates 1,200 spin-out companies emerging from these institutions support more than **80,000 jobs** and generate **£17.8 billion in annual economic output**. One flagship example — University of Oxford spin-outs — were responsible in 2021–2022 for £3.8 billion of UK-wide economic impact and £1.8 billion in Gross Value Added (GVA)<sup>13</sup>.

To improve the visibility of the UK spin-out portfolio and the evidence surrounding ‘what works’ during the spinning out process, the Tracey-Williamson review of university spinouts called for better data and transparency on university spinouts. This recommendation was accepted by the government at the time and led to the establishment of a Spinout Register, developed in partnership by HESA, Research England and UCI. The aim was for the Spinout Register to be an authoritative, publicly available list of UK university spinouts that also included some

<sup>7</sup> <https://www.hesa.ac.uk/collection/c23036/definitions>

<sup>8</sup> Ulrichsen, T. C. 2026. Investing in Success: A quantitative analysis of the structure, dynamics and links within the UK university spinout and investor ecosystem. A Technical Report for Research England. <https://www.ukri.org/wp-content/uploads/2026/01/RE-200126-Ulrichsen-InvestinginSuccess-Report.pdf>

<sup>9</sup> Ulrichsen, T.C. and Miller, J. (2025). *Powering Ideas to Innovation: The significance, structure and dynamics of the UK university spinout ecosystem*. Policy Evidence Unit for University Commercialisation and Innovation, University of Cambridge. [https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2025\\_UCI\\_Powering\\_Ideas\\_to\\_Innovation\\_SpinoutsReport\\_vPublished.pdf](https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2025_UCI_Powering_Ideas_to_Innovation_SpinoutsReport_vPublished.pdf)

<sup>10</sup> Ulrichsen, T. C. 2026. Investing in Success: A quantitative analysis of the structure, dynamics and links within the UK university spinout and investor ecosystem. A Technical Report for Research England. <https://www.ukri.org/wp-content/uploads/2026/01/RE-200126-Ulrichsen-InvestinginSuccess-Report.pdf>

<sup>11</sup> Ulrichsen, T.C. ,& Roupakia, Z. (2024). *Spinning out Success: Demystifying UK university spinout trends, equity and investment*. Policy Evidence Unit for University Commercialisation and Innovation, University of Cambridge. [https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2024\\_UCI\\_Spinning\\_out\\_success\\_FullReport.pdf](https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2024_UCI_Spinning_out_success_FullReport.pdf)

<sup>12</sup> Ulrichsen, T. C. 2026. Investing in Success: A quantitative analysis of the structure, dynamics and links within the UK university spinout and investor ecosystem. A Technical Report for Research England. <https://www.ukri.org/wp-content/uploads/2026/01/RE-200126-Ulrichsen-InvestinginSuccess-Report.pdf>

<sup>13</sup> London Economics. (2025). *The economic impact of the University of Oxford*. London Economics.

core identifying information and characteristics about the companies, collected from universities.<sup>14</sup> A secondary aim was for this information to subsequently unlock other data on spinout companies, contained in other datasets, through data linking, and broaden the analytical possibilities available.

## The Spinout Register and Spinout Data Summit

The Spinout Register<sup>15</sup> was published in June 2025, with a first update released in September 2025. It is a world-first and provides a unique national asset that enables a step-change in the approach to collection and publication of information on spin-out companies<sup>16</sup>.

Following on from the publication of the Spinout Register, a national conference, the Spinout Data Summit<sup>17</sup>, was hosted in November 2025 to celebrate the progress achieved in producing this asset and explore where and how it could be further developed to add value. The Summit brought together relevant stakeholders in this area to discuss how better evidence on spin-outs, enabled through novel data developments, can drive more strategic decision-making, shape policy and funding development and delivery, and help the sector better articulate and evidence the successes of the UK university spinouts as drivers of national competitiveness and economic growth.

A **separate workshop session** was organised during the Spinout Data Summit to discuss and agree the next steps and, in particular, the main areas where richer data and evidence on UK spinouts could either be collected directly in the Spinout Register, extracted from other sources and/or analysed further. Two main areas were the focus for the workshop; **opportunity spaces** and **improvements/enrichments/gaps**.

**Opportunity spaces** are understood as the broad use cases the Spinout Register can unlock when fully operational. Prior to the workshop the team identified categories of potential opportunity spaces, such as: funding allocation and programme design; attracting investment; strategic insights on spinout ecosystem development; demonstrating impact and celebrating success; policy evaluation and identifying 'what works'; and, monitoring and benchmarking of spinout portfolios<sup>18</sup>.

**Improvements/enrichments/gaps** refer to the specific developments needed to national data. These were specified as follows:

1. **Improvements to the data collection and the quality of the data collected from universities:** Through the Spinout Register, HESA has collected, quality assured and published additional data of the historic spinout population going back to 2012. Further work has been initiated on the next annual collection cycle to collect information on new spinouts founded in the 2024/2025 timeframe as well as updates on information for spinouts already on the Register to ensure it remains an up-to-date record. Additional improvements are anticipated in the next couple of years to complete the verification process of the historic data collected and reach a business-as-usual approach.


<sup>14</sup> UCI & Research England (2024) Improving Spin-out Data with the Spin-out Register: Design Principles and Opportunities. [https://www.ukri.org/wp-content/uploads/2024/09/RE-200924-Spin-out-Register\\_Visioning-Report\\_RE-and-UCI.pdf](https://www.ukri.org/wp-content/uploads/2024/09/RE-200924-Spin-out-Register_Visioning-Report_RE-and-UCI.pdf)

<sup>15</sup> HESA & UK Research and Innovation. (2025). *UK spin-out register: Launch announcement*.

<sup>16</sup> Ulrichsen, T.C. and Miller, J. (2025). *Powering Ideas to Innovation: The significance, structure and dynamics of the UK university spinout ecosystem*. Policy Evidence Unit for University Commercialisation and Innovation, University of Cambridge. [https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2025\\_UCI\\_Powering\\_Ideas\\_to\\_Innovation\\_SpinoutsReport\\_vPublished.pdf](https://www.ifm.eng.cam.ac.uk/uploads/UCI/knowledgehub/documents/2025_UCI_Powering_Ideas_to_Innovation_SpinoutsReport_vPublished.pdf)

<sup>17</sup> <https://engage-events.ifm.eng.cam.ac.uk/SpinoutDataSummit#/>

<sup>18</sup> More details about each of these areas are provided in Appendix 2.

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- 2. Enriching the existing Register data to bolt on new fields leveraging and linking existing data sources:** For example, UCI's analysis – Powering Ideas to Innovation<sup>7</sup> – added in investment variables to the Register to develop insight on the attractiveness and performance of the spinout investment landscape. Research England was also interested in exploring how to add in patent data and UKRI funding data to connect up other parts of commercialisation system. UCI is actively investigating classification approaches to collect information on the nature of the IP underpinning the spinouts and their sector of application. Other organisations were interested in having additional information incorporated in the Register e.g. information on the spinout founders.
  - 3. Developing insight from the existing dataset:** Ongoing analysis work is being undertaken as stakeholders start to use the Register to meet their own needs. For example, there are research studies that use the register to quantify universities contributions to economic development<sup>19</sup>. Research England are planning to develop a systems intelligence dashboard visualising insights provided by the Register.<sup>20</sup> Other useful analyses and insights maybe helpful.

## Workshop goals and aims

The **separate workshop session** during the Spinout Data Summit invited different stakeholders from multiple organisations across higher education, policy, funding and the wider spinout ecosystem for a collaborative workshop on **national-level spinout data and evidence**.

The specific goals and aims of the workshop were the following:

- Identify and agree the most important **current and future opportunity spaces** that national-level spinout data and evidence could support.
- Based on the key opportunity spaces, identify **specific improvements and enrichments** to national spinout data, and where key gaps that currently exist could be filled (via improvements to the Register or via other routes).
- **Prioritise** the various suggested improvements, enrichments & data gaps in terms of what would be most valuable and feasible to take forward.

The timeframes considered for both opportunity spaces and improvements and enrichments were short term (0-1 years), medium term (2-3 years) and long term (3-5 years).

The workshop brought together data-minded people from across Higher Education (HE) ecosystem, including senior Technology Transfer leaders, funders, data providers, and 'spin-out enablers' (e.g. accelerator program managers etc.), for idea generation building on their knowledge/expertise. It aimed to develop communities of individuals from across (silo-ed) parts of the system to agree on the most important priorities and inspire them to take forward their own actions to make progress.

Due to limited time available to deliver the workshop session, the workshop delegates kindly completed a survey in advance, to collect their ideas for opportunity spaces and improvements/enrichments/gaps. These suggestions were then consolidated ahead of and during the workshop itself.

A complete methodology for the workshop is provided in Appendix 1.

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<sup>19</sup> For example, Centre for Cities (2025) Town and gown: The role of universities in city economies

<https://www.centreforcities.org/wp-content/uploads/2025/09/Town-and-gown-briefing-September-2025.pdf>.

<sup>20</sup> Bamford, E. (2026) Unlocking spin-out intelligence: a dashboard for UK innovation. Research England blog, <https://www.ukri.org/blog/unlocking-spin-out-intelligence-a-dashboard-for-uk-innovation/>



# Key Workshop Outputs

## Opportunity spaces

Overall, 24 different opportunities spaces were identified and reviewed (see full list in the Appendix 3). These were prioritised by individual participant voting<sup>21</sup>. The eleven most voted opportunity spaces are shown in Figure 1 below.

