



Science and Technology Committee

Corrected oral evidence: Delivering a UK science and technology strategy

Monday 23 May 2022

1 pm

[Watch the meeting](#)

Members present: Baroness Brown of Cambridge (The Chair); Baroness Blackwood of North Oxford; Viscount Hanworth; Lord Holmes of Richmond; Lord Krebs; Baroness Manningham-Buller; Lord Mitchell; Lord Rees of Ludlow; Lord Patel; Baroness Sheehan; Baroness Walmsley; Baroness Warwick of Undercliffe; Lord Winston.

Evidence Session No. 16

Heard in Public

Questions 132 - 144

Witnesses

The Rt Hon Kwasi Kwarteng MP, Secretary of State for Business, Energy and Industrial Strategy; Alexandra Jones, Director of Science, Research and Innovation, Department for Business, Energy and Industrial Strategy.

USE OF THE TRANSCRIPT

This is a corrected transcript of evidence taken in public and webcast on www.parliamentlive.tv.

Examination of witnesses

Kwasi Kwarteng and Alexandra Jones.

Q132 **The Chair:** A very good afternoon to our witnesses. Thank you very much indeed for joining us today. I would like to put on record our thanks to BEIS, both to Minister Freeman and to the officials in BEIS. We have really appreciated your efforts to keep us informed both by correspondence and by being accommodating in the provision of witnesses. That has been very much appreciated by the committee.

Before we start with the questions, I will just remind you that the session is being broadcast on the internet. A transcript of today's session will be sent to you in a few days' time for you to check and send in minor corrections. If there is anything you would like to add to what you say today or to clarify, we would be delighted to receive supplementary evidence in writing after the meeting. If that is all clear, I will kick off with the first question.

While everybody on the committee is very keen to see the ambition to increase the percentage of GDP spent on R&D in the UK, raising it to 2.4% by 2027 is ambitious, especially given that it has been flat, at around 1.6% to 1.7%, for about the last 20 years. In less than five years, we are aiming to get this very significant rate of increase, which very few other countries have achieved. What are we going to do differently in the UK that will mean we will be successful in doing this?

Kwasi Kwarteng: That is a very good question. I am the Secretary of State for Business, Energy and Industrial Strategy. I have done the job since January 2021, so I have some ideas as to how we can get there.

The real failure that we have had has been in our ability to attract private capital. The Government can do so much, but, to get to 2.4% by 2027, we will have to energise the private sector and attract a lot more private investment than we have previously. Having said that, I am very pleased that we had an uptick. Over the CSR, £39.8 billion has been committed to R&D, to science, effectively, which is a marked uplift. To get to 2.4%, we have to get much better at attracting private investment. We are doing this in a number of ways.

First, we have published an innovation strategy for the first time ever, which gives a clear signal to the market and private investors as to what technologies could be best pursued here. We have never done that before. Secondly, new institutions such as ARIA have attracted a huge amount of interest. I was in the United States, in Boston and Washington, only last week, and people were talking about ARIA. Investors, particularly in the life sciences, are attracted, in the first instance, to investing. We also have these innovation accelerators, as described in the levelling-up White Paper that DLUHC published earlier this year. Those are three areas in which we are seeking to attract more private investment. We can go more into that detail.

The Chair: Is the scale of that large enough for the rate of increase we

want to see?

Kwasi Kwarteng: Time will tell, but our approach to the innovation space is completely different from the one we have had hitherto. UKRI, which was set up only four years ago, has really responded to the innovation strategy. I received a letter in which it committed to using some of its funding to drive those technologies. I am seeing a lot of interest from overseas investors. We are working and consulting on how we can increase private investment in R&D.

The proof of the pudding will be in the eating, but I think it can accelerate the kind of investment we want to see. It is not just the innovation strategy. There is a hydrogen strategy and a net-zero strategy; there are a whole range of areas where the Government are providing very clear tramlines. It is being responded to very favourably by private investors.

The Chair: If I may ask a final cheeky question, do we have a chair and chief executive for ARIA yet?

Kwasi Kwarteng: We are very, very close to getting that. I was going to say, "I will update the House"—I will update your committee as soon as we have more precise information.

The Chair: We will look forward to hearing that. Thank you very much.

Q133 **Baroness Blackwood of North Oxford:** Thank you, Secretary of State, for your opening. I was going to ask you about your commitment to private sector investment. We heard in an earlier evidence session from Patrick Vallance about the need to attract private investment, if we are to scale to that 2.4%. Only 11 countries have managed to do that effectively.

You mentioned the innovation strategy, ARIA and the innovation accelerators, but we have heard about difficulties in attracting late-stage scale-up investment for companies in the UK. This is leading to some promising start-ups moving abroad. I know it is the intent of the Government to address that. Can you talk a little bit about what specifically the Government want to do to address that problem?

Kwasi Kwarteng: One thing that I am very proud of doing is setting up the life sciences scale-up task force, which has already reported. It suggested things such as Solvency II. That is something that is being dealt with in the third Session. Essentially, it is about opening up investment from pension funds, which was prohibited through legislation. We are very interested in the French Tibi scheme, which, crudely, is a matched investment scheme with government and the private sector in life sciences. It is no secret that we are looking at that.

This is not just about the life sciences. The Nurse review is looking at other institutions, so we can have a much broader range of institutions working alongside private sector investment. A good example of this, as you will know, is Paul Nurse's own institute, the Francis Crick Institute in King's Cross. He is doing a review looking at how we can replicate this in similar institutions.

The problem we have had is that our R&D base has been hitherto very narrowly focused on universities. It is not just about scale-up; it is about joining up the investment right from the start through to scale-up and potentially IPOs.

