



# HOUSE OF LORDS

## Science and Technology Committee

### Corrected oral evidence: Financing and Scaling UK science and technology: innovation, investment, industry

Tuesday 1 April 2025

10.15 am

#### [Watch the meeting](#)

Members present: Lord Mair (The Chair); Lord Berkeley; Lord Borwick; Lord Drayson; Lord Lucas; Baroness Neville-Jones; Baroness Northover; Lord Ranger of Northwood; Viscount Stansgate; Lord Stern of Brentford; Baroness Walmsley; Baroness Young of Old Scone.

Evidence Session No. 3

Heard in Public

Questions 16 – 28

### Witnesses

**I:** Stian Westlake, Executive Chair, Economic and Social Research Council; Angus Hanton, Co-founder, Intergenerational Foundation, and author of "Vassal State".

#### USE OF THE TRANSCRIPT

1. This is a corrected transcript of evidence taken in public and webcast on [www.parliamentlive.tv](http://www.parliamentlive.tv).

## Examination of witnesses

Stian Westlake and Angus Hanton.

Q16 **The Chair:** Good morning. Welcome to this Science and Technology Committee. I am Robert Mair, the chair of the committee. We are starting our second evidence session on our inquiry into financing and scaling of the science and technology sector in the UK.

I welcome our two witnesses, Stian Westlake, the executive chair of the Economic and Social Research Council, and Angus Hanton, co-founder of the Intergenerational Foundation and author of the book *Vassal State*.

As you know, our inquiry is concerned with the question of how to finance and scale UK science and technology, what we need to do to increase science and technology investment in the UK, and the return we get domestically on that investment. You both come at this topic from different perspectives: Stian, as an economist who has written a lot about the issues with an innovation economy and how they relate to the productivity slowdown, and Angus, as an author and entrepreneur who has written a lot about the influence of the US over the UK economy and the problem of UK technology companies moving overseas.

I invite you both to give a brief opening on your areas of focus and to introduce yourselves: Stian to talk about your diagnosis as to why the UK productivity has flatlined, and Angus to talk about your research into the US economic influence over the UK and what you have learned in writing your book. Let us start with Stian, please.

**Stian Westlake:** Thank you all for inviting me to be here today. I will start with my diagnosis of what has been happening to the UK's productivity. For the last few decades, in every rich country—not just the UK—we have seen an economy that is increasingly dependent on what economists would call intangible capital. As opposed to tangible capital, such as factories, machines and buildings, the economy is increasingly dependent on ideas, such as R&D, supply chain relationships and design; things that are capital, in that you have to spend money on them now and they generate a return over time, but which you cannot feel or touch—in other words, you cannot stub your toe on them. This is something that is very clear from decades of economic data and is becoming more important in every country.

What my research and that of my colleagues looked into is the fact that this type of capital behaves in a fundamentally different way. There are three ways in which we would describe this as being different. The first is that it is highly scalable. If you have a wonderful idea—say, the patent for Ozempic—you can scale that across an arbitrarily large amount of production, so a small amount of investment goes a potentially long way. That is not the case with most tangible capital.

The second is that these ideas often represent a sunk cost. For a business that owns intangibles, those intangibles are often not worth very much if

the company fails to a creditor. That is going to be important when we talk about finance later, which I know is relevant to this inquiry.

The third is that these things have spillovers. If you are a company and you invest in R&D, sometimes you may not be the beneficiary of that investment. If you invest in a factory, you can use the factory exclusively; if you invest in a brilliant idea, it is often relatively easy to copy that idea, even within copyright law and IP law.

Finally, these intangible assets are often synergistic; combining them is unusually valuable, and that has important ramifications for intellectual property law, clusters and planning, which is going to be relevant for the UK.

You asked about the diagnosis for the UK. In some ways, the UK has done well in respect of this intangible transition, but in some respects has done badly, and our institutions have not been well cut out for that. I will give a couple of quick examples. The scalability of intangibles means that access to large markets is very desirable. That is fantastic if you are the United States and have a large domestic market, and, as I am sure Angus will say, access to lots of other international markets. It is very good if you have access to a large unified market, such as the European single market. If you are a small or medium-sized economy, putting up barriers to trade is problematic.

The second thing is that, because these ideas are shared where people come together, it really matters that it is easy to build—whether that is laboratories, housing, or offices—in the places where your R&D is. It is an unfortunate tragedy for the UK that a lot of our publicly funded R&D is clustered in two very beautiful but very small towns, with tight green belts and beautiful, honey-coloured stone architecture that we rightly protect. But, as both the previous Government and the current Government have said, Cambridge should be a city of 1 million people, not of 20,000, and that is a drag on economic growth.

In spillovers, the UK has been pretty effective in increasing public funding in R&D since 2016; there has been a gradual increase in those areas. We could be doing more, but increased public funding of R&D is something that successive Governments should get some credit for. I think we are going to talk later about whether there are ways that we could have done that better—we could spend the money better, as well as more—but that is a positive side in the spillover element.

Finally—we may come back to it later—is the sunkness: the fact that these intangible assets are very hard to realise if a company goes bankrupt means that they are particularly reliant on equity finance rather than debt finance. I think you are going to ask later about issues that that presents. The UK has done some things to promote venture capital investment and follow-on funding, but not as much as we could. We can talk later about problems with bank finance for intangibles and how that constrains entrepreneurs.

I will leave it there, but I am happy to talk more.

**Angus Hanton:** You asked for a diagnosis. It seems to me there are several strands to a good diagnosis of our problems. The principal one that I have come across is the extent to which we have allowed our companies to be taken over in a way that other countries would not—America and Europe do not allow it. This particularly applies to technology. When you have a successful business such as DeepMind, Arm or Sophos, there are huge incentives for the owners—whether they are shareholders or founders—to sell out, which is a real problem. It is not just about investment in technology in the UK; it is about keeping hold of it. Takeovers are a big thing.

The second element is a lack of investment by the Government. Compare the UK to the US. The US Government have a lot of big projects, where they are, in effect, sponsoring or supporting the private sector in its developments. Think of SpaceX: it had a lot of government contracts from the US Government, which allowed the development of technology there.

There is a misplaced idea that we are dependent on the free market; it is the free market combined with the Government that has been so effective in the US. That applies to some of the big projects, such as the Apollo projects, where there were a lot of spinoff developments but essentially underwritten by the US Government. Obviously, we know that a lot of that is through the Department of Defense, but other departments are involved too.

On investment, the US also invests in people. There is more chance of its immigrants being sponsored to get degrees than immigrants in the UK or Europe. America definitely has something to teach us there in our attitude to immigrants and the human capital for them developing skills.

The tax structure for technologists and entrepreneurs is quite damaging and has often been counterproductive. For example, with capital gains tax, we have seen that there is no advantage to holding shares for a longer period. It has been talked about before, but we ought to incentivise longer-term holding by having a lower capital gains tax rate, perhaps on shares that have been owned for 10 or 15 years.

The R&D tax credit has recently been changed, as you probably know—so that you cannot get the tax credit for work that is not done in the UK. That could easily be changed so that you could not get the tax credit if you were not a UK-owned company, and that would target R&D a bit better. Our R&D expenditure is lower in the UK than it is in the US and lower than the average in the EU countries.

Some of the apparent increase in R&D spending is not real; because the tax credit is there, there are a lot of expenditures that might or might not be considered research and development, which the accountants claim for their companies. I have seen this first hand through companies that I am a shareholder in or an active participant in; we have an incentive to

reclassify anything we can as R&D to try to get HMRC to approve it because of the large tax credit. I suspect that the apparent increase that Stian mentions in R&D spending since 2016 is not as great as it seems or may not be there at all.

On tax, I have a friend who recently sold a technology company for £15 million. He paid about £1 million in tax, and that was very incentivising for him to sell out. By contrast, if he had held on to the company, he would have been paying 25% tax on his profits and they would still be trapped in the company, so he would have been paying another 45% typically on taking money out. The end result would have been a stream of profits taxed at 50%—round numbers—whereas a sellout was taxed at nearer 10%; I am adjusting to 10% because he took advantage of the entrepreneur's relief when it was greater than it is now.

To summarise, there are issues of takeovers, tax and investment by government in technology.

One final thing I would say in the introduction is this. I am not sure if we ask enough questions. Clearly, this committee is very open-minded and is asking questions in this field. But, systematically, one of the things that I found in researching my book was how little we ask about what is going on. I found that government departments did not know how many British workers were working for American corporations, and did not have a good record of the number of takeovers by US and other foreign countries of British companies.

