HOUSE OF LORDS

Select Committee on Science and Technology

Corrected oral evidence: Science research funding in universities

Wednesday 19 June 2019

3.40 pm

[Watch the meeting]

Members present: Lord Patel (The Chairman); Lord Borwick; Lord Griffiths of Fforestfach; Lord Hunt of Chesterton; Lord Kakkar; Lord Mair; Baroness Morgan of Huyton; Baroness Neville-Jones; Lord Vallance of Tummel; Baroness Young of Old Scone.

Evidence Session No. 9	Heard in Public	Questions 58 - 66

Witnesses

Chris Skidmore MP, Minister of State for Universities, Science, Research and Innovation and Interim Minister of State for Energy and Clean Growth, Department for Education and Department for Business, Energy and Industrial Strategy; Paul Drabwell, Deputy Director, Science Research and Innovation, BEIS; Harriet Wallace, Director, International Science and Innovation Directorate, BEIS.

Examination of witnesses

Chris Skidmore MP, Paul Drabwell and Harriet Wallace.

Q58 **The Chairman:** Good afternoon, Minister, and your colleagues. Thank you all for coming. Minister, we are very grateful that you have found time in your busy schedule and with what is going on to come to speak to us; we are really appreciative of it. By the way, we are on live stream.

As background I would say that we started this inquiry particularly focusing on research funding for universities before the Augar review came out, but since the Augar review has come out clearly there are implications related to it.

I would be very grateful if you introduced yourselves starting from my left. I would normally ask the Minister to introduce himself first, but it will be easier from my left so we get you on the record. Minister, if you want to make any open statement, please feel free to do so.

Harriet Wallace: I am the director for international science and innovation at BEIS.

Paul Drabwell: I am deputy director in the science, research and innovation directorate at BEIS.

Chris Skidmore MP: Thank you to the Committee for inviting me back. I very much enjoyed our last session in January or February, when I had been recently appointed. Leaving the European Union has not quite worked out as might have been expected and some of the evidence I gave may be relatively out of date, so I am looking forward to being able to address some of those points and concerns. We have had major announcements regarding research funding on several occasions as part of our industrial strategy, and I am happy to talk about those later on. I would say for the record that, at the moment, I am interim Minister for Energy and Clean Growth as well as the Minister for Science, Research and Innovation.

Q59 **The Chairman:** Thank you very much. Let me start off with the Augar review itself. Clearly, it has implications for university research. My question to you is: what is your impression as to how much of Augar will be implemented? One of the key recommendations is that the Treasury makes up the shortfall in universities' fee income. Have you or your department made any assessment of the impact of Augar on universities' ability to deliver on research?

Chris Skidmore MP: The Augar review, published on 30 May, is clearly a milestone report. It is the first report to consider funding in a post-18 landscape for both HE and FE. It is a bit of a tragedy that, when the report was published and we had the launch, the focus in the media as always was an obsession on higher education at the expense of further education. It is important that we reflect upon that systemic and strategic approach that the report wants to take in looking at that landscape of post-18 education funding. We are in a strange place politically. I have just come from voting in the Conservative leadership elections. The Prime Minister was very clear at the launch of the report that the recommendations would be a matter for a future Prime Minister to decide to enact. The Education Secretary has also said that the final Government position on the Augar review that will be taken as part of the spending review. That is a place I wanted ultimately to be as Universities Minister. When I was appointed, there was talk of the Augar review being published earlier in February. There were delays, and we are now in a position where I am still keen to ensure that, if I am still Universities Minister in the next eight weeks or so, I take forward that period of consultation. It is such a major shift in looking at a whole range of aspects of post-18 education that it is important the sector is listened to.

Since becoming Universities Minister, I have visited around 35 universities and each time I have tried to hold a vice-chancellor round table with vice-chancellors from the region. I am under no illusion as to the economic consequences that a reduction in fee level would have, taking £1.8 billion out of the higher education system, and, speaking personally, there would have to be a top-up enacted for that to be prevented. I have been quite honest in taking that approach. If we wish to take forward the review and to look at how we fund higher education for the future, I have long believed that we need more students going to university compared to other international OECD countries. We certainly need more students taking master's and doctoral level 7 and 8 qualifications if we are going to compete internationally. I do not want to see our university system and its ability to conduct high-level international research compromised by any reduction in fee level that is not replaced. Those are going to be matters for discussion with whoever happens to be the Chancellor, the Prime Minister and the Education Secretary. Speaking in my personal capacity I would warn against any reduction in fee level without a commensurate addition of funding as part of the T-level grant top-up.

The Chairman: Thank you very much for a very helpful response. Augar was one of the key issues, but there are other issues that we would like to now raise with you that impact on universities' ability to deliver on research. Might I ask Lord Kakkar to begin?

Q60 **Lord Kakkar:** May I turn to the question of QR funding and in particular seek your views on the reduction in QR funding as a proportion of research council funding that has occurred since 2010? Has that been a conscious decision of the Government because they see the opportunity to support the research base in universities better provided through other funding streams? Do you propose now to rebalance that? We have heard that QR funding and the deficit that it now represents is a major problem for securing the science base in research-led universities. Do you have a view on how universities should be seeking to recover the full economic costs of grants and research activity they have if it is not through QR funding?

Chris Skidmore MP: I am fully aware of the historic reduction in real terms of QR funding and, while we have invested specifically in the industrial strategy with the increases in challenge funding, there is the question of what we can do to ensure that we maintain base-level flexible curiosity-driven research. I am a big fan of ensuring that we try to redress that balance of a decline in QR funding. Obviously, when it comes to money received into the research councils, the balance of the dual support research mechanism—it was about 63p for every pound going to research councils and it is now 65p—does not reflect the disproportionate increase in other sources of income. There are other funds that universities are significantly benefiting from. Last week, the Expanding Excellence in England Fund awarded £76 million to 13 institutions, and not traditional research institutions but to set up new research institutes. I have said I am the Minister for 2.4%, and it is a critical goal. I have done three out of four key speeches now trying to set out a pathway towards how we achieve 2.4%.