Baroness Blackwood of North Oxford: Are you looking at the effectiveness of fiscal incentives? The Chancellor noted that in the UK at the moment the amount businesses spend on R&D as a percentage of GDP is less than half the OECD average. I see that you have taken steps to try to address that, but we spend more on tax reliefs than almost any other country. Are we looking to see whether those are properly focused and targeted?

Kwasi Kwarteng: We are. It is a Treasury question. It is doing an ongoing review on R&D tax credits as we speak. I would be very interested to hear what the Chancellor would say, if you were to have him in front of your committee. You have been a Minister. You understand.

Baroness Blackwood of North Oxford: I have; I understand. Have you had any representations that make you think there are ways in which we could open this up and incentivise better? How are you engaging with businesses, between BEIS and the Treasury, to make sure that we can accelerate this? There is a relatively small timeframe to get this right.

Kwasi Kwarteng: I agree with you. At BEIS, we do engage with industry a lot. We are trying to feed into the process. The review is ongoing, as I have said. I look forward to its conclusions.

Baroness Blackwood of North Oxford: We have quite a services sector-dominated economy with somewhat less advanced manufacturing compared with the OECD. You have published your innovation strategy, which targets a lot of advanced sectors. In order to meet the 2.4% R&D target, do we need to look at a larger change in the structure of the UK economy? Is that what you are aiming for?

Kwasi Kwarteng: That is not quite right. Over the last few years, we have seen a real focus on national resilience, which means more investment in the supply chain. If you take offshore wind, as part of the sector deal, 60% of the supply, the content, was supposed to be sourced here in the UK; we have not quite hit that. There is a real move to have more resilience and more capacity here in the UK, but that does not mean that we are reordering the UK economy. As you say, 75% of it is services and roughly 10% is manufacturing. We want to see an increase in the proportion of manufacturing, but clearly at 10% we are not going to change the economy overnight, even if we were to increase manufacturing considerably.

Q134 **Lord Holmes of Richmond:** Thank you, Secretary of State, for being with us this afternoon. I want to talk about public procurement, if I may. We heard from Sir Patrick Vallance that the Government wish to use public procurement to support priority areas of science and technology. Obviously, this has been an ambition for some time. What will need to change in the public procurement rules to make this a reality? What are

your views on changing how the Government consider risk in the procurement process?

Kwasi Kwarteng: This subject has been revisited many times. Just to set out the facts, something like a third of all public expenditure, as you will know, is spent through public procurement. We could do a lot more and be much smarter about how we use that. It is something like £300 billion to drive innovation and to drive progress.

As part of the innovation strategy, we announced that all government departments and public sector delivery bodies would try to align procurement through the public value framework. There is much more work being done in the Cabinet Office on deploying public procurement more effectively so that we can drive things such as net zero, R&D and innovation in this country, but there is still a long way to go. That is my broad assessment of where we are on this.

Lord Holmes of Richmond: What about the risk point?

Kwasi Kwarteng: Do you want to come in on this? I will come in afterwards.

Alexandra Jones: I am director of science, research and innovation at BEIS. One of the key challenges is the attitude to risk and taking risk. The cross-government working group is bringing together the key people across government to look at procurement with an eye to innovation and how we can support it. Recognising that culture is a big part of it, we are looking at what options you can take to increase risk taking in procurement. Are there specific programmes where you can do that? You also have the Cabinet Office's Procurement Bill, which is looking to reduce the processes and the bureaucracy.

That will help, but it is then looking at specific ways to reduce the concerns about risk taking. As the Secretary of State mentioned, ARIA is an experiment in how to reduce risk taking in procurement. One of the very few asks is that it looks at assessing how effectively its systems work and shares that with the rest of the system.

Kwasi Kwarteng: There is a delicate balance. Yes, you can have more risk appetite, but there are dangers with that. When things go wrong, your committee will be one of the first to haul Ministers up to justify why we spent such and such money on these projects.

When Francis Maude was responsible for the Cabinet Office, I remember that there was a real drive to procure through small companies. The assessment was that we had just gone through Fujitsu and the large players, and there was a drive to get a much greater diversity of companies that could benefit from government procurement or win contracts. As a consequence of that, we did have some anomalies.

You will remember the ships. There was a small company that was commissioned during the Brexit process, and it was discovered that it did not have any ships. I do not know, but I understand, from what I could see at the time, that there would perhaps have been a requirement to look at smaller companies in terms of delivery for procurement. There are

risks in that, and it is a fine balance. I just thought it was important to make that point.

Lord Holmes of Richmond: In this question of risk and balancing both sides of it, are the problems largely in the process or on the political side around changing the risk profiling?

Kwasi Kwarteng: That is a very good question. It is a bit of both, really. With the example of the ferries, I am sure there was a real push to get a wider breadth of counterparties than the obvious names. There might have been a political imperative to promote smaller businesses, but in the event their ability to deliver was questionable. That will always be one of the risk elements in having a more diverse approach in terms of procurement.

Q135 **Lord Winston:** The introduction of the National Science and Technology Council has been broadly welcomed by the witnesses we have spoken to, but I understand it has met only twice since July. Is that often enough? How often should it meet?

Kwasi Kwarteng: I am afraid that I sit on so many committees—I am a deputy chair of that committee—that I am always going to be arguing against frequent meetings simply because we have lots and lots of committees. The number of meetings is not important; the agenda and focus are important. Some of the best committees I sit on meet three or four times a year. Some of the least effective probably meet much more frequently than that. I am not concerned about that.

I am more interested in getting the focus and making sure that the NSTC can co-ordinate across government very effectively. That is what I am focused on. That is not a function of how many times the committee meets.

Lord Winston: We were a bit surprised that there are no representatives from education, given the accent on research.