Critically—I would think that this would be a recommendation—when a company is taken over, there is no evaluation of what happened and no asking the shareholders why they sold or the managers why they recommended a sale. It all just happens, and the company is lost. I suspect that the people who sold DeepMind—apart from being interviewed by the press—were never systematically asked by the Government why they sold out.

We have a brain drain—as it used to be called, and probably still is—of STEM graduates, and I do not think there is any measure of how many graduates move abroad for work. We should be recording that, measuring how many move abroad, and then asking them why they have moved. We can guess why they have moved, and we have anecdotal evidence, but we should be doing this systematically. If we are investing a lot in very bright young people who get good degrees and are doing interesting research and then they move abroad, we should be asking why.

**The Chair:** That was very helpful. Stian, did you want to come in on something that Angus has said about R&D?

**Stian Westlake:** I will comment on the point about the amount of R&D. You raise a very good point about R&D tax credits, and we may want to come to this later when we talk about scrutiny and analysis. The R&D tax credit system is very opaque. There is some evidence by John Van

Reenen and others that it works to promote innovation, but I absolutely agree with Angus: there is fairly considerable evidence that a lot of this is going on things that are not R&D. The fact that it is very opaque and we do not know where the money is going—in contrast to other public funding of R&D, which is completely transparent; you can find every grant that we make on our website, the amount and what it goes on—makes it hard for people to do the kind of scrutiny that Angus refers to. That is a clear, simple fix.

The amount that the Treasury gives to UKRI and other publicly funded organisations to do R&D has definitely increased; you see that in the numbers. It would be very convenient for me if it had not increased, because I could go to the Treasury and say that it needs to give us more money, but it can come back and show the numbers. I completely agree that R&D tax credits is a murky issue.

**Q17 Lord Stern of Brentford:** As a footnote, the Government have an incentive to let apparent R&D look like real R&D because it reduces the pressure on them to do more R&D.

My question is related to what you said, Stian, but touches on what Angus said. You emphasised, and I agree, the importance of the combination that R&D comes with. What does it come with? On the whole, it comes with investment. You invest in something new, and R&D is associated with that. If you are tracing low or flatlining productivity, you have to bring the low level of investment into the story, both directly, when it comes to increasing productivity, and when it comes to what we are particularly concerned with here—namely, its impact on R&D. That is the demand side of the story: the bigger the investment, the more the demand for R&D.

The supply side, of course, is the ability and availability of people who can do the R&D. I am just back from China—the Lund University School of Economics and Management has a close association with Tsinghua University, which is the most important university in the world, in many ways—where we visited the Xiaomi factory. Xiaomi is third or fourth in mobile phones but has just gone into the car industry and is doing extremely well; it is doing smartness and safety at Tesla levels, handling at Porsche levels, and is much cheaper than either. We asked Lei Jun, the founder, what the secret to his success was and what the Government did for him. The first part of his answer was that they produced lots of first-class engineers, so that he had plenty of people as he was going about it. Half his workforce is in R&D. That is an indication of the importance of investment driving R&D. Then there is the role of government, as Angus said, in driving the big investment.

I wonder if you could comment on the role of investment in this whole story and the role of the supply side in the engineering. I guess it is a question for you both.

**Stian Westlake:** It is a very good question and one that has been much debated, as you know.

The first thing I would say is that R&D is a type of investment that is complementary to investment in physical capital and skills. There is a very interesting question about the extent to which STEM skills are the limiting factor in the UK. The counterexample that I found quite convincing is the work that Anna Stansbury and Tom Forth have done looking at northern core cities—Manchester and Liverpool, and I think Birmingham counts as the north for their purposes. They looked at the supply and wages of STEM graduates. They were effectively arguing that there was no evidence that there was an undersupply of STEM graduates. Their contention is that the problem that our great northern cities face is underinvestment in R&D and in transport links to turn them into functional agglomerations. There is a very interesting question about which type of investment, whether human capital, R&D, physical—

**Lord Stern of Brentford:** As a two-hander, what Lei Jun was talking about was absolutely first-class engineers, not average STEM graduates; he was talking about the top end of the distribution.

**Stian Westlake:** Your argument is that there might be a constraint on the very elite human capital.

**Lord Stern of Brentford:** Yes.

**The Chair:** Angus, would you like to comment on Lord Stern's point?

**Angus Hanton:** Two things. First, I take his point; it is absolutely right. There is a question around inward investment. We are talking about investment by UK companies and the UK Government, but there is a question of investment from abroad. We welcome inward investment, because, as we have seen with the Nissan car plant, for example, that that means more jobs and more wealth.

In relation to inward investment, what I found, which was quite disturbing, was that it is not measured properly at all. I spoke to the ONS, which was very open about the fact that it completely mixes up into one bucket two things that, to my mind, are chalk and cheese: the inward investment that is real investment in plant and research, and inward investment that is the taking over of existing British companies. It treats them all the same.

It seems to me that, if an American corporation buys an existing profitable company, ideally it would want to raise prices, reduce costs and take out capital through borrowing—I am afraid these are the sorts of things that private equity often does—but that does not seem to be useful to the economy in the way that something like the Nissan development in the north-east was years ago. We should be insisting that the ONS separates these and does a lot more work on the different sorts of inward investment.

The other thing I would say is that the might of US companies is such that they are usually in expansion mode. Think of the building of robots that work in factories; there is constant innovation going on with these. A

company such as Amazon, which is growing and growing, has engineers and researchers whose work is constantly being put into practice. By contrast, a company such as Ocado, which has just made a lot of robot builders redundant, is much weaker and subject to the ebb and flow of business in a way that Amazon is not. There is a bigger picture, in that we should be supporting our companies so that they do not spend a lot of time with engineers and then have to lay them off.

**Q18 Lord Ranger of Northwood:** This is probably a question to you both. Picking up on your point there, Angus, and staying on the value of intangible and human capital, having spent the last 25 years in industry, I know that the main thing stopping us scaling as a global business and doing more—especially in the last 10 years—was human capital. In fact, our investment and acquisition strategy would be based partially on IP, but the majority was based on how many people we were going to procure through any kind of investment purchase and acquisition.

As an example, we spent €3.4 billion buying an Indian pure play. Very little of it was focused on its R&D or IP; it was, in fact, focused on the 40,000 to 50,000 people. Is that preciseness in the value of human capital coming through, or is that something we need to focus on more? I do not see that in the conversation.

**Angus Hanton:** I totally agree. I have a frog in my throat, so I will hand over to Stian.

**Stian Westlake:** This is clearly something that we see in all sorts of businesses: that really valuable employees create a lot of value.

What I struggle with and still find perplexing is why we are not seeing some of that reflected in price signals and the wages that businesses are willing to pay for STEM graduates. Perhaps this comes back to Lord Stern's point that there are two markets here: there is a market for very elite human capital and a different market, where maybe we are adequately supplied with average STEM graduates. If this was a limiting factor, the price signal ought to be telling us this, so I find it perplexing.

**Angus Hanton:** Can I jump in? There is a question about how we issue and deal with visas. Studying the American approach to graduates from abroad, I find that they have a very clever system. Perhaps it is not clever but simple, but it is not one that everyone else does. If you are a company and have recruited a smart graduate to do an important job in your company, the last thing you want is for them to leave, and that constantly happens in the UK, whether they are British or from abroad. The Americans make the visas conditional on staying with the company that sponsored the visa in the first place. This way, if a US tech company recruits an Indian researcher, for example, he or she will get that visa on the basis of staying with that company.

It is common sense and it creates loyalty, but we do not do it. I am not suggesting the company is not treating them well, but it does not get left



in the lurch with people leaving. We really should study how we work with visas and graduates from abroad.

**Lord Drayson:** I have a specific question, building on your point about the need to attract and retain elite STEM graduates. Why is there such a difference between the pay that a post-doc would receive in the UK and in Germany?

**Stian Westlake:** To clarify, do you mean in academia or in business?

**Lord Drayson:** In academia, for a position that you would fund.

**Stian Westlake:** This is something that we continually keep an eye on and try to monitor, to make sure that we are providing fair and competitive rates.