In my tenure as Universities Minister, I want to be looking at QR funding and providing a significant uplift. I hope that uplift will come shortly and that we will be able to make announcements for 2019-20 on QR funding. I have been working behind the scenes to ensure that, and we have already committed in the industrial strategy, which I wanted to mention. That was published about a year and a half ago and it said that we will also increase support for quality-related research through Research England, recognising the vital importance in providing underpinning funding for our world-leading universities to invest in the excellence and impact of their research and ensure the sustainability of research infrastructure. We also have the review that is being undertaken at Research England through UKRI that we commissioned as a Government to go into the spending review on how we can maintain dual support more effectively.

It is absolutely essential that, when it comes to QR funding, we do not lose sight of the need to ensure that there are funding mechanisms that will allow researchers to decide where best to spend their research funds. Within the architecture of research funding, there is a place for the schemes that we have developed, for example the Strategic Priorities Fund which came out of the back of the Paul Nurse review. I have seen so many examples of where QR is able to act as a catalyst for bidding into those challenge funds as well. There are a number of examples I can provide. This can often lead on to further funding opportunities by using QR so that you can maximise your research for the future.

I am making a commitment and, although I cannot give details now, when it comes to the announcement on 2019-20, I hope that we will be in a better place than even David Willetts was able to take us, which was a flat cash settlement, and we will see an uplift which will achieve a real-terms increase.

Lord Kakkar: That is very helpful and very reassuring, and thank you very much. One of the anxieties that we have landed on is that, if there was to be a change in the tuition fee, although the overall package suggests that the Government would make up the funding as part of that Augar settlement, if that were not to happen, there would be greater pressure in terms of being able to understand how one could provide that stable base of support for science research funding in universities. Has the department had any thoughts about what it might have to do by way of QR or any other related type of funding to deal with what might be a collapse of cross-subsidy from tuition and teaching into supporting the research base in universities?

Chris Skidmore MP: When we look at the balance of tuition, we know from some of the work that has been conducted that it breaks even at the moment. The total amount of research funding and that 30% gap between the amount universities spend—the £11.8 billion versus the £8.3 billion they get in—the £3.8 billion is plugged by international students who have a positive 134% return on the investment made in them.

First, in the longer term there is a wider issue about how we look at the funding of universities and tuition and whether there should be a cross-subsidy in place. That cannot be answered easily in a single year or a single spending review, but it is a question to pose. We have created the transparent returns system to track data to be able to demonstrate that this was not a simple case of being able to mark out where funding was coming from, but I would like to place greater emphasis on looking at the sustainability of universities for the future.

We have seen, with the KPMG report, this illusion of somehow degrees costing far less than the tuition fees. There are very few courses that somehow cost dramatically less than the fee level itself and often even at undergraduate level we see subsidy taking place. It is important that universities look to a wide range of sources. We cannot have this binary relationship of government funding universities to conduct research. We have moved to a position now where we know in a modern economy we have to have a triple helix approach that is reflected in all European countries of being able to leverage in business investment. We have done that across a wide range of funds, whether it is to do with the Industrial Strategy Challenge Fund or the Connecting Capabilities Fund or to do with some of those centres of doctoral training. In January, we have invested £446 million in 75 centres of doctoral training.

One of my frustrations as a new Minister with Brexit going on is that I have ended up sending out the door over £1.5 billion-worth of investment in research funding with very little coverage of what was going on. That has leveraged in about £383 million of private sector investment. If we are going to hit 2.4%, we know that 70% of all R&D out of the £35 billion of R&D spending that is being done in this country at the moment is being done in industry. When we look at raising our game to 2.4% we are going to need to be spending about £60 billion a year. That is going to have to come through industry playing a critical role. I want it to be a situation of not simply GlaxoSmithKline conducting research in its own institutes but investing in and recognising universities as the locations and the hubs by which it can bring in talented people from across the globe, and that the value of universities is reflected in that. It is going to have to come. We have seen £4.5 billion in recent years come from private sector investment into universities to fund research specifically, and we need to do more on that.

I am also very interested in charity research funding and getting the balance right, because that is where you only see a 60% return on investment and where there is a gap in funding when it comes to research. There are opportunities, but we have to be able to create that mechanism for future opportunities to evolve. That is why you cannot have research being fully costed and funded by the state.

Baroness Neville-Jones: One issue, Minister, which is perhaps slightly to the side of what you have been talking about, but it seems to me to be relevant to the whole question of how one reaches 2.4%, is patient capital. What plans do you have personally, or is the Government really making a drive, to increase the number of people who are sufficiently qualified to understand the technology well enough to be able to be patient capital investors? It seems to me it is a very important part of the scene. We have a huge City, but we have very few people doing what you see most frequently in the United States where there are investors who have the knowledge, who understand the finance and understand the technology that they are interested in. We have a small number of people like that but not nearly as many as we could and should have. On the whole, the Treasury has been associated with this so far, but what role can your department and you personally play in promoting this?

Chris Skidmore MP: There is an important role for the British Business Bank, which obviously comes under the portfolio of BEIS. There was an announcement yesterday that, for the first time, we have reached half a billion pounds-worth of investment that has gone out of the British Business Bank. I met with the chief executive two weeks ago to discuss what its future plans are. The role of the Business Bank is in being able to help leverage funds for agencies that specifically focus on technologies, so there is that brokerage mechanism. You might have venture capitalists or pension funds wishing to look to invest in new technologies.

Baroness Neville-Jones: They certainly need to be encouraged, because on the whole they have been extremely reticent and conservative and have felt they could not.

Chris Skidmore MP: Paul might be able to answer. I think it is 164 agencies—I cannot remember—but it is important that we foster that mechanism.

Paul Drabwell: May I say a few words on this? We have looked at this whole issue around universities and the commercialisation of their research, and indeed this is an issue that UKRI is exploring further. It is part of the role of UKRI to look at the impact of research and how it gets commercialised. On a number of measures, UK universities are around parity with the US. We do pretty well around licensing and spin-outs and that sort of thing, but we find that the UK universities have to work harder in the sense there is something around the investor community.