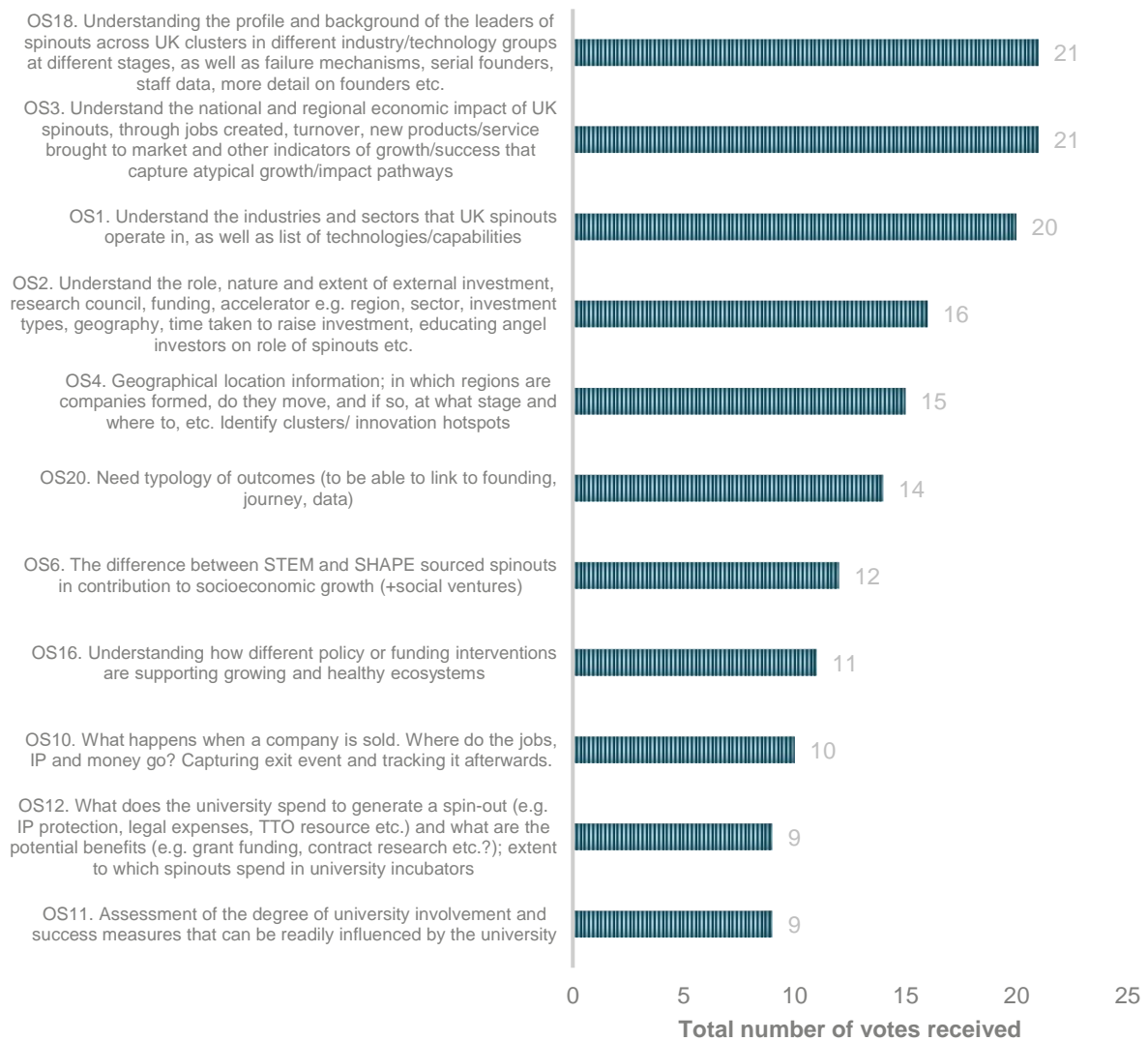


Figure 1. Priority opportunity spaces

The key opportunity spaces are discussed in more detail in the following sections in priority order.

<sup>21</sup> Each participant selected five opportunity spaces they considered as most important.



### OS18. Understanding the profile and background of the leaders of spinouts across UK clusters in different industry/technology groups at different stages.

A growing need identified is to better understand the **profiles, backgrounds and leadership characteristics of spin-out founders** across UK clusters, sectors and stages of development. Academic literature consistently shows that founder human capital, such as managerial experience, industry expertise and entrepreneurial background is one of the strongest predictors of spin-out survival, growth and innovation performance<sup>22,23</sup>. As the UK's spin-out creation pipeline has expanded, stakeholders highlight that the **supply of experienced leaders is not keeping pace**, creating a structural bottleneck that limits the country's ability to translate spin-out formation into long-term economic growth. In the UK, this bottleneck is very uneven across different areas with the golden triangle of Cambridge-Oxford-London served much better than other regions. International evidence is also showing that leadership depth is essential for scaling science-based ventures and building competitive regional innovation ecosystems.<sup>24,25</sup>

In absence of high-quality national data, we are unable to reveal the scale and significance of this issue. Regions risk having a small pool of serial scientific entrepreneurs, rather than growing the overall leadership capacity required for scaling up. Although more spin-outs naturally grows the pool of academic and scientific founders, this is not followed by a similar expansion of the pool of entrepreneurial leaders to help these companies scale up. Having the necessary leaders with relevant experience and capabilities to grow spin-out companies is critical for spin-out survival. It is also important that the increasing pool of founders become serial entrepreneurs to accelerate the pool of new ventures. Moreover, understanding the **demographic composition** of spin-out founders is vital for addressing persistent inequalities in access to entrepreneurial opportunities, which research shows shape funding outcomes and network access<sup>26,27</sup>.

Including leadership and demographic information in the national spin-out data ecosystem would enable rigorous benchmarking, support pan-regional talent-development initiatives, and provide policymakers with the evidence needed to design inclusive and growth-enhancing interventions. Better data would therefore strengthen the UK's ability to convert strong research commercialisation activity into sustained productivity and economic value.



### OS3. Understand and improve regional economic impact and competitiveness of UK spin-outs

An important capability to develop are systematic assessments of the **national and regional economic impact of UK university spin-outs**, including jobs created, turnover, product and service innovation, and atypical growth pathways that extend beyond investment metrics. Understanding how different regions are able to attract and retain spinouts as they grow and scale can be very informative for policy development.

<sup>22</sup> Shane, S. (2004). *Academic entrepreneurship: University spin-offs and wealth creation*. Edward Elgar.


<sup>23</sup> Vohora, A., Wright, M., & Lockett, A. (2004). Critical junctures in the development of university high-tech spinout companies. *Research Policy*, 33(1), 147–175.

<sup>24</sup> Clarysse, B., Wright, M., Bruneel, J., & Mahajan, A. (2011). Creating value in ecosystems: Crossing the chasm between knowledge and business ecosystems. *Research Policy*, 40(7), 1052–1067.

<sup>25</sup> Avnimelech, G., & Teubal, M. (2006). Creating venture capital industries that co-evolve with high-tech: Insights from an extended industry life cycle perspective of the Israeli experience. *Research Policy*, 35(10),

<sup>26</sup> Stevenson, L., & Lundström, A. (2007). *Dressing the emperor: The fabric of entrepreneurship policy*. OECD

<sup>27</sup> Wu, J., Mathews, J. A., & Ma, X. (2020). Women in entrepreneurship: A review of recent research. *International Small Business Journal*, 38(5), 403–411



It is generally agreed that spin-outs play a significant role in regional innovation systems by creating high-skilled employment, anchoring knowledge-intensive activity and stimulating supply-chain development<sup>28,29</sup>. Better understanding and improving the **regional economic impact and competitiveness of UK spin-outs**, particularly beyond headline investment metrics is therefore essential. While capital raised is often used as a proxy for success, academic literature consistently shows that the most meaningful indicators of long-term impact include **job creation, revenue growth, innovation outputs, and contribution to regional ecosystems**<sup>30,31</sup>. Spin-outs are important not only as individual high-growth firms but also as anchors for **regional innovation systems**, generating skilled employment, attracting supply-chain partners, and stimulating follow-on entrepreneurship<sup>32,33</sup>. However, current datasets tend to focus on early-stage investment events, providing limited visibility into organic growth, commercial traction, and longer-term outcomes such as post-exit economic activity.

Research on regional development emphasises that knowledge-based firms, including university spin-outs, are critical drivers of **regional economic growth**, especially in science and technology clusters<sup>34</sup>. Yet their contributions vary significantly across regions due to differences in local capital availability, industrial structure, labour markets and policy support<sup>35</sup>. Without systematic data on jobs, turnover, exports, product introductions and longer-term opportunities, policymakers cannot determine whether spin-outs are strengthening local economies or whether economic value is migrating elsewhere through acquisition or relocation. Moreover, understanding the organic growth of firms that expand through revenue and market adoption rather than continuous external investment is essential for assessing the sustainability and productivity of the spin-out ecosystem.

A richer dataset capturing regional economic impact would enable more effective benchmarking across clusters, help identify high-performing ecosystems, and reveal structural gaps in infrastructure, talent or finance. It would also support evaluation of policy interventions, such as regional innovation funds or cluster development programmes, by linking them to measurable outcomes. Furthermore, tracking longer-term trajectories, including post-exit effects, would provide insight into whether spin-outs contribute to enduring regional prosperity through job retention, founder recycling and local reinvestment<sup>31</sup>.

Integrating such indicators into the national spin-out data ecosystem would therefore provide a more complete picture of how spin-outs contribute to regional and national growth. It would enable evidence-based place-based policies, support targeted investment in high-potential clusters, and strengthen the UK's capacity to convert research excellence into sustained economic competitiveness across all regions.

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<sup>28</sup> Feldman, M. P., & Francis, J. (2004). Homegrown solutions: Fostering cluster formation in emerging industries. *Economic Development Quarterly*, 18(2), 127–137.

<sup>29</sup> Garnsey, E., & Heffernan, P. (2005). High-technology clustering through spin-out and attraction: The Cambridge case. *Regional Studies*, 39(8), 1127–1144.

<sup>30</sup> Feldman, M. P., & Francis, J. (2004). *Homegrown solutions: Fostering cluster formation in emerging industries*. Economic Development Quarterly, 18(2), 127–137.

<sup>31</sup> Garnsey, E., & Heffernan, P. (2005). *High-technology clustering through spin-out and attraction: The Cambridge case*. *Regional Studies*, 39(8), 1127–1144.

<sup>32</sup> Cooke, P. (2001). *Regional innovation systems, clusters, and the knowledge economy*. *Industrial and Corporate Change*, 10(4), 945–974.

<sup>33</sup> Mason, C., & Brown, R. (2014). *Entrepreneurial ecosystems and growth-oriented entrepreneurship*. OECD LEED Programme background paper.

<sup>34</sup> Audretsch, D. B., & Feldman, M. P. (1996). *R&D spillovers and the geography of innovation and production*. *American Economic Review*, 86(3), 630–640.

<sup>35</sup> Martin, R., Sunley, P., & Turner, D. (2016). *Comparing venture capital regional systems in the UK: The London and Scottish models*. *Venture Capital*, 18(4), 327–351.



## OS1. Understand the industries and sectors that UK spinouts operate in

Another priority requirement is the need for systematic visibility into the **industries, sectors and technology domains in which UK university spin-outs operate**. Sectoral context is one of the strongest determinants of venture development pathways, shaping regulatory requirements, capital intensity, time-to-market, and partnership models<sup>36,37</sup>. For example, MedTech and life sciences spin-outs face long regulatory cycles and heavy reliance on licensing or acquisition, while software-based spin-outs often scale more quickly through iterative product development and early revenue generation. Understanding these sectoral differences is essential for interpreting performance indicators such as investment raised, job creation, turnover, or exit pathways and for designing appropriate support mechanisms. Research also shows that sector-specific clustering contributes to regional competitive advantage, driven by the co-location of talent, complementary firms and specialised investors<sup>38,39</sup>. Without robust, standardised sectoral classification data, universities and policymakers cannot fully assess regional specialisation patterns or identify emerging technology domains.

Furthermore, understanding industry application areas and use cases is crucial for enabling **corporate innovation engagement**, which is a major source of strategic partnerships, licensing deals and early-stage investment in deep technology fields. Studies highlight that early engagement between universities and corporates is strengthened when firms can identify relevant technologies that align with their R&D pipelines and technology readiness level (TRL) priorities<sup>40</sup>.

Integrating detailed sectoral, application and business model information into the national spin-out data ecosystem would therefore support better **university–industry matching**, facilitate targeted corporate outreach, and strengthen the ability of regions to attract strategic investment. Ultimately, a richer sector-level dataset would enhance national insight, allow meaningful cross-regional comparisons, and support evidence-based policy to grow the UK's innovation economy.



## OS2. Understand the role, nature and extent of external investment

Gaining a clearer insight into the **role, nature and extent of external investment** in UK spin-outs, including investment stages, geography, syndicate formation, time-to-raise, and sector-based variation is another important area of consideration. Access to finance, especially early-stage and scale-up capital is one of the most critical determinants of university spin-out survival, growth and innovation performance<sup>41,42</sup>.

<sup>36</sup> Clarysse, B., Wright, M., Lockett, A., Van de Velde, E., & Vohora, A. (2007). Academic spin-offs, formal technology transfer and capital raising. *Journal of Business Venturing*, 22(1), 70–89.

<sup>37</sup> Markman, G. D., Gianiodis, P. T., & Phan, P. H. (2005). Commercializing inventions: The effect of university entrepreneurship programs. *Journal of Business Venturing*, 20(3), 403–431.