**Lord Drayson:** Could you tell the committee what the difference is?

**Stian Westlake:** I do not know; I could not tell you.

**Lord Drayson:** You do not know what the difference is between a typical post-doc degree funded by the ESRC and one funded by—

**Stian Westlake:** I would have to check.

**The Chair:** Perhaps you could let us know.

**Stian Westlake:** I will.

**The Chair:** That would be helpful.

**Angus Hanton:** Can I just add something on that? I looked at the conditions of professors in the US and the UK and found that quite a large number of academics in the science area were moving from the UK to the US. I spoke to quite a few individually, and the reasons they gave were higher pay, that their housing is more readily dealt with, better prospects for the future, and a lot more admin support. It is a combination of things. It is a package that very often makes it much more attractive for professors and other academics to move abroad.

Q19 **Baroness Northover:** My question is about the scaling up of science and technology. One thing we are looking at is why it seems that so many UK science and technology companies struggle to scale up in the UK, and the perception that the UK is excellent, as far as early-stage R&D is concerned, but that we struggle to reap the full economic benefits from that. Could talk about the factors that you might see behind this problem and what the Government might be able to do about it. I will start with Stian.

**Stian Westlake:** I guess the place to start from is that scaling up technology companies is very hard and something that lots of countries struggle with. There is a tendency to compare ourselves with the US—the largest and richest country—or even with China, which has a large

economy. The first thing to reflect on is that it should not surprise us that this is something that a country such as ours struggles with.

I think we struggle for a number of reasons. The first reasons, which Angus mentioned, is access to finance. There are legitimate reasons why entrepreneurs will want to exit their businesses. Some entrepreneurs will want to stay with their business for ever; others will want to exit. The question is around making sure that there are opportunities to reinvest in companies where the entrepreneur wants to stay, but, equally, that there are opportunities to provide liquidity for those who want to exit.

That comes down to how available risk capital is, particularly equity capital. One challenge that we face in the UK is that our pension funds—our institutional investors that we would expect to provide those sources of capital—are highly fragmented, which means that it is hard for them to do the due diligence required to invest in venture capital. Obviously, the current and previous Governments have put quite a lot of effort into trying to change that, but this will be the work of potentially a decade or decades to make this work, because it requires changing institutional behaviour as well as changing incentives.

Planning provides a challenge here. I recall from various visits to places such as the Oxford Science Park—full of interesting, technology-backed businesses—that entrepreneurs struggle to find space to scale up their businesses and their staff struggle to find housing at an affordable price. Housing in Oxford and Cambridge is virtually as expensive as it is in London. Although you would not think that that would stand in the way of a fantastic business, at the margin it makes things less likely to work. The flip side is that, in our great cities outside the south-east, poor transport links and potentially underinvestment in R&D constrain the ability to create R&D-led businesses.

In an ideal world, we would want to see deep pools of capital available, either for scaling up businesses or for entrepreneurs who want to exit to recycle capital in the UK. Entrepreneurs exit a lot in the US as well; it is just that those companies often stay in the US. We would want to see planning laws so that it was easy to physically expand businesses and build on the clusters. Over time, we would want to see networks of cashed-out entrepreneurs who are able to reinvest in the next generation of businesses as angels, and pension funds and other institutional investors that increasingly got the taste for investing in VC because their previous vintages of investments did well. All those things would help, but would take time and support, both from the Government and from financial institutions.

**Angus Hanton:** I agree with that. The US and China have the advantage that they can develop a technology for a huge home market and then export it abroad—an advantage that smaller countries do not have, though Ozempic and others have shown that that can be done. We need to be aware of that and counter it by encouraging scaling up through selling into foreign markets.

What the Germans are so good at is encouraging companies to develop in a niche. That is the basis of the *Mittelstand*, is it not? Each company has one thing or one area that it does well, and then it exports across the world. That is something that—in the ways that Stian has said, with planning and local support—we ought to do more of.

There is a fundamental difference of view between the way that the Germans and Americans and the British think about their technology companies. The British are very focused on an exit strategy, and that applies to the entrepreneurs who build it up, the staff who are given share options, and investors. Right from the beginning of the development of a tech company, there is a lot of talk about exit strategy, and many of the tax advantages are given for when you sell out—for example, for venture capital trusts, you pay zero capital gains tax.

I do not think that is a good approach generally. We should not be thinking of an exit strategy; we should be thinking of growth strategies. We should be encouraging founders to stay with their companies; encouraging individuals who are getting share options to be looking at those options as meaning that they will collect a dividend in due course, which should be tax advantaged from those shares; and encouraging investors to be thinking of holding for the long term.

Warren Buffett said, “My ideal holding period is forever”. That should be our approach to our tech companies: the ideal holding period for shareholders and the country should be for ever. That way, we would not get issues such as with Arm, where the shareholders just said, “We can’t resist taking a profit”. We can see that, had they held on, they would have done a lot better and seen the company grow. The whole approach to the longer term for investment in technology should be challenged.

**Lord Borwick:** Talking about international competitors, perhaps apart from America and China, they have been able to invest in science and technology. What are the ways that they have achieved it?

**Stian Westlake:** There is a wonderful social science concept that I ought to throw in here called Cardwell’s Law: the idea that small countries—particularly those that are under some kind of external threat—for whatever reason, seem to be unusually good at backing research and innovation. Some examples are Estonia, which is fantastic at backing innovation and R&D, and has a prominent external threat and a history of that; Finland, similarly; Taiwan, which has an extremely successful innovation economy; and Singapore. What is interesting about this—what the political scientists who have looked at this said—is that it encourages their institutions to think together about and coalesce around what their national mission means. It helps smooth out some disagreements about what to do and what the model should be.

Some people will controversially put Ireland in this category, given that Ireland has always had a perception of itself as not being in the UK. Ireland’s economic development strategy over the last 30 to 40 years has been extremely interesting. To Angus’s point, in some ways, it is very

dependent on the US, but it has been a very successful economic development model, including a lot of moving up the tech stack; for example, Ireland dominates telephone tech support, which sounds quite low-tech but is actually quite sophisticated and an advanced business to provide. Similarly, Estonia and Taiwan have managed to co-ordinate the investment that they do because their political establishments pull together.

We cannot necessarily generate an external threat; we may have external threats forced upon us. But take the question of bringing together different things that the Government do—government procurement, regulation of products, financial regulation, and therefore the availability of pools of capital. If we look at countries that have managed to pull together against external threats, that might give us some ideas about what the UK could be doing.

**Angus Hanton:** That is a very helpful answer, Stian.

One thing that other countries have done successfully is they have had a policy where the Government, where they sensibly can, spend their money on local or national companies, rather than buying from abroad. This is a serious problem for the UK. For example, the NHS was recently tendering for a cloud supplier and ended up with Oracle and other US companies holding all their data. We ought to have a policy of buying British. The Americans and Europeans have such policies; all these smaller countries that have been mentioned have a policy of buying local when they can. At the moment, we are completely agnostic as to where we buy.

When I asked the NHS if it could break down its suppliers by country of ownership, it had no idea, and the tone of its response was that it does not care. It seems to me that we should care, and we have a big government buying agency, the Crown Commercial Service, which makes no reference to it in its policy. I am not saying it should be Little Britain, where we only buy British, but surely we should have a preference for it and policies that use the huge buying power of government—particularly in defence, the NHS and education—to promote British businesses.

**Lord Borwick:** To what extent is the cost of the things that they are buying relevant here? Would you say that you should buy in England even if it is 5% more expensive or 1% more expensive?

**Angus Hanton:** In their buy American policy, the Americans use a figure of about 10%. It is not always a question of price; it is sometimes a question of recognising the development of a new industry.

**Lord Borwick:** I understand that there are certain advantages in buying in your own country, but the defence that the procurement people would give is that they are buying it cheaper.

**Angus Hanton:** We have seen in recent weeks, have we not, that people have suddenly started saying that it would be rather nice if we were

buying from firms we completely trust that are not under the influence of a foreign Government.

I have mentioned it before, but the British have sold out three defence companies in the last five years—Cobham, Meggitt and Ultra—to American acquirers. You may say that I am just going on about acquisition again, but those defence companies were doing technology and important developments.

**Baroness Neville-Jones:** And some of it very sensitive.

Q20 **Viscount Stansgate:** My question is primarily for Angus, though you have both touched on the area I am going to raise. From your research and discussions, do you have a good sense of why so many science and technology companies move to the US? Do you think the Government know why we are seeing this flow of talent and capital out of the UK and capital markets? Could we do more to understand the problem in practical terms? If so, how should we go about doing it?

