



Science and Technology Committee

Corrected oral evidence: Delivering a UK science and technology strategy

Tuesday 1 March 2022

11.25 am

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

Evidence Session No. 4

Hybrid Proceeding

Questions 23 - 31

Witnesses

Professor Anne Ferguson-Smith, Pro-Vice-Chancellor for Research and the Arthur Balfour Professor of Genetics, University of Cambridge; Professor Chris Pearce, Vice-Principal for Research, University of Glasgow.

USE OF THE TRANSCRIPT

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

Examination of witnesses

Professor Anne Ferguson-Smith and Professor Chris Pearce.

Q23 **The Chair:** Good morning to our second panel of witnesses. Thank you both very much for joining us today.

Before we start the questions, let me remind you that the session is being broadcast on the internet. There will be a transcript of today's session, which will be sent to you in a few days' time for you to check for minor corrections. If there is anything that you do not get a chance to say, or you think afterwards you wish you had said, we would be delighted to receive supplementary evidence in writing after the meeting.

I would ask when our witnesses first speak to introduce themselves with their names and their organisations, as that would be very helpful.

I will kick off with the first question. The UK Government have set themselves an ambition to be a "science and technology superpower", including a substantial increase in R&D funding. What role do you think universities should play in this ambition?

Perhaps I could add two quick supplementary questions. A science strategy will need to strike a balance between applied research and blue-skies research. Do you think we have that balance right at the moment?

Are you concerned that perhaps we have a frequently changing science policy in the UK, or do you think things are reasonably stable? I would be interested to hear your views on that.

Professor Chris Pearce: I am the vice-principal for research at the University of Glasgow, where I am also a professor in the James Watt School of Engineering and I have held a Royal Academy of Engineering research chair.

Let me start by saying that I think it is very significant and welcome that the Government have recognised the centrality of science and technology to the UK's prosperity and they have backed this up by a significant uplift in R&D funding. The establishment of the Council for Science and Technology is also significant because, hopefully, that will place science and technology at the heart of government thinking, alongside the other big issues such as the economy and health.

To the specific point about the role of universities, you will not be surprised that of course I believe universities must be at the heart of this endeavour. It is thanks in very large part to the strengths and breadth of our university research in the UK that we are globally recognised as a leading research nation.

Also, we should not lose sight of the fact that UK universities are already an internationally connected, highly collaborative research community, making the UK one of the most collaborative scientific nations in the world. Perhaps more than just an ambition, we need to further

strengthen what is already a strong position but recognise that there is pretty fierce international competition out there, with countries having significantly greater R&D investment and longer-term R&D policies.

Yes, universities must be at the heart of this ambition, and of course our core business is developing the highly skilled people that this will need. We also attract people driven by their curiosity and their desire to tackle challenging problems, and to fill the biggest gaps in our knowledge. We also have the world-class infrastructure and facilities that this needs.

If I was to give a message, I would say to the Government in this ambition to engage early with the university sector, work with us as partners in developing the strategies and, more importantly, the delivery plans that this will need; utilise organisations such as Universities UK, the Russell Group and CaSE; and work with the devolved nations. Of course I would say that from a Scottish perspective.

As to the balance between applied research and blue-skies research, I do not feel that the balance is the real issue here. If the question implies that we need to do more research, I make the point that UK science, as I have already said, is one of our biggest assets, not least because of our curiosity-driven, blue-skies research. This fundamental research is the fuel for innovation and technological development. We lose that at our peril. In my own institution, I would characterise many of our research labs as undertaking a healthy mix of blue-skies and applied research. I do not think it is one or the other.

If I was to stress one point, there has been a significant shift within universities over the past decade or two. The research impact and innovation agendas have really changed how we think about both the significance of our research and how we do our research. Engagement and co-creation with partners is now routinely embedded in what we do. Many other countries are looking at the UK's approach to research impact. So it is not just about the balance but about whether we have the right mechanisms in place across the whole system to fully exploit what is an excellent research base.

The Chair: What mechanisms do you think are missing?