<sup>38</sup> Feldman, M. P., & Audretsch, D. B. (1999). Innovation in cities: Science-based diversity, specialization and localized competition. *European Economic Review*, 43(2), 409–429.

<sup>39</sup> Ketels, C., & Memedovic, O. (2008). From clusters to cluster-based economic development. *International Journal of Technological Learning, Innovation and Development*, 1(3), 375–392.

<sup>40</sup> Perkmann, M., & Walsh, K. (2007). University–industry relationships and open innovation: Towards a research agenda. *International Journal of Management Reviews*, 9(4), 259–280.

<sup>41</sup> Lerner, J. (2010). *The Boulevard of Broken Dreams: Why public efforts to boost entrepreneurship and venture capital have failed—and what to do about it*. Princeton University Press.

<sup>42</sup> Wright, M., Lockett, A., Clarysse, B., & Binks, M. (2006). University spin-out companies and venture capital. *Research Policy*, 35(4), 481–501.



Spin-outs typically face long development cycles and high technological uncertainty, placing them at heightened risk of falling into the “**valley of death**”, where insufficient early-stage funding prevents promising technologies from progressing to commercial viability<sup>43</sup>. Current discussions are now focused on capital availability and access across the lifecycle of a spin-out: from pre-incorporation, proof-of-concept, to early stage capital, as well as scale-up capital. Understanding how long it takes spin-outs in different regions and sectors to raise different amounts of funding e.g. £1m, £5m, £20m or £100m, and which investors participate at which stages, is therefore essential for evaluating the health of local innovation ecosystems and assessing whether public investments in commercialisation infrastructure are generating measurable downstream effects.

Regional venture capital availability strongly shapes firm growth trajectories and cluster development, with geographic concentration of investors contributing to persistent regional inequalities<sup>44,45</sup>. In science-based sectors such as life sciences, syndicate formation and specialised investor participation are particularly critical due to high capital intensity and regulatory risk<sup>46</sup>. Mapping investor types, origins, co-investment networks and sectoral specialisation would therefore enable universities and policymakers to benchmark investment pathways, identify gaps in funding provision, and design targeted interventions to attract capital.

Integrating these elements into the national spin-out data landscape would support detailed pathway analysis, reveal differences across ecosystems, and help align funding strategies with sector strengths ultimately strengthening the UK’s ability to scale research-intensive companies.



#### **OS4. Geographical location information.**

A key requirement identified is the need for detailed **geographical location data on spin-outs**, including where they are founded, how they evolve spatially over time, and the drivers behind relocation. Research on cluster dynamics emphasises that **geographical location, mobility and regional “stickiness”** of firms strongly influence long-term regional prosperity<sup>47,48</sup>. The geography of innovative firms plays a central role in shaping both firm performance and regional economic outcomes. University spin-outs are typically embedded in **regional innovation systems**, where proximity to research institutions, specialised labour markets, investors and complementary firms generates knowledge spillovers and growth opportunities<sup>49,50</sup>. However, the geographical trajectories of these firms are often dynamic rather than fixed: many spin-outs relocate in response to funding availability, regulatory

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<sup>43</sup> Auerswald, P. E., & Branscomb, L. M. (2003). Valleys of death and Darwinian seas: Financing the invention to innovation transition in the United States. *Journal of Technology Transfer*, 28(3–4), 227–239.

<sup>44</sup> Mason, C. M., & Harrison, R. T. (2002). The geography of venture capital investments in the UK. *Transactions of the Institute of British Geographers*, 27(4), 427–451.

<sup>45</sup> Florida, R., & Smith, D. F. (1993). Venture capital formation, investment, and regional industrialization. *Annals of the Association of American Geographers*, 83(3), 434–451.

<sup>46</sup> Hall, B. H., & Lerner, J. (2010). The financing of R&D and innovation. In B. H. Hall & N. Rosenberg (Eds.), *Handbook of the economics of innovation* (Vol. 1, pp. 609–639). Elsevier.

<sup>47</sup> Audretsch, D. B., & Feldman, M. P. (1996). R&D spillovers and the geography of innovation and production. *American Economic Review*, 86(3), 630–640.

<sup>48</sup> Buenstorf, G., & Klepper, S. (2009). Heritage and agglomeration: The Akron tyre cluster revisited. *Economic Journal*, 119(537), 705–733.

<sup>49</sup> Audretsch, D. B., & Feldman, M. P. (1996). *R&D spillovers and the geography of innovation and production*. American Economic Review, 86(3), 630–640.

<sup>50</sup> Cooke, P. (2001). *Regional innovation systems, clusters, and the knowledge economy*. Industrial and Corporate Change, 10(4), 945–974.

environments, market access or sectoral clusters, which can significantly influence regional value capture<sup>51,52</sup>.

Understanding where spin-outs are formed, where they move, and at what stage of development is therefore essential for evaluating **regional competitiveness and cluster formation**. As mentioned previously, successful regions benefit from the cumulative effects of spin-out activity, including labour mobility, knowledge spillovers and the emergence of specialised supply chains<sup>53</sup>. Conversely, when spin-outs migrate to different, more established regional hubs the originating region may lose high-value jobs, talent and innovation capacity. Without longitudinal location data, it is difficult to determine whether public investments in regional research infrastructure are translating into local economic benefits or being captured elsewhere.

Geographical data also enable analysis of **sector-specific clustering**, revealing whether certain regions are developing comparative advantages in fields such as life sciences, engineering, digital technologies or creative industries. Such insights are critical for designing place-based policies, directing investment, and supporting regional innovation strategies tailored to local strengths<sup>54</sup>. Furthermore, linking location data with investment, employment and sectoral information would allow policymakers to identify drivers of relocation, for example access to specialised investors or regulatory environments and address structural barriers that cause promising firms to move.

Integrating detailed geographical tracking of spin-outs would therefore enable robust analysis of regional formation patterns, firm mobility, cluster dynamics and value retention. This would support more effective regional policy, improve benchmarking across ecosystems, and help ensure that the economic and societal benefits of spin-out activity are more evenly distributed across the UK.



## **OS20. Need typology of outcomes (to be able to link to founding, journey, data)**

A clearly defined **typology of spin-out outcomes** i.e. capturing commercial, technological, societal and ecosystem-level effects is increasingly seen as essential by technology transfer officers, policymakers, funders and academic researchers. Spin-out trajectories are highly heterogeneous, reflecting different technology domains, business models, market timing and resource environments<sup>55,56</sup>. Traditional metrics such as investment raised or exit valuations provide only a partial view, as many spin-outs create long-term value through alternative pathways: organic revenue growth, licensing deals, job creation, knowledge spill-overs, supply-chain development, commercialising critical technologies, and contributions to public or societal missions<sup>57</sup>. Evaluating spin-out success requires understanding the “**journey**”

<sup>51</sup> Mason, C. M., & Harrison, R. T. (2002). *The geography of venture capital investments in the UK*. Transactions of the Institute of British Geographers, 27(4), 427–451.

<sup>52</sup> Martin, R., Sunley, P., & Turner, D. (2016). *Comparing venture capital “regional systems” in the UK: The London and Scottish models*. Venture Capital, 18(4), 327–351.

<sup>53</sup> Garnsey, E., & Heffernan, P. (2005). *High-technology clustering through spin-out and attraction: The Cambridge case*. Regional Studies, 39(8), 1127–1144

<sup>54</sup> Feldman, M. P., & Francis, J. (2004). *Homegrown solutions: Fostering cluster formation in emerging industries*. Economic Development Quarterly, 18(2), 127–137

<sup>55</sup> Clarysse, B., Wright, M., Bruneel, J., & Mahajan, A. (2011). Creating value in ecosystems: Crossing the chasm between knowledge and business ecosystems. *Research Policy*, 40(7), 1052–1067.

<sup>56</sup> Vohora, A., Wright, M., & Lockett, A. (2004). Critical junctures in the development of university high-tech spinout companies. *Research Policy*, 33(1), 147–175.

<sup>57</sup> Markman, G. D., Siegel, D. S., & Wright, M. (2008). Research and technology commercialization. *Journal of Management Studies*, 45(8), 1401–1423.

including early-stage milestones, pivots, partnerships and capability building rather than judging performance solely on financial outcomes<sup>58</sup>.

A structured outcomes typology would enable consistent national reporting, visibility of “**hidden but important**” roles and contributions of spinouts to impact, and the ability to link outcomes back to founding characteristics, regional contexts and resource profiles. It would also allow policymakers to differentiate between key milestone and outcome patterns across sectors, such as life sciences firms whose success is often measured through licensing and regulatory milestones, versus software spin-outs that scale via early revenues. Moreover, categorising outcomes beyond economic metrics aligns with evidence showing that university spin-outs generate broader societal benefits, including health innovations, environmental technologies and public-good spill-overs<sup>59</sup>.

Embedding such a typology in national spin-out data would therefore enhance longitudinal analysis, support evidence-based policy design, and more accurately reflect the diverse contributions spin-outs make to the UK innovation system.



### OS6. The difference between STEM and SHAPE sourced spinouts in contribution to socioeconomic growth

A growing need is to better understand the **differences between STEM-derived** (Science, Technology, Engineering and Maths) and **SHAPE-derived** (Social Sciences, Humanities and the Arts for People and the Economy) spin-outs, particularly in terms of **their contribution to socioeconomic growth, and the challenges and needs they face along their journeys to realising this**. Innovation emerging from SHAPE disciplines often follows **distinct commercialisation pathways**, frequently involving social enterprises, service-based models, public-sector partnerships, and policy or community impact, forms of value that are not easily captured by traditional STEM-oriented indicators such as patents, regulatory milestones or venture capital investment<sup>60,61</sup>. Research shows that SHAPE-based ventures contribute significantly to **social innovation, cultural industries, inclusive growth, public service transformation and civic engagement**, expanding the scope of what counts as economic and societal impact<sup>62,63,64</sup>.

Yet the current evidence base for UK spin-outs is heavily weighted toward STEM fields, particularly life sciences and engineering, making it difficult to map the number, type, commercialisation models, research origins, and market destinations of SHAPE-based ventures. There are opportunities to incorporate new national data to help reveal whether SHAPE spin-outs create different forms of employment, address different markets, or generate distinctive forms of public value compared to STEM-driven firms. It would also enable policymakers to better understand and support **non-traditional commercialisation models**, including cooperatives, social ventures, cultural enterprises and policy-oriented innovations.

<sup>58</sup> Van Burg, E., Romme, A. G. L., Gilsing, V. A., & Reymen, I. M. M. J. (2008). Creating university spin-offs: A science-based design perspective. *Journal of Product Innovation Management*, 25(2), 114–128.

<sup>59</sup> Siegel, D. S., & Wright, M. (2015). Academic entrepreneurship: Time for a rethink? *British Journal of Management*, 26(4), 582–595.

<sup>60</sup> Bakhshi, H., & Lomas, E. (2017). *Defining, measuring and supporting the creative economy*. Nesta.

<sup>61</sup> Cunningham, J. A., O’Kane, C., & Fitzgerald, C. (2018). The role of humanities and social sciences in the modern university-based innovation ecosystem: A review and research agenda. *Research Policy*, 47(6), 1266–1277.

<sup>62</sup> Mulgan, G. (2006). The process of social innovation. *Innovation: Technology, Governance, Globalization*, 1(2), 145–162.

<sup>63</sup> Nicholls, A., & Murdock, A. (2012). *Social innovation: Blurring boundaries to reconfigure markets*. Palgrave Macmillan.