Kwasi Kwarteng: Again, that is for the Cabinet Office. I do not have a view on who sits on the committee. As a point of fact, the higher education funding piece sits entirely within BEIS. As Secretary of State, I am responsible for UKRI funding; I will be ultimately responsible for ARIA, and 70% of all government spending in this area comes through BEIS. Clearly, it is a big department. One or two other departments, such as Defence, sit on the committee, as far as I understand. I can pick up your education point.

Lord Winston: That is a very interesting and helpful answer. Thank you very much indeed. One thing that Britain has really excelled at is innovation in the health service and life sciences. You referred to life sciences and the Paul Nurse review, but what connection is there going to be with the innovation going on in the health service? If you look at what has happened in the past—in imaging and robotics, for example—so much engineering has been lost by this country and gone elsewhere. One of the problems is that the clinical academics who lead this research are struggling to do their research work rather than their clinical work

because of the pressures on the health service.

Kwasi Kwarteng: We are very integrated with what the health service is doing. You mentioned the National Science and Technology Council. That is exactly the kind of forum that can bring together different departments' work. We established the Office for Life Sciences, which is shared between BEIS and DHSC, as you know. Its budget, frankly, is the lion's share of our spending on this.

Lord Winston: What can you do to secure the future of clinical academics who are of consultant level but cannot do research due to the pressures of the health service?

Kwasi Kwarteng: I am not the Health Secretary, just to make that clear.

Lord Winston: The money comes from you.

Kwasi Kwarteng: The money that BEIS spends in a year, roughly, is £25 billion. The DHSC spends, ballpark, £150 billion. It is a much bigger part of its budget than it is of ours. Ultimately, NHS policy is going to be a responsibility of the Department of Health and Social Care, not BEIS.

Lord Winston: That does not really answer my question, because the issue is that there are not very many clinical academics doing research who are funded publicly, but they are struggling to do their research. That is a really big issue.

Kwasi Kwarteng: I will get back to you on that.

Lord Winston: It needs to be looked at.

Kwasi Kwarteng: You have presented me with some facts and circumstances that I am not aware of.

Lord Winston: I am sure the Academy of Medical Sciences could help you with some of the facts, which are well researched and well written up.

Kwasi Kwarteng: I hear what you are saying. It is true to say that we fund the academic bodies and we are responsible for the funding, to some degree. Talking about the overall spending in this area, the lion's share of it sits, as you know, squarely in the DHSC.

The Chair: We would very much appreciate any further information that you can provide. That would be very helpful to us. We have been surprised that the Department for Education is not on this Cabinet-level committee. Every company that we have spoken to has raised skills in the science and technology sector as a crucial issue. As you say, you have the funding, but the schools, the skills and the university education parts are all really fundamental to us being a success in this area as well.

Kwasi Kwarteng: You are right, but you will know that the skills piece, as a matter of process and the geography of Whitehall, has moved around departments. My department, in a previous iteration, was business, innovation and skills. As a consequence of the reorganisation in 2016, skills moved over to education. There is always a debate as to who sits on which sub-committee. In this instance, rightly or wrongly—

wrongly, in your view—education is not sitting at the table. I am sure we could look at that.

Lord Krebs: May I very briefly add to the question about the DfE by asking about Defra? Defra makes a significant investment in science, and yet it is not on the NSTC. Why is that?

Kwasi Kwarteng: There is always a debate as to the composition of these Cabinet sub-committees and how many people should be on them. I suppose a line had to be drawn. People felt that it should be a bit smaller. But there are lots of departments. In a sense, every department has some exposure to skills or has an interest in driving skills, research and innovation. If you were to have every department attend, you would just replicate the Cabinet. There was a view that it should be smaller in the first instance, and it took the decision to invite the people it has done, but I am sure that is not set in stone

Q136 **Baroness Walmsley:** Good afternoon, Secretary of State. My question is about science and technology strategy. The Government have identified four areas for UK science and technology to focus on, such as the sustainable environment, but they are all very broad. Are there plans to outline a clearer and more specific strategy? Will this entail narrowing down the areas of focus? How do they interact with the seven families of technologies that have also been identified?

Kwasi Kwarteng: We have lots of strategies. That is not necessarily a bad thing, because they are trying to do different things and they are speaking to different audiences. In terms of the innovation strategy, which I was very proud to commission, the seven technologies are very clear.

Just as a general point, it is a very fine balance. You want some degree of specificity, which we got in the seven technology families, but at the same time you do not want to be too prescriptive. The approach the NSTC is taking is the right one. It is identifying four areas. Keeping it broad is not necessarily a bad idea, because you would not want to be too prescriptive. That is just a general remark about how you focus these strategies. They cannot be too prescriptive.

Baroness Walmsley: Patrick Vallance talked to us about the success of the vaccine programme. He identified the things that made it such a success: a clearly defined mission, early interaction with industry and academics, and a single point of accountability. Have the Government identified any other areas where that approach would be appropriate?

Kwasi Kwarteng: There are lots of areas where that approach can work. We are trying to take those learnings into the wider life sciences responsibilities. People are saying that, as with vaccines, we should have a taskforce approach to dealing with the cancer and dementia missions. I would say, though, that the Vaccine Taskforce was very well funded. In fact, the whole Government were focused, in an unprecedented way outside wartime, on solving this issue. Getting that level of focus and financial commitment, frankly, to other missions will be more challenging, given less urgency. But, yes, we have learned things from it.

The Chair: Do we not want to create that sense of urgency for certain areas, such as green technologies addressing climate change?

Kwasi Kwarteng: That is absolutely right. The constraint here is not a lack of passion or enthusiasm. In many cases, it is a lack of funds. I am very happy with the CSR settlement, but it is not a limitless pot of money that can be deployed at will to infinity, basically. That is the main constraint that we are facing and any Government would be facing these constraints.

The Chair: This is investment not only to solve a problem but to make money as well, is it not? It is green growth investment.