Professor Chris Pearce: The innovation space in particular is quite a confusing landscape and it is quite fragmented. There are more mechanisms to encourage industry and academia to work closer together. We are all familiar with the fact that ARIA is coming. That is potentially exciting, but it is just one small part of a pretty large jigsaw.

On your question about a frequently changing science policy, I would certainly agree that we need much more certainty and stability in our approach to science policy. Research is by its nature a long-term endeavour, as is the translation of research into new products. That can also be long term and indeed tortuous. Both universities and industry would benefit from more certainty. We need policies that, if possible, span Administrations. This is backed up by the experience of other countries. I will stop there.

The Chair: Thank you very much.

Professor Anne Ferguson-Smith: I am the pro-vice-chancellor for research and international partnerships at the University of Cambridge. I suspect there may be questions on UKRI later, so I should also declare that I sit on UKRI's BBSRC Council and previously was a member of the MRC strategy board and Chair of its Molecular and Cellular Medicine board.

I think the UK is already a science superpower, and it has and continues to make a huge impact globally and nationally, but what more can it do and what does a super superpower really look like? It looks like a nation that is connected in the way its basic and applied research comes together. It is connected nationally. We are a tiny country. We should be able to engage stronger connectivity between our infrastructures nationally, cross-sectorally and, importantly, cross-disciplinarily. Research is looking very different from what it did 10 years ago. We also need to put in place structures that enhance mobility nationally and internationally.

To do that, we need to develop a plan, a national strategy. The Government is lacking a national strategy for their research agenda—not a short-term set of policies but a longer-term, 15 to 20-year strategy that surpasses political boundaries and provides a framework on which they can integrate national agendas such as the levelling-up agenda, the skills development agenda or the research culture agenda, and align these in a strategy that connects cross-sectors, including academia, industry and the private sector, and regional investment.

As regards the role of universities, there is no question that central to the development of a successful integrated goal in this context is our academic institutions. They are superb, despite minimal investment. I suggest we punch way above our weight. They have contributed extensively to the national infrastructure in education, research, industry and the economy.

Q24 On the balance of applied versus basic, when we think about how our research funding and the strategies around it are developed, I think we have got the balance about right, but it is a precarious balance. There are elements that have really changed the perspective of academia on the relationship between basic research and its application. One key aspect of that over the past decade or so has been the emphasis on the impact of research. We have seen, certainly in Cambridge, that the language, the understanding and appreciation of the value of directing our research in impactful ways has really made a difference to delivering impact.

Viscount Hanworth: My question concerns the alignment of academic research with the Government's priorities. How do the Government exercise their influence at present, and how might they do so in the future? What is the intended role, in your perception, of the recently established knowledge exchange framework?

Professor Chris Pearce: To what extent do the Government influence what research gets funded? I think to a degree. I will give an example of where a degree of influence and strategic focus is essential while not overly constraining the research that is being undertaken. One example is

the UK National Quantum Technologies Programme. It was established to enable the UK to become an international leader in the development and commercialisation of emerging quantum technologies. It is a £1 billion partnership and it was created as a strategic decision to strengthen the UK's capability in the context of a global race to develop new quantum technologies.

That programme provides leadership, strategic vision and co-ordination in response to a government imperative. It has within it four technology hubs, each with a university at its centre. One of the hubs happens to be at the University of Glasgow. The hubs are geographically distributed across the UK and each hub embraces researchers from across the UK. Being embedded in the university, they benefit from the existing cutting-edge research facilities, and the expertise and support that we have, but the hubs themselves undertake both fundamental and applied research, as well as translation of this research into market opportunities. Although this is directed to a degree by government, the hubs and the universities are able to explore research ideas within the bounds of the overall vision of the quantum programme. I am happy to give more details on that.

The knowledge exchange framework has not been adopted in Scotland, so the University of Glasgow is not required to take part in it. My colleague would be better placed to refer to that.

Viscount Hanworth: Anne Ferguson-Smith, the question is: how do the Government bring their influence to bear on academic research?

