

# Science, Innovation and Technology Committee

## Oral evidence: Scientific research funding, HC 1741

Wednesday 4 March 2026

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Members present: Dame Chi Onwurah (Chair); Dr Allison Gardner; Kit Malthouse; Freddie van Mierlo; Samantha Niblett; Dr Lauren Sullivan; Adam Thompson; Martin Wrigley; Daniel Zeichner.

Questions 1-97

### Witnesses

I: Professor Jon Butterworth, Professor of Physics, University College London; Professor Catherine Heymans, Astronomer Royal for Scotland and Professor of Astrophysics, University of Edinburgh; Dr Simon Williams, Postdoctoral Research Associate, Institute for Particle Physics Phenomenology, University of Durham.

II: Professor Michele Dougherty, Executive Chair, Science and Technology Facilities Council.

## Examination of witnesses

Witnesses: Professor Jon Butterworth, Professor Catherine Heymans and Dr Simon Williams.

**Chair:** Welcome to today's meeting of the Science, Innovation and Technology Committee. Today we are examining the future of science and research funding in the UK, following concerns expressed directly to the Committee, as well as generally, about the news of significant cost pressures at the Science and Technology Facilities Council, and following our questioning of UKRI's chief executive in February.

We have two panels this morning. Before we go into our first set of questions, I want to place on record the Committee's thanks to all members of the research community who have taken the time to contact us ahead of today's session. We are grateful for your engagement with our work, and we will do our best to reflect your views in our questioning. I ask members of the panel to introduce themselves the first time they are asked a question. Our first question will come from Daniel Zeichner.

Q1 **Daniel Zeichner:** Thank you, Chair, and good morning. I am Daniel Zeichner, the Member of Parliament for Cambridge. It will come as no surprise to you that these issues are causing huge interest and concern in Cambridge. The number of people attending the Committee this morning reflects that level of concern. We will be looking at how we got here, but also where we go from here. When did you first become aware of the cost pressures facing STFC, and did the news take you by surprise? I will ask each of you in turn, starting with Professor Heymans.

**Professor Heymans:** Thank you for your question and for inviting me. I am the Astronomer Royal for Scotland at the University of Edinburgh. For these sorts of things, I usually represent the fabulous astronomy community in Scotland, but today it is my great honour to represent the entire UK astronomy community because our other Astronomer Royal is, of course, conflicted on this question.

I first became aware of the cuts at our national astronomy meeting last summer, when Professor Dougherty came and started to talk about the cuts. Some cuts have already been implemented to our grants line, which supports research and innovation associates. We are looking already at a 30% cut in the number of those associates—postdoctoral researchers, technicians and engineers. At that time, the numbers were not being floated, and we thought maybe 10%. It was not until January that it became really clear to us exactly the level of the cuts, which are genuinely catastrophic and will be devastating for the UK astronomy community and, indeed, my colleagues in particle physics and nuclear.

Q2 **Daniel Zeichner:** Thank you. I will take an opening comment from each of you before pressing you a bit harder.

**Professor Butterworth:** My name is Jon Butterworth. I am professor of physics at University College London. I am a particle physicist and experimentalist, and I work at CERN on the ATLAS experiment. Until



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March last year, I was a member of STFC's advisory council, so, to your question, I knew something about cuts from that experience. That predates the appointment of Sir Ian Chapman at UKRI. It was clear at that point that there were significant cost pressures and cuts to the overall STFC budget. There was a 5% cut imposed on STFC's core budget, and we could see that there were problems coming at that point. I remind you that that budget includes both running of facilities and funding grants in universities in our areas, excluding the international subscriptions.

It was clear that there were going to be problems, and that is why we have already had 15% cuts in the grants in astronomy, nuclear and particle physics, and why the theoretical physics community has suffered already, as you will hear. We did not hear that it was going to get worse until Christmas. There were two major projects in nuclear physics and particle physics that were cancelled from the infrastructure fund just before Christmas, which was a big surprise to those of us who were no longer in the loop, as it were. Then there was a letter from Michele Dougherty in February outlining the fact that we should prepare for 30% cuts, which, again, was a surprise at that point. We had heard rumours and had hoped that the cuts would not be as bad as they were, but that was the confirmation that things were existentially threatening. This is catastrophic. The level of cuts cannot be sustained by this kind of community.