Baroness Neville-Jones: Exactly.

Chris Skidmore MP: That is definitely an area for further exploration, and I know UKRI is looking at it. We are doing well, but it is in pockets of certain universities so there is also a challenge to try to get the system as a whole to co-operate.

Baroness Neville-Jones: Please do better in that case.

Lord Vallance of Tummel: May I take you back just for a moment to the private sector, because clearly that is the bulk of what we are talking about? I guess you would be keen to incentivise and promote further common approaches between the private sector and universities. Have you have been talking to the Treasury about this? Are there financial incentives in leveraging the tax credit scheme which might encourage further private sector R&D investment, in particular if you were to try to target the things done jointly between the universities and the private sector?

Chris Skidmore MP: We have begun work on a range of not products but, I would say, opportunities that we would like to present, working alongside the Treasury and to advance to Treasury when it comes to the overall spending review. We still need the maximum possible public investment as a catalyst and, although it will be 70% private investment, I will live or die by the sword when it comes to being able to deliver in a spending review and, to be very clear, if we do not have the relevant public investment at the spending review, the IFS will be able quickly to unpick the figures and demonstrate the very steep trajectory we will need between 2023 and 2027 to be able to get to 2.4%. Nevertheless, on the mechanisms for doing that, I am keen that we harness the 2.4% message into the grand challenges missions that have been established, because again that presents itself with opportunities for both academia and industry in ensuring that the Government are set a challenge. A wide range of interdisciplinary teams are going to have to meet issues around how we have five years extra of healthy living even though the population is getting older, or how we ensure that we can decarbonise industrial clusters or have carbon-free housing by 2030, and going on to 2040 with the net zero target that has now been announced. Having those specific goals is the responsibility of the Government to be able to invest in those schemes. That is where we have seen the Faraday battery challenge. There is a specific problem that needs to be addressed around battery technology which leverages in business investment as part of the Faraday battery centre that has been set up.

I guess the question I have not quite been able to answer myself is to what extent you use the research infrastructure and institutes that are established, because I think there is a real case for place-based investment and realising that in a physical sense. I have been very impressed going around the country by, for example, the Max Planck Institute in Bristol or the Fraunhofer in Strathclyde. They have been a real magnet for industry investment. Partly, it is about people—and it is people; it is not always cash. It is the cash that is linked to the people who will come and those experts who are able to do the research.

The leveraging we get at the moment is that, for every pound spent, there is about £1.40 of private investment. If you look at Israel, it is about £3, and if you look at Germany, it is just over £2. We know we need to be able to seriously address this. I hope that, by investing in emerging technologies such as quantum, we can achieve that. Last week at London Tech Week, I announced £135 million-worth of additional investment in quantum, which has just taken us to the £1 billion investment mark. If you compare that investment and the UK's bit in quantum, that £1 billion mark is equal to the public investment of the entirety of the EU 27 put together. We want to be able to make that catalytic investment to be able to attract researchers from around the world. You have to get in there first, and there is no better way—and I have mentioned it before—than what happened with the Joint European Torus. That was a European investment, but it came first out of a British desire to be world leaders. We have seen generations of researchers in fusion come to Culham, and we are recognised still as world leaders when it comes to fusion. Even in ITER in France, the director-general, Bernard Bigot, wants to ensure that there are British contractors and workers who are experts in fusion over there. It is how to create that sustainable approach.

That is why I also feel that research institutes and infrastructures play a really important role in acting as magnets and creating that stickiness where people want to set up their own lives and stay in an area. We have seen that in Newcastle with healthy ageing and in Manchester with graphene and with cancer. In Northern Ireland, we have invested in the creative industries cluster on the back of "Game of Thrones". I went to see the film "Krypton" being filmed, and that is not being frivolous; it is demonstrating the huge economic returns in our creative sector. That is another reason why I am concerned that some of the proposals in Augar might damage some of the arts, humanities and social services, because we do extremely well out of those as well as scientific research.

Lord Hunt of Chesterton: I am disappointed because there is a very significant private sector in fusion at Didcot which is connected. It is very important and the insurance companies are investing in it. All the examples you were taking were public investments. Why are you not talking also about the private sector? The *Evening Standard* commented recently in its business pages how it is that there are only a few insurance companies investing very significantly, particularly Legal & General, and in fact they came to speak to our programme here on housing. I feel that fusion is really important and there is an enormous private sector input, and again and again and again all you talk about is the government lab. The government lab is well behind. There were articles in physics journals recently. This is what we should be looking at. It is very important to understand that and the insurance industry in Britain, as the business pages comment, is not doing as much as it should do in investing. What are your thoughts on that?

Chris Skidmore MP: I am very interested in the point you make on the insurance industry. I can only say I will take that away, because I am yet to make my fourth speech on leverage and looking at how we can ensure increased private sector involvement. I apologise if you are disappointed by my response. It was not meant to be indicative of public versus private. When it comes to the future of some fusion projects such as the spherical tokamak, that project is going to need at least 60% industry and private investment for the future if that is to come online by 2040.

Lord Hunt of Chesterton: 2025 is the project from Didcot. 2045 is what is going to happen perhaps in France using old-fashioned notions of magnets and so on. The new 25 Kelvin much more advanced magnet system has been all across the American physics journals in the last couple of weeks; nobody commented on them from London. That is where it is happening

Chris Skidmore MP: I went to ITER recently and I am very keen to explore all forms of fusion research. All I can say is I will try to see whether I can get to Didcot and take up the specific case.

The Chairman: Minister, I think you have covered it quite well. We will move on to Lord Mair's question, which has been partly covered but he can expand on it.

Q61 **Lord Mair:** Minister, you have already covered the 2.4% target in some detail. There is a question about the balance between public investment and private investment and the need for there to be considerably more public investment, at least for the third of what is needed to get to 2.4%. You have already outlined some ways in which that will take place. Is it correct that UKRI will be the vehicle in one way or another?

Chris Skidmore MP: Yes.