Kwasi Kwarteng: Yes, that is right. We are all living in straitened times, and there is a public finance requirement to try to balance the budget.

Q137 **Viscount Hanworth:** I am due to ask a question about public sector research establishments. To get an idea of the scope of these, I have looked at a report from the Department for Business, Innovation and Skills from 2015, which catalogues the research institutes in the UK. There are a vast number of these. I am uncertain what qualifies them to be designated as PSREs. We can achieve a definition, if we exclude from the list research establishments that reside in universities, but why should we? I have also accessed a UKRI document that lists PSREs that are eligible for research and innovation funding, and those that are potentially eligible, whatever that means. There is also a list of eligible independent research organisations. What sense can we make of all of this? Then I have two questions—

Kwasi Kwarteng: Can we deal with one question at a time, please?

Viscount Hanworth: Let me give you the two riders, because these are the important ones. First, how many of these organisations could perform the same functions as catapults by soliciting commercial research contracts? Secondly, could we profitably assemble some of the PSREs under the same umbrella as the catapults in order to create something resembling Germany's Fraunhofer institutes? Those are the substantive questions.

Kwasi Kwarteng: Dealing with each of those questions one by one, there is a big role for PSREs. They are a good thing. If you look at the work the AEA does with Ian Chapman in Culham, that is an example of a public sector research establishment, funded through BEIS and UKRI, that does a really good job. We are very focused on that.

To answer your other two questions, the Nurse review is very much in the space of what we are talking about. Through his review, Paul Nurse is trying to look at these institutions and at others that can also, as I said right at the beginning, leverage private investment. The whole point about the catapults was that they were trying to mimic the German model. Some have been very effective at that and others less so, but we are all trying to improve what the catapults can do.

I had a conversation this morning about the High Value Manufacturing Catapult, for example, possibly opening up new premises in Doncaster or

somewhere in that area. These are things that we are talking about; frankly, they are good things. You are suggesting that it is quite a complicated picture, but there is a real strength in having these diverse institutions.

Viscount Hanworth: Yes, indeed, but the point here is that the catapults are an order of magnitude smaller than the Fraunhofer institutes.

Kwasi Kwarteng: They are smaller.

Viscount Hanworth: What other possibilities are there for bolstering these organisations and making something more or less commensurable with the Fraunhofer institutes by co-opting some of the existing PSREs?

Kwasi Kwarteng: I am reluctant to have a massive organisational restructuring, but I would be very interested to see what Paul Nurse says in his review later this year, because it is addressing that very point about the structures and institutions.

Viscount Hanworth: I would suggest that the Fraunhofer is an umbrella. It is co-ordination rather than consolidation that is at issue there.

Kwasi Kwarteng: Yes, I see the distinction, but I am looking forward to the Paul Nurse review. I am not going to say more than that.

The Chair: We will also be looking at the Paul Nurse review with interest.

Kwasi Kwarteng: We will have a lot more to say about all of this once we have read the review.

Q138 **Lord Mitchell:** Good afternoon, Secretary of State. Both in this investigation that we have been having and in others that we have had in the past, we frequently hear witnesses talk about the dangers of policy churn in R&D. The issues they raise are a lack of commitment, a lack of certainty and the fact that research and development are long-term enterprises yet politics tends to be short-term. They get very concerned about it, particularly those who come from abroad to work with us. What can the Government do to ensure that the science and technology strategy is as long term as it should be?

Kwasi Kwarteng: That is a great question. We have done a number of things. If you look at the last five years, we created UKRI, which essentially brought all the learned bodies together. We had an innovation strategy, which, for the first time, set out what our core missions and ambitions were in terms of families of technologies. That was published only last year.

Critically, last year we had a CSR for the first time since 2015. We had a three-year spending review, which set budgets for departments for three years. I totally understand the criticism that it is short-term, but a number of things that happened over the last four years militated against that. However, I totally accept that we could do this better. Three years may not seem like a long time in a research programme. We could do better long-term planning and budget allocation. I fully appreciate that.

Lord Mitchell: Yes, you often hear the expression, "This time it is different".

Kwasi Kwarteng: It is different. With respect, four years ago we had nine bodies. We did not have UKRI; we did not have an innovation strategy; we did not have a three-year commitment to R&D, nor did we have an uplift. We are in a better position. I am not saying it is perfect, but we are moving in the right direction. In a way, I am saying this time is different. It is different from what it was in 2015.

Lord Mitchell: Do you see any evidence of people becoming involved in R&D, attracted by the new policies, who otherwise would not have been?

Kwasi Kwarteng: Yes, definitely. If I look at net zero, for example, we have leveraged investment directly off the back of the Prime Minister's 10-point plan, the energy White Paper and the net-zero strategy. All these things have contributed to huge amounts of investment. I could talk about Nissan or Britishvolt. I could talk about the investment we are seeing in offshore wind, which is not just a manufacturing thing. There is a significant R&D component in it as well.

The other big thing—we have mentioned this—is life sciences. I was in Boston last week, and there is a huge amount of interest in the UK capability and capacity in life sciences. There is a huge amount of capital that is interested in being deployed. Only last year I was at the opening of the AstraZeneca building in Cambridge. It is a £1 billion building with state-of-the-art life sciences laboratories. These things are real; they are happening. They are, not wholly but partly, in response to strategies and clear statements on the part of the Government. This does not just happen by accident.

Q139 **Lord Patel:** Good afternoon, Secretary of State. I want to explore with you what you think is the best way forward for research, innovation and commercialisation and the bodies involved with it. We all know of and are proud of our research base, but we are not so good at the alignment between research, innovation and commercialisation.