<sup>64</sup> Coates Ulrichsen, T., & Athanassopoulou, N. (2024). *Commercialising Social Science Research: Insights from the University of Cambridge on key barriers, enablers and pathways to success*. IfM Engage and the Policy Evidence Unit for University Commercialisation and Innovation, University of Cambridge. <https://doi.org/10.17863/CAM.107657>

Being more inclusive to SHAPE-based ventures and including specific data within the national spin-out data would therefore broaden the understanding of the full spectrum of university-generated innovation, ensure that social and cultural impact is appropriately valued, and support more inclusive, place-sensitive approaches to research commercialisation. This visibility would strengthen the UK's ability to leverage both STEM and SHAPE strengths for balanced and sustainable socioeconomic growth.



## OS16. Understanding how different policy or funding interventions are supporting growing and healthy ecosystems

The ability to understand **how different policy and funding interventions influence the development, performance and resilience of university spin-out ecosystems** is important for designing effective, evidence-based policies. Research commercialisation outcomes are shaped not only by firm-level capabilities but also by the **policy environment**, including proof-of-concept (PoC) funding, translational research grants, seed investment schemes, fiscal incentives, and regional innovation policies<sup>65,66</sup>. These interventions help spin-outs overcome critical early-stage barriers such as technological uncertainty, insufficient managerial experience, and the valley of death between lab prototype and investable venture<sup>67</sup>. However, the effectiveness of such interventions varies widely across regions, sectors and institutional contexts, making it difficult to determine which policy tools genuinely contribute to ecosystem health and firm success.

**Healthy innovation ecosystems** are characterised by strong networks, access to finance, absorptive capacity, and supportive regional institutions<sup>68,69</sup>. Without transparent, standardised data, particularly on PoC funding, public support, private co-investment, and longitudinal performance evaluating which interventions strengthen these ecosystem features remains challenging.

Connecting policy-linked variables to spin-outs would allow systematic comparison of outcomes across interventions, identification of high-impact support mechanisms, and assessment of how policy inputs relate to success metrics such as survival, scaling, investment trajectories and regional spill-overs.

Such evidence would enable policymakers to refine programmes, target resources more effectively, and design interventions that build long-term, self-sustaining innovation ecosystems. Ultimately, richer data would support a shift from anecdotal insight to **rigorous, evidence-based innovation policy**, enhancing the UK's ability to grow competitive, high-productivity spin-out clusters.

<sup>65</sup> Brown, R., Mason, C., & Mawson, S. (2014). Increasing the “fuel” for entrepreneurship: The UK's Enterprise Investment Scheme. *Venture Capital*, 16(3), 1–22.

<sup>66</sup> Rasmussen, E., & Sørheim, R. (2006). Action-based entrepreneurship education. *Technovation*, 26(2), 185–194.

<sup>67</sup> Auerswald, P. E., & Branscomb, L. M. (2003). Valleys of death and Darwinian seas: Financing the invention to innovation transition in the United States. *Journal of Technology Transfer*, 28(3–4), 227–239.

<sup>68</sup> Autio, E., Kenney, M., Mustar, P., Siegel, D., & Wright, M. (2014). Entrepreneurial innovation: The importance of context. *Research Policy*, 43(7), 1097–1108.

<sup>69</sup> Spigel, B. (2017). The relational organisation of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice*, 41(1), 49–72.



## OS10. Post-exit trajectories: What happens when a company is sold. Where do the jobs, IP and money go?

There is a requirement to understand **what happens when a university spin-out is sold or exits**, including where the **jobs, intellectual property (IP), talent, and financial returns** ultimately flow. Academic research on acquisitions, technology transfer and innovation dynamics emphasises that post-exit outcomes vary widely and can fundamentally reshape the regional and national value captured from university-generated IP. Acquisitions often lead to the **relocation of high-skilled jobs**, consolidation of R&D functions, and transfer of IP ownership to multinational firms, which may reduce the long-term spill-overs that local regions typically expect from spin-outs<sup>70,71</sup>. In some cases, exits generate significant reinvestment into local ecosystems through founder recycling, follow-on ventures and angel investment while in others, value is lost when companies are absorbed elsewhere<sup>72,73</sup>. Without systematic data, universities, policymakers and funders struggle to assess whether exits contribute to regional prosperity or result in a leakage of talent and IP and what needs to be done to anchor more value in the UK and locally.

For policymakers in particular, understanding post-exit dynamics is essential for evaluating the effectiveness of public investment in research commercialisation and ensuring that economic returns align with regional and national growth objectives. Tracking where jobs and IP migrate after exit also supports analysis of **global value chains**, corporate acquisition strategies, and the extent to which UK innovation contributes to overseas productivity.

Tracking company trajectories post-exit within the national spin-out data landscape would therefore enable more informed policy design, reveal patterns of value retention versus value leakage, and strengthen the evidence base needed to support sustainable, high-impact innovation ecosystems.



## OS12. What does the university spend to generate a spin-out and what are the potential benefits?

**Strongly linked to OS11 above, universities would like to understand what they invest in to generate a spin-out** including IP protection costs, legal expenses, proof-of-concept funding, technology transfer office (TTO) staffing, and academic time. It is also important to capture the **financial and strategic benefits** that universities receive in return, such as contract research, collaborative grants, licensing income, equity returns and enhanced research partnerships. Normally, the costs of supporting spin-outs are substantial and often front-loaded, with universities bearing disproportionate financial risk in early stages where commercial viability is uncertain<sup>74,75</sup>. Universities commonly under-recover the true cost of commercialisation activities because many expenses such as patenting, due diligence, or dedicated TTO personnel are not systematically tracked or attributed to individual ventures<sup>76</sup>.

<sup>70</sup> D'Este, P., Mahdi, S., Neely, A., & Rentocchini, F. (2012). Inventors and entrepreneurs in academia: What types of academic research lead to high-growth spin-offs? *Research Policy*, 41(8), 1406–1413.

<sup>71</sup> Colombo, M. G., D'Adda, D., & Piva, E. (2012). The contribution of university research to the growth of academic start-ups: An empirical analysis. *Industrial and Corporate Change*, 21(4), 1109–1148.


<sup>72</sup> Mason, C., & Brown, R. (2014). Entrepreneurial ecosystems and growth-oriented entrepreneurship. *OECD LEED Programme*, Background paper.

<sup>73</sup> Lerner, J. (2009). *Boulevard of broken dreams: Why public efforts to boost entrepreneurship and venture capital have failed—and what to do about it*. Princeton University Press.

<sup>74</sup> Bercovitz, J., & Feldman, M. (2006). Entrepreneurial universities and technology transfer: A conceptual framework for understanding knowledge-based economic development. *Journal of Technology Transfer*, 31(1), 175–188.

<sup>75</sup> Markman, G. D., Phan, P. H., Balkin, D. B., & Gianiodis, P. T. (2005). Entrepreneurship and university-based technology transfer. *Journal of Business Venturing*, 20(2), 241–263.

<sup>76</sup> Siegel, D. S., Waldman, D., Atwater, L., & Link, A. (2003). Toward a model of effective technology transfer: Lessons from implementation of the Bayh–Dole Act. *Research Policy*, 32(1), 27–48.



At the same time, the benefits universities gain from spin-outs extend beyond direct financial returns. Spin-out activity strengthens research reputation, deepens industry engagement, attracts external funding, and fosters long-term regional economic development<sup>77,78</sup>. However, without standardised data, it is difficult to assess the **wider return on investment (ROI)** for universities, to benchmark practices across institutions, or to design effective policies for allocating resources to commercialisation.

Integrating data on university expenditures and benefits nationally would make it possible to evaluate cost-effectiveness, compare institutional models, identify best practices, and develop funding frameworks that more accurately reflect the true resource demands of successful spin-out creation. Ultimately, improved visibility of costs and benefits would support evidence-based decision making and drive more sustainable, high-impact spin-out strategies across the sector.



### **OS11. Assessment of the degree of university involvement and success measures that can be readily influenced by the university**

A recurring requirement identified is the ability to systematically evaluate the **degree of university involvement in spin-outs and the success measures that universities can directly influence**. Universities play a pivotal role in shaping early spin-out trajectories through support mechanisms such as access to proof-of-concept funding, incubation space, IP management, entrepreneurial training, mentoring, and network access<sup>79,80,81</sup>. These forms of support influence key early-stage milestones such as team formation, technology validation, market exploration and initial fundraising. Current national datasets provide limited visibility into the nature and scale of these inputs, making it difficult to identify which institutional practices are most effective.

Research on university–industry ecosystems also highlights that the **nature and intensity of university support vary significantly across institutions**, often due to differences in resources, strategies and organisational models<sup>82,83,84</sup>. Without data on the specific types of support provided, stakeholders cannot distinguish between outcomes driven by university interventions and those driven by external ecosystem factors such as regional capital availability or sectoral dynamics. Moreover, evidence shows that universities are more likely to influence **process outcomes** (e.g., survival, technological progress, quality of early partnerships) than ultimate financial metrics<sup>85</sup>. Tracking university involvement would therefore allow university technology transfer offices and policymakers to evaluate the effectiveness of different models of technology transfer, identify replicable best practices, and design more targeted institutional support policies.

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<sup>77</sup> Wright, M., Clarysse, B., Mustar, P., & Lockett, A. (2008). Academic entrepreneurship in Europe. *Cheltenham: Edward Elgar Publishing*.

<sup>78</sup> Perkmann, M., Tartari, V., McKelvey, M., Autio, E., Broström, A., D'Este, P., ... Sobrero, M. (2013). Academic engagement and commercialisation: A review of the literature on university–industry relations. *Research Policy*, 42(2), 423–442.

<sup>79</sup> Ulrichsen, T.C. Roupakia, Z. and Kelleher, L. (2022). Busting myths and moving forward: the reality of UK university approaches to taking equity in spinouts. Policy Evidence Unit for University Commercialisation technical report. University of Cambridge: Cambridge, UK

<sup>80</sup> Rasmussen, E., Mosey, S., & Wright, M. (2011). The evolution of entrepreneurial competencies: A longitudinal study of university spin-off venture emergence. *Journal of Management Studies*, 48(6), 1314–1345.

<sup>81</sup> O'Shea, R. P., Allen, T. J., Chevalier, A., & Roche, F. (2005). Entrepreneurial orientation, technology transfer and spin-off performance of U.S. universities. *Research Policy*, 34(7), 994–1009.

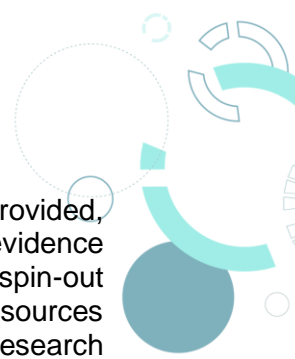
<sup>82</sup> Ulrichsen, T.C. Roupakia, Z. and Kelleher, L. (2022). Busting myths and moving forward: the reality of UK university approaches to taking equity in spinouts. Policy Evidence Unit for University Commercialisation technical report. University of Cambridge: Cambridge, UK

<sup>83</sup> Clarysse, B., Wright, M., Lockett, A., Van de Velde, E., & Vohora, A. (2005). Spinning out new ventures: A typology of incubation strategies from European research institutions. *Journal of Business Venturing*, 20(2), 183–216.

<sup>84</sup> Wright, M., Clarysse, B., Lockett, A., & Knockaert, M. (2008). Mid-range universities' linkages with industry: Knowledge types and the role of intermediaries. *Research Policy*, 37(8), 1205–1223.