Lord Mair: Given the importance of engaging the private sector and engaging business, would Innovate UK be a major part of the way UKRI additional funding might happen?

Chris Skidmore MP: There are some exciting opportunities through Innovate UK that we have begun to explore because, when it comes to the opportunities for public investment, breaking that down, and seeing what form of investment is needed to kick-start research, some of that comes in grants but where we are moving to now with some of the work in Innovate is around loans and the opportunities there. The big challenge around private sector investment on 2.4% will be the long tail of SMEs which do not necessarily see the opportunities that investing as a business model in R&D can bring. That is where universities are also extremely important as place-making hubs, to be able to demonstrate to SMEs the value of taking on board a researcher and making those connections. We have invested small amounts of money in the university enterprise zones and we hope to be able to establish more of those. The loan system for Innovate is not quite £100 million, but there is potential that we look at setting these loans up so that you have the issue of an SME. Applying for a grant can be laborious. There is a process that you have to go through. I know there has been discussion in other countries—Germany or the Netherlands—as to what extent the application process deters applications from happening in the first place and therefore becomes a barrier for companies even deciding to make an application. Loans provide an alternative mechanism, and, when it comes to the role of Innovate, I am keen to explore also new mechanisms by which we can achieve SME investment in R&D.

Lord Mair: Is it the case that the 2.4% target is already going to be part of the spending review and will be part of what you wish to persuade the Treasury of?

Chris Skidmore MP: Yes.

Lord Mair: The 2.4% is very much in mind.

Chris Skidmore MP: What we have been trying to articulate—and I am very pleased that the Committee is looking at research investment as part of its report—is that we need to take action now on the 2.4%. It is a critical year. Obviously, there are other issues surrounding Brexit and the immigration system that are equally critical for the future of research, but if we do not achieve an uplift in investment, we will not make 2.4%. I have been giving these four speeches and giving a road map for 2.4%. UKRI is publishing an infrastructure road map that will look at where we have deficiencies in science research infrastructure and what we do well. It will publish its own road map of 2.4% probably in late summer but certainly ahead of the spending review.

The Chairman: Minister, I am sorry to interrupt you, but there is a division in the Commons and I do not know if you are paired or not.

Chris Skidmore MP: I am not, but I think I can abstain as it is a free vote and I am not quite sure what I am voting on. If it is restoration and renewal, I would rather spend my time with you.

The Chairman: I would volunteer to send one of the Members to go and vote for you.

Chris Skidmore MP: I would rather spend my time having a discussion on research with yourselves.

The Chairman: Do continue.

Chris Skidmore MP: Where was I with my train of thought? UKRI will publish its own road map. The spending review will occur, although I am not quite sure when. I am working on the assumption that it will be later this year, but we will have to wait to see what decisions the new Prime Minister, the new Cabinet and the new Chancellor make. The Government will then publish their own road map on 2.4% on the basis of the spending review. All initial work is to try to encourage the greatest uplift possible. Work is being done on spending review bids both from a research infrastructure point of view and from looking at grand challenges and what we might do to have cross-departmental bids. We are looking at new forms whereby it is not simply BEIS going cap-in-hand to the Treasury. We want some future ability to work with the Department for Transport. When it comes to looking at clean buildings emissions, we want to be working with MHCLG and working with the Department of Health when it comes to healthy ageing. We want to try to use the collective force of other departments to be able to reach the increased investment.

The Chairman: Minister, what do you make of the figures that, for the last eight or 10 years, the R&D investment of British companies has not changed and the 300% increase in R&D investment is mostly from overseas companies, with 30% of that from Europe countries?

Chris Skidmore MP: Trying to achieve a sustainable balance of R&D funding for the future will mean that some sectors race ahead of others. We are equally keen to ensure that we are able to leverage in as much international private sector investment as possible, and we are European leaders in that field currently. We published our international research and innovation strategy to discuss what international partners we may wish to be forging for the future. You are absolutely right that domestic investment in R&D will be critical to hit 2.4%. I am hoping that, by demonstrating increasing international investment, it will almost be a demonstrator project to show the opportunities and why research is so important. We have seen in space, for example, £9 million being invested from UKSA in an Israeli company which is setting up in Harwell, which is going to create tens if not hundreds of new jobs. That also helps create a stronger ecosystem around the Satellite Applications Catapult at Harwell. It is a bit like what we talked about with university research funding and how it is often on a composite basis. You cannot necessarily disaggregate international investment from its domestic impact and then the spin-off opportunities and supply chain opportunities for domestic companies.

Q62 **Baroness Young of Old Scone:** You touched briefly on the issue of the increased funds that have been put in on the industrial strategy targets and on the grand challenges. Obviously, that is very welcome, but is there a risk that that changes the balance between challenge-led and applied research and discovery and basic research to the detriment of the future pipeline of stuff that comes through blue sky and eventually becomes applied? Is that made even more of a problem by the fact that only 80% of the full economic cost is recovered from the Industrial Strategy Challenge Fund applications and that is putting pressure on QR and other sources of funds that we need to increase to the 2.4%?

Chris Skidmore MP: When it comes to the challenge-led research, it is still absolutely fundamental that we have the curiosity-driven opportunities for research, and that is why it is important to continue to look at what we could do more to help invest in QR. As I said, it has gone from 63p in the pound to 65p in the pound. There is the UKRI review and I am keen that we get a real-terms increase. I have been pushing for that on QR specifically as opposed to flat cash, which has led to a 13% reduction from 2010. When it comes to the balance of research the *Frascati Manual* defines research as basic, applied and experimental. The OECD analysis that was last done in 2016 shows that, as a proportion, we have had about 18% basic research, 44% applied and 38% experimental development, and that is pretty much on the European average. I do not feel we are in a place where we are somehow disproportionately weighting research streams against experimental research and that somehow, by looking at applied research, this is skewing the field.