We have already heard mention of the Fraunhofer institutes in Germany, which provide this interaction and movement of people back and forward between academia and business. The members of the institutes have research programmes in academia. We heard similar stories from the United States and Israel. The innovation strategy does refer to it, but it does not spell out the strategy for doing this. Could you enlighten us, please?

Kwasi Kwarteng: There are a number of things here. Again, we have to look at where we have come from. I think, 20 years ago, the criticism that we were rubbish at commercialisation was a lot stronger and had a lot more credence than it does today. It was the case, 20 years ago, that you had academics doing their thing and you had businesspeople, but there was not much of a match between the two. Today, we have seen huge progress on that. I go to universities, and I speak to young scientists and PhD students all the time. They talk about

commercialisation; they talk about setting up businesses in a way they did not 20 years ago, frankly.

We could do more. As far as I recall, if you look at spinouts from universities, we are among the best performers in the world. The issue, as Lady Brown mentioned, is that we are not very good at the scale-up piece. That is where we are trying to focus our attention. I have talked about the life sciences scale-up task force, but there are ways that we are trying to improve that. We are in a better place than we have been on this.

Lord Patel: May I suggest that we are doing better, but not that well?

Kwasi Kwarteng: Okay. It depends on how we define this. I have data in front of me on our ability to raise capital from university spinouts. We are doing really well on that. Based on the level of capital raised by their spinouts between 2013 and 2017, the UK had five of the top 10 global universities: Cambridge, Oxford, Imperial, UCL and Edinburgh. The spinout and start-up culture is there. Where I would agree with you is that the scale-up capital just is not there. I have been looking at this quite a lot, and there are lots of different reasons.

You get a situation where people do spin out. They set up businesses, but they cannot grow them. They do not have the means. There is a range of reasons why that happens, and we are looking at them: the investment culture, the education of investors, investors' risk appetite, regulation and skills. These all have to be addressed to get a better picture, and we are trying to do that.

Lord Patel: Are you satisfied that our regulatory mechanism for IP is conducive to this kind of commercialisation?

Kwasi Kwarteng: It is pretty good, from what I know, but I would be interested to hear from you how we could improve things.

Lord Patel: We heard evidence that, for instance, much of the IP in our country may lie with the universities, which are not willing to pass it on for commercialisation, because they do not see any profit margins in it. We have heard that in Israel and other places the universities benefit from the IP that they hold, so they are willing.

Kwasi Kwarteng: That is an interesting point. As I said, I have been in the United States. I will ask Alexandra to come in later. What I discovered there was that businesspeople were more willing to deal with the universities, because the universities claimed only up to 7% or 8% of the profits. The idea was that the businessmen were incentivised to work with the universities, because the universities had a much less onerous requirement in terms of payback.

In the UK, I was told, it is the other way round. The problem is with universities taking too much profit. Any businessman looking at this and saying, "The university is going to take 50% equity and 50% profit" is less incentivised than he would be in Israel and the United States. The problem is more complicated than universities not being willing to make

profits. They are, but they may be trying to make too much money out of these ventures. That was raised with me directly last week.

Alexandra Jones: One of the commitments in the innovation strategy was looking at this. This is something that you pushed on quite hard, Secretary of State. We are getting together the investment community and the university tech transfer offices to try to improve understanding about how this works, how we can streamline the tech transfer process and how we can look at the areas where it is not working as well.

We are comparable with the USA in terms of spinouts, income from IP and the proportion of industrial research. We have a good story to tell. It is clearly quite a patchy one, concentrated in particular areas, and there are things to learn. Some of this will be about the approaches we take, and some will be about how the communities are working together. We are trying to look at both of those.

We also have policies in place and work across the portfolio—some of this was in the innovation strategy, although, as you say, it was all the way through rather than being pulled out—on early-stage companies, follow-on funding and impact acceleration accounts. At the growth stage, there is the British Business Bank's future fund and the life sciences investment programme. There is a series of programmes where we have tried to build on what was working but also, through the innovation strategy, make commitments to recognise that there is a lot more to do.

Some of that will be about changing policy. Some of it will be about working very closely together to make sure that the regimes on IP, say, are understood, that we can look at where there are improvements to be made and that everybody streamlines the process somewhat.

Kwasi Kwarteng: Just on this, the biggest issue here is a cultural issue. When I speak to people, again and again I hear that investors in the UK often do not understand the science as well as their counterparts in the US do. They are more risk averse and the scientists on their side do not understand the commercialisation and the finance element as much as their counterparts in the US do. We need to upskill both our science base and our finance people. It is a remarkable thing when you see it in the US.

We are doing ourselves a disservice if we do not recognise that the start-up culture is here. We are much better at start-ups and spinouts than we have been in the past. We need to focus on that while trying to improve the situation.

Viscount Hanworth: It seems to me that the research excellence framework militates against commercial engagement at universities. The assessment of individuals and their academic career prospects depends on journal publication, which can be inhibited when a person engages in commercial research. Mercifully, this is not the case for life sciences, but it certainly seems to be the case across a whole number of other disciplines, including engineering disciplines. Is there a sense of this among your colleagues?

Kwasi Kwarteng: That is a fair point. I remember the research framework from when I was doing a PhD. This is 20 years old. It was coming from a different time. The emphasis now is on this very issue of commercialisation and scale-up. Our minds are less siloed when we look at academia, business and government. All things are much more fungible. You are right. In some instances, the pressure to publish and have lots of citations can militate against a commercial focus.

Baroness Walmsley: Are there any initiatives to focus on making it easier and more attractive for people to move between academia and industry? If they did so, they would more easily understand the culture of the other side. They could perhaps even work for both at the same time.

Kwasi Kwarteng: Alexandra will tell you that this is a specific issue that I have asked the department to look into. When I speak to American counterparts, this is an area where we could learn a great deal. It is changing in the UK, but there is the academic track and the business track, and in our minds they are two completely separate things. You get PhD students coming to the end of their PhD, and they have to make what to them is a binary decision between going down an academic route through a post-doc or working in industry.