**Angus Hanton:** That is such a good question. We should be interviewing those individuals and companies who leave and asking why they do so. Of course, a company relocating to the US is one way in which investment moves there. The other way is when a company that is already here is bought by a foreign acquirer. These are different and both undesirable from a national point of view, I would have thought. It is a pertinent question and something we ought to be asking not just each other but the people who do the moving and investing abroad.

I suppose you are asking me here to guess at the answer. My sense is they will refer to bigger markets, quality of life issues, more support from government, and probably lower tax rates, all of which will be more attractive to companies locating abroad. We want to keep them here.

**Viscount Stansgate:** In that case, what recommendations would you have for us to try to prevent it and encourage science and technology companies to scale up in the UK? After all, the inquiry we are undertaking is with a view to producing recommendations. This is your chance to tell us what you think they should be.

**Angus Hanton:** It should be a combination of all the things that we have talked about. We should be giving them more support through government purchases and tax concessions. Tax affects all sorts of things. For example, business rates are fine for very small companies, but as soon as you get to any size, it is quite a crippling cost for the sorts of businesses that use a lot of space. Of course, technology covers a lot of areas; some businesses do not need much space at all, and some are very space intensive. We should be encouraging companies to be able to employ foreign graduates and for them to get visas here, where they are specialists in that area. Stian, what do you think?

**Stian Westlake:** All those things are right. To Viscount Stansgate's initial point, it is worth acknowledging, if we have not already, that we should not be surprised—even with good policy—if the US attracts a lot of

high-potential businesses. It is the world's largest market; it has, at least hitherto, been an extremely business-friendly country; and it has very deep pools of capital investment. In the same way that, if we were analysing a rocket launch failure, we should not be surprised that the rocket falls to the ground if it does not take off, we should not be surprised that there will be a natural pull of businesses to the US.

You are absolutely right to ask how we can mitigate that and make the UK a place where companies want to stay. I agree with Angus. We need deep pools of capital and planning to make it easy for people to set up and establish themselves in the UK. We need to continually keep vigilant around the tax release for entrepreneurs.

With all those investments, what we need to recognise is that many of them have an effect that accretes over time. We talked earlier about angel investment. Think about, for example, the late Mike Lynch, who in my opinion was a great British tech investor. Mike exited from Autonomy and became an angel investor, along with many of his co-founders and original employees, and they nurtured the next generation of businesses. Another example is Darktrace, which is a great British start-up that has come from the Autonomy stable. Similarly, you can trace Arm to some of the early semiconductor entrepreneurs. These things build up over time.

One reason America is a fantastic place to be a tech investor is that there have been generations of previous tech investors who created the conditions. Sebastian Mallaby's book on venture capital is fantastic at telling the story of how generations of venture capitalists and entrepreneurs make it easier for the next generation.

As well as recognising that there is a strong rip tide that we need to fight against here, we need to recognise that our efforts will have to build over time; there is no single thing that we can change that will suddenly stem the flow or change things.

**Q21** **Baroness Walmsley:** I have no relevant interests to declare. I have two quick follow-up questions, one for each of you.

Stian, for the second time, you have mentioned the deep pool of capital. I would like you to tell me where we can get it. It sounds like a naive question, but it is probably more complex than it sounds.

Angus, you have just talked about a whole range of positive things we should do to try to encourage companies to stay here. On the opposite side of the scale, I want to ask if you think there are more regulations we should be putting in place to make it more difficult for them to scale up somewhere else.

**Stian Westlake:** I guess if we start from where the money comes from in the US, a lot of it comes from institutions of one sort or another, and particularly from liberalisation in how pension funds and university endowments that started in the 1970s and 1980s were allowed to invest. The fact that you had US universities with vast endowments that could spend money helped; those represented a lot of early investments.

Private philanthropic organisations have invested a lot in venture capital, and some large US institutional organisations—for example, CalPERS, the California state pension retirement fund—have been and continue to be big venture capital investors.

How do we do that in the UK? To some extent, we face a disadvantage, in that the US is very rich—richer than anywhere else—but again, there are things that we can do. The Government have been working for a while on the LIFTS programme, which the British Business Bank is running, to create institutional vehicles to encourage our financial institutions to invest in venture capital. We have a fairly good idea that that works gradually; we know that, for example, Israel used the state very effectively to back its venture capital sector, which grew a lot in the 1980s and 1990s. That will help. At the same time, moral suasion on the part of the Government to try to encourage pension funds will help as well. Part of this is a cultural issue. Ultimately, there are difficult nettles to be grasped.

Part of the problem is the fact that our pension funds are very small. When I ran the Royal Statistical Society, we had a defined benefit pension scheme, with a single-digit number of millions of assets under management. We were not sophisticated investors, and there are many pension funds like that in the UK, as you know. You then get into the territory of asking whether you want to encourage consolidation of pension funds, which I realise is a very big financial reform challenge. I do not want to venture any further into that, but that would be a big battle to pick.

Similarly, people ask whether we should have state pension funds that are actual funds rather than pay-as-you-go commitments, in the way that Australia, Canada and some US states have. Again, that would be the work of a generation and a very significant change, but it would be another way of creating those pools of capital.

I realise all the things I am saying are not easy, but those are the sorts of things that you would need to do.

**Angus Hanton:** There is a lot we can do in regulation to say that we want the regulations to be as we want them in this country and not as they happen to apply in the US, but there is also government buying. I am speaking to you via a Zoom link; this is a Californian-based organisation. With the technology that now exists, it is much easier for the UK to have its own platforms, and we ought to be supporting platforms that allow video links, for example, hosted by UK companies.

It is slightly absurd, is it not, that the town square in the UK—Twitter, Facebook, Instagram and so on—is controlled from California. There has been a reaction away from Twitter, partly connected with its current owner, to move to Bluesky. But Bluesky is another Californian company. We ought to be encouraging our own companies to be hosting the discussion we have about our own issues.

There are a couple of other issues as well. For any company, it is a huge advantage over a number of years to be paying little or no tax, and that advantage compounds up terrifically. The big five tech companies in the US have really benefited from this. We know they have paid relatively low amounts of tax where they have paid any—though they have always paid some, because they have to pay national insurance and so on.

The digital services tax, which is much discussed at the moment, is a very modest tax. Philip Hammond said to me, "I put this in as low as I felt I could that would still be meaningful". That is a low tax, and yet the Americans are fighting tooth and nail against it. I do not know if this covers the area you are thinking of—regulations—but we ought to make sure that we tax US companies fully.

One thing that often goes unnoticed is the hidden costs. If you are Amazon, producing huge volumes of cardboard and distributing it to customers, and the customers put it in their bins or recycling bins, there is no payment by the company for the infrastructure that the British supply in order to get rid of the packaging. That is true not just of that; it is true of the telecoms network, which is mostly supplied by BT but which is used by all the streaming services in the US, which are doing handsomely from it. The French have raised this issue as well, about how their telecoms network sponsored by the state is being piggybacked by profitable US companies.

We should be looking at who pays for what and making foreign companies pay their way. They are very profitable here, and we are subsidising that by providing the infrastructure. That is not just direct things—I mentioned telecoms networks and waste recycling—but the whole structure that we pay for, including our law and order system and Parliament. These are all things that indirectly they are benefiting from in a system where the rule of law applies; we should be making them pay their way.

**Q22 Lord Drayson:** Angus, you have already very clearly explained the inherent problem in the way we measure foreign direct investment. I would like to probe further the cultural reasons why the UK is such an outlier compared to other countries in its attitude towards foreign ownership of UK assets. Do you have any insights you could share with the committee as to what might cause this or is causing it and what could be done about it?

**Angus Hanton:** No discussion about the history of our attitude towards the economy is complete without a reference to Margaret Thatcher. One thing she did, which was very much needed, was to deregulate and reduce the size of the state. I am sure all political parties agree with that now.

But encouraging private capital was unnuanced, as it is now; it tends to be a bit unqualified. We ought to welcome it in certain circumstances and in certain ways, not unquestioningly. That is true of foreign ownership as well. I am certainly not anti-American or anti-foreign investment. We



should not be against it, but we should be cautious about it and say that we are not accepting foreign ownership without question.