**Dr Williams:** I am Dr Simon Williams, a postdoctoral researcher at the Institute for Particle Physics Phenomenology at the University of Durham, which is the UK national centre for particle phenomenology—theoretical particle physics. I work on simulating particle theory using quantum computers—quantum computer applications to high energy physics. I am representing the early-career researcher letter, which now has more than 1,100 signatures.

From an early-career researcher point of view, we found out essentially through rumours. As theorists, our main communication was that there are no postdocs on offer in the UK for theoretical physics—we can talk about that in more detail as we go through—but then it became very clear in town meetings with the STFC that these cuts were coming through, and then from the communication from Professor Michele Dougherty about the cuts to 30%. Apart from that, the ECRs mainly got the indication that these cuts were coming through the fact that there are no positions available for postdoctoral research in this country.

Q3 **Daniel Zeichner:** I am hearing from all of you that there was some awareness that cost pressures were building up. Do you feel that they were being managed? It seems that it suddenly hit a point when the action was very drastic. Professor Butterworth, you have played different roles in this. What is your reflection on how we got to that point just before Christmas?

**Professor Butterworth:** There were clearly changes in the way that STFC was regarded by the Department. It was given extra things to do by the Department, and there was a significant pay rise for the scientific civil



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service, which was long overdue, having been argued for hugely. The STFC council, among others, was arguing in favour of those things. Unfortunately, the funding to match them did not come; it had to be taken out of the existing budget. While that is something you can manage—and we did with our eyes open—it takes time to manage.

I think what happened then is that those pressures were transmitted on to the 15% or so of the budget that is the university-funded grants, which sits right next to the 85% for labs and facilities—and there is a multiplier there. This all happened far too quickly.

Let us be clear: there are cost pressures in our science—there always are. There are projects that overrun; there are inflationary pressures; there are delays in schedules that add cost. But those are the things we are used to managing, and, within an approximately flat-cash or indexed allocation for PPAN, those are the things that their science boards and advisory structures manage the whole time. What we are talking about here is a cash cut, and there is no way that an over-ambitious build-up of pressure leads to a cash cut unless that is coming from somewhere else. I believe that it is coming from outside the PPAN—particle physics, astronomy and nuclear physics—area.

I think there were mechanisms in place to manage the pressures within the particle, astro and nuclear physics line, but additional pressures have then been piled on that, which are not manageable, externally.

**Daniel Zeichner:** Do either of the other panellists want to comment on that?

**Professor Heymans:** No, I think Jon has done a brilliant job there.

Q4 **Daniel Zeichner:** When Sir Ian Chapman was before us a few weeks ago, he cited a number of issues—currency fluctuations, high energy costs and so on. Do you have a view on whether that is what is causing this? You are beginning to introduce other things, so it feels like it is a number of factors.

**Professor Butterworth:** It is a very complex environment and there are many things. I think the factors that Sir Ian mentioned are at play. However, over the last few years, the programme has dealt with the energy-fuel crisis from the Russian invasion of Ukraine, for instance, and the covid situation. All of those things perturbed the system, but I believe they were manageable and being managed.

I do not think that those factors are really a driver in the area that we three are particularly concerned with—particle physics, astro and nuclear—which is done with the labs in partnership with the universities, so the Astronomy Technology Centre in Edinburgh and the particle physics division at the Rutherford lab, for instance, although salary increases may be to some extent. International subscriptions—the dominant one is actually my own lab, CERN in Geneva; it is more than half of those—are indexed in such a way that, if the currency fluctuations take it up, the GDP

goes down and it flattens out in the end, so I do not believe that is a fundamental driver of this.