Professor Anne Ferguson-Smith: The Government play an important role by setting priorities. I think that their priorities are right. They have a good set of priorities that resonate very well with those that the academic institutions are developing. There is a strong resonance there. The relationship with the funder, UKRI, is central to delivering the Government's strategy. That connectivity between the funder and the institution, and indeed the Government and the academic institutions, is very important also.

I sense that the dialogue between government and academic institutions could be better. There is more that we as academic institutions can do to explain to government what goes on in our institutions and how we deliver the strategic priorities including the due diligence approaches that we take to do that along the way.

Q25 Viscount Hanworth: I would like to go off on a tangent. What has been the role of ad hoc advisers on whom Ministers sometimes rely? I am reminded of the baleful effect of Churchill's favourite adviser Frederick Lindemann, but that was a long time ago. James Lighthill is a more recent government adviser, whose advice arrested the progress in the UK of artificial intelligence. He also disparaged the use of finite element analysis in fluid dynamics, which was unfortunate.

Basically, should the Government be reminded of the Haldane principle, and should they rely on a bottom-up approach, or more accurately target their central direction? In view of those examples, I will ask Chris Pearce

to kick off.

Professor Chris Pearce: The example of the finite element method is interesting. It is my own field and the UK has been a leader in that field for several decades. Any decision that might have happened earlier to say that it was a waste of time would have been an absolute disaster.

What has changed recently is the use of scientific advisers in government departments. It strikes me that they have built up a network of scientific advisers who are not only operating within the departments but are working collectively, and that seems to me a pretty good initiative.

Going back to the Haldane principle, I believe that through the new Science and Technology Council there is certainly scope for the Government to identify priorities, assess those priorities and decide what mechanisms we need to put in place to make sure that we utilise the expertise we have to our advantage. I do not think that identifying particular areas that need to have the right mechanisms in place to make sure we are successful is going against those Haldane principles. There is certainly a role to play for government in aligning the requirements of the nation with the expertise and skills that we have in our research.

Viscount Hanworth: Chris Pearce proposes that there is a purposive discourse taking place among scientific advisers within government departments. Would you agree, Professor Ferguson-Smith?

Professor Anne Ferguson-Smith: Yes, I agree with what Chris has just outlined on the increasing role of advisers in government. Sorry, what was your most recent question?

Viscount Hanworth: There is a purposive discourse occurring and things are better than they used to be in that respect. I am thinking of the danger of ad hoc advice by renowned scientists who really do not know anything about the field in which they have been asked to advise.

Professor Anne Ferguson-Smith: That is right. Expert advice widely gleaned from across the sector is important, as well as between sectors.

Coming back to this element of connectivity, it is not just about a static piece of advice. It is how that advice has a direction of travel—has a trajectory. It is about seeking advice from outside the sector as well as within the sector in order to develop a planned strategy to take a particular initiative or priority area forward. It is not just about the advice itself; it is about how that advice is collated, and what is done with it, and how it connects to a strategic framework. That comes back to the initial point I made about how important it is that the Government have a long-term strategy on which they can build the advice and the input within and across sectors.

Viscount Hanworth: Thank you both.

Q26 **Lord Rees of Ludlow:** I would like to ask a bit more about the funding of research in universities, which is mainly from UKRI but from Research England, et cetera, and how it is working, and to link this to the question of how we can ensure that we keep the top talent in academia. My

personal concern, being in this area myself, is that academia is becoming a less attractive career to young people. It is getting a smaller fraction of top talent. Also, universities are becoming a less attractive place to do long-term serious research compared to research institutes, which is why we are doing so well in institutes run by the MRC, et cetera. Do you think I am being too much of a gloom-monger in saying this? Do you think that the UKRI system, supplemented by the outcome of the REF and all that, is attractive and effective, or do you think that we are not worrying enough about whether we will be losing top talent from academia and research?