In Europe, there is a big strand of not quite anti-Americanism but caution about foreign takeovers; you just cannot imagine the middle-sized German companies being taken over in the same way, or us accepting them being taken over. One reason for that is that they are embedded in their communities, and we should encourage more of that. We used to have that with the shoe company Clarks, down in Street, in Somerset, and with Cadbury, in Birmingham, where there was a symbiotic relationship between the company and its community, with apprenticeship schemes that were open to local young men and women. Instead of being purely about profit maximising, such companies spend money building facilities for the local community, and the council is more willing to accept developments by that company and is more encouraging of them.

Perhaps part of the cultural reason for why we are such an outlier, as you are asking about, is that we have allowed ourselves to abandon the close relationship between the town council and the local firms.

**Lord Drayson:** Do you think that an attitude towards foreign ownership and the cultural reasons behind it are linked to the attitude within government towards procurement? You mentioned cloud services. I remember that, maybe 10 years ago, there were UK sovereign cloud companies.

**Angus Hanton:** Absolutely.

**Lord Drayson:** But there was no sense of the UK Government—whether it was for the NHS, defence, or any other area of government—valuing the fact that these were UK-owned businesses and not foreign-owned businesses, or in the case of the cloud US businesses. What is behind that?

**Angus Hanton:** A total lack of vision by the Government in their buying. This was a known area that was going to grow rapidly: cloud computing, which is basically storing data in an accessible way, and not just storing it, but also being able to process it in the cloud. It was clear in the early 2000s that this area would grow and that the Government would soon be spending billions of pounds on it—I almost said dollars. I do not think this requires picking winners—again, to use a historically loaded word. We know that Government have not been good at picking winners. Those of us who are investors are also aware of our weaknesses in picking winners. We should have a policy of saying, “This is an area that is going to grow”, and we should have a preference at the margin.

In many different ways, we should be encouraging British businesses in those sectors. However, there is no point in encouraging them if you are going to then allow them to be taken over. You encourage and encourage them, they become significant in their field and then, bam, they get a foreign takeover, so you have not ended up where you want to be with a

British-owned, British-run business, based in Britain. Where a business is based is really important because you get these hometown advantages—I alluded to that with Cadbury's. We really lose out by not having businesses based here. Often the best that we have is that we are a branch office of an American corporation.

**Stian Westlake:** I just come in on the question about how to make the procurement of businesses work. I have observed that this is something that requires very specific sectoral knowledge on the part of bits of government. What that means is that it is hard to make work the argument for saying, "Let's have a blanket policy on procurement and we will either buy British or buy from tech companies".

Let us look at one particular area. Defence is obviously very salient, but this could also be procuring one particular type of healthcare-related solution or looking at some aspect of, say, criminal justice and prisons policy. In that area, if a department or public body can clearly identify what its innovation needs are, what things it wants done and whether it can supplement that with the data that it has and its knowledge of its own procurement plans—where its budget lines are—you can set up teams that work.

We have a number of mechanisms that the Government have been using for a while, most particularly what used to be called SBRI, the Small Business Research Initiative, which is now called Contracts for Innovation after it changed its name. A piece of work has been done by the Cabinet Office over the past year to connect that long-standing bit of procurement into mainstream procurement in a programme called the competitive flexible procedure. What makes that work is building the capability in one bit of the Government to make it work.

An example that I have seen that looks quite promising is that Lord Timpson—your fellow Lord, who is Prisons Minister—is able to articulate very clearly the innovation needs within the prison services: preventing drone access or rapid drug tests in prisons. There are some specific technological needs that they know they want, and they are now putting in place the ability to say, "We will fund research into these things by businesses, and then we will procure from those".

Building that capability, where a department really knows what it wants, is the way to start. If you do that in enough places, there will be a flow of procurement. That approach probably works better than saying, "Let's have a target across government", but without the knowledge of what the business sectors are.

**Lord Stern of Brentford:** Can I just follow up on that point? It is very important. To pick up on what Angus said, if I understand it, priority areas are fine—indeed, a good idea. They can be green technology, pharmaceuticals, various aspects of the future of computing, AI and so on. We can discuss what they might be, but having priority areas and understanding possible comparative advantages in the UK are very important. Those two things are company blind; they are not picking

winners, which is a very important part of the story.

I was a little worried about some things Angus was saying. There is a long history in economics—you will know that that is my neck of the woods; we do that too—of protectionism producing high cost and inefficient outcomes across the world, including in the UK. I just want to push back a little on that and ask you to come back on the point of how far we are steering in promising directions—important directions—looking for good potential within the UK, but not being absolutist on buying British, because that is a slippery slope.

**Stian Westlake:** You are absolutely right. One lesson of the post-war period was that British productivity suffered for a significant chunk of it because there was very little competition for a lot of large domestic firms; Nick Crafts certainly made that case very convincingly. I completely agree with your point that the way we should be using procurement is that we should know what the comparative advantage of particular sectors are, what government's needs are, and where government genuinely need innovation versus buying commodity services.

We should appropriately use non-discriminatory tools, such as innovation procurement, where anyone can win the challenge; any likely business can win the contract. But even that will make a potentially significant difference because it provides a source of future revenues and therefore makes it easier to raise finance. I completely agree that competitiveness is incredibly precious for productivity and, if we lose that, the potential benefits to the national economy are probably that the game is not worth the candle.

**The Chair:** This is a very interesting session. Thank you very much to you both. We have a lot more questions, so I am going to ask everyone—both the members of this committee and the witnesses—to be as brief as you can. Baroness Young, you wanted to come in.

**Baroness Young of Old Scone:** Yes. We talked briefly about LIFTS, but I wonder whether you think enough action is happening on the Mansion House pension scheme issue. It has gone quite quiet recently.

**Stian Westlake:** The impression that I get from the Treasury is that it still cares a lot about this agenda and will continue to push it forward. A challenging thing about trying to attract money into venture capital is that we need to push a certain amount, but we know that, in the past, there have been examples in other countries where, if you push too far, you undo the good work because you effectively get people putting money into bad schemes. Canada had this notorious scheme in the 1980s and 1990s—the labour-sponsored funds scheme—where effectively they jacked up the incentives of VC investment to such an extent that they ended up getting a bunch of malinvestment and things did not work out.

The challenge is to strike a balance between pushing hard enough and providing the direction for the industry and appropriate tax regimes as

much as possible, but not going so far that you end up encouraging malinvestment in schemes. It is a fair question, and this committee should keep on the Treasury to make sure that it keeps on pushing on Mansion House, British Business Bank and LIFTS. The impression I get is that it still very much cares about this; I do not think there has been a diminishment in energy since the change of Government.

**The Chair:** Angus, do you want to add to that?

**Angus Hanton:** I have nothing to add, sorry.

Q23 **Baroness Neville-Jones:** My question has been considerably overtaken. There was a question about a change in the basis of financing and the rise of debt financing, which is not a mechanism used much in this country. Would you like to say something more about that? You have written on that subject in your book. Do you think that we and our banks have anything to learn in that area?

**Stian Westlake:** There is something that banks could potentially do here to help because obviously most businesses will be reliant on bank finance. Venture capital is relevant for a small and important minority of businesses, but it will only ever be small. One potentially interesting thing that banks could do here is to take more seriously the value of intangible capital like R&D and patents in thinking about the creditworthiness of a business.

Something that is fascinating and depressing about British bank lending is that, because businesses increasingly rely on ideas and do not have a bunch of machines that can be collateral against loans, when UK banks make small business loans, they typically look to the one tangible asset that an entrepreneur will typically have, which is his or her domestic house that they live in. You have this fascinating effect that you can measure. House price variation and the difference of house prices in different areas directly drive banks' willingness to invest in intangible intensive businesses, which is terrible. You can understand why the banks behave that way—they want security on their loans—but this effectively means that you are much more likely to get a loan if you are richer rather than poorer, because you own a house, or if you live in the south-east of England, where your house is likely to be more valuable.

**Baroness Neville-Jones:** Can you compare that with what goes on in Germany?

**Stian Westlake:** Germany is interesting because home ownership rates are obviously much lower there, so your modal entrepreneur is perhaps less likely to own a house that you can take as credit. The equity analyst, Daniel Davies, has done some really interesting work on this. He used to study German banks. When German banks are doing small business loans, they often take something more akin to a warrant, so they have an equity-like stake in businesses, which is potentially very interesting.

There is a question about how you would want British banks to do this. Do you want them to value intangible assets in their lending? Is there

work that they could do to take more equity? It feels like if one could persuade banks to think more like that—like owners of these businesses—that would be valuable.