I think the fact that STFC manages big labs with a lot of employees, and their costs have gone up—justifiably, but I do not think that has been taken into account when Sir Ian talks about the STFC budget being more or less flat—is building into this big inflationary effect, which is now being transmitted to places where it was not generated.

Q5 **Daniel Zeichner:** In terms of the reductions that you were asked to model—I will go to Professor Heymans first and then come to Dr Williams—those seem like huge numbers to model.

**Professor Heymans:** Absolutely huge, yes.

**Daniel Zeichner:** Do you feel that was a theoretical exercise? It seems, to a lay observer from outside, an existential level of change being asked for, rather than just, “What would be the impact?”

**Professor Heymans:** Absolutely. I will talk about the astronomy side of things, and my two colleagues can share the particle and nuclear side. We have 48 astronomy projects across the UK that are currently writing strategic plans for what they would do with their international projects if they were cut by 20%, 40% or 60%.

The media have focused a lot on CERN, because you already know what has been cut through the infrastructure fund, but there has not been much attention on, or much thought about, what is being cut on the astronomy side of things, because we do not know yet. I want briefly to share with you some of the big-ticket things that are at threat from these potential cuts.

There is the Vera Rubin Observatory, with one of the world’s biggest telescopes and the world’s biggest camera. We are making a movie of the universe, capturing asteroids and exploding stars, and we are processing a quarter of the data. These sorts of cuts mean that we will not be able to process that data. That is both a problem for us being able to exploit it, and a major problem for the whole international collaboration; who else is going to process this unprecedented volume of data? That—and the fact that we are even talking about this—is damaging to our international reputation.

We talked about subscriptions with CERN. We have the subscription to the European Southern Observatory. That is not at threat because it is internationally agreed; it is on the same basis as CERN—it goes with GDP. At the moment we are really excited about the Extremely Large Telescope. The best way to picture the Extremely Large Telescope is to imagine a giant football stadium; it is actually that big. Excitingly, in the UK we are building instruments for that telescope that will be able to resolve the chemical composition on planets outside our solar system, in our quest to find life out there. Cuts to that instrumentation not only withdraw us from the ability to make that genuinely game-changing science, but interrupt the amazing talent and skills pipeline. This is really high-end technical



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engineering. We train a lot of fantastic engineers to build these instruments. Even a cut of just 20% puts all that at risk.

Simons Observatory is going to be asking how our universe began and how it is going to end—really big science questions. We just shipped two of the seven telescopes out there, at the cost of £17 million. I am very proud that the UK has invested in that. These STFC cuts could mean that we cannot operate them and they would sit there completely unused, a waste of all our resources. We cannot cut the construction of the UK Square Kilometre Array Regional Centre because it is under an international agreement, but we can cut the ability of UK science to access the data from that amazing radio telescope. I would be remiss to not mention gravitational waves: cataclysmic black holes colliding in the distant universe, rippling the fabric of spacetime, which we can measure right here thanks to UK expertise—really unique expertise—that has gone on to improve retinal scanners, water table monitoring, and security and defence.

That is just the tip of the iceberg of the things that are at risk. You are right: this is existential. Even a cut of just 20% is devastating, and these are big-ticket items. The only way that these devastating cuts can be made would remove a good number of those really big, high-profile science cases, and those are just the first five. There are a whole lot of others underneath them, including robotic telescopes, our other fleet of telescopes in La Palma. There are a whole number of things, such as solar observations, that we are really proud of. It makes me very sad that I am here today. Two years ago, I talked to your Committee in an inquiry where we celebrated UK astronomy and highlighted that it was world-leading and an amazing gateway into science. Now I am here hoping to convince you all to help us convince UKRI and STFC to reverse these, as you said, existential cuts to our field, and to those of our colleagues in particle and nuclear.

**Daniel Zeichner:** You make a powerful point. I will pass back to my colleague to pursue the questioning.

**Chair:** Thank you, Professor Heymans, for the inspirational description of where we are and for bringing the spacetime fabric into the Select Committee, which we always like. Samantha has some further questions on this topic.