<sup>85</sup> Fini, R., Grimaldi, R., Santoni, S., & Sobrero, M. (2011). Complements or substitutes? The role of universities and local context in supporting the creation of academic spin-offs. *Research Policy*, 40(8), 1113–1127.

Integrating these variables into national spin-out data, such as type of support provided, duration of involvement, and relationship to early outcomes would strengthen the evidence base for understanding which interventions genuinely improve the likelihood of spin-out success. This would enable universities to benchmark their performance, allocate resources more effectively, and demonstrate accountability for public investment in research commercialisation.



# Identifying possible improvements to the Spinout Register

For the identification of potential improvements that are relevant for the priority opportunity spaces selected by participants, groups at the workshop were tasked to review a subset of a consolidated list of proposed improvements (PIs). The full list of PIs can be seen in Appendix 4. Table 1 captures the overall outcomes of this activity, reproducing the comments and scales indicated by participants.

Table 1. Summary of groups' responses linking proposed Improvements to priority opportunity spaces.

	Opportunity Spaces											
	OS 1 UK Spinout Industry Landscape	OS 2 External Investment Patterns	OS 3 Economic Impact Assessment	OS 4 Geographic Cluster Mapping	OS 6 STEM vs SHAPE Comparison	OS 10 Post-Exit Outcomes	OS 11 University Involvement Metrics	OS 16 Policy Intervention Effects	OS 18 Spinout Leadership Profiles	OS 20 Outcomes Typology Framework	OS 12 Spinout Cost-Benefit Profiles	
P11 Techno-Industrial Classification System	●	●	●	●	●	●	●	●	●	●	●	
P12 University Fund Impact Tracking		●	●	●			●	●				
P13 Improved Investment Data Clarity		●										
P14 Granular Location Tracking			●	●	●	●						
P15 Linking Register to REF												
P16 Extended HE-BCI Spinout Metrics												
P17 Systematic Qualitative Evidence		●	●	●	●	●	●		●	●		
P18 Integrated Data Linking	●	●	●	●	●	●			●	●		
P19 Economic Contribution Metrics			●	●	●	●				●		
P10 Licensing and Patent Linkage	●	●			●		●					
P11 Exit and Acquisition Tracking	●	●	●	●		●						
P12 Pre-Spinout Grant Funding		●						●				
P13 Refined Spinout Definitions	●		●	●	●	●		●	●			
P14 Enhanced HESA Data Linkage					●		●			●	●	
P15 Real-Time Register Updates												
P16 KE Data Dashboard		●					●	●			●	
P17 Pipeline and Productivity Insights		●									●	
P18 Research-Income Normalisation	●											
P19 Linked IP-Spinout Data	●											

Figure 2 presents the frequency that each proposed improvement has been linked to the different opportunity spaces.

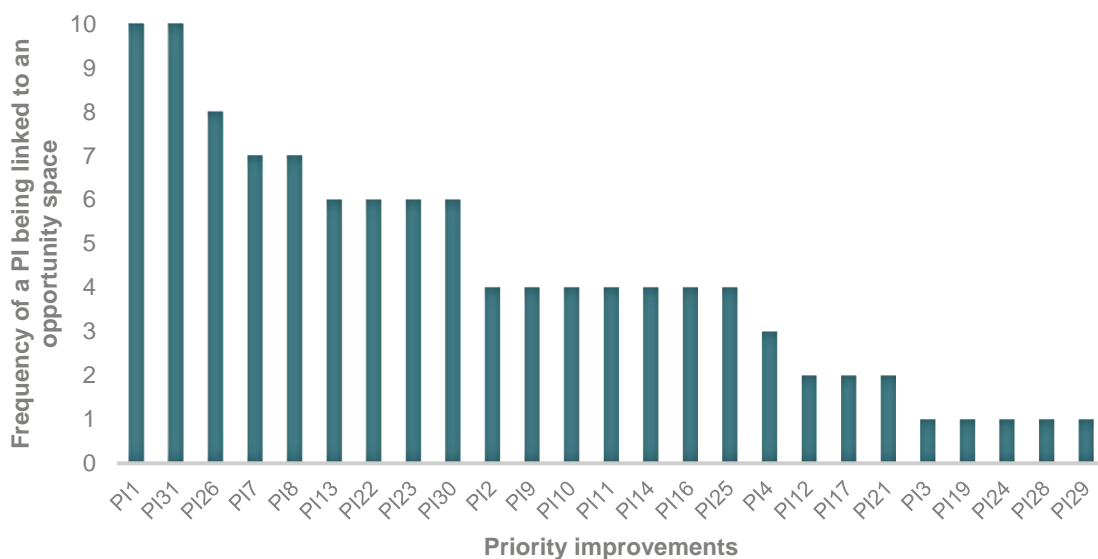


Figure 2. Count of how often the proposed improvements have been linked to the priority opportunity spaces.

Based on this analysis, the top **nine most relevant proposed improvements**, that have been linked to 60% or more of the opportunity spaces are presented in the sections below.



### **PI1: Develop a new techno-industrial classification system for spinouts and relevant downstream sectors**

A recurring challenge in the UK spin-out ecosystem is the absence of a **consistent, granular and innovation-appropriate techno-industrial classification system**, capable of capturing both the technological foundations and the downstream industrial applications of university-originated ventures. Traditional industrial taxonomies (e.g., SIC codes) systematically **misclassify early-stage, science-based firms**, particularly those operating across multiple emerging or converging technology domains<sup>86,87</sup>. Because university spin-outs often develop platform technologies, multi-use components, or enabling capabilities rather than sector-specific end products, conventional classification systems obscure the **true technological role and supply-chain position** of these ventures<sup>88</sup>. This makes it difficult for corporates, investors, policymakers and universities to understand where spin-outs sit within value chains whether as tier-4 component providers, core capability developers, platform technology firms or downstream application integrators.

Developing a new techno-industrial classification system that is supported by self-reported sectoral descriptions, supply-chain positioning and curated use-case examples would therefore unlock substantial analytical and strategic benefits. It would enable **better alignment with national industrial strategy**, facilitate more effective university–industry matching, improve visibility for corporate R&D teams seeking technology pipelines at specific TRLs, and allow analysis of growth potential by mapping where spin-outs cluster within critical technologies or strategic supply chains (e.g., semiconductors, synthetic biology, clean energy). Such classification systems improve the design of policy interventions by helping governments identify bottlenecks in innovation pathways, structure targeted investment, and evaluate the maturity of emerging technology ecosystems<sup>89,90</sup>.

Integrating this classification into national data, potentially within the Spinout Register itself, would therefore enhance national technology intelligence, support strategic investment decisions, and provide a robust evidence base for monitoring the evolution and impact of UK spin-outs across industries.



### **PI31: Skills and competences**

There is a recognition that **skills and competencies underpin every stage of the spin-out lifecycle**, from opportunity identification to scaling. Academic literature strongly supports this view: founder and team competencies such as entrepreneurial, managerial, technical, and relational are repeatedly shown to be among the strongest predictors of spin-out emergence,


<sup>86</sup> Liu, Y., & Tylecote, A. (2016). Corporate governance, innovation and economic development: A study of India. *Journal of Development Studies*, 52(3), 339–355.

<sup>87</sup> Arora, A., Fosfuri, A., & Gambardella, A. (2015). *Markets for technology: The economics of innovation and corporate strategy*. MIT Press.

<sup>88</sup> Gambardella, A., & McGahan, A. M. (2010). Business-model innovation: General purpose technologies and their implications for industry structure. *Long Range Planning*, 43(2–3), 262–271.

<sup>89</sup> Mazzucato, M. (2018). *Mission-oriented research and innovation in the European Union: A problem-solving approach*. European Commission.

<sup>90</sup> OECD. (2019). *Microdata for innovation and industrial policy*. OECD Publishing.



survival and growth<sup>91,92</sup>. However, stakeholders noted that **collecting new skills data is unnecessary**, as rich information already exists across commercial talent databases, professional profiles (e.g., LinkedIn), company filings, and ORCID-like academic identifiers. The challenge is not data availability but **data integration** and linking existing skills with spin-out records in a systematic way. This aligns with research showing that the evolution of entrepreneurial competencies is path-dependent and observable through career histories, networks and prior affiliations<sup>93</sup>.

Integrating existing skills and career-path data into the national data landscape would provide significant benefits. It would enable ecosystem-wide analysis of the **competency profiles associated with successful founders**, regional skill gaps, and the types of expertise required in different sectors or technology areas. It would also allow assessment of whether current training, entrepreneurship programmes and policy interventions meaningfully influence founder capabilities. This is an area that is highlighted by both academics and funders as poorly understood. Furthermore, linking existing skills datasets to spin-outs would improve **talent-matching**, support leadership development initiatives, and help identify bottlenecks where ecosystems lack experienced technical leaders, commercial executives or regulatory specialists. Ultimately, this initiative if implemented through data linkage rather than new data collection would strengthen the UK's ability to understand, cultivate and scale the human capital that drives high-growth spin-outs.



#### PI26: Equity position of university at founding

It is important to understand the **equity position taken by universities at the point of spin-out formation**, and how this relates to both the costs incurred and the benefits ultimately realised. Academic literature highlights that universities face a fundamental tension in setting equity stakes: while retaining equity can generate long-term upside and compensate for early investment in IP protection, legal work and TTO support, excessively high university stakes can deter founders and investors, reduce incentives for entrepreneurial commitment, and slow the growth of the venture<sup>94,95</sup>. Conversely, too little equity may leave universities unable to recover the significant front-loaded costs of commercialisation<sup>96</sup>. The absence of transparent, standardised national data on founding equity positions makes it difficult to benchmark institutional practices, evaluate return on investment, or understand the aggregate economic contribution of spin-outs to the university sector.

Furthermore, equity structure influences early fundraising, governance, and founder–university relationships, each of which affects long-term outcomes such as survival, scaling, and acquisition<sup>97,98</sup>. Integrating founding equity data into the national data and evidence landscape would allow detailed analysis of how equity norms vary by region, sector, and technology domain; how equity relates to subsequent investment and growth trajectories; and

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<sup>91</sup> Rasmussen, E., Mosey, S., & Wright, M. (2011). The evolution of entrepreneurial competencies: A longitudinal study of university spin-off venture emergence. *Journal of Management Studies*, 48(6), 1314–1345.

<sup>92</sup> Vanaelst, I., Clarysse, B., Wright, M., Lockett, A., Moray, N., & S'Jegers, R. (2006). Entrepreneurial team development in academic spin-outs: An examination of team heterogeneity. *Entrepreneurship Theory and Practice*, 30(2), 249–271.

<sup>93</sup> Marvel, M. R., Davis, J. L., & Sproul, C. R. (2016). Human capital and entrepreneurship research: A critical review and future directions. *Entrepreneurship Theory and Practice*, 40(3), 597–626.

<sup>94</sup> Shane, S. (2004). *Academic entrepreneurship: University spin-offs and wealth creation*. Edward Elgar.

<sup>95</sup> Jensen, R., & Thursby, M. (2001). Proofs and prototypes for sale: The licensing of university inventions. *American Economic Review*, 91(1), 240–259.

<sup>96</sup> Markman, G. D., Phan, P. H., Balkin, D. B., & Gianiodis, P. T. (2005). Entrepreneurship and university-based technology transfer. *Journal of Business Venturing*, 20(2), 241–263.

<sup>97</sup> Lockett, A., & Wright, M. (2005). Resources, capabilities, risk capital and the creation of university spin-out companies. *Research Policy*, 34(7), 1043–1057.