Professor Anne Ferguson-Smith: UKRI is central to our national research infrastructure and I think it does a really good job. There has been the amalgamation of the research councils under the umbrella of UKRI. As outlined in the Nurse report, it was important for us to do that nationally, predominantly because of the opportunities it provides, not only for capacity development, skills development and supporting our people across disciplines now, but in recognising the importance of cross-disciplinary research in our future.

UKRI should be providing a landscape or framework in which to do this. I think it has been slow to get off the ground to do this, and this has resulted in a bit of bad press, but, realistically, this ambition takes time. It was hugely underestimated what a major culture change for the funding landscape that was going to be.

In particular, the individual research councils, which have their own portfolios to deliver, now have to deliver on top of that, portfolios that enhance the cross-council research; and learn ways to work together as research councils to enhance the research. None the less, they have been able to continue to develop and deliver response-mode and strategic funding to the research community very well, I would say, with some additional challenges. For example, the Government's regular one-year budget allocation has meant that it is very difficult to support high-risk, high-gain or visionary research or have long-term strategic plans to support people. That has contributed to the career precarity that you alluded to, Lord Rees, which makes it very hard for our young people to see a future in research with that lack of investment.

Lord Rees of Ludlow: Professor Pearce, do you share that perspective?

Professor Chris Pearce: Yes. I think Anne is right. UKRI is still fairly new. It has only been in existence for four years and I do not think it has fulfilled its potential yet. It is going in the right direction, so I see it as a positive move. It is important in collecting evidence here to recognise that UKRI only funds a proportion of UK universities' research. It is important to make that clear.

For my own institution—I guess we are pretty typical of a research-intensive institution—it is about 35% to 40% of our total research project funding. A significant part comes from the research charities, from the European Union and from industry. One of our concerns is biomedical research funding, because it is heavily dependent on medical research charities. We have seen through the pandemic the impact on revenue for

those charities. For a source of funding that is so important for non-Covid health issues across chronic diseases, it seems that it is not on a stable footing, and that needs to be looked at within the context of UKRI.

I think your concern is about the attractiveness of a research career. Many people going into academia are driven by their curiosity and they can often seek funding for that curiosity-driven research through the so-called responsive mode. That is a challenge for UKRI. It feels as if the language we hear from it is that it is always trying to protect that responsive mode against other strategic imperatives that it faces. Across UKRI's portfolio, the responsive mode amounts to only about 12% of UKRI's funding.

Going forward, some clear statements and intent to protect that responsive mode are important, because it is so important for attracting talent and for keeping people within the sector.

Our other big concern is that, for our leading researchers, one of the most prestigious funding mechanisms at the moment is through Horizon Europe—the ERC. We have major concerns about that. That is perhaps something we can pick up later. UKRI is trying good, new things. I would highlight the future leader fellowship scheme that it has been doing. Not only is it trying to diversify the talent pool, but it provides really significant long-term funding at that early career stage. That is a really good model, but it is one part of it.

Going back to your concern, it is genuine and we all have this concern. Academia can be challenging and developing a career in academia can be challenging. We need to be conscious of that. I would also highlight from the really early career researchers, the post-docs, that the whole issue of career precarity is a big concern for us as a sector if we are going to maintain that talent pipeline.

Lord Rees of Ludlow: Coming back on that point, particularly about attracting foreign talent, we should perhaps be more concerned about whether we remain attractive compared with other countries. Also, I would like to ask about the REF, which is hugely time consuming and is constraining long-term blue-skies research for some people. Given your role, would you like to comment, Professor Ferguson-Smith?

Professor Anne Ferguson-Smith: I would make one point about retaining talent within the sector. It is very important that we work hard to support the career development of our talent within the sector, but I wonder if it would be useful for us to think a little differently about the importance of retaining talent within the sector. If we are really to train and educate within it, surely one of our goals is also to send that talent elsewhere into other sectors. We need to have more of a generosity of spirit in connecting our talent between sectors. If we can develop better avenues to do that, better channels to move talent from the academic sector outward but also from outside into the academic sector—and actually, we are seeing this in Cambridge—this is a better way to think about it, and perhaps there will be new and different kinds of career structures that will evolve as our research landscape changes.