We need to ensure that, when it comes to research, there is also that investment in people. That is why the centres for doctoral training are so important. As I said, that investment has come by co-investment taking place. I passionately believe that, instead of thinking of research as being a 2D perspective—state/taxpayer funds research/product development—you will only get commercialisation of the research taking place and you will see the virtuous circle occurring whereby the public understand the reason why we fund research if they can see the collective product at the end of that. That might be cures for cancer or it might be looking at our Newton Fund research dealing with the Zika virus. It is important that we place money where we can understand its greatest impact and value. That has to be done using the Haldane principle, which is enshrined now in legislation, but I believe that if it simply meant that we had the state funding research we would miss out on a valuable link, which would be how we then lift that research out into society and how we commercialise that research to demonstrate the future-facing opportunities that it presents.

Lord Hunt of Chesterton: Yesterday I was at Imperial College on its advisory committee, and there was very great concern about groups that had participated in the post-doctoral research programme. All across Britain it is quite extraordinary that after a three or four-year period there has been a decision that we have to move them. You are just beginning to build that up and there are a whole lot of other ones popping up. It has not been done in a very sustainable way. It is really mystifying to universities. Three or four years is nothing. If it was a 10-year significant post-doctoral programme I could understand that. The universities are quite perplexed.

Chris Skidmore MP: I hope that some of the funding mechanisms such as the 550 future leader fellowships over a 10-year cycle will help to go some way to addressing that. We have invested £900 million in those 550. There is a real question about how we ensure that we can attract researchers from abroad as well.

Lord Hunt of Chesterton: As a result of stopping these, quantums are leaving. It is not a good way to proceed.

Chris Skidmore MP: The very first speech I gave on 2.4% was at the LSE and it was about people, because, first and foremost, if we cannot base our 2.4% on attracting talent into this country—I am sure we will touch on some of the immigration issues later—we will not be able to do it. It does not matter how much money we invest financially.

I am very keen to work with VTI on postgraduate conditions. It is a Cinderella subject in government, because it falls between two departments quite ineffectively. The Department for Education stops at master’s and you suddenly pick up with PhDs and DPhils. When you look at post-doctoral careers and the one-year/10-year process and the uncertainty around careers, and I speak as a failed academic here, I can see the unsatisfactory conditions in which young early-career researchers are being placed.

There is a concordat that VTI is now looking at refreshing, and it is extremely important that we look at the conditions of early-career researchers, both when it comes to their workloads and their contracts and how those contracts are formed. We will talk about the MAC £30,000 salary advisory level, and we know there are many laboratory technicians and early-career researchers earning under £21,000 a year.

Why do we find that acceptable? All these people are world-class undergraduates and have firsts, and we need to work out a way of ensuring that we have greater investment in these individuals so they do not go off to other countries.

The Chairman: Lord Hunt, do you want to ask your question on PhD funding?

Q63 **Lord Hunt of Chesterton:** It carries on, really. How do you intend to ensure that there are enough researchers entering the system via PhDs, in order to meet these UK R&D targets? How many more PhD students would universities need to recruit? It seems that the recovery rate for PhD funding is rather low. It is a serious matter, particularly when you see people not coming to the UK or good people leaving, as I do. It is a worrying situation.

The Chairman: In addition we were told that 2.4% R&D would require another 160,000 or so more researchers.

Chris Skidmore MP: I sought to address in my LSE speech how we define the researcher for the future, because we know from statistics that 80% of people doing a doctorate or a master's at postgraduate level want to remain in academia, but only 10% of people ultimately achieve that, so there is quite a significant difference between expectation and reality when it comes to those who conduct postgraduate research and what roles they end up in.

As I say, I am a failed academic myself. I never quite finished my DPhil. I did my master's and I have ended up where I am. There will be those individuals who will do their master's and perhaps not finish their PhD. There will be those who finish their PhD but cannot find a tenure or who decide that they want to look at alternatives, but I am really keen to ensure that we do not lose these people from the research ecosystem.

The 260,000 figure that I quoted in my first speech goes to research taking place and the individuals—public, private, in industry, in academia—and how we can try to create that balance more effectively. At the moment the perception is that it is academia or bust, and I want to move away from that. We have made a significant investment of £1.3 billion in doctoral centres—

Lord Hunt of Chesterton: May I stop you there? Why do you say that it is PhD or bust? As I know in Cambridge, because I am involved there, the people who have decided that they are not going to be researchers are often very successful in forming small companies.

Chris Skidmore MP: We need to ensure that they continue those spin-out companies but retain links with academia. They might set up a company, but if that company happens to fail it is very difficult to get back through the door sometimes. It is about how we can ensure that there is a more porous opportunity for individuals who might go off and set up companies to come back into academia in the future. That is where I am really keen to create those systems. Cambridge is quite unique in some of the work it has done in the past in AI, life sciences and tech and the cluster that has formed there, but I want those clusters to form everywhere.

Lord Hunt of Chesterton: There are lots of examples from our Chairman at Dundee.

Chris Skidmore MP: Work has been taking place at Dundee.

The Chairman: On that note, we will move on to Baroness Morgan.

Q64 **Baroness Morgan of Huyton:** And on to the lovely subject, Minister, of Brexit. This is your opportunity to say anything you would like to say about visas. You know that this Committee generally feels very strongly that people are more important than the question I am about to ask you, which is about funding, but it would be helpful to hear your view on that—I know you have talked about this before—as part of the conversation about research post Brexit.

In particular, if we lose access to EU funding sources, how confident are you that the conversations in government are leading towards making up that funding in its entirety? We have heard that it would have been two-thirds rather than the full amount. Where do you think things are on that?

Chris Skidmore MP: I will not repeat the detail of the Government guarantees and the underwrite extension, because the Committee has probably heard those and has the ability to find the right formula for them. Obviously, the guarantees do not cover all forms of funding, particularly European Research Council funding, Marie Sklodowska-Curie actions and the SME instrument. That makes up a significant part of the funding.

When it comes to Horizon funding generally for the UK's R&D base, we know that 14% of funding is related in some form to Horizon. I have always been keen. I have attended two European competitiveness councils now and have a third coming up in Finland on 4 July. While we remain in the European Union, we will try to de-escalate tensions to demonstrate that while leaving the European Union we do not want to leave our science research partnerships behind.