<sup>98</sup> Robinson, D. T., & Stuart, T. E. (2007). Financial contracting in biotech strategic alliances. *Journal of Law and Economics*, 50(3), 559–596.

whether certain models are associated with better outcomes for both universities and founders. Such insights could directly inform policy debates on equity guidelines, transparency frameworks and best-practice recommendations, while helping universities align their equity policies with both financial sustainability and ecosystem health. Ultimately, this initiative would strengthen the evidence base needed to design equitable, growth-enhancing commercialisation strategies across the UK.



### PI7: Systematic collection and evaluation of qualitative evidence

There is a growing consensus that **quantitative metrics alone cannot capture the full complexity of spin-out formation, growth and impact**. This makes the systematic collection of qualitative evidence through surveys, interviews, case studies and narrative accounts an essential complement to administrative datasets. The processes shaping spin-out emergence are highly path-dependent, relational and context-specific<sup>99,100</sup>. Factors such as founder motivations, team dynamics, partnership formation, decisions around IP, and regional ecosystem characteristics often determine venture outcomes, yet these elements are rarely observable in quantitative datasets. Qualitative evidence provides insight into the **mechanisms** behind outcomes. For example, why some firms move region, how leadership capacity develops, or what barriers founders face in navigating regulation or fundraising. Such mechanisms are routinely highlighted in innovation studies as critical to understanding what drives success and how ecosystems function<sup>101,102</sup>.

Systematic qualitative data would also support **evaluation of policy interventions**, allowing researchers to understand not just whether an intervention correlates with outcomes, but how and why it works (or fails) in specific institutional or regional contexts. Case-based evidence has been shown to reveal tacit knowledge, learning processes and organisational practices that shape commercialisation performance<sup>103</sup>.

Presenting structured qualitative insights alongside quantitative records would therefore enable richer, mixed-method analysis, support comparative studies across institutions, and provide policymakers with the nuanced understanding required to design effective, context-sensitive interventions. Ultimately, adding qualitative evidence would produce a more holistic national picture of the evolving spin-out ecosystem, revealing dimensions of impact and behaviour that numeric indicators alone cannot capture.



### PI8: Linking existing data to the Spinout Register

A key improvement identified is the systematic **linkage of existing administrative, commercial and public datasets** to the Spinout Register. Research has shown that linking heterogeneous datasets dramatically improves the capacity to understand firm dynamics,


<sup>99</sup> Vohora, A., Wright, M., & Lockett, A. (2004). Critical junctures in the development of university high-tech spin-out companies. *Research Policy*, 33(1), 147–175.

<sup>100</sup> Clarysse, B., Wright, M., Bruneel, J., & Mahajan, A. (2011). Creating value in ecosystems: Crossing the chasm between knowledge and business ecosystems. *Research Policy*, 40(7), 1052–1067.

<sup>101</sup> Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage.

<sup>102</sup> Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review*, 32(4), 1246–1264.

<sup>103</sup> Siegel, D. S., Waldman, D., Atwater, L., & Link, A. (2003). Toward a model of effective technology transfer: Lessons from implementation of the Bayh–Dole Act. *Research Policy*, 32(1), 27–48.



innovation performance and ecosystem behaviour<sup>104,105</sup>. Administrative microdata such as tax records, payroll information, R&D claims, and export data provide accurate and timely indicators of growth, employment, productivity and internationalisation that are difficult to capture through university reporting alone. Similarly, venture databases supply investment timing, syndicate composition and capital flows, enabling analysis of funding pathways, regional disparities, and investor behaviour. These are key determinants of spin-out success in research-intensive sectors<sup>106,107</sup>.

Linking data sources avoids duplication, reduces reporting burdens, and enables much richer analytics than any single dataset can provide. It allows longitudinal tracking of firms even after they leave university oversight, supports evaluation of policy interventions, and enables sophisticated modelling of outcomes such as survival rates, job creation, scaling trajectories and sectoral clustering. International evidence shows that integrated data infrastructures significantly enhance government's ability to design effective innovation policy and target support where it has greatest economic impact<sup>108</sup>.

Linking existing administrative, survey, or commercial datasets to the data already held in the Spinout Register would therefore transform it from a static directory into a dynamic national research infrastructure that can support rigorous analysis, improve transparency and accountability, and enable universities and policymakers to shape a more productive, evidence-driven spin-out ecosystem.



### PI13: Expand the definition and categorisation of spin-outs

The ability to **periodically refine the definition and categorisation of UK spin-outs**, is important to ensure that the dataset accurately reflects the types of spinouts emerging from UK universities. It would also be helpful to be able to identify different types of spinouts, for example, based on whether they are IP-rich, research-intensive ventures commercialising technologies with high degrees of uncertainty, or ventures being developed based on other forms of knowledge asset with different patterns of risk and different business models (e.g. service based companies, consultancies). This would help with more robust comparative analyses, both across the spinout landscape and with the wider startup population. For example, there is evidence that shows that university spin-outs built around **protected intellectual property, specialised scientific knowledge, and high levels of technological uncertainty** can differ significantly from other types of spinouts and ventures (e.g. corporate spinouts) that do not have these characteristics<sup>109,110</sup>. Failure to account for these differences can lead to misinterpretation of investment norms, time-to-scale expectations, and sectoral characteristics, particularly because IP-rich technology ventures follow distinct development and financing trajectories compared to service-based or consultancy-style firms<sup>111</sup>. Similarly, corporate spin-outs, which are created through restructuring within established firms exhibit

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<sup>104</sup> OECD. (2019). *Microdata for innovation and industrial policy*. OECD Publishing.

<sup>105</sup> Lane, J., Stodden, V., Bender, S., & Nissenbaum, H. (2014). *Privacy, big data, and the public good: Frameworks for engagement*. Cambridge University Press.

<sup>106</sup> Lerner, J. (2010). *The Boulevard of Broken Dreams: Why public efforts to boost entrepreneurship and venture capital have failed—and what to do about it*. Princeton University Press.

<sup>107</sup> Nightingale, P., & Coad, A. (2014). Muppets and gazelles: Political and methodological biases in entrepreneurship research. *Industrial and Corporate Change*, 23(1), 113–143.

<sup>108</sup> Mazzucato, M. (2018). *Mission-oriented research and innovation in the European Union: A problem-solving approach*. European Commission.

<sup>109</sup> Shane, S. (2004). *Academic entrepreneurship: University spin-offs and wealth creation*. Edward Elgar.

<sup>110</sup> Wright, M., Lockett, A., Clarysse, B., & Binks, M. (2006). University spin-out companies and venture capital. *Research Policy*, 35(4), 481–501.

<sup>111</sup> Clarysse, B., Wright, M., Lockett, A., Van de Velde, E., & Vohora, A. (2007). Academic spin-offs, formal technology transfer and capital raising. *Journal of Business Venturing*, 22(1), 70–89.

entirely different resource endowments, governance structures and risk profiles<sup>112</sup>, and their presence can skew comparisons across universities and regions.

A refined categorisation system would allow clearer identification of **technology intensity, IP dependence, business model type, and origin of founding resources**. This aligns with calls in the literature for typologies that distinguish between knowledge-based, technology-based and opportunity-based ventures to support more accurate policy evaluation<sup>113</sup>.

The development of the Spinout Register brought with it a new national definition aiming to be applied consistently *and* be inclusive of university spin-out heterogeneity. Refining this national definition on an ongoing basis in future, to address emerging cases would improve the integrity of metrics such as investment raised, scaling rates, and R&D intensity, enabling universities and policymakers to benchmark performance without noise introduced by structurally different firm types. Integrating refined categories into the Spinout Register would therefore enhance data quality, support more nuanced analysis of innovation outcomes, and ensure that government interventions and institutional strategies are properly targeted toward genuine research commercialisation activities.



### **PI22: Measures of spinout maturity: funding round, money raised, people employed**

It is important to develop robust **measures of spin-out maturity** that include funding rounds secured, total investment raised, employment levels, partnership formation, and revenue milestones. University spin-outs tend to follow highly heterogeneous and non-linear growth trajectories, making maturity difficult to infer from age or survival alone<sup>114</sup>. Instead, indicators such as progression through funding rounds, scaling of headcount, and ability to attract later-stage capital more accurately reflect a spin-out's organisational development, resource acquisition and readiness for commercial impact<sup>115</sup>. Metrics linked to human capital and employment are equally important: studies show that job creation, team expansion, and professionalisation processes are central markers of venture evolution, often preceding major financial or market outcomes<sup>116</sup>.

Without standardised maturity measures, universities and policymakers struggle to compare performance across sectors or regions, evaluate ecosystem health, or identify firms that require targeted support. This is especially pertinent for deep-tech and life-science spin-outs, where long technology development cycles make early financial indicators misleading. Maturity metrics also enable more rigorous evaluation of policy interventions by linking specific support mechanisms such as proof-of-concept funding, accelerators, or translational research grants to subsequent venture milestones<sup>117</sup>.

Integrating maturity measures into national spin-out data and evidence would therefore allow systematic tracking of spin-out progression, benchmarking across institutions, and early identification of firms poised for scale-up. Ultimately, these indicators would help build a

<sup>112</sup> Klepper, S., & Sleeper, S. (2005). Entry by spinoffs. *Management Science*, 51(8), 1291–1306.

<sup>113</sup> Grimaldi, R., Kenney, M., Siegel, D. S., & Wright, M. (2011). 30 years after Bayh–Dole: Reassessing academic entrepreneurship. *Research Policy*, 40(8), 1045–1057.

<sup>114</sup> Nightingale, P., & Coad, A. (2014). Muppets and gazelles: Political and methodological biases in entrepreneurship research. *Industrial and Corporate Change*, 23(1), 113–143.

<sup>115</sup> Clarysse, B., Wright, M., Bruneel, J., & Mahajan, A. (2011). Creating value in ecosystems: Crossing the chasm between knowledge and business ecosystems. *Research Policy*, 40(7), 1052–1067.

<sup>116</sup> Rasmussen, E., & Wright, M. (2015). How can universities facilitate academic spin-offs? An entrepreneurial competency perspective. *Journal of Technology Transfer*, 40(5), 782–799.

<sup>117</sup> Brown, R. (2021). Mission-oriented innovation policy and entrepreneurial ecosystems. *Research Policy*, 50(2), 104132.

nanced national picture of how UK spin-outs develop, where bottlenecks occur, and which parts of the ecosystem require additional investment or capability building.



### PI23: Degree of university support

It would be valuable to systematically assess the **degree of university support** provided to spin-outs including entrepreneurship education, incubator and accelerator participation, direct investment, mentoring, and board involvement to understand how these inputs influence venture outcomes. The university support is one of the strongest determinants of early spin-out development, affecting opportunity shaping, entrepreneurial competence, resource mobilisation and the ability to reach critical milestones<sup>118,119</sup>. Incubators and accelerators, in particular, provide specialised infrastructure, networks and legitimacy that reduce the liabilities of newness typically faced by science-based ventures<sup>120</sup>. Similarly, university-held investment or board seats can signal commitment, reduce information asymmetries for external investors and provide strategic oversight during formative stages<sup>121</sup>.

However, there is currently no standardised national dataset capturing the diverse forms of support universities provide or enabling comparisons across institutions and regions. As a result, it cannot be determined which support models are most effective, and universities cannot benchmark their practices against peers. Research also highlights that different types of support matter more at different stages. For example, training and incubation at inception, and governance or investment support during growth phases making longitudinal visibility critical<sup>122</sup>.