Q6 **Samantha Niblett:** Thank you for coming in today; it is much appreciated. Do you think that UKRI and STFC should have been made aware of and acted upon the cited cost pressures earlier, and do the cuts feel fair, in the light of an increase in the science budget?

**Professor Butterworth:** Something has gone wrong somewhere, because there is an advisory structure that should have communicated how catastrophic this is, and everything that the Minister has said implies to me that this was not the intent. If the Government decided that we are doing too much astronomy and particle physics, that would be one thing—we would have a different argument. It does not seem that that is what



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the Government are saying. Therefore, somewhere, there has been a communication failure. Either the people on the ground have not communicated to the next layer up or the next layer up has not listened. It is a great shame that we have got here for that reason. I am not on the inside; I do not know where that happened, but it seems to me that there is a system failure, unless this was secretly the intent all the time. From what I have heard from Lord Vallance, I do not believe it was.

**Dr Williams:** Maybe I could say something on the delay. Delay is already having a knock-on effect, even though we are told that these cuts are not set in stone. A perfect case of this is theoretical physics, where we have an internationally defined transition window: institutions cannot force a postdoc to accept a position until 31 January, but after that, all the positions are allocated. The UK has now missed that transition window, so we have gone from a steady figure of approximately 30 postdocs in theoretical physics a year to zero coming in October. We have this very hard deadline, which is internationally agreed—our international reputation is on the line, because we defaulted on this. Are we just the first field to be hit by these delays, or will this knock on into other fields? That is the big question. These delays alone are damaging the field now. This is not hypothetical; it is happening now. Theory is a good case in point.

**Professor Butterworth:** There is another piece of evidence that I think is unintentional, and it comes back to Simon's point about the international reputation. We have memorandums of understanding signed at departmental level with our international partners that we are now not able to meet, and that is really unprecedented. I do not think it can have been intended, when, for instance, we have the first UK director general of CERN for 30 years. To damage our reputation because we are not meeting these memorandums of understanding is unheard of.

Q7 **Samantha Niblett:** Are there any consequences of not meeting those memorandums of understanding? Is it in breach of a contract? Are there financial consequences?

**Professor Butterworth:** These are not legally binding things. This is the way international science works. The funding agencies say, "By best efforts, we will deliver this, blah blah." It is a trust-based system at some level, but they are signed, and they are known of, and if you damage your reputation by not meeting them, it makes your partnerships much, much harder. I do not think there are legal consequences, but for the science, it either means one of our international partners has to pick up the cost or the science does not happen. Either way, the UK loses leadership.

Q8 **Chair:** That is very distressing to hear. We have Michele Dougherty in the next panel. You seem to be saying that you did not hear about the cost pressures; you heard about the cuts first. You are nodding. So there has not been a discussion about cost pressures over the last two to three years.



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**Professor Butterworth:** No, that is not true. Within the STFC, we were very aware of the cost pressures within the PPAN programme, and there were plans in place which would—

Q9 **Chair:** Within the PPAN programme, but not to this level.

**Professor Butterworth:** Not to this level, no. The internally generated costs would have led to hard decisions, but we had the mechanisms to deal with them.

**Chair:** I want to look in more detail at the impact on CERN specifically. Professor Butterworth, you are working there now. The Committee's very first—in fact, so far, only—international trip was to visit CERN, and Committee members were impressed and astounded by the level of scientific discovery that was taking place there. Freddie, you have some questions on that.

Q10 **Freddie van Mierlo:** Yes. I am the MP for Henley and Thame. Just to take a step back, for the benefit of anyone looking at this from a wider perspective, can you explain what CERN is, why our relationship with it is so important and the funding arrangements we currently have?

**Professor Butterworth:** Absolutely. CERN is the UK national lab for particle physics. We were a founder member. Most European countries are member states, and we are around 15% of it. It is where we do all our particle physics at some level, or certainly our energy frontier particle physics, and a lot of the detector development and technology that comes with it. It was founded in the '50s, to try to rebuild European science after the second world war, and it has incrementally got itself into a position where it is not just the UK centre and the European centre; it is the world centre for this, so we work with US, Chinese, Japanese and other international partners there.