We have to make that decision less binary. We have to somehow educate our scientists to think more like commercial people and vice versa. There is a huge opportunity here. I was at MIT only last week. A great fusion business called Commonwealth Fusion Systems was spun out of MIT. They are all MIT PhDs, and MIT has a stake in the business. They are much better at doing this, frankly, than we are. Alexandra will comment on some of the things we are doing in this area.

Alexandra Jones: We have been looking at how to invest in skills and how to move from business to academia and back again. Incentives such as knowledge transfer partnerships have proved very popular. The universities employ graduates who then work in the businesses; we are trying to encourage that to happen. ICURE is a three- to four-month training programme to get people thinking about how they commercialise their ideas.

In terms of incentivising people moving from academia to business and back again, the people and culture strategy addressed some of this. The resumé for research and innovation is much more of a narrative approach to a CV on innovation, which the Royal Society and others are looking to use. It addresses the publish or perish issue as well, because it is trying to look much more broadly at what is valued and recognised in academia and outside. Those disincentives about constant citations are addressed partly through a CV where you can talk much more about what you are doing and the impact.

Similar, on the REF, as the Secretary of State said, he has been pushing on how we can make sure that the REF is fit for purpose. We are doing a review of the REF at the moment to look at how you can take into account impact. All those things should add up to at least making it a bit easier. There are also long-standing cultural issues, which will take some time.

Kwasi Kwarteng: I am confident that in the next few years we are going to see a big change. We have not mentioned it, but we are looking at how to commercialise our science base and make investors more scientific. You would not believe the number of times people say to me that one of the biggest inhibitors to scale-up here in the UK is the fact that investors—people who are in charge of deploying capital—simply do not understand or are not interested in the technology. It is a two-way issue, as you have described.

The Chair: It is certainly a message that we have heard from some of our witnesses as well.

Q140 **Baroness Manningham-Buller:** Good afternoon, Secretary of State. I want to talk about people, because none of this is going to work without the right people. In your answers, you have already touched on some of the things that are relevant, such as skills. In your last answer, you mentioned the education of academics and so on. We heard quite a degree of evidence on the low morale among many senior academics and researchers at the moment. There is a range of reasons for this: a loss of European colleagues from the labs, pay settlements, inflation or whatever it happens to be.

A recurrent theme was the degree of slowness and bureaucracy in getting their ideas through into the stage of grants. I quite accept that you cannot solve all the problems that we heard about from academics, but, unless we can solve some of them, we are going to lose existing researchers, who we need, and we are going to fail to attract new ones from abroad, both of which are essential to progress. Would you like to comment on what we can do about these things?

Kwasi Kwarteng: You are completely right. We seem to be drowning in a swelter of reviews, but we have another review, the Tickell review, looking at exactly this issue of bureaucracy in UKRI. I have heard a lot about bureaucracy and form filling in respect of not just UKRI but other bodies as well. I am hopeful that the Tickell review will show a way through this. It is a problem we are aware of. I cannot tell you that I have an immediate solution to it, but you are quite right that it could transform this landscape.

ARIA was controversial when we first broached the idea, but it was designed exactly to deal with this problem of too much bureaucracy in research. With the Nurse review, the new institutions and the Tickell review, which is looking at UKRI, we can address this.

Baroness Manningham-Buller: The ARIA parallel is a very interesting one. Secretary of State, I am sure you are committed to the belief in Brexit opportunities. What are the opportunities here to attract the best from around the world to join our academics? At the moment, many of our academics, from the evidence we have heard, appear to have quite low morale; they are wondering whether they are going to continue in their research careers or do something else.

Kwasi Kwarteng: It is an issue.

Baroness Manningham-Buller: It is not just about the existing ones; it is about attracting people.

Kwasi Kwarteng: I was looking at the global university rankings. My understanding is that four of the top 10 are British institutions. I do not want to rest on our laurels. We do not have a God-given right to do this, but these institutions are very strong globally and they attract huge numbers of people from around the world. We have to remember that, but we also have to do more to attract scholars from the EU and Europe more broadly. I totally accept that, but let us not pretend that we do not have considerable strengths here.

As a matter of fact, I cannot remember what the top EU university in the ranking was, but it was somewhere like 44th. The Swiss have some very good universities. We should not do ourselves down. There is a lot that we can do to attract the right people here.

Baroness Manningham-Buller: I quite agree with you about our universities, but my point is that we want to continue to attract people.

Kwasi Kwarteng: No, absolutely.

Baroness Manningham-Buller: That is the issue. We do not want a diminution of our standards.

Kwasi Kwarteng: No, and we are not resting on our laurels. There are various prizes and schemes that we want to develop. Do you want to talk about that?

Alexandra Jones: Yes, a number of schemes have proved very popular in attracting international talent. The Turing AI fellowships are a good example of that, with talent from around the world, and these are regarded as new and world leading. There are lots of schemes like that. On the talent side, we are also looking at listening to people as part of the people and culture strategy.

How do we make those programmes as attractive as possible? How do we make sure we are investing in people? There are measures to reduce bureaucracy, as the Secretary of State said, and to make clear where we are investing. When we talk to international researchers, they say that clarity as to where the UK is keen to invest can prove attractive for businesses and researchers. There are a number of programmes. There is definitely more we can do. Talking about all that we are doing now and what is likely to change around things such as bureaucracy will be important for people, to have confidence that we are addressing the issues that make it more challenging at the moment.