Foreign talent, absolutely. The mobility of our international researchers is essential to our success as a UK research superpower. We are very concerned about the implications of the precarity of our association with Europe. At Cambridge we have seen reductions in the number of EU students, post-graduate students and post-docs wanting to come to the UK. Aspects are very welcome and the talent visa for mobility is important, but we must continue to place the strongest emphasis on bringing in international foreign talent and sending our talent abroad as well, to realise the impact of being a global research contributor. REF—well, that is a big one.

Lord Rees of Ludlow: I expect we do not have time for that.

Professor Anne Ferguson-Smith: Briefly, it is important that we have processes in place to assess research excellence. There are many ways in which success can be measured. The current system encourages competition rather than collaboration. The current system in Cambridge has made us think proactively about research strategy and has contributed positively to the way we think about our environment and, as I said earlier, to our appreciation of the value of impact, but it is too cumbersome and too expensive, and there must be a more efficient and effective way of doing this.

Q27 Baroness Warwick of Undercliffe: Good morning. I want to move on to the issue of commercialisation. It has been said for years that the UK is good on basic research, and we heard a lot of that in our earlier session this morning, but we are just not very good at all at commercialisation. I would like you to indicate the way your institution approaches that, and whether you agree with it and whether you think it is actually improving, but particularly whether there are barriers that prevent academics and researchers from developing commercial partnerships. What role could government play in removing those barriers?

As a counterpoint to that, do you have examples of successful collaboration and any insights into what made them successful?

Professor Chris Pearce: First, I am not sure I fully agree with the characterisation. I would make the point that I made earlier. The research impact agenda and the innovation agenda are truly embedded now in universities. As I said, that mix of both applied and fundamental research is part and parcel of what we do now. More to the point with industry though, part of that impact agenda is recognising that we need to do our research not in isolation but in partnership with our stakeholders, and not just delivering for them but co-creating our research programmes with them.

My own institution enjoys really excellent links with industry, and these relationships and what we do together are an extremely important dimension of our activities. The nature of these links varies enormously in scale and complexity. When they work well, they are not only about commercialising our research; they open up our researchers to exciting

new problems and new challenges, which then feed more research, and it is a virtuous circle in that respect.

We want partnerships with industry to be mutually beneficial and, ideally, we look for them to be centred on stimulating important challenges that push the boundaries of our own research, so the nature of those relationships is really important. Our interactions with industry take lots of different forms. For example, we host two of Scotland's innovation centres, one in sensing and one in precision medicine. We are also a founding partner in the Scotland 5G Centre. These are additional mechanisms that we host that enable closer working with industry and accelerate innovation and investment.

As to commercialising our research, probably like most research-intensive universities, we have our technology transfer office where we help our staff in all aspects of commercialisation, whether it is evaluating opportunities, IP protection, securing funding for incubation, marketing, business planning, or negotiations of contracts; and, ultimately, we create spin-outs in which the university will often have a share.

Are there barriers? I would see it less as barriers and more about opportunities. There is a role for government to continue to make sure that the whole innovation landscape works. As I said earlier, it is quite difficult to navigate at the moment. It feels fragmented. There are parts of it that just talk different languages, and I think there is a role to address this. There are mechanisms that can encourage more collaboration between academia and industry, and ultimately that will accelerate innovation.

Baroness Warwick of Undercliffe: Do you have a specific example of that, because it is getting at those sorts of very positive mechanisms that might be useful for us?

Professor Chris Pearce: I will give you an example of where I see it working, but it is in only one research council. The Engineering and Physical Sciences Research Council has the so-called prosperity partnership. It is a long-term programme of research. The programme is led by an industry partner, not by an academic partner. It is an industry partner taking the lead in applying to a research council. That is a good example, but there are inevitably lots of other mechanisms like that which could support that with a bit of creative thinking but at the same time not undermine what we have talked about earlier, and that is the need to maintain that fundamental research base as well.