Developing structured indicators of university-level support would allow analysis of which interventions best promote survival, scaling, fundraising and societal impact. It would also support evidence-based policy design, help universities allocate resources more effectively, and strengthen the overall performance and inclusivity of the UK's spin-out ecosystem.



### PI30: Geography of investors

Understanding the **geography of investors**, where capital comes from, which regions supply early-stage versus late-stage funding, and how investment flows align with regional innovation strengths is essential for strengthening the UK spin-out ecosystem. Normally, investment tends to be **highly geographically concentrated**, with venture capital activity clustering in a small number of regions that have deep networks, specialised investors, and strong innovation infrastructures<sup>123,124,125</sup>. Spin-outs located outside these hubs often experience limited access to early-stage capital, contributing to regional disparities in growth trajectories, founder

<sup>118</sup> Rasmussen, E., Mosey, S., & Wright, M. (2011). The evolution of entrepreneurial competencies: A longitudinal study of university spin-off venture emergence. *Journal of Management Studies*, 48(6), 1314–1345.

<sup>119</sup> Wright, M., Clarysse, B., Mustar, P., & Lockett, A. (2008). Academic entrepreneurship in Europe. *Edward Elgar*.

<sup>120</sup> Clarysse, B., Wright, M., Lockett, A., Van de Velde, E., & Vohora, A. (2005). Spinning out new ventures: A typology of incubation strategies in Europe. *Journal of Business Venturing*, 20(2), 183–216.


<sup>121</sup> Fini, R., Rasmussen, E., Siegel, D., & Wiklund, J. (2017). Rethinking the commercialization of public science: From entrepreneurial outcomes to societal impacts. *Academy of Management Perspectives*, 31(1), 43–59.

<sup>122</sup> Vanaelst, I., Clarysse, B., Wright, M., Lockett, A., Moray, N., & S'Jegers, R. (2006). Entrepreneurial team development in academic spin-outs: An examination of team heterogeneity. *Entrepreneurship Theory and Practice*, 30(2), 249–271.

<sup>123</sup> Ulrichsen, T. C. 2026. Investing in Success: A quantitative analysis of the structure, dynamics and links within the UK university spinout and investor ecosystem. A Technical Report for Research England.

<sup>124</sup> Florida, R., & Smith, D. F. (1993). Venture capital formation, investment, and regional industrialization. *Annals of the Association of American Geographers*, 83(3), 434–451.

<sup>125</sup> Mason, C. M., & Harrison, R. T. (2002). The geography of venture capital investments in the UK. *Transactions of the Institute of British Geographers*, 27(4), 427–451.



mobility and scaling potential<sup>126</sup>. Understanding where investors are located, and which regions they are willing to invest in, is therefore critical for identifying gaps in the UK's financing landscape and evaluating the degree to which regional ecosystems are able to support spin-out development.

Geographic investment analysis also enables clearer insights into **capital attraction and capital leakage**. This matters not only for firm growth but for assessing whether public investments in regional research and innovation translate into local economic development<sup>127</sup>. Mapping investor geographies over time would also reveal syndicate formation patterns, cross-regional investor collaborations, and the scale-up pathways typical in different sectors, particularly in deep tech and life sciences where specialist investors are limited and geographically concentrated.

Integrating investor-geography data into the national data landscape would therefore support more effective policy design, help regions articulate their investment needs, enable universities to build targeted investor engagement strategies, and contribute to a more geographically balanced and resilient national innovation system.

## Cross-cutting issues to be considered

During the workshop some additional issues or risks were raised, which are relevant for several of the proposed initiatives.

### Normalisation strategy for the spinout data

The importance of developing a flexible **normalisation strategy** for analysing spin-out data was highlighted. For assessing **national scale and activity**, raw counts may be more meaningful, as they indicate whether the UK is generating sufficient volume relative to its overall research base. However, when evaluating **performance**, efficiency or potential at the level of regions, sectors or specific universities, normalisation becomes essential. In such cases, using factors such as research income, staff numbers, disciplinary mix or sectoral strengths is important.


It was noted at the workshop, though, that **some University research funding is effectively restricted** with very limited opportunities to commercialise emerging IP through a spinout. For example, industry sponsored research ties the IP up with the company rather than the university. Universities with a high level of industry sponsored research may have less scope to generate spin-outs than the ones whose research income is much less encumbered (e.g. having a high level of Research Council funding as part of their portfolio). Meaningful interpretation requires contextualising outputs against underlying inputs and capabilities, especially across diverse academic fields and emerging techno-industrial classifications. Normalisation should therefore support both macro-level insight (scale) and micro-level benchmarking (relative performance), while enabling analysis of sectoral clusters, disciplinary hotspots and the distribution of activity across the UK.

### Risks associated with collecting and making data available

Strong concerns were expressed about the **risks of publicly releasing sensitive spin-out information**, especially relating to IP strategies, licensing arrangements and commercially sensitive partnerships. Because these elements are typically confidential, publishing detailed

<sup>126</sup> Martin, R., Sunley, P., & Turner, D. (2016). Comparing venture capital “regional systems” in the UK: The London and Scottish models. *Venture Capital*, 18(4), 327–351.

<sup>127</sup> Brown, R., & Mason, C. (2017). Looking inside the spiky bits: A critical review and conceptualisation of entrepreneurial ecosystems. *Small Business Economics*, 49(1), 11–30.



data may unintentionally place spin-outs at a competitive disadvantage or expose universities to legal and operational risks. It was stressed that the issue is not whether the data should be collected, but how to manage the **risk–benefit trade-off** responsibly. Suggested mitigation approaches included careful access controls, tiered data visibility, and ensuring that confidential IP or licensing details are not inadvertently disclosed. It was also noted that stronger risk analysis processes are needed to evaluate what data can safely be made public while still enabling meaningful transparency, accountability and analysis. The overarching message was: “**proceed, but with caution and thoughtful governance**”.

### Tracking exit strategies and spinout evolution

Linked to OS10 above, a major issue raised was the current inability to effectively track **spin-out evolution and exit outcomes**, particularly when companies are acquired or absorbed into larger corporations. Under existing datasets, spin-outs that undergo successful exits may simply “disappear,” creating the false impression of failure. It was emphasised the need for mechanisms to flag when a spin-out is no longer independent but has undergone a positive outcome such as acquisition, merger or integration into another company’s operations. Without this visibility, measures of survival, economic contribution and long-term value creation are distorted, and universities lose sight of their alumni ventures. Better tracking of post-exit trajectories is essential for recognising successful outcomes, understanding value capture, and evaluating the real impact of university-originated innovation. For example, it was recommended to develop a structured classification of exit types and integrating “**no longer tracked—successful exit**” markers into the Spinout Register.

### Connectivity of funding/IP

The need to better capture the **connectivity between funding flows, IP ownership and licensing relationships** was stressed recognising that spin-outs often draw on complex networks of patents, cross-institutional licensing agreements and multiple funding sources. A spin-out may originate from one university but rely on licensed-in patents from others, or develop shared IP within collaborative research partnerships. Mapping these relationships would reveal important patterns in technology transfer, collaboration networks and inter-university dependencies. Similarly, understanding how funding from public grants to private investment intersects with IP pathways is crucial for analysing growth, exit routes and value capture. It was also noted that qualitative evidence is essential to interpret these linkages and understand the strategic or scientific reasons behind them. Enhanced connectivity data would enable more accurate assessment of innovation pathways, identify collaborative clusters and strengthen the evidence base for improving national research commercialisation systems.

# Conclusions and next steps

The UK's spin-out landscape is both highly productive and strategically important, contributing significantly to national innovation capacity, regional economic development and global competitiveness. Existing evidence demonstrates that the UK performs at a level comparable to global leaders once research intensity is accounted for, and that spin-outs deliver substantial economic value through job creation, investment attraction and high-impact innovation. The launch of the national Spinout Register has created a transformative opportunity: for the first time, the UK has a unified, authoritative dataset that can support system-wide analysis, policy design and ecosystem development. However, this foundation must be strengthened through richer, more connected and more nuanced data if the Register is to realise its full potential.

The **eleven priority opportunity spaces** identified by stakeholders highlight the need for deeper insight into leadership, economic impact, sectoral specialisation, investment pathways, policy effectiveness, university involvement and long-term value capture. These requirements demonstrate that the value of a national spin-out dataset lies not only in counting companies, but in understanding the diverse mechanisms through which innovation becomes economic and societal benefit.

In response, **nine strategic improvements** and **data enrichments** were proposed. These were:

- **Develop a new techno-industrial classification system for spinouts and relevant downstream sectors**
- **Skills and competencies linkage** using existing personnel and career datasets.
- **Equity position at founding** to understand value capture and ROI.
- **Systematic collection and evaluation of qualitative evidence** (case studies, surveys, narrative insights).
- **Linking existing data** from relevant public, administrative and commercial datasets **to the Spinout Register**.
- **Refined definition and categorisation** of spin-outs (IP-intensity, exclusion of corporate spin-outs).
- **Measures of spin-out maturity** (funding rounds, capital raised, headcount, revenues).
- **Degree of university support** (courses, incubators, investment, board roles).
- **Geography of investors** to map capital flows, regional disparities, and scaling pathways.

Additional important considerations were also raised in collecting and using this data. These were around current governance, legal and technical constraints, risks around confidentiality and IP sensitivity, consistent data standards and establishing a governance and stewardship model to manage data access, quality, ethics and privacy over time.

By implementing the proposed initiatives and sustaining cross-sector collaboration, the UK can build a world-leading data and evidence base that strengthens research commercialisation, supports strategic investment and maximises the national value generated by university spin-outs.

# Appendices



## Appendix 1: Workshop methodology and agenda

The overall workshop methodology comprised three overarching phases, as follows:

- Phase 1: Scoping and design
- Phase 2: Strategic roadmapping workshop
- Phase 3: Reporting and review

### Phase 1: Scoping and design

This was a planning phase where the roadmapping objectives and expectations are clarified and agreed, and the overall programme is developed in greater detail. This included the designing and customisation of the roadmapping framework and process (including workshop) to ensure the specified objectives and expectations were met. The specific tasks within this phase were:

- Confirm the aims, scope and design of the overall roadmapping process.
- Identify the key areas of knowledge to be included in the roadmapping process, to inform the design of templates for use in pre-work information collection and during the workshops.
- Clarify timings for the respective workshop, associated activities, participant numbers, and venue logistics.
- Detailed design of the process and templates necessary for any pre-work and workshop activities.
- Decide on the selection criteria for assessing and prioritising strategic options that emerge during the workshop.

### Phase 2: Strategic roadmapping workshop

Workshops are a core element of the roadmapping process, bringing together key stakeholders to identify and explore exploitation routes for new/different ideas or research, support strategy formation, enable communication and formation of new networks, and build consensus for decision-making and action. The proposed work within this phase consisted of two key parts: pre-work and data gathering, and workshop delivery. This workshop involved 50 people, and it took place on Wednesday 12 November 2025 in London between 14.00-17.30. The workshop agenda is shown below.

Time	Activity
13.30	Arrival
14.00	Welcome, overview of aims and objectives
14.10	<b>Activity 1:</b> Individual presentations of national opportunity spaces and Improvements
15.00	<b>Activity 2:</b> Review and prioritisation of opportunity spaces
16.00	Break
16.15	<b>Activity 3:</b> Map improvements, enrichments and gaps to priority opportunity spaces
17.00	<b>Activity 4:</b> Review and discuss key improvements, enrichments and gaps
17.15	Closing remarks and next steps
17.30	Close

### Phase 3: Reporting and review

IfM Engage transcribed and captured the outputs from the workshop and drafted this report. This was created as a 'working document', which can be shared with a wider audience.