Q141 **Lord Krebs:** Thank you, Secretary of State, for being with us this morning. I wanted to ask a bit more about UKRI. You mentioned it a number of times, including in response to Baroness Manningham-Buller when you talked about the Tickell review. UKRI, as you said, was created a few years ago. In its latest strategy, it has a range of ambitions. On the one hand, it is funding the highest-quality research in universities and other institutions, but on the other it aims to support government priorities, such as those on the economy and national security. I just

wondered whether you felt that too much was being asked of UKRI in delivering on all those fronts.

At the same time, we asked GO-Science, through the Government Chief Scientific Adviser, to give us a wiring diagram of how the entities in the science and technology landscape fit together, including the ones we have talked about—the NSTC, the OSTS and so on. Interestingly, it produced a chart with 11 entities on it. UKRI was not one of them; it was not on this diagram.

Kwasi Kwarteng: That is odd. I have not seen it.

Lord Krebs: Where does UKRI fit, in your view? Clearly, in GO-Science's view, it does not fit anywhere.

Kwasi Kwarteng: I do not know what question it was trying to answer. I have not seen its answer, so I cannot really speak for it.

I have been a Minister at BEIS for three years. I started as Minister for Energy in 2019 and became Secretary of State in 2021. UKRI was set up probably a year before I started in BEIS. It has come a long way. We have an innovation strategy, and its strategy and the letter it wrote to me reflect some of the things in the innovation strategy. There have been good responses, such as the vaccine rollout and ARIA. The innovation, R&D and science landscape is much brighter, in a way, than it was four or five years ago. UKRI is part of that.

It is quite demanding. Lots of the things we are asking them to do are quite demanding. As the Secretary of State, when I look at my budget, it is roughly £25 billion a year. It is about £74 billion over the three-year CSR period. UKRI has a huge chunk of that, between 40% and 50%, in each of those years. It would almost be remiss of me not to be quite demanding and not to say, "Actually, these are the things that we want to see".

In the past, there has been very much the view that they can get the money and do wonderful things with it, but, given where we are, with the challenges of net zero and energy policy, and the scale of the money we are spending, it is fair enough to have a dialogue between the principal funder—that is, BEIS—and the organisation. It is entirely fair for us to set quite stringent and ambitious goals for that organisation.

Lord Krebs: How would you describe the way in which UKRI fits into the overall landscape along with the National Science and Technology Council, the OSTS and so on? What is its role?

Kwasi Kwarteng: As far as I am concerned, UKRI sits squarely in my budget. As I have said, I have a big responsibility for it. UKRI is our main vehicle in terms of university funding. As we have been talking about, in terms of private capital, our science base is not just about the universities; it is broader than that. The National Science and Technology Council and other bodies have a wider responsibility. I am not responsible for research and innovation spending in defence, but the NSTC would be very interested in that, and I am a deputy chair of it.

UKRI is very much a BEIS responsibility, and it is very much about our universities. It has other spin-offs, but its primary focus is on that piece of the science and innovation landscape. It is a discrete area. It does underpin these wonderful universities that we have, to which I referred.

Lord Krebs: Some of our witnesses were critical of the fact that you intervened in the appointment of the executive chair of the ESRC. Do you have any comment on that?

Kwasi Kwarteng: No. That was a finely balanced call. I do not have any specific comments on that. Ultimately, I am responsible for that budget. It is entirely right and reasonable for Ministers who are signing off on budgets to have some say over the appointments of CEOs and chairs.

Q142 **Baroness Sheehan:** Thank you very much, Secretary of State, for being with us today. It is much appreciated. My question is about departmental R&D budgets, which have also been increased. Should departments publish what they want to achieve with their R&D budgets, as well as areas of research interest, to avoid duplication with UKRI?

Kwasi Kwarteng: That is an interesting question. That is why we had the innovation strategy. I cannot stress this enough. The reason why I wanted to have an innovation strategy was that I sat in ministerial meetings at BEIS for 18 months before that and I was never quite clear what our view was or what technologies we wanted to promote. That is why, as far as BEIS is concerned, we want to be very transparent about what technologies, clusters and other things we want to see.

I cannot speak for other departments, but there is no doubt that what you refer to is one of the reasons why we have the NSTC in the first place. We want greater co-ordination between R&D budgets across departments. The NSTC is a good forum that can take a much more co-ordinated view. Before that, there was no forum. I was responsible for the BEIS budget, innovation and UKRI; the Defence Secretary was responsible for his tech and innovation budget. That went right across the Government. The NSTC is the first forum, cutting across government, that can co-ordinate policy and objectives in this way. That is why it is coming out with its strategies.

Baroness Sheehan: That is very helpful. Thank you very much. It is good to see that there is co-ordination across departmental spending. To what extent have these budgets already been allocated to specific projects? Is that information in the public domain?

Kwasi Kwarteng: It is and it is not. The way it works is that the CSR sets the broad envelope over three years. For example, UKRI or Innovate UK, which sits under the UKRI umbrella, will make allocations, but a lot of the specific allocations to specific projects will not have been made yet. The broad umbrella has been set; UKRI will have broad labels and pots that it is going to allocate money to. Specific projects underneath those will not necessarily have been allocated money as of yet, and the best people to ask are the people running UKRI in those bodies, not the Secretary of State or the Ministers.

Q143 Lord Rees of Ludlow: Good afternoon, and thank you very much, Secretary of State. I would like to ask a question on the international front, following up on what Baroness Walmsley said. The mantra “own, collaborate, access” is used in some documents from your department. They are three priority levels for interactions with other nations. I would like to ask a bit more about that. Clearly, we value collaboration on a small scale, as a project, but also on a big scale in energy, plant science and space, for instance. We do that partly through the private sector, partly through universities and partly through international bodies. How do you see those collaborations going and is it realistic to prioritise them into the three categories of “own”, “collaborate” and “access”?