Baroness Warwick of Undercliffe: Lovely, thank you.

Professor Anne Ferguson-Smith: The Cambridge cluster is an example of a successful partnership between academia and industry and beyond. Building that successful ecosystem has taken a long time. These kinds of ecosystems can take 50 years or so to develop. They require sustained investment and sustained commitment over that period. They rely on a rich and vibrant research environment, nucleated by an anchor, usually an academic institution, in our case the university, which has been a

remarkable anchor institution, providing both stability and dynamic structures and interactions.

This has meant that we have been an attractive environment for both large and small industry partners. For a long time we have welcomed formal strategic partnerships. For example, our partnership with AstraZeneca has over 100 research projects and supports over 70 PhD students in around 30 different departments across the university.

That is facilitated by a cross-disciplinary strategic research set of priorities within the academic environment that helps capture these opportunities for investment and feeds very nicely into Cambridge Enterprise, which is our technology transfer organisation. It is about setting up a joined-up infrastructure.

Interactions are complicated, particularly in the development of contracts. One thing that might be worth sharing is the tension that sometimes we feel between our research culture-driven need for open access and open data, and the constraints on the development and ownership of IP. An example is in the AI and machine-learning environment, where a lot of the new tools and developments that are being made are actually quite small and can be applied to lots of sectors.

The academic research community want to make these open source. They are driven to make these open source, yet we take a step backwards when we start to try to develop contractual arrangements with industry around IP: who owns this, who owns that, how much does this or that person get? We might want to think about different kinds of models for developing these kinds of relationships. The Government could help by encouraging tax credits, for example, for companies using open source tools. We talk a lot about changing research culture within academia, but it is also about changing research culture alongside other sectors.

Baroness Warwick of Undercliffe: I have a very quick question, and if I could have two sentences in reply that would be great. It is about researchers moving between academia and industry. We talked a lot earlier about career opportunities and so on, and that must be part of it, but it has to be two-way, it seems to me. What could be done to facilitate that?

Professor Anne Ferguson-Smith: Continuing to incentivise interactions and collaborations and research activities between those two sectors, obviously, and encouraging industry partners to engage in that dialogue more proactively. As we have seen in Cambridge with our industry partners, our strategic partners and their embedding within the university, the proximity is important—placing researchers in industry from academia and placing industry researchers into academia. I think the landscape has really changed in the last decade on that front and we certainly see a lot more movement of our researchers between sectors.

Baroness Warwick of Undercliffe: Thank you very much indeed.

Professor Chris Pearce: It is difficult. It feels risky for individuals if we are talking about not just interactions but moves. Therefore, when you

look at schemes to fund that, they need to be long term and they need to have a safety net.

Baroness Warwick of Undercliffe: Thank you very much indeed.

- Q28 **Viscount Hanworth:** Does the REF—the research excellence framework—inhibit collaboration of engineers with industry? I am mindful of the fact that industrial secrecy can inhibit the publication of research results, and of course the REF absolutely depends upon the publication of research. Chris Pearce, could I pose that to you?

Professor Chris Pearce: I do not think REF inhibits that. In fact, I think parts of REF—the impact agenda and the environment agenda—actually encourage it.

Viscount Hanworth: But there is an inhibition on publication if there is industrial secrecy, is there not?

Professor Chris Pearce: Sure. That is a component of it, but we are also encouraged to build those partnerships and work collaboratively. That is another component of REF. I think there are large parts of REF that actually encourage it.

The Chair: Would you agree with that, Professor Ferguson-Smith?

Professor Anne Ferguson-Smith: Yes, I have nothing to add.

- Q29 **Lord Mitchell:** Good morning. We have spoken quite a bit about balance today and whether we have the balance right in each direction. I would like to ask a question with respect to international collaboration and competition in R&D. There are three aspects to it. How easy is it for researchers in your institutions to collaborate with international partners, especially post Brexit?

Secondly, how do you feel the research system in the UK compares to that in other countries? We have answered some of it, but perhaps we need a little more light. What do we do better and what are we not good at?