**Baroness Neville-Jones:** Do they have the Wiederaufbau structure?

**Stian Westlake:** KFW, yes.

**Baroness Neville-Jones:** I think that is government-financed in practice.

**Stian Westlake:** Yes.

**Baroness Neville-Jones:** Is that something we ought to emulate?

**Stian Westlake:** The British Business Bank has learned a lot from KFW and its model. What is particularly interesting is that the German banks that are making these warrants—these equity-like investments—are just normal German Landesbanks and commercial banks. Even further down the banking system, they have responded to the fact that they cannot rely on entrepreneurs to have homes that they can loan against in order to innovate financially.

**Baroness Neville-Jones:** Do they take intangible assets into account more? Is it a different attitude to what constitutes value?

**Stian Westlake:** Implicitly, they do. If you have a warrant, you have some interest in the upside of the business, so that is more likely to be relevant to an intangible, rich business where, if the business goes bust, the intangibles are often worth nothing to anyone else. They therefore think a little more like that. Germany has a tradition of more community-based lending, where the bank will pay more attention to the reputation of the business.

The challenge is that bank business lending does not make a lot of money, so the incentive for UK banks to spend management, time, processes, and taking risk on these things is low. However, as the economy becomes more dependent on intangible assets, we have a choice: either banks will have to find a way of doing this, or bank lending to businesses will shrink and shrink until we have even worse capital constraints than we already have.

**Baroness Neville-Jones:** So they are narrowing their own market unless they learn, are they?

**Stian Westlake:** So it seems.

**Angus Hanton:** May I add something? Most tech companies do not suffer from a problem of paying tax because they have the R&D tax credit; they are investing and will be paying tax later on if all goes well. The problem comes later on when they start to become profitable.

In the background now, we have something that we never had 20 years ago: we have these private equity investors—not quite like sharks, but

perhaps not entirely different—swimming around, looking for opportunities where they can extract value. They are mostly, but not entirely, American. This is a real threat to tech companies that have started to generate income and get into some difficulties, or their shares are available more cheaply.

There is something very definite that we can do about this, which is not to allow private equity to take interest payments off their profits—in other words, not to allow interest payments to be tax deductible—because the effect of interest payments being tax deductible is that it pays to borrow. A company that is otherwise doing well can be taken over by private equity and geared up; there is huge pressure, but it suits private equity because they can effectively have a profitable company where their financial engineering means they are not paying tax on their profits. A bigger change is needed to restrict the ferocity of these background financiers, who I have suggested could be thought of as sharks who are in the water where sometimes the tech and growth companies are operating.

**The Chair:** Lord Lucas, you were going to ask a question that I think has been asked by Baroness Young. Is there anything else you would like to ask?

Q24 **Lord Lucas:** Generally, is there anything that we can do to make the Government or Treasury much more entrepreneurial and energetic in exploring some of these ideas? Why should we allow pension funds tax relief and then not insist that they have a decent proportion in UK investment? Why do we not explore funded pensions? Why do we not use the golden share as a mechanism for procurement preference? Why do we allow R&D tax credits to carry on in an inefficient way? Why do we not link them to patents? There are all sorts of ideas out there. The Government do not seem to be participants in looking for solutions. Is there some structural problem we could address?

**Stian Westlake:** There has always been a challenge that the Treasury has three jobs: it is an economic growth ministry, but also a finance ministry and a budgetary ministry, and it always struggles to prioritise those things. Increasing the resources that the Treasury has to think about economic growth would be beneficial; that is always unpopular because it means paying more wages for more civil servants to work in offices, but this is something that could be important. Specifically, on the Mansion House pension thing, I feel that its heart is in the right place, and it is continuing to push.

One thing that you mentioned that could be a step that it could take relates to R&D tax credits. It is simply increasing the transparency of R&D tax credits so that, for example, if a firm claims an R&D tax credit, it is documented and on the public record, "This firm claimed this much R&D tax credits", with even just a one-sentence description of what it was. You do not necessarily have to give away the precious intellectual property—I would not expect people to do that—but, in the same way as when we make a research grant, we say what it is for, we would say what

the R&D tax credit is for. That would probably be a big step towards addressing the very important issue that Angus raised earlier, which is that this is opaque, and considerably more so than the rest of the R&D system. Perhaps that small amount of transparency might make a big difference because a lot of taxpayers' money goes on R&D tax credits.

**Angus Hanton:** Can I just jump in? It is lovely to see you, Lord Lucas, and it is such a good, profound question about how we can make civil servants more knowledgeable about what happens in the outside world. It is not easy, and it is probably true of MPs as well. There are plenty of Peers and MPs who have business experience, but probably fewer in comparison with other countries—I think particularly of the US. I wonder whether there could be some sort of secondment scheme where senior civil servants spend a month—or even a week—each year in a business to learn how it works and what makes it tick, perhaps working with the finance director. It would be fun, which is nice, but also very educational. We need to stop politicians, civil servants, and indeed businesspeople operating in such narrow silos where we do not understand each other's challenges and motivations.

Civil servants and politicians are constantly wondering how they can change people's behaviour, which is a large part of what this committee is considering. I do not think that we can do that until we understand in detail what motivates their behaviour at the moment. Some sort of systematic secondment scheme could be helpful.

**The Chair:** Lord Drayson, you have a question on industrial strategy.

Q25 **Lord Drayson:** As you probably know, the Government are developing an industrial strategy right now and have declared their number one priority as addressing economic growth. What should be in this industrial strategy to address this problem?

**Stian Westlake:** The industrial strategy is obviously a really big opportunity, and we very much hope that we will consistently follow it once it has been put in place. There are a few things that it could be very useful to do. The first thing—as we have talked about before—is linking government procurement to innovation investment in particular areas where it is relevant. We know that defence and the creative industries are sectors where the Government are a procurer of what goes on in various ways, so making sure that those connections inform the process and investment is the first thing.

Secondly, there is a real opportunity to do some institution building in some of these areas; the creative industries are, again, a great example of a successful UK sector that is one of the industrial strategy sectors. There are some very interesting questions around the use of creative content in an age of AI, and some really big issues about how to make sure creative content is fairly rewarded and how to discover prices for that. The Government could play an active role in this by helping to shape markets and build institutions to make that work. It is risky; you might try to do that and fail. It is not like making R&D grants where you

know some R&D will get done one way or another. If you want an ambitious industrial strategy, however, you would probably want to do some things like that where markets are missing and you could develop things.

**Lord Drayson:** Can I just ask a follow-up question? For the UK Government to do that, they have to make a choice: are they going to align themselves with the US or European view on that? Would your recommendation be to go with the US or Europe? It is part of the negotiations that are going on right now.

**Stian Westlake:** I genuinely think that there is something of a middle ground here where you say that you want to reward creatives for their contributions, but you fundamentally believe that AI is valuable. There is a view that you get—certainly in some parts of the debate in Europe—that fundamentally says, “AI use of creative content is effectively bad”, and you want a system that will, for the most part, discourage it.

Equally, as you imply, there is a US view that is, in effect, based on fair use and says, “Actually, you don’t really need to reward creatives at all”. We genuinely do not know the answer here. There is a question about whether one could set up an institution so that creatives are rewarded, but the content gets used.

**Lord Drayson:** To invent a middle way.

**Stian Westlake:** To effectively create a market where there is not a market. You could also say the same with sovereign data, which is obviously outside creative content, but how do you decide?

**Lord Drayson:** Angus, what should be in the industrial strategy?

**Angus Hanton:** Oh, so much—definitely growth and a strong relationship between academia and industry. I know that several people on this committee have done a lot on that, including the chairman. There should be a real emphasis on supporting businesses, not when they face financial difficulty particularly, but supporting them in their growth. It is possible to do something like the French have done; they have an organisation that owns over €100 billion of stakes in French companies, which allows them to support those companies and protect them from foreign takeovers. That would be a sensible approach. To take the dichotomy you have identified, that would be a more European approach than American.

An industrial strategy probably needs to be cross-party; that is pretty important if you are talking about anything that is strategic. As everyone in this group will know, we have had too much reversal when a different ideology takes over. Just because there is a strong majority by one party at the moment—there are four and a half years to go until that gets reviewed—it is very important to get buy-in from Lib Dems and Conservatives on whatever the strategy is. I suppose that my answer is that one big feature of it is that it should be long term. A fundamental



problem with our policies generally has been that they are too short term.