The flagship experiment there at the moment is the one I work on, the large hadron collider. There was a Nobel prize for the Higgs discovery about 10 or 15 years ago—time flies. Since then, we have been exploring the energy frontier. There are other aspects of particle physics. I should not say that we do all our particle physics there; that is not quite true. However, it is definitely true that without being a member of CERN, you would not be a player in particle physics at all.

Right now, the large hadron collider is the human race's window on the energy frontier. With energy, you get resolutions, so you can think of it as the most powerful microscope we have ever built. It looks deep into the heart of matter, at what the fundamental constituents of nature are, and at what forces bind them together and make them lead to the universe we see around us. That is what CERN is. It is a great place to work. The UK is a very well-respected partner there, and currently leads it, with Mark Thomson being the director general.

**Dr Williams:** The UK is very heavily involved in doing theoretical calculations. The Institute of Particle Physics Phenomenology is one of the

leading groups. It does theoretical calculations, which are then used to model processes at CERN.

**Professor Butterworth:** Without which the experiments would not be as interesting.

Q11 **Freddie van Mierlo:** Could you go into the impact of the UK withdrawing funding from the upgrade to the LHCb?

**Professor Butterworth:** I am not a member of that experiment, but the UK is the single biggest contributor to that, along with Italy. This upgrade was there to take advantage of the fact that we are already upgrading the accelerator for my experiment and the CMS—the two that discovered the Higgs. This is an upgrade of one of the detectors on the large hadron collider so that we can fully exploit the facility that CERN provides by colliding these protons. It was instigated and led by the UK scientists who lead that experiment at the moment and have in the past.

Without the UK contribution, that may not happen. It will certainly be descoped by a long way, at the very least. It is in jeopardy now. The UK had a very strong position with the infrastructure fund that was promised, and we were able to build a collaboration where other funding agencies from our partner countries were joining in, but they were joining in with something that the UK had led on. Now, the UK has pulled the rug, which puts the whole thing in jeopardy.

Q12 **Freddie van Mierlo:** For my curiosity, what was that upgrade hoping to discover or achieve?

**Professor Butterworth:** LHCb is a more specialist experiment than the one I work on. It looks at the rare decays in particles produced when protons collide. The main driver of that is the fact that the universe at the moment is made mostly of matter—well, entirely of matter, apart from the occasional bits of anti-matter we make.

**Professor Heymans:** Let's talk about the dark side, Jon!

**Professor Butterworth:** Well, yes, the dark matter could be out there! We don't know. Anyway, on the bits of matter we know about, the laws of physics are almost symmetric between matter and anti-matter. If those laws were at play in the big bang, it is very hard to see how we end up with a universe that is dominated by matter, not anti-matter. LHCb fundamentally aims to explore that, principally by looking at very rare decays of particles that are produced in these collisions. These asymmetries can be manifested in those decays. There are other things too, but that is the main driver.

**Freddie van Mierlo:** I am going to nod and pretend I understood that, and go back to it later.

**Professor Butterworth:** I hope I got it right—it's not even my experiment!

Q13 **Chair:** You are saying that without this UK funding, we may not be able to

understand the origins of the universe.

**Professor Butterworth:** We may end up missing some very key data there, yes.

**Professor Heymans:** Can I just say that all this discussion about science is what gets people into physics? They are interested in the teeny-tiny stuff that Jon and Simon work on, and our friends in nuclear physics who are not represented here today, and in the gargantuan scale. That is what gets people to study physics at university. Then they go out and do all the amazing things like the innovation showcase that you heard about earlier. Cutting this blue-skies area of research, which is the gateway into this really important area for growth in our economy, is really not what the UK should be doing right now.

Q14 **Freddie van Mierlo:** What impact is this having on our international partners? What are they saying about this potential cut? Does it have an impact on how we are seen internationally?