Finally, is the “own, collaborate, access” model for different areas of technology described in the integrated review a helpful approach for prioritising research?

Professor Anne Ferguson-Smith: International collaboration for global academic institutions is central to what we do. In most instances that is conducted and continues to be conducted in the same way it always has been, driven by common research goals and building relationships of trust with colleagues. Of course, as we develop partnerships with more sensitive countries, the emphasis on trusted research and putting in place processes within our institutions to ensure that we have a risk-aware research culture is very important, and I would say that that is progressing very well.

This is an area where I think there should be closer dialogue. But in general, it is progressing well with CPNI and trusted research activities

and around institutional priorities, as we consider risks in our international engagements and in our international partnerships.

There could be closer dialogue again between government and institutions on this. For example, the proposed amendment to the freedom of speech Bill requiring universities to report any overseas contributions of any kind of over £50k would benefit from closer understanding of the processes that exist in institutions to manage risk in international engagement. We need less knee jerk and more measured communications in this space, it is really important, and I think our institutions are behaving responsibly, working together, sharing best practice and communicating. For example, Cambridge has developed its principles for managing risk in international partnerships, which are being shared widely across the sector and provide a framework for developing a risk-aware culture in our international research.

Lord Mitchell: When you say that government should be “less knee jerk”, do you have specific departments in mind?

Professor Anne Ferguson-Smith: I would rather focus more on the particular amendment that isn’t taking into full account the impact of what is being asked, which is the reporting of all international income of over £50,000, which is a huge bureaucratic nightmare, not only for institutions but for government and the regulator, and what is going to be done with that information? It was not clear why that was suggested, given that many of our institutions have processes in place that pay careful attention to where the funding is coming from, what it is being used for and the compliance with regard to conducting trusted research.

Professor Chris Pearce: I agree with much of what Professor Ferguson-Smith has said. It is necessary to highlight the situation we are in with Horizon Europe. This is one of the most successful, internationally collaborative research funding frameworks out there, and we are essentially being frozen out of it at the moment. Every university will give you examples of projects that are in limbo. We are not being included in new projects because we are seen as a risk. It is well documented that a number of ESRC grant holders are considering whether to take their prestigious awards elsewhere. That is one part of it.

I would also highlight the very sudden and dramatic cuts to ODA funding, which were extremely damaging, stalled progress on very significant collaborative research programmes all over the world and ultimately undermined our international reputation. That is another component.

I would agree, particularly in science and technology, that we are having to tread quite a difficult path at the moment between, on the one hand, being open and collaborative with our research because we are a collaborative nation—as I have said already, we are one of the most collaborative nations in the world—and, at the same time, protecting the IP, adhering to the principles of trusted research and navigating issues such as possible dual use of technology. This is a quite difficult path to tread and it will take a bit of time to find the right balance.

Lord Mitchell: Professor Pearce, I have been listening to you very

carefully throughout this and you have been pretty upbeat on things, but on this issue you are the reverse. I think you are raising a number of red flags that we would do well to pay attention to.

Professor Chris Pearce: Absolutely.

Q30 **Baroness Walmsley:** A very heavy document has recently landed on our desks and that is the levelling-up White Paper. An item in there is relevant to this inquiry, which is that research and development can be used as a mechanism to boost regional economic growth. I would ask you to answer as briefly as you can because we are up against time.

Do you think this is a realistic ambition? How can universities contribute to it? Are there any policies that need to be put in place to help universities to develop stronger and more enabling links with the local economy?

Professor Chris Pearce: Universities are anchor institutions. We are rooted locally and play a major social, cultural and economic role in the overall well-being of our local and regional communities, so it is absolutely right and appropriate that we are at the heart of levelling up.

Certainly in Glasgow, I would characterise our relationship with the Glasgow City Region as symbiotic. We recognise that we will achieve more together. We were particularly pleased that in the levelling-up White Paper there was news of an innovation accelerator for the Glasgow City Region. We are expecting more details to flow from that, but the university is really keen to use its expertise in key areas of high potential such as future telecommunications, quantum technologies, life sciences and creative industries to support levelling up in the city, and we have a track record as a university in doing this. One example in the Govan area of Glasgow is that we have an initiative that has created a life sciences innovation cluster around the Queen Elizabeth University Hospital.