Kwasi Kwarteng: Any stratification such as that is going to be a little crude because there are certain partnerships where we own a bit, we collaborate a bit and we can have access. Our function here is not like being a postman and putting things into different watertight pots. The own/collaborate/access framework is a good way of thinking about the level of collaboration that we seek. Do you want to come in more specifically about the UK-India science and innovation policy dialogue and the various dialogues we are having with lots of different countries?

Alexandra Jones: Exactly as you say, Secretary of State, it is intended to be a guide and a way of thinking about things. It is not a rigid framework because that would not work, for the reasons you are both setting out. You need to work out what it looks like in each partnership.

We have examples of UK-India science and innovation policy dialogue where strategic priority areas for future collaboration, such as net zero and healthy societies, were mutually agreed. There were then some very specific launches of educational exchanges, which are more about how you might access in the future.

On “own”, no specifics were agreed there, but within our work on healthy societies or innovation there are areas where we already have the advantage. We have the funding and regulation which mean that we can push forward. It is intended to be a guide and a way of thinking about different ways of approaching things rather than a rigid approach to it. We are looking at this in a number of other areas as well.

Lord Rees of Ludlow: Would you also agree that there are some high-priority areas that we cannot ever really own?

Kwasi Kwarteng: Yes. This is not quite your world, but it is near your world; nuclear fusion is a classic example of that. There is no way that any country is going to spend its way to nuclear fusion on its own. Even the Americans seek to collaborate and access. There are certain projects in the field of science and innovation that lend themselves to ownership, but others lend themselves far more to collaboration. That is why we should not seek to impose this rigid framework.

Lord Rees of Ludlow: We can try to increase our pro rata share in some of it.

Kwasi Kwarteng: You are absolutely right, and things can change. We lived in a world that many of us remember in which we owned civil

nuclear, but we are now in a world in which we have to collaborate and partner to deliver civil nuclear. Even within technologies, the balance can shift.

The Chair: We have kept you a couple of minutes over, I am afraid, Secretary of State.

Kwasi Kwarteng: I did not know when this was going to end. I thought it was 2.15 pm in my diary.

The Chair: If we might keep you a few more minutes, I will invite further questions from my committee.

Kwasi Kwarteng: Yes, just a handful. That was not an open invitation.

Q144 **The Chair:** We will not keep you beyond 2.15 pm, but I would like to get one in quickly, if I may. When Lord Browne spoke to us, he was concerned that he did not feel that business and industry were being well enough engaged with the national science and technology strategy. I would be interested to hear your response to him, had he said that to you.

Kwasi Kwarteng: I would have looked at all the other strategies we have had, and I would have said that there had been huge engagement from my department on things such as the energy White Paper and the net-zero strategy. They are concentrated in the energy space. I would be very interested to hear from him. We have been engaging with investors for the first time on how we best develop hydrogen technology.

There has been huge engagement from BEIS, and I would have to refer back to NSTC to see what engagement it has had. He may be right on that; I am not fully appraised of it. It is quite a new organisation, but that is something to bear in mind. From a BEIS point of view, we can always do more, but we engage with businesses quite frequently.

The Chair: Our perception has been that both the OSTs and the NSTC have not yet been communicated widely enough. There is a fair degree of confusion about that.

Kwasi Kwarteng: Maybe that is true.

Lord Krebs: To follow up on Lord Rees's question about own/collaborate/access, I wondered if you had a view about the area of digital science, particularly because the UK has decided not to associate itself with the EU programme, Digital Europe. Is this an area where we own, collaborate or access?

Kwasi Kwarteng: I imagine we own that. It is not strictly part of BEIS's portfolio, so I am wary about speaking out of turn. It is a DCMS-owned subject. We felt that we could have our own digital offer, but we are interested in collaborating as well.

Alexandra Jones: It will be all three because it is always all three. There are different measures in it. Of course, there are lots of ways to collaborate, and not all of them will be within Digital Europe. That was the decision, but DCMS leads on that.

As in many of those very broad areas such as digital, there will be areas we will want to own. In many of those areas, we will be collaborating as well. There will be areas that are purely about collaboration and areas that are more about access.

Viscount Hanworth: Do you have adequate scientific personnel in BEIS, or is this matter still subject to development?

Kwasi Kwarteng: No, there will never be a moment when I will put my feet up and say, "We have enough scientists in BEIS". It is always an ongoing mission to attract scientists, engineers and all sorts of people. We are moving in the right direction. Although Patrick Vallance is not in BEIS, he has been very focused on attracting more scientists into the Civil Service. We do a good job of that in BEIS, but we can always do better.

The Chair: Since we have no more burning questions from the committee, can I say thank you very much, Secretary of State and Alexandra Jones, for talking to us today?

Kwasi Kwarteng: Thank you.

The Chair: You said you might be able to submit some additional evidence in response to Lord Winston's question.

Kwasi Kwarteng: Yes, for his specific question about clinical professionals in the NHS.

The Chair: That would be very helpful. Lord Winston, can you refine that question further?

Lord Winston: Yes. We need more clinical academics. The posts are rare and increasingly needed to promote the further research of these people in this area. There is a real issue about trying to maintain clinical academics who have led so much research, and much of that is leaving the NHS in a way that is of very great concern. The pressures of the NHS, which we alluded to, do not alter the fact that the people being paid by the research council do not have time to do research properly. That needs to be looked at as well. There needs to be clear evidence that these posts are made more attractive so that we get better, or at least more, people applying for them.

Kwasi Kwarteng: You made a good point that they are being paid for out of the UKRI pot, but their incentivisation is part of a broader piece in terms of the NHS as well. That was the only distinction I was trying to draw, but we will get back to you on that specific point.

Lord Winston: That would be helpful. Thank you very much indeed.

The Chair: Thank you. We would appreciate that. We will then close the session and say thank you very much and goodbye.