**Professor Butterworth:** Very much. I had a phone conversation with Costas Fountas, president of the CERN council, on Monday. I will not repeat what he said about the UK, especially given the feeling that we had some rapprochement with our European partners after some quite difficult years. Given the fact that the UK got a director general appointed with support across the CERN council and member states, it feels a bit rude—to put it very mildly—that suddenly we pull the rug on one of the big projects that they are planning for the future.

Q15 **Chair:** As you say, the Committee remembers the celebration when we had a UK director general of a CERN world-leading programme, so to choose to cut funding for its upgrade in the next year seems unfortunate and unplanned. Before we leave CERN, may I confirm whether in your opinion, Professor Butterworth—if funding is available in two years' time, as Michele Dougherty has suggested it might be—we would be able to come back, get back in and continue the project?

**Professor Butterworth:** First of all, that is a very big if, because it assumes indexation and that we do not do anything else, basically, looking at the forward plans. This is such good science that we would, by hook or by crook, try to get back in there, but we would not be leading it any more. If it happened—it may not happen anyway—if our international partners pick up the tab and the UK then looks for a way to get involved, I am sure it would be at a much lower level and without the leadership we have now.

Q16 **Chair:** Is the research that is happening at CERN happening anywhere else in the world?

**Professor Butterworth:** No.

Q17 **Adam Thompson:** Before I start, I should say that prior to my election, I spent five years as a postdoc research fellow at the University of Nottingham. I understand your plight, Simon, and indeed that of many of those joining us in the Public Gallery today. For the record, I maintain an



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honorary associate professorship at Nottingham University—just to declare that. Simon, I want to focus on some of the reactions to this news from the research community more broadly. So that we are all clear, will you give us an overview of why early-career researchers are particularly exposed to the cost pressures at STFC and more widely in the community?

**Dr Williams:** In case anyone does not know, a postdoctorate position tends to be a fixed-term contract. Usually, it is two years with a possibility of extending another year. *[Interruption.]* There seems to be a party happening! When pressure is put on the system, it is first absorbed by ECRs, essentially because we are a short-term investment for a university, whereas other pressures are more difficult to absorb in such funding changes.

**Chair:** May I interrupt to explain that some dancing or something is happening outside in Portcullis House? That is why it is a bit noisy, and it may be difficult to hear our witnesses. I am afraid you will have to speak up. It is not intentional on our part.

**Dr Williams:** I will project. Because we are a volatile part of the system, we absorb the pressure first. A real concern of all the signatories to our letter is that that is not acknowledged. We are talking potentially about cuts that would remove a whole generation of early-career researchers. Once you remove that generation, rebuilding is very difficult, as is rebuilding the trust of international partners and researchers that the UK is a stable country for science funding. It is very hard to rebuild. Actually, ECRs tend to be where the economic growth comes from—spin-outs often come from ECRs—and so cutting at that level would be catastrophic to UK science. Essentially, you are killing the tree by removing the roots—you might not notice it for a while, because that will take time.

**Adam Thompson:** That point you make is important. If we think of the career as a pipeline, we are taking a chunk out of the middle of the pipeline and there is damage along the way.

**Dr Williams:** Exactly.

Q18 **Adam Thompson:** You mentioned the letter that you co-ordinated. How much engagement have you had with UKRI and DSIT since you published that letter and sent it off to them?

**Dr Williams:** As a result of the letter, we met yesterday at 4 pm with the head of UKRI, Professor Sir Ian Chapman, and the head of STFC, Professor Michele Dougherty. That finished at 6.30 pm or something. We are still processing our thoughts on that, but we had an engagement there and will be releasing a statement from that.

We have also had correspondence back from Lord Vallance basically saying that nothing has been decided—that it is all still up in the air. ECRs are feeling the pressure now. I keep coming back to theory because that is what I am an expert in, but, as I say, it is almost too late to fix the theory problem this year. Essentially, we have no consolidated grant-funded postdocs beginning in October. That is a whole year that we are missing.