Q26 **Baroness Walmsley:** My question is for Angus. A lot of the issues that you raised in your book have become a lot more salient since the re-election of President Trump. In fact, I must admit that my eyebrows were raised very high indeed by the extent of US involvement in British business; I had not realised how very deep and large it is. It shed some light for me on our current Government's desire to get very close to the United States; it is about a lot more than tariffs. Can you say a little more about which directions the Government should go in trying to protect the national interest in the light of the issues that you have raised.

**The Chair:** Angus, can you hear us?

**Angus Hanton:** I can hear you, yes.

**Baroness Northover:** We can hear him.

**The Chair:** Are you able to answer Baroness Walmsley's question?

**Baroness Walmsley:** Did you catch the question, Angus?

**Baroness Neville-Jones:** There is still something wrong, is there not?

**Angus Hanton:** Yes. If you can hear me, I can answer it.

**Baroness Walmsley:** Thank you. We can.

**The Chair:** We can hear you, Angus.

**Angus Hanton:** I am probably the only one to have benefited from Trump in terms of promoting the book. Oh, we have a technology problem. Perhaps Stian can answer first, and I will sort out my technology.

**Baroness Northover:** Keep going.

**The Chair:** We can hear you.

**Angus Hanton:** The Government are in effect [*Inaudible*]<sup>1</sup>, and the lions have been allowed to get out of their cages. We should not criticise the American corporations for acting like lions; we should get them back into their cages. We need to regulate them, tax them and stop them taking over all our companies. That is the fundamental problem. We have some challenges on that in that we have [*Inaudible*]<sup>2</sup> the large tax havens, the British controlling of the [*Inaudible*]<sup>3</sup> avoiding tax. The US takeover of our companies is a real challenge, and as Baroness Walmsley says, there are far more parts of our economy that are controlled by the Americans than we realised.

---

<sup>1</sup> Angus Hanton has remarked here: "acting as zoo-keepers for a group of lions"

<sup>2</sup> Angus Hanton has remarked here: "responsibility for most of"

<sup>3</sup> Angus Hanton has remarked here: "tax havens they are using for"

**Lord Berkeley:** Angus, just to carry on the theme of R&D and defence, for years we have bought equipment from the US—be it planes, naval ships, guns or whatever—that we cannot use without their permission, and you will be aware of that. That has been fine for the past 40 years or so, but if the relationship between the UK and the US is going to change, is it sensible to keep on researching equipment that is being manufactured by US companies if we cannot use it when we might want to use it? Should we have a complete shift in our defence procurement policies? I ask you both.

**Angus Hanton:** Yes, we should be shifting to becoming an independent country, not a dependent one; particularly, as you say, as we have become technically dependent on the Americans when we buy their weapons. I have noticed over the past 10 or 15 years that people have stopped referring to independent nuclear deterrent because, in reality, it is pretty clear that not only are there no circumstances we could imagine using it independently of the Americans, but we probably technically cannot anyway. That is just one example; I think that is true of others and, of course, Ukraine has thrown this into sharp relief. Yes, we should stop buying things where someone else has the key.

**Lord Berkeley:** Is it just the US we should be independent of, or should we be independent of France, Germany or others?

**Stian Westlake:** This is a good question, and it is very important that we do not throw out the baby with the bathwater here. It is important that, when we look at areas of public importance, whether that is defence or health, the Government should be considering what level of international dependence is acceptable where, for example, national security is relevant. We know, as Lord Stern mentioned earlier, that trying to adopt an autarkic view, where we block ourselves off to trade, has disadvantages in terms of both competition and lack of partnership.

It is interesting to look at some of the defence projects; one of our promising defence projects that is less reliant on the US is a UK-Italy-Japan fighter project—I forget the name. We are quite grateful to have that partnership in place now. The question is not so much to say Britain must be independent in all these things but that, where international strategy matters, we choose our alliances and have a portfolio of alliances to make sure that we are resilient to problems that might happen.

**Lord Berkeley:** We have to stick to our strategies and our friendships, if we can.

**Stian Westlake:** If we can.

**Baroness Neville-Jones:** It is access to the technology that matters. There is a difference between not having the key to an American weapon and sharing the technology with the French. I would not dream of buying a French weapon where I could not control the technology as well; it has to be shared, and that applies to the fighter with the Japanese and the

Italians, which is a different issue. It is sharing the cost, the weight of the thing and the market.

**Stian Westlake:** As a matter of principle, Britain is in some ways a big country but, in the global scheme, we are a relatively small country, and so broad partnership—not dependence, especially in strategic matters—is important, whether we are talking about defence or R&D more generally.

**The Chair:** We need to move on. We still have more questions for you because you have such interesting information and views to share with us. Baroness Young, the question that you were going to ask on procurement has been asked.

**Baroness Young of Old Scone:** It has, but I just have one last bit of it to read. I am assuming that we have already missed the boat on some of the big data systems and platforms, and that it will be new stuff where we have to think about whether it is strategic for us and therefore needs to be developed in ways that are not solely US-owned.

**Stian Westlake:** That is correct. To give an example that is relevant to UKRI and ESRC, we have been building an enterprise resource management software system, a very standard thing that many companies do all the time, and we work with Oracle on that. That is a commodity product. I do not think that it would be appropriate to say that we want to foster the new UK national champion in data systems, but if we are talking about, as you mentioned, new and emerging technologies—things that do not necessarily exist yet—using government procurement as a tool to spark innovation is very relevant. That is where procurement can really play a role.

**Baroness Young of Old Scone:** Do you not think that our ongoing continued reliance on many of the big systems that are globally dominant is a problem?

**Stian Westlake:** It depends. If we are talking about defence and issues of national security, we need to think about these kinds of things. If we are talking about word processing, there is clearly a judgment call to make in terms of technology security, but it feels to me that you would need quite a high threshold to believe that we should have a national champion in an established sector like that.

**The Chair:** Lord Stern, we have already had quite a lot of conversation about R&D, but do you want to ask something about the Treasury?

Q27 **Lord Stern of Brentford:** We have talked about the measurement of R&D, and your point about transparency is extremely important. We have talked about methods of fostering R&D, including through its finance. My question in relation to the Treasury is about understanding the impact of R&D; you have to be able to measure it and foster it but, without an understanding of the impact of R&D, you do not have a strategy. There are 2,000 people in the Treasury, and finance and expenditure are huge parts of that work.

My question is: how good are we at understanding the impact of different aspects of R&D in clusters, particularly in the big systems of cities, energy, transport, land, water and so on? Should we be able to do better in understanding the impact? Unless we do, the whole policy formation is undermined. In answering, could you comment on whether other countries do it better than we do and what the international experience is?

**Stian Westlake:** It is a great question. The short answer is yes, we could and should do it better. As you all know better than me, economists are often very good at measuring the very high-level value of R&D and saying, "Yes, R&D is good", but when we get into the detail—specific programmes and clusters—it is much more challenging analytically. This is something that I have been working on in various ways for 15 or so years, and there have been big advances that we should be taking advantage of. This is something that UKRI and DSIT could be doing, but the Treasury could equally do this if it wanted to.

**Lord Stern of Brentford:** That is a crucial point because the Treasury is in charge of your budget and the people's budget and dealing with economic growth. The history of subcontracting, including to other departments, is not good, is it?

**Stian Westlake:** There is clearly a question for the Treasury about where it wants the analysis to take place, but I agree with you that there is now the chance to do this much better. The sorts of things that we can do now, which were not really possible five to 10 years ago, include merging business microdata, or the information we have about business growth across the UK; investment data, such as risk capital investment by venture capital firms and so forth; technology data, such as data on patents; and data on research grants. We can put those together to do analyses that we have not really been able to do before. There are businesses that do this very well; The Data City based in Leeds does fantastic analysis that the Government are increasingly using. There are great researchers doing this kind of work. There is some great work, again, at the University of Leeds in this kind of area.

The challenge for us—when I say "us", I mean the Government; I see this as a challenge for ESRC and UKRI, but as you say, this could equally be a Treasury and DSIT challenge—is how we go from being able to say, at a very high level, "Yes, R&D is good", to saying, "These are some of the benefits in sectors, and these are some of the benefits in Manchester, Cambridge, Brighton or wherever", and then ideally tracing that to interventions and programmes. As you say, that is how we will make the case for investment and learn about which programmes are more effective and which are not, rather than doing point evaluations, which are often harder to do.

**Lord Stern of Brentford:** Project by project, the Green Book cost benefits simply do not get to the heart of the issues that you have just been describing.