I have made a very clear statement of intent that I want to see us associated to the future Horizon Europe programme. That is yet to open. There is frustration and people will say, "Why can't you simply talk to the Commissioner or the Commission and just say that this is what we would like to achieve?", but it is not yet possible to associate to the regulation. I have also been having discussions with other associated countries into the existing Horizon 2020 programme—the Norwegian Minister, the South African Minister and the Swiss Minister—on what the future association of Horizon Europe might be.

Nevertheless, I think we have ended up in a different place, if I am honest. We used to say—what was the term—"nothing is agreed until everything is agreed" and we had everything on Horizon 2020 wrapped up in a deal. That is why when I last came to the Committee I was a big advocate for the deal, because it would have protected this research funding. The deal has not been successful and has not been voted through by the Commons, so I am keen to ask whoever is the new leader, the new Prime Minister, the new Chancellor what action we can take now to be able to fully fund the existing Horizon 2020 programme.

Interestingly, at this week's European Council, a regulation is being debated and a vote will be taken on whether to offer the UK the opportunity to participate fully in Horizon 2020 until the end of 2019 if it continues to pay into the EU budget. As Science Minister, I would like to see that taken very seriously by whoever becomes the future leader.

Equally, if we are approaching no deal—no deal will have very severe consequences, and I am under no illusion as to the impact it will have; it is beginning to be felt, in any case—we should make a bold offer to look at the programmes within the EU, at Horizon and Erasmus, and pay whatever we are able to pay to be able to retain membership of these schemes. It would be useful if we could disaggregate it and look at these pillars, but that is at a higher level of discussion than I as a Minister can have around those tables.

I hope, however, that a future leader might look at this. If we are to move away from a deal that cannot get through the Commons, we have to break this log jam and free science and research education partnerships and protect them—fast.

Baroness Morgan of Huyton: Do you think there is sufficient understanding that science needs to be seen in the broad description of that: in other words, it is not just physical sciences but social sciences and so on? We have heard pretty strong evidence and concern about that.

Chris Skidmore MP: One reason why I am a big fan of Horizon Europe—obviously when I last came here, the regulations had not been fully applied, so I was more conditional in my approach to what might happen with Horizon Europe—is that most of the regulation has passed trilogues and is now favourable to us.

A previous issue we had was that every project which was going to commercially exploit its results would have to show benefit to the European Union. That is no longer the case, as we highlighted the restrictive impact this would have on all participants. We are now in a place where that applies to broader themes within Horizon Europe, and the pillars of Horizon Europe reflect or are very similar to some of the grand challenges that we have set ourselves domestically.

Also, being a humanities scholar, I am very interested in Horizon Europe because of its interdisciplinary approach whereby it places the social sciences and humanities at the heart of these challenges and missions to solve some of the problems for the future. It is important that we continue to explore Horizon Europe, but I look at it as a hub and spoke approach.

I see Horizon Europe as being at the centre of an approach I am taking. What do we need to do to extend our opportunities internationally? The international research and innovation strategy was published at the EUREKA Global Innovation Summit. We have just finished our chairmanship of EUREKA. We are keen to explore under seven pillars how we can establish better partnerships for some of the UN sustainable development goals, for example, and some of Sir Adrian Smith's work on future international funds.

That has two parts to it. One is to look at alternatives to Horizon Europe. That is not to scare anybody—we still want the option of associating fully to Horizon Europe—but there is a risk of ERC, Marie Skłodowska-Curie actions and the SME instrument potentially not being open to a third-member country, so we need to be able to provide alternatives.

Your point about the wider issue of the funding coming in and the funding that we attract as a result—we put £1 billion in and get £1.1 billion out—is not a quid pro quo where the Treasury needs to find £1 billion. It is about how we look at a wider package as a result, and reflecting on that we would need to increase the spend to be able to make those international funds attractive. They need to be portable and open to international researchers so that they can come to this country.

The work that Adrian Smith is doing is very important. He has met with over 100 stakeholders so far. In July, he will certainly present interim conclusions to our high-level group covering Brexit, which covers all the academies and the Russell Group universities.

Baroness Morgan of Huyton: Finally, for the record, it would be very helpful if we heard that you are continuing to recognise the importance of people in this whole conversation and that whoever the next Prime Minister is there will be pressure from the Universities Minister with regard to the importance of ensuring that there is still a flow of high-quality people backwards and forwards.

The Chairman: A "yes" would be enough.

Baroness Morgan of Huyton: I just think it is useful to have on the record.

Chris Skidmore MP: Absolutely. I have already been public about the MAC £30,000 salary cap. As you may know, I publicly opposed potential recommendations in Augar that would affect that.

At the other end of the scale are the minimum entry requirements. As a Government we should not be disinvesting in people. When it comes to looking at some of those visa and post-study work visa issues, if we do not take action, Canada and Australia are already well ahead of us and we will suffer as a consequence.

Baroness Neville-Jones: Very briefly, on the question on EU funding, one of the forms of EU funding which I fear will not be open to us in any circumstances if we leave the European Union is the European Regional Development Fund—the ERDF—which plays a surprisingly important role for universities that tend to be outside the golden triangle, not located in an urban centre and where the regional element can be at play.

I am sure you are personally aware of that, but how widely appreciated is it in government that this is another element of European funding which we will not be eligible for? It is relevant to the place agenda in particular. Is there any thought in government on the ability to make up what is lost in the bids in European funding through other sources such as government?

Chris Skidmore MP: I entirely agree. To put a couple of statistics on the record, our allocation for structural funds for the 2014-20 multiannual financial framework is £8.4 billion, 24% of which has been invested in innovation and research objectives. There has been a structural funds guarantee: funding has been guaranteed for projects signed before exit, and the guarantee will fund new structural projects started after exit up until December 2020, including a planned round of investment to continue until 2023. That is a similar guarantee to what has been offered when it comes to Horizon projects.

This issue is an interesting cross-departmental one, because the structural funds are in both BEIS and the Ministry of Housing, Communities and Local Government, and those departments will make final policy decisions on them. The Government are committed to creating a UK shared prosperity fund to succeed structural funds.