## Appendix 2: Opportunity space areas definitions

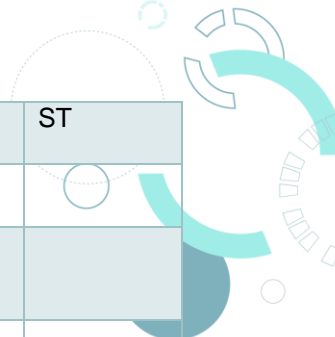
The definitions of the opportunity spaces areas used as

Opportunity Space area	Definition
<b>Funding allocation and programme design</b>	This includes developing consistent, reliable, robust and meaningful metrics to be used in funding decisions.
<b>Strategic insights on spinout ecosystem development</b>	This includes greater visibility of the pool of spin-out companies and IP emerging from universities at both national and regional levels, enabling greater insights into the health and performance of these ecosystems and its constituent parts. It also includes developing understanding of spinouts' specialisation in specific technology spaces of strategic importance for the UK, e.g. life sciences, AI, quantum technologies, advanced materials and semiconductors, which naturally affects the type of ecosystem they require to develop, scale and grow.
<b>Attracting investment</b>	Developing and strengthening compelling value propositions to attract (overseas) investors.
<b>Demonstrating impact &amp; celebrating success</b>	This responds to growing interest in universities being able to demonstrate their contributions to the economic success of the UK. With more robust insights on the spinouts, their performance and contributions to the UK at a national and regional level (including employment generated, added value, investment raised, survival, key trends etc.) we can better articulate, quantify and celebrate universities' contributions to economic success.
<b>Policy evaluation and identifying 'what works'</b>	With a complete understanding of the university spin-out population, we can produce generalisable and representative policy studies/evaluations on spinouts. Granular spinout-level information might make it easier to identify more/less successful spinouts to learn about 'what works'; and by linking spinout-focused policy intervention data with the Spinout Register, we could be able to more easily investigate the effects of these interventions.
<b>Monitoring &amp; benchmarking of spinout portfolios</b>	This includes monitoring insights on spinout development across the portfolio, for example conversion rates, structure/dynamics of portfolio. Further, consistently collected data across the sector enables benchmarking and ability to compare performance to identify areas for improvement, learning and strategy development.

## Appendix 3: Full list of opportunity spaces proposed

The full list of opportunity spaces collected from the participants before and during the workshop is presented in the table below.


ID	Opportunity spaces	Roadmap layer	Timescale
OS1	Understand the industries and sectors that UK spinouts operate in	Strategic insights on spinout ecosystem development	ST-MT
OS2	Understand the role, nature and extent of external investment e.g. region, sector, investment types, geography, time taken to raise investment etc.	Attracting investment	ST-LT
OS3	Understand the national and regional economic impact of UK spinouts, through jobs created, turnover, new products/service brought to market and other indicators of growth/success that capture atypical growth/impact pathways	Monitoring & benchmarking of spinout portfolios	ST-LT
OS4	Geographical location information; in which regions are companies formed, do they move, and if so, at what stage and where to, etc. Identify clusters/ innovation hotspots	Strategic insights on spinout ecosystem development	MT-LT
OS5	Founding conditions at creation (equity, type of IP, etc.)	Policy evaluation and identifying 'what works'	LT
OS6	The difference between STEM and SHAPE sourced spinouts in contribution to socioeconomic growth	Strategic insights on spinout ecosystem development	MT-LT
OS7	Understand drivers that underpin the hallmarks of a successful spin-out to help support spin-outs for longer term success .	Demonstrating impact & celebrating success	ST-LT
OS8	Understand "spinning out" challenges - what prevents (this type of) research commercialisation	Strategic insights on spinout ecosystem development	MT
OS9	Understand how UK spinout companies scale and grow	Attracting investment	ST-LT
OS10	What happens when a company is sold. Where do the jobs, IP and money go?	Demonstrating impact & celebrating success	ST
OS11	Assessment of the degree of university involvement and success measures that can be readily influenced by the university	Policy evaluation and identifying 'what works'	ST
OS12	What does the university spend to generate a spin-out (e.g. IP protection, legal expenses, TTO resource etc.) and what are the potential benefits (e.g. grant funding, contract research etc.?)	Monitoring & benchmarking of spinout portfolios	MT-LT
OS13	Corporate ventures or spin-outs where industry partners are on the cap table	Attracting investment	MT
OS14	Tracking spin-ins into the UK, not just spinouts from our own universities but those from overseas (and drivers for locating in UK)	Strategic insights on spinout ecosystem development	MT
OS15	Understanding of spin out data relative to size of HEI/research base	Monitoring & benchmarking of spinout portfolios	ST
OS16	Understanding how different policy or funding interventions are supporting growing and healthy ecosystems	Policy evaluation and identifying 'what works'	MT
OS17	Analyse sectoral trends in IP and IP activity of UK spin outs	Strategic insights on spinout ecosystem development	ST-MT
OS18	Understanding the profile and background of the leaders of spinouts across UK clusters in different industry/technology groups at different stages.	Strategic insights on spinout ecosystem development	ST



OS19	Understand what research led to the spinout	Demonstrating impact & celebrating success	ST
OS20	Need typology of outcomes (to be able to link to founding, journey, data)	Policy evaluation and identifying 'what works'	
OS21	Propensity to spinout: possible to back by evidence?	Strategic insights on spinout ecosystem development	
OS22	Metadata on what data has been captured/filled in for the spinout (to help compare like with like)	Policy evaluation and identifying 'what works'	
OS23	Spinouts as part of a larger picture. Also licensing, etc. Is spinout always the right path?	Strategic insights on spinout ecosystem development	
OS24	Understand what is the most critical data (focusing on collecting the most critical data)	Policy evaluation and identifying 'what works'	

## Appendix 4: Full list of improvements proposed

ID	Proposed Improvements	Timescale
PI1	Develop a new techno-industrial classification system for spinouts and relevant downstream sectors (e.g. if producing a product that supports multiple areas) to allow easier mapping to industrial strategy	ST-MT
PI2	Identify companies supported by University Affiliated Funds to assess the performance and impact of the funds	ST
PI3	Better data on investment raised - universities report this, but seem to include various different types of things as investment, e.g. a company being bought might be counted the same as equity investment into the company. Include support, facilities accessed by the company or linked to its formation as well as changing rate of investments into companies (at different ages).	ST-LT
PI4	Region (or more granular unit) at creation and current location (including of primary operations/activity not just HQ or registered address)	ST
PI5	Improved ability to link the Register to the REF e.g. expand on REF main panels and track spinouts that are REF case studies	ST-LT
PI6	Extend the HE-BCI data to include income generated through a spin-out, the value when a spin-out achieves an exit/stock market listing or the level of profit being made by the spin-out and the total costs relating to IP income	LT
PI7	Systematic collection and evaluation of qualitative evidence (e.g. through surveys, or case studies)	MT
PI8	Linking existing data (e.g. companies house, HMRC, ONS, Beahurst/CrunchBase etc) to the Spinout Register	ST-MT
PI9	Better data on spin-out's contribution to economic activity, e.g. GVA, Number of jobs created, estimated annual turnover including UN SDGs etc.	ST-MT
PI10	Linking licensing and patenting data - some spinouts may have licensed IP from other institutions or have created new patents since company formation	MT
PI11	When a spinout exits/IPO or is acquired	MT
PI12	Public grant funding into the opportunity to date (UKRI research grants pre spinout)	MT-LT
PI13	Refine definition and categorisation: e.g. 'tech' patent holding businesses as priority? Also need to remove corporate spinouts and some non-IP rich spinouts as skew analysis around investment raising (lack potential t	ST-MT
PI14	Link more closely to HESA data on research and other HEBCI data	ST-MT
PI15	More regular or "always on" updated to the Register	LT
PI16	Gathering KE-adjacent data together in a dashboard to assist in story-telling, and specify user needs for improved data.	ST
PI17	Improved information on pipeline activity, focus on process and productivity measures	LT
PI18	Data normalised by research income	ST
PI19	Linking IP data to the spin out register	ST
PI20	What happens to spin outs that leave the UK	ST
PI21	Data on people leading spinouts: Profile mapping of C-Suite of spinouts at early stages of development and growth - databases like Beauhurst etc. track leadership teams so could be a link.	ST
PI22	Measures of spinout maturity: funding round, money raised, people employed	ST
PI23	Degree of university support: course, incubator accelerator, investment, board seats	ST
PI24	A sector-owned platform presenting new spin-out formation on a near real-time basis	LT



<b>PI25</b>	Data describing the funding, support, facilities accessed by the company or linked to its formation (e.g. UKRI-funding data, incubator and accelerator links)	ST-MT
<b>PI26</b>	Equity position of university at founding	MT
<b>PI27</b>	More options to classify what type of social enterprise it is (CIC, not-for-profit etc)	ST
<b>PI28</b>	The HESA database currently misrepresent historical successes such as start-up exits. The original start-up is not present anymore in the database which list the acquirer instead. This is misleading and can lead to	ST
<b>PI29</b>	Capture or secure access to key EDI details data	MT
<b>PI30</b>	Geography of investors	ST
<b>PI31</b>	Skills and competences	LT

## Appendix 5: Subset of “relevant”, “critical” and “match” improvements linked to prioritised opportunity spaces



OS	Proposed improvements linked to OS
<b>OS 1</b>	PI1, PI18, PI19, PI8, PI24, PI26, PI31, PI1, PI13, PI10, PI11
<b>OS 2</b>	PI8, PI16, PI17, PI26, PI30, PI31, PI1, PI22, PI2, PI7, PI10, PI11, PI3, PI12
<b>OS 3 + OS 4</b>	PI1, PI30, PI8, PI30, PI31, PI1, PI13, PI22, PI23, PI2, PI7, PI11, Critical: PI4, PI9
<b>OS 6</b>	PI8, PI14, PI26, PI31, PI1, PI13, PI22, PI23, PI7, PI10, Critical: PI4, PI9, PI21, PI25
<b>OS 10</b>	PI8, PI26, PI28, PI30, PI31, PI1, PI13, PI22, PI23, PI7, PI11, Critical: PI4, PI9
<b>OS 11</b>	PI1, PI16, PI14, PI26, PI31, PI22, PI23, PI2, PI7, PI10, Critical: PI25
<b>OS 16</b>	PI16, PI26, PI30, PI31, PI1, PI13, PI22, PI23, PI2, Match: PI12, Critical: PI25
<b>OS 18</b>	PI8, PI30, PI31, PI1, PI13, PI7, Critical: PI21, PI29
<b>OS 20</b>	PI8, PI14, PI26, PI30, PI31, PI1, PI23, PI7, Critical: PI9
<b>OS 12</b>	PI1, PI16, PI17, PI14, PI26, PI31, Critical: PI25



**For more information about this report:**

**Contact:** Dr Nicky Athanassopoulou

**E:** [naa14@cam.ac.uk](mailto:naa14@cam.ac.uk)

**T:** +44 1234 56789



### Institute for Manufacturing: IfM

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IfM Engage, 17 Charles Babbage Road, Cambridge, CB3 0FS, UK  
+44 (0)1223 766141 | [ifm-enquiries@eng.cam.ac.uk](mailto:ifm-enquiries@eng.cam.ac.uk) | [www.engage.ifm.eng.cam.ac.uk](http://www.engage.ifm.eng.cam.ac.uk)