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That is also having effects across PPAN, and we hope that our letter and our correspondence will have the outcome that measurements and mechanisms are put in place to salvage the ECRs that are in the country and make sure that what has happened to theory does happen to other parts of PPAN.

- Q19 **Adam Thompson:** Thank you, Simon. Pulling back a little from the specific issue that we are talking about with the explicit funding change, from my experience as a research fellow—you touched on this earlier—there are a lot of fixed-term contracts, short contracts and very heavy pressures. You might spend six months bedding in, a year doing a bit of research and six months trying to find your next contract—I see smiles of recognition around the room about the cycle of what it means to be a research fellow.

There has been a shift in this Government's approach compared with previous Governments towards longer-term funding settlements. What is your opinion on where the research community is at the moment following those kinds of changes? Has it had any tangible effect yet? Do you see it having any tangible effect in the future?

**Dr Williams:** That is talking about, essentially, where the consolidated grants are going from being three years to five years.

**Adam Thompson:** Exactly.

**Dr Williams:** Having sat at the back of these town hall meetings—as an early-career researcher, you tend not to pipe up too much in those—I do not think that will necessarily have an effect on the postdoctoral pipeline. Universities will still be offered two plus one years. I do not know how a longer postdoc would fit in with the pipeline to then becoming a permanent professor or gaining a permanent position. Often, you are expected to move around. Postdocs are very mobile, and internationally mobile. If you are in one place for longer, that might not have the same effect that was desired when you want to go for more permanent positions. But I agree that it would be nice to make the postdoctoral market less volatile and more job-secure. I do not know how to comment on how that would integrate with the rest of the pipeline.

- Q20 **Adam Thompson:** Thank you, Simon. Building on that, you touched on postdocs often being internationally mobile. I certainly felt a pressure—I never succumbed to it personally—to move institutions at least, or even move internationally. Obviously, we are making efforts to change things domestically, but given the international landscape, do you think the problem is unsolvable? Will there always be that pressure, or will postdocs be able to put roots down if we change the policy? What does that new policy look like?

**Dr Williams:** One of the things to mention with the proposed cuts is that the talent is going abroad. If a load of highly trained early-career researchers go into industry, brilliant, but that talent will go abroad and the industry will move with it. Specifically in quantum computing, I work very closely with IBM, which is putting money into working with theoretical



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physicists to show how its devices work. Postdocs will be able to start to put roots down only if there is real long-term security. Currently, the pressure on a postdoc to move is still there. That may not be a bad thing—it is exciting to be able to move—but we are a very volatile part of the pipeline, and I do not know how having longer contracts would integrate into the rest of it.

**Q21 Adam Thompson:** Thank you, Simon. Finally from me, Catherine and Jon, do you want to reflect on the points that Simon made? Do you share his concerns? Do you want to add to that?

**Professor Heymans:** You will have heard at the Lords Committee meeting yesterday that Lord Vallance said that there were no cuts, and that there is a plan that they are working through, but with respect I beg to differ. The grant line that funds our research and innovation associates—postdocs like Simon, and technicians and engineers—has already seen a 30% reduction in the total number of postdocs.

We have had flat cash over more than a decade in that pipeline. I loved your analogy of cutting off the roots of the tree, Simon. This is the lifeline of our whole field—*[Interruption.]* Sorry; the door has just opened, with beautiful music coming through. It really is the lifeblood of our field. Not everyone stays in academia. If I look at my own research group and everyone I have worked with and trained over the year, I see that a third of them now have very senior leadership roles in AI companies. You might think, “Well, how does an astronomer know anything about AI?”, but physics—particularly astronomy—was an early adopter. We have been using AI since the late ’90s.

Postdocs are the easiest thing to cut because they are so volatile, and because they are short-term contracts. STFC are in an impossible position, as far as I understand, because they have been given these budgets in bucket 1 and bucket 4. Bucket 1 has a lot of things that they cannot cut, such as the international subscriptions and the QR—I will put aside the fact I do not think that QR funding should be in bucket 1. There are lots of things in bucket 1 that cannot be cut, and all that is left is PPAN, of which the postdoctoral line is the easiest one to cut because they are on these short-term contracts.