I have no answers on that shared prosperity fund per se, not being the Minister in whose portfolio it lies, but an interesting development last week was the appointment of Jake Berry, the Local Government Minister, as a Minister also in BEIS. That will provide a good opportunity across Whitehall to ensure that we can work far more closely on this. My last meeting with Adrian Smith raised the issue of structural funds specifically, and they have certainly pointed to that as something that they also wish to look at. I do not know whether Harriet Wallace wants to comment.

Harriet Wallace: Sir Adrian has been getting out and about and engaging extensively with businesses and researchers around the country. He went, for example, to the Royal Society of Edinburgh to meet young researchers and fellows there, and he will be in Belfast shortly, and in Coventry, getting out and about.

I know that this is one of the issues that people have been raising in their submissions to him, so it is being looked at, and we are really looking forward to seeing what comes out of his recommendations when he gets to that point. It has very much been clocked. I have colleagues who are working across CLG and BEIS on what the future UK scheme should be. That work is at an early stage, but they are looking at all these issues.

Baroness Young of Old Scone: Could I ask a brief question on the timing of the consultation on the UK shared prosperity fund? We have been waiting for quite a long time.

Paul Drabwell: My team works quite closely with MHCLG on this. That consultation is very much linked to the whole question of EU exit and a deal; hence, it is not clear at this point when that consultation will be published, to my understanding.

Q65 **Lord Vallance of Tummel:** My question is about people in the context of Brexit. You have answered it in part in responding to Baroness Morgan, but may we push it a little further?

We know from the evidence we have taken that researchers from mainland Europe are beginning to drift across the Channel already. We also know that the waiting line, if you like, of people from the other side of the Channel wanting to come to the UK for PhDs is shortening, so even before anything happens the drift is fairly evident.

If we were to have in extremis a no-deal Brexit, one can only expect that to accelerate, probably in both directions. Given that you are looking for the additional 260,000, which is critical to you as the Minister for 2.4%, are there any contingency plans that you can put in, perhaps directed at special deals for those from mainland Europe? Where are the other marketplaces that you are going to get these people from?

Chris Skidmore MP: With regard to the pipeline of European research talent and Brexit issues, I was pleased to be able to make the announcement—earlier than we did last year—on the 2020-21 home fee status for EU students, enabling them to have the same opportunity to study as UK students. I am hopeful that we will also make an announcement about postgraduate student funding in due course.

As part of our international education strategy, we have set ourselves a specific goal of 600,000 international students, whether European or non-EU students, to study in the UK by 2030. We currently have about 134,000 EU students and 180,000 non-EU students. You see the importance of an uplift that would be needed.

There is also an issue with specific countries that are predominantly reflected in our international student make-up. We want to be able to broaden the portfolio of countries that can come to this country, which is why it will be vital for whoever forms the new Government—the new Prime Minister, Chancellor and Education Secretary—to tackle head on issues of visa applications, visa fees and post-study work visas. If we want 600,000 international students to come to this country, we have to provide the conditions for them to come here.

The Chancellor made some statements in the Spring Statement about PhD-level occupations being exempt from the tier 2 general cap and the Immigration Rules on absences for research being reflected. I will not go into the White Paper, but there are obviously moves in the right direction towards a milder approach to migration within an HE context.

A decision will ultimately need to be taken about our future relationship with Europe. I was keen for a deal that recognised our historic partnerships and links, and I am keen to ensure that we maintain our participation in the European University Institute, for example, and our links to German and French universities and universities across Europe.

In the absence of a deal, the question arises how we can ensure European students versus international students, a question that remains unresolved because European students, even with student exchanges and Erasmus, are significant forms of income for universities. It is not just about income, however, because 8% of students are European and 30% of all university staff are from Europe. I totally recognise the point, but until the final nature of a future partnership is agreed with Europe, the question remains one that needs to be resolved.

Lord Vallance of Tummel: I get very commercial, and excuse my background, but the goal is 600,000, and goals are quite easy to set up. The issue then is what individual plans get you to that goal, given different conditions that might apply at the time. Do we have as yet a contingency plan that would meet that goal in the event that there is no deal with Brexit?

Chris Skidmore MP: The honest answer is no. The caveat I would like to add to that we have allowed for a yearly refresh of the international education strategy to look at and re-set the policy objectives in the strategy to see whether they are working. The last international education strategy published in 2013 simply had a financial figure of £30 billion, without any real understanding of the sustainable pathway to get there.

It is by listening to Universities UK and specifically targeting student numbers that it will be transparent, a bit like with the 2.4% target, whether we are off target, how far we are off target and what measures we need to take. Having that refresh will also be important. Building it into the strategy will not lead us to being blindly five years off track and seeing divergent paths. I hope that we will be able to take remedial action sooner rather than later if we find that we are not achieving what we hope to achieve.

Baroness Young of Old Scone: Could you comment on the Office for Students' letter that came out a couple of months ago or so, putting universities on notice that their predictions about the level of students that they were going to recruit over the next five years was, in its view, unsustainable and that their finances were therefore unsustainable? In the light of a no deal and what is happening with European students at the moment, would you like to comment on the contents of that letter?

Chris Skidmore MP: At the moment, the OfS is going through a process of registering around 350 higher education providers, and there may be some institutions/providers who struggle to be registered because they do not meet the conditions that are needed to be registered.

I was not Minister at the time, but these were the debates that we had about HERA and the establishment of the OfS. Its full powers will go live from 1 August this year. I have taken forward a number of statutory instruments in the Commons to ensure that it has powers to fine, that it can have the right sort of data, and that its registration fees for registered institutions are in place.

The act of registration itself has allowed the OfS to shine a light on HE institutions' ability to financially model and forecast for the future and on the financial sustainability of those institutions, allowing the OfS to be able to highlight institutions that may have figures that seem unsustainable to the OfS but perhaps not to the institutions themselves.