In terms of policies, we need to recognise that there are areas of deprivation that have previously been passed over for investment. Glasgow has many of the most deprived areas in Scotland, and for years our universities have played a key role in identifying and amplifying the needs of these local communities. We have well-established links with local authorities to the communities, industry and schools, so we are really well placed to support this agenda.

I would finish by saying look at the existing place-based economic strategies that have been put in place. The Strength in Places Fund is an example of one of those. That has benefited cities such as Glasgow, and indeed the Living Laboratory for Precision Medicine in Glasgow was as a result of the Strength in Places Fund designed for exactly the reasons you have set out.

Baroness Walmsley: Thank you very much.

Professor Anne Ferguson-Smith: I am from Glasgow, so I welcome hearing what Chris had to say. I would also say that the levelling-up agenda is very welcome. I think it is important. We have serious

inequalities nationally and it is really important that the Government start to address that. The question is, what is the best way to do that.

It is really important that this is not seen as a short-term investment. This needs to be sustained. It needs to recognise that, to pull up particular areas, one should not throw the baby out with the bathwater and should recognise the importance that centres of excellence have to make to contributing to the levelling-up agenda. It is central that we do much better in thinking more not just about regional activities but how centres of excellence can contribute more widely nationally. For example, in Cambridge there are things that we do extremely well, particularly around our Cambridge entrepreneurial cluster, but there are things that we do not do well, such as precision manufacturing and advanced manufacturing, and there are places in the country that we could be partnering with much more closely to develop the next stages of some of the innovation that is born and captured in Cambridge. That feeds into the skills development agenda and into so many aspects of the levelling-up agenda.

We need to think about the levelling-up agenda differently. We should not be thinking about it as a political entity. It has been politicised, which is really unfortunate. This should cross party boundaries. It should not be about winning votes but about changing our national infrastructure and recognising that we are a small country that could be collaborating much better such that we fulfil our potential and add value across the whole country.

Baroness Walmsley: I found particularly interesting your point that the Cambridge region is already up, but as a centre of excellence it has a major role in helping other areas to come up.

Professor Anne Ferguson-Smith: Absolutely.

Baroness Walmsley: That is a very interesting point. Thank you so much for that.

Q31 Baroness Manningham-Buller: You both have and know many researchers in your universities. Bearing in mind the caveat that many of them will be funded by people other than government, are there particular things that you think they would say that are reasonable and that you support that would make it easier for them to do their research, which government could do something about? Some of those points have cropped up earlier—for example, in some of the answers to Lord Rees—but if there are any short suggestions for government on how to make the challenges your researchers face diminish, may we hear them now?

Professor Chris Pearce: I think the big issue is uncertainty and lack of continuity of the major research programmes. That has impact on the principal investigators; it has impact on universities, and it has an impact on the people who are brought in, the researchers who are doing the research. It is that whole issue about career precarity again. Quite often, we start a five-year programme and after two years we have to start thinking about what is going to happen next. Without long-term

continuity of these big strategic research programmes, we are, essentially, missing out on opportunities.

Professor Anne Ferguson-Smith: I would say a long-term strategic plan for research going forward and a focus not on where, but on how and what when developing interconnectedness across the sectors.

Baroness Manningham-Buller: I am interested that neither of you put in your few words anything about bureaucratic burdens. You talked about length of grant and length of funding, but is there anything else—we have a couple more minutes—or is that it? If it is, it is fine. Thank you. We are not trying to get more out of you in the time that we have.

The Chair: We like to squeeze our witnesses. Thank you both very much for coming to talk to us today. As I said at the beginning, if there is anything you wish you had said or anything you perhaps wish to modify a little, please send in written evidence afterwards, but for now we are closing this session. Thank you very much and goodbye.