**Stian Westlake:** I agree.

**The Chair:** Angus, we are very pleased you have your connection back. Can you hear us?

**Angus Hanton:** I think I have, yes. Can you hear me?

**The Chair:** Do you want to add anything to what has been said, or has it been difficult for you to follow the last minute or two?

**Angus Hanton:** No, I have followed it. Yes, it is a very interesting question and a very hard question to measure the effectiveness of R&D, but it should be a recommendation to try to do more of it. We should definitely be trying to do more. There is an interesting model: the American model is that they have various bodies that sponsor R&D but keep an eye on it and, when it works, they back winners. That really should be our strategy, to back university departments or companies that are most successful, rather than just throwing money at where we think there are problems. Backing winners is what I have discovered works very well for the American model.

**The Chair:** We are coming almost to the end of the session.

**Lord Stern of Brentford:** Is there anything about the cross-country story other than the United States?

**Stian Westlake:** The Scandi countries and Singapore do this very well, and they typically do it by merging datasets. The other thing that we are doing at the moment is setting up the UK Metascience Unit, which is attempting to use social science to measure which programmes work and which do not, so as to ideally concentrate on what works. We are working with some US philanthropic organisations on that, which are taking the lead. That is an emerging area of practice.

**Baroness Walmsley:** You have partly covered the question but, as a result of what you have just said, do you think UKRI is getting better at knowing what to fund and what not to fund as a result of all that work? Should we be making any further recommendations about metascience?

**Stian Westlake:** We are learning as a result of this. The Metascience Unit has only been up and running for a few months, so it is too early to have definitive results, but it is doing work such as looking at how AI is changing science and how funding should change as a result of that—things that will be really useful for what we do.

There has been a journey in science policy generally in the UK and other countries over the past 10 years. In the first part of that period, policy was focused on increasing the amount that went into R&D. As I said before, that is very welcome and important; R&D has spillovers and therefore it is a good thing to invest public money in. More recently, there has been interest in saying, "How do we actually spend that money, and how can it be done better?" A great example is ARIA, which is

premised on the idea that its particular model might have a higher return on investment.

Similarly, industrial strategy is based on the idea that, if you can make things congruent, the return on investment will be higher. This is a really exciting time for this kind of project. The point about metascience is that it makes us more mindful about learning from the experiments that are going on, which will improve our practice over the next two to three years.

**The Chair:** Lord Stern, the question you were going to ask has been pretty much covered.

**Lord Stern of Brentford:** On the cross-country, yes.

**The Chair:** We will finish with Lord Ranger, who is going to ask for some summary points.

Q28 **Lord Ranger of Northwood:** First, I just say what a fabulous session this has been. I have some declarations, as I am an angel investor and I advise British tech firms. I have been in the industry for the past 25 years, so it has been riveting to hear your insights as well.

I do not agree with the hypothesis that this situation of failure is a constant theme that has been happening for a long time. Especially in the technology sector, this has only happened over the past 15 years; I remember the start-up world in early 2010, so the scaling at the speed that we have seen in the tech sector has been in the past 15 years or so. This is therefore new, and the context is changing as we speak, as we can all see with the global political volatility and what is happening in the US—America First has existed for quite a while, though.

Regarding the question of what Government can do, a really precise point that we have not touched on has been something around the Cabinet Office. I do not buy into the orthodoxy of entire Treasury control, predominantly because the Treasury tries to mark other departments' homework. However, the Cabinet Office rules procurement, and the 26 or 27 strategic suppliers to the Government come via the Cabinet Office as having worked for a strategic supplier.

What do you feel we can do around the Cabinet Office? This comes down to procurement and whether it is going to be nationalistic. We heard about competitiveness, but actually the conversation is about sovereignty in technology, whether it is cloud, data, AI or large language models. We have not touched on it yet but, briefly, what are your views on the Cabinet Office, its role in procurement, and how we can help potentially to evolve that to meet the kind of outcomes we are looking to see?

**Stian Westlake:** You are absolutely right that the Cabinet Office has a central role to play and has been driving this competitive, flexible procedure—the new policy—to try to integrate innovation and procurement, which has only been going on for a year but is welcome. What is missing in most of these instances is something that sits within

the department—as the customer for the Cabinet Office—which is a really clear steer from Ministers about their innovation needs and their willingness to back that with a chunk of the budget that comes from their department.

That was what was so refreshing when I saw Lord Timpson about prisons; he was able to articulate his innovation needs with a level of clarity that I very rarely hear—you had the feeling that this was a priority. The reason that I say it needs to be a priority is that money that you spend on innovation is spending at risk. It might not work; it is not the safe thing. The fact that it looked like he was willing to expend some political capital—and financial capital—on making that happen was very welcome. One cannot force Ministers to do that, but if I can find Ministers who do that and then make sure that the Cabinet Office backs them to the hilt and gives them the tools to get around the legal faff that is involved in these things, we will have a winning recipe.

**Angus Hanton:** I know we have talked a bit in this session about backing particular sectors, but there should be a default to buy British, and that has to come from the Cabinet Office. It would help at every level, but it is just not there at the moment.

Can I just say one thing on the question of R&D in universities? It seems to me that universities are fundamentally in the business of finding out answers, whereas businesses are fundamentally in the business of making a profit, and there is an overlap here, is there not? Universities doing this R&D are fascinated in all the results, and the businesses want to actually make a profit. It seems to me that the model that the Americans have—and other countries too—means they have a closer relationship between business and universities. It is why somewhere like Stanford University has produced so many successful entrepreneurs and businesses, because of this close working together. I can see that is happening a bit—Cambridge and the Oxford Science Parks have been cited—but we need more of that working together between universities and business.

**Baroness Neville-Jones:** We have just touched on the question that I wanted to ask. Lord Ranger asked what we should expect from Government, and my question was going to be about the rest of the system. What about business and academia? I am particularly interested to see what we can do about business. Do you have anything further to say on where their priorities should be and where they should make more effort?

**Stian Westlake:** Business R&D is clearly vital and represents the majority of R&D that is done. A challenge we have in the UK is that we no longer have very many large R&D-intensive businesses of the sort that we used to have. The CT scanner was developed by EMI, which I think of as a record company.

**Baroness Neville-Jones:** Made in Germany.

**Stian Westlake:** Now made in Germany and America. That was a great example of corporate R&D. If we look at the giant American tech companies, they are now the dominant R&D players in the global ecosystem. The rather difficult answer is that, to have lots of R&D, you want fantastically profitable businesses, so you need economic growth to generate those.

On your point about universities and businesses generally, there is one thing missing. The UK's innovation system is rather unusual by rich country standards in that we do not have many organisations that are neither businesses nor universities doing R&D. Many other countries have large national labs or independent research organisations, such as CNRS in France, the Max Planck labs in Germany, or the big national labs in the US. What is quite interesting about them is they are often very application-focused; they do brilliant basic work but with an application. If you look at the few examples that you see of that in the UK, for example, the UK Atomic Energy Authority at Culham—

**Baroness Neville-Jones:** NPL?

**Stian Westlake:** NPL does stuff like that, or even the Institute for Fiscal Studies in the social science world. They are often very focused on application. Culham has the Oxfordshire manufacturing apprentices lab. It used to make reaction engines there—those fantastic space ranger engines that were based on the technology from cooling the reactors. Oxbotica, the self-driving car company, had a base at the campus, and I believe it is now developing a big AI data centre there. There is something interesting about that, which is having that institutional diversity, not just relying on universities, particularly for the public.

**Baroness Neville-Jones:** These days we tend to ask what is the function of these national laboratories? That tells us—as you are saying—that they had a function and now, in a sense, we have lost it.

**Stian Westlake:** We do less.

**Baroness Neville-Jones:** They are not doing the applications they used to.

**Stian Westlake:** The ones that we have do a lot of that work; places such as the British Standards Institution are very entrepreneurial, but we have fewer than we used to. As Angus has written, a lot of these were privatised in the 1980s, but we have not replaced them with as many new things as we could have done.

**Angus Hanton:** I totally agree with that; Stian's comments are good. There is a cultural issue that we are still too siloed, whether you are a university, business or government person. We have these three big silos in this area and we need to find ways to get more interaction between them. Stian's point about the bodies that are neither public nor private is important.

**The Chair:** This has been an incredibly informative session. Thank you



both very much for giving so much of your wisdom to this committee; we are very grateful. Angus, you coped very well with the connection problem earlier. This concludes today's public session.