All institutions have to demonstrate five years' sustainable financial modelling in order for the registration process to take place. The OfS being able to act as a preventive mechanism to step in and demonstrate that an institution may not be on the right financial track is really important.

Baroness Young of Old Scone: May I stop you there? I think the material point in the OfS letter was that it went to all the universities, so it was a kind of general profits warning; it was not targeted at ones that had just been a bit overenthusiastic. It was a warning to the sector, was it not?

Chris Skidmore MP: The OfS letter also demonstrated that the overall sector was in sustainable good financial health. The OfS wanted to make the point that it is a risk-based organisation, so its approach when it places registration conditions on institutions is that it will look at the financial accounts of those institutions and monitor the ones they feel may be at risk as opposed to the others.

That applies equally to access and participation plans and measures. There is a similar risk-based approach where certain institutions are not meeting what is expected of them, and the OfS will place monitoring conditions on them. We have seen several examples recently of institutions taking out loans and potentially struggling to repay them. Those issues should be resolved sooner rather than later.

The work that goes on with the OfS and individual institutions is between the institutions and the OfS. I think the letter as a whole suggested that the sector was not necessarily making unsustainable forecasts but that a number of institutions were.

Baroness Neville-Jones: Following up on what has just been said in answer to Baroness Young's question, I sometimes feel from the university end that the Office for Students needs to remember that although public funding is involved, these are private sector institutions with royal charters and they have a right to a degree of independence.

Special measures and that sort of thing are pretty extreme moves. I am sure we all recognise the need for public money to be properly spent, but in the end all these organisations have to be allowed a certain degree of independent responsibility for how they conduct themselves. It does not always sound like that from the communications you get.

Chris Skidmore MP: I passionately believe in the autonomy of universities to make decisions about admissions and future financial forecasts. I have not been a Universities Minister clubbing universities over salary pay levels. A risk-based approach needs to be taken and it needs to be highlighted that universities as autonomous institutions—

Baroness Neville-Jones: Public opinion has done the job.

Chris Skidmore MP: —place themselves at risk if they take decisions that cause reputational damage to the institutions, but it is up to those institutions to make the decisions they do.

However, if there happens to be market failure or institutions are unable to continue due to financial pressures or a whole range of issues, it is really important that student protection plans are put in place. That is why I am really keen that the OfS articulates the student protection plans to ensure that students know about them. Research from the Higher Education Policy Institute showed that very few students were aware of these student protection plans. I am really keen to ensure we demonstrate that.

The Chairman: I think Lord Griffiths has an easy question for you.

Q66 **Lord Griffiths of Fforestfach:** It is a final question. David Willetts in his evidence to us said that because universities were the responsibility of two government departments, one of which wishes to reduce the resources for teaching and the other to increase the resources of research, it was like driving a car with one foot on the brake and one on the accelerator.

Some years ago now when I was responsible for advising a Minister on broadcasting, which I got very involved in, broadcasting was the responsibility of the DTI and the Home Office and, frankly, it was a disaster. It was not happy and it was not productive, because they had different objectives and perspectives and they looked at part of the problem but never the whole.

I cannot speak for other colleagues here, but it seems to me, not least going back to the idea of a university and the two cultures, that there is a strong case for universities to be solely the responsibility of the Department for Education. Obviously others have an interest, but we would like to know your view on that and to have it on the record so that we can use it.

Chris Skidmore MP: I very much enjoy being a Minister across two departments, and being involved in the industrial strategy is a tremendous opportunity to see us achieve 2.4% and be able to put the strategy in place.

There are some areas where I think the priorities of BEIS and DfE are in perfect harmony. The international research and innovation strategy and the international education strategy, for example, might as well be two sides of the same coin. I found that when it comes to cross-departmental working, the focus on the challenge-based approach—in the same way as bringing a cross-disciplinary approach to humanities and sciences and the two cultures performing around a single mission— also works for departments very well.

Having those ministerial meetings to break down the silos is incredibly important. That is why we have just set up again the inter-ministerial group looking at clean growth, which I am covering as interim Minister, and with the net zero target we will have to have all departments focusing on this. I recognise that you can end up fast falling into silos if you are not careful.

The question about university funding is one of the unit of resource and, going into the spending review and reflecting on other priorities, how you ensure that universities are not squeezed out as a unit of resource against a keen popular campaign for real-terms funding increases per pupil in secondary schools. The increase in the population and the demographic changes will probably mean a £10 million uplift simply to have a continued flat cash settlement. I am concerned to ensure that universities get a fair hearing when it comes to the teaching grant, and that if decisions are taken by a future Prime Minister or future Education Secretaries it is not robbing Peter to pay Paul.

I also feel that there is latitude for a post-18 Minister on FE versus HE. It is a frustration that I have felt. I do not want to speak out of turn here; degree apprenticeships are not in my portfolio, yet I go around many universities and am unable as an HE Minister to necessarily address concerns that might have been raised by the HE institutions about where the future policy decisions will be taken on degree apprenticeships, how we can ensure that SMEs can look at these issues, and how we can create course innovation that is not simply the day a week being taken away, which is why SMEs cannot look at degree apprenticeships as something that could be expanded to a greater extent. There are 24,000 degree apprenticeships now, up from about 200 in 2012, but it would be great if we could go further with that.

These things matter, but when it comes to the industrial strategy I have really seen how BEIS, having been two departments—obviously we saw one department being folded into another to create BEIS, the Department for Business, Energy and Industrial Strategy—works around a single programme.

We have heard a lot of talk about a long-term plan for education, and I would hope that that long-term plan will also look at post-18 education. There are many positive things in the Augar report about portability, how we can have step on/step off courses and how we can create more modular-based approaches—and, indeed, how we can ensure that HEs offer level 4 and 5 qualifications, which might help to deal with some of the issues to do with the FE sector not being strong enough to take an increase in FE students. My first speech was about unity of purpose, and I want unity of purpose for HE and FE and across the Whitehall departments.

The Chairman: At the current rate you are going you might soon be involved in all the government departments. Minister, I am sorry to have kept you longer than we promised we would keep you. Thank you very much indeed to you and your colleagues.