Certainly within the astronomy community, prioritisation exercise after prioritisation exercise has said, “We must preserve the grant line,” yet we have never seen any increase—it has always been flat cash. In the last round and the one that we are going through right now, we have a 30% cut. So these cuts are here, now. I was very happy to hear Patrick say that he really thinks that curiosity-driven research is important and that he does not want to cut it, but it has been cut in STFC already, and there are plans to cut it even more.

**Q22 Adam Thompson:** Thank you, Catherine. Jon, any further comments?

**Professor Butterworth:** Pretty much everything has been said. On your comment about moving towards longer and more stable positions, the most recent thing is that the four-year consolidated grant that particle



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physics experiment runs under was issued as a two-year grant because of financial crises. Because of that, the postdoc positions were funded for only 18 months, leaving the universities to pick up the leftover bit—and, believe me, universities are not rolling in money. So that may be the intention, but what is happening on the ground is very different.

**Dr Williams:** I have one small last comment. ECRs often feel that we are not involved in these discussions. If there is going to be a change to the postdoctoral pipeline, bringing early-career researchers into that discussion would be beneficial, because we are the ones who are living it.

**Adam Thompson:** That is an extremely important point, Simon. Thank you all.

**Chair:** Yes, it is an extremely important point. I think the Committee will definitely want to follow up on the impact specifically on early-career researchers and the number of postdocs that are available, as that seems to be a good measure, and their length of time. I commend you for your tolerance in giving such informed and moving testimony while it appears we have a dancing lesson outside, in the main hall of Portcullis House. It shows your resilience and your ability to communicate under all kinds of different pressures.

Q23 **Dr Sullivan:** First, I will declare an interest: I am a visiting research scientist at the Francis Crick Institute and a board member at the Liverpool School of Tropical Medicine, and I have experienced a lot of what Adam described in the postdoc merry-go-round. Do you believe the situation with STFC is unique, or are other councils across the nine being exposed to this?

**Professor Butterworth:** There are unique aspects about STFC, in that it has such a large number of scientific employees. It runs the big facilities. It also is responsible for the international subscriptions. By the way, the European Molecular Biology Laboratory was recently added to STFC's portfolio, which is nothing to do with particle physics or astronomy but our international commitments. It was added because STFC can deal with internationals, and it makes sense—it is a good idea. That is unique, and those things have to be funded.

The point is that STFC is delivering all of that on behalf of UKRI, on behalf of DSIT and on behalf of the country. It is not doing it on behalf of particle physics, astronomy and nuclear. It is paying CERN on behalf of us. That is the unique aspect, and I think there needs to be more recognition in the system that we are delivering the light sources, the neutron sources and the molecular biology labs on behalf of the other research councils.

That dynamic is not managed well within UKRI at the moment. I am not sure if it is a problem with the current management—it is not my role to say that—but it seems unfair that there is this tension. Putting it all in the same box and saying, "That's flat cash," and from that you pay to run these facilities and these internationals and then give the leftovers to us to



do particle physics and astronomy does not seem right. In that sense, it is unique.

On the other hand, it is a bit of a test case, because this is the curiosity-led a bit of STFC. If Lord Vallance, as he says, wants to protect curiosity-led science, this is the canary in the coalmine—can he protect us?

**Professor Heymans:** We are starting to see things coming out. The Royal Meteorological Society put out a statement of concern because NERC has grounded its aeroplane, which it uses for all sorts of climate science. That happened in the last few days. That is a £50 million upgrade that has been grounded.

The disproportionate cuts that are falling on our research field have been such a shock to all of us, and we are here in front of you today to talk about that. I am not sure that it has flowed through to the other research councils how this new bucket organisation system will work, where UKRI dictates how much money goes into each area.

Chair, I really appreciate you asking Sir Ian Chapman to follow that through. I saw the Sankey flow plot that he sent you, which certainly provides some of the answers, but there is a lