



COUNCIL FOR
SCIENCE AND
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Helping UK science and technology companies to grow

New science and technology often originates in the UK but is too often not commercialised to its full potential in the UK. We excel in developing start-up science and technology (S&T) companies but falter at the scale-up stage. Instead, successful S&T companies are often sold to foreign buyers or move to foreign markets.

Helping S&T companies to scale-up domestically would ensure that their economic benefits remain in the UK. These substantial benefits include tax receipts, job creation and supply chains, but first the companies must be helped to reach the public markets. Increasing the number of large S&T companies will grow the opportunity for further S&T companies to develop. We estimate that doing so could mean at least doubling the value of S&T companies in the FTSE 100 from £15 billion to £30 billion.¹

There is a vicious cycle where the lack of listed S&T companies leads to limited S&T expertise in the wider economy. This in turn reduces investor confidence and available capital for these companies. There is a particular lack of capital for S&T companies worth between £50m and £150m.² Bridging that gap by facilitating the growth of larger S&T companies and helping more of them to reach the public markets would shift the vicious cycle into a virtuous one. Public market receptivity is thus one of the keys to solving this problem.

We attach a note which explores this issue and makes five recommendations to encourage the growth and subsequent listing of domestic S&T companies, leading to the development of an ecosystem to sustain even more. We propose measures that would provide mechanisms for 'patient (long term) capital' and remove disincentives to investment, encourage expert analysis to increase investment confidence, and create a high profile narrative for their success.

Work on this topic has been led by CST members Anne Glover (Co-founder and CEO of Amadeus Capital) and Mike Lynch (Founder of Invoke Capital), together with Philip Bond

¹ FTSE Russell (2017) *Factsheet: FTSE 100 Index*

² PWC (2017) *Internal Analysis*

(Fellow of Oxford Centre for Industrial and Applied Mathematics) and Rowan Douglas
(Chairman of Willis Research Network).

We would be pleased to discuss this topic and our recommendations with you and your ministerial colleagues. We are copying this letter to the Chancellor, Secretary of State at BEIS, Minister of State for Universities, Science, Research and Innovation, Cabinet Secretary, Permanent Secretary at the Treasury and Permanent Secretary at BEIS.

Yours sincerely
Mark

Sir Mark Walport
Co-Chair

Nancy Rothwell

Professor Dame Nancy Rothwell
Co-Chair

Helping UK science and technology companies to grow

1. The Government invests 0.6% of GDP in science, engineering and technology.³ The growth of S&T companies is critical if we are to maximise the economic benefit of this investment. Yet, today, science and technology (S&T) companies represent only 0.9% of the FTSE 100.⁴
2. S&T companies are crucial to future innovation, growth and prosperity. This is particularly true of larger companies with the capacity to attract the best talent, invest in world-class facilities, build local supply chains and attract major inward investment. A well-functioning innovation ecosystem would help smaller S&T companies to flourish and in turn contribute to the growth and productivity of the UK economy.⁵
3. The UK has strong early-stage support for small businesses and there are now many innovative small UK companies in which to invest. Lord Young's 2015 *Report on Small Firms* highlights a 17% increase of small firms in the UK since 2010, bringing the total to 5.2m. As a result, the OECD ranks the UK 4th out of 15 member countries in the creation of start-ups.⁶
4. However, the same OECD report ranks the UK 13th in the growth of those start-ups.⁷ Limited funding for firms prevents many from growing from mid-sized to large, as demonstrated by a lack of follow-up investment in the EU venture capital (VC) markets. In seed and first investment rounds, the EU starts around 50% as many companies as the US and funds them at approximately 80% of the same level. However, in second and later rounds, the EU funds only around 30% as many companies as the US and funds them at approximately 60% of the same level. This lack of expansion capital at a competitive scale or quantity usually leads to S&T companies being sold before they reach the public markets.⁸
5. The low representation of science and technology companies in the UK's public markets is increasingly out of step with the domestic economy and international competitors. Between 2005 and 2016, the IT sector in the UK decreased in market capitalisation concentration from 4.7% to 4.5% for instance, compared to the US where it grew from 16% to 21.6%⁹ during the same time period. 135 UK venture capital-backed technology companies in the UK were sold during 2015-16, of which only 0.8% were valued at over \$300m. In contrast, 14% of global technology exits were valued at over \$300m for the same period.¹⁰ The UK only has one S&T company worth over \$10 billion compared to five in South Korea.¹¹

³ ONS (2017) *UK Government Expenditure on Science, Engineering and Technology*

⁴ FTSE Russell (2017) *Factsheet: FTSE 100 Index*

⁵ Bank of England (2014) *The UK Productivity Puzzle*

⁶ OECD (2014) *The Dynamics of Employment Growth*

⁷ OECD (2014) *The Dynamics of Employment Growth*

⁸ DowJones Venture Source (2016) *Dataset*

⁹ BEIS (2017) *CapitalIQ Dataset*

¹⁰ CB Insights (2016) *Global Tech Exits Report*

¹¹ Forbes (2016) *Forbes Global 2000*

6. The UK public markets are not functioning for S&T companies for the above reasons and hence the sale of S&T companies at an early stage can be seen as a rational decision. A vicious cycle exists whereby a deficit of listed S&T companies leads to a lack of S&T expertise and advice, in turn diminishing investors' confidence to finance S&T companies.
7. The following recommendations are interdependent because we aim to create a virtuous circle of S&T company investment. Retaining S&T companies in the UK will also help keep S&T management talent here, which can in turn help further companies to prosper. This virtuous circle needs to be addressed at several different points at the same time to effect change.
8. Discussions with leading S&T investors have suggested that the UK would need to facilitate the growth of a few companies worth over £10 billion to create a functioning ecosystem that will in turn create conditions for the growth of other S&T companies. We estimate that successful implementation could mean doubling the value of S&T companies in the FTSE 100 from £15 billion to £30 billion.¹² Increasing the number of large scale S&T companies will grow the opportunity for further S&T companies to develop.

Encouraging knowledge of S&T companies to help investor confidence

Recommendation 1: The London Stock Exchange should establish a separate science and technology index for young, high-growth companies.

9. Investors currently have limited information about listed S&T companies, partly because S&T companies are not defined as a single sector on the London Stock Exchange (LSE). Instead, S&T companies are spread across various sub-sector definitions. Investors cannot access information on individual S&T companies without significant research and LSE indexes such as TechMARK do not represent smaller and younger S&T companies, since it contains larger and older S&T companies like GlaxoSmithKline which skew the index performance.
10. Increasing information provision to the markets would help to increase investors' knowledge about S&T companies and potentially provide greater confidence about potential investment. Creating a separate index for young, high-growth S&T companies would not only provide a hub of this information, but also generate data for the rigorous analysis of S&T companies.

Recommendation 2: An institution should be selected or established to form an independent research body for providing science and technology company financial analysis.

11. The UK capital markets have seen an increase in drivers for short-termism and a decrease in long-term capital over the past 20 years. From 1998 to 2014, pension fund ownership of

¹² FTSE Russell (2017) *Factsheet: FTSE 100 Index*

UK equities decreased from 21% to 3% of the market. Overseas ownership of UK equities has increased from 30% to 53% over the same period, but overseas funds are less likely to invest in smaller companies.¹³

12. There is little buy-side expertise in the S&T sector, so buyers (investors) rely on brokers and sell-side analysts to provide information on companies. Broker fees are based on trade volume, and buy-side analysts are paid via broker fees, both of which incentivise more short-term investment that will realise returns quickly. So, since it is irrelevant to brokers whether they buy or sell, there are few incentives for buy-side analysts to examine the longer term potential of companies.
13. This can create a 'pump and dump' cycle where equities are inflated through hype before being sold at a peak. These cycles create uncertainty and volatility, damaging the prospects for scale-up S&T companies that are entering the market.
14. There is a need for an independent research body to provide S&T company financial analysis. Such a body could be created as an adjunct of an institution. Supporting independent analysis in this way would increase information available to investors and boost confidence in the market.
15. The proposed funding for such a body is pooled contributions from S&T companies which come from: listing and de-listing fees; direct Government funding; or fiscal incentives such as tax credits for S&T company analysts.

Celebrating the success of growing S&T companies

Recommendation 3: The Government's Industrial Strategy should celebrate and incentivise the success of UK science and technology companies.

16. The views and statements of Government towards S&T entrepreneurship is very influential. Leading S&T investors have recommended that the Government have a more coherent narrative for celebrating the success of S&T companies. Schemes like TechStars London and Entrepreneur First are effective but are targeted at S&T companies at the start-up stage rather than scale-ups.
17. The right narrative would encourage the development of larger S&T companies with the capacity to attract the best talent, invest in world-class facilities and build local supply chains. Smaller companies then thrive in the dynamic innovation ecosystem this creates.
18. New or existing awards (like the Queen's Awards for Enterprise) should specifically celebrate the growth of S&T companies, by recognising their achievements and providing practical prizes such as mentoring and advice on growing their business.

Encouraging investment in S&T companies

¹³ ONS (2015) *Ownership of UK Quoted Shares*

Recommendation 4: HM Treasury should review and extend tax incentive schemes (e.g. Enterprise Investment Scheme) to include scale-up science and technology companies.

19. Tax incentive-based schemes have been very successful at encouraging investment in smaller, higher-risk companies. For example, the Enterprise Investment Scheme (EIS) increased investment by 32% when income tax relief increased from 20% to 30%.¹⁴
20. We propose an extension of successful but limited schemes like EIS to encourage investment in scale-up S&T companies. This would raise the application of the scheme from £50m to over £200m for S&T companies.
21. EIS, for example, is limited by a requirement that companies have less than £16m of gross assets. However, this could be increased for qualifying S&T companies to less than £150m of gross assets. This would extend the application of EIS across the identified funding gap between £50m and £150m.
22. As a 'straw-man' illustration, we outline an extension of EIS with the following requirements:
- Any funds not invested in scale-up S&T companies would be required to be invested in listed S&T companies below a market capital of £200m.
 - Income tax relief at 50% up to £400k per person, in order to reflect the higher risk profile of these investments.
 - Investments in S&T companies within a pension structure would be exempt from inclusion in the lifetime pensions allowance.
 - No capital gains tax would be payable on disposals by individuals on S&T companies.
 - Individuals would qualify for inheritance tax relief once they have owned a qualifying fund for 2 years.
23. We estimate that the upfront tax cost of this recommendation would be offset by the taxable income and labour created by scaling-up S&T companies that remain domiciled in the UK.

Recommendation 5: Investigate funding the British Business Bank to implement a scheme for aiding investment in scale-up science and technology companies in order to avoid an early exit.

24. The funding required to create sufficient growth capital for scale-up S&T companies is beyond direct government intervention. However, if S&T companies started scaling-up to a size where they would be attractive to public market investors, then the resulting flow of capital would create a functioning S&T capital market. The resultant funding would dwarf that of direct government intervention, since leveraging private capital at the early stages would have a large effect.

¹⁴ HMRC (2015) *Dataset*

25. The British Business Bank (BBB) already has a Venture Capitalist Catalyst fund, which can be used for scaling-up S&T companies. However, the fund is not sufficient to fill the gap. At £400m, it is too small for creating a virtuous circle of S&T company investment and growth.
26. S&T companies need to be able to scale-up before there can be a pipeline of them feeding into the public markets. Recommendation 5 proposes to pump-prime this pipeline and thereby yields long term benefits.
27. The public element of the proposed scheme could be delivered through the existing mechanisms of the British Business Bank. But the funding itself could be private, with investments selected by experienced fund managers and thereby attracting institutional investors.
28. In a similar vein to this recommendation, the Patient Capital Review (PCR) is investigating how to support innovative firms to access the finance that they need to scale up. Hence we also commend the findings of the PCR alongside the recommendations of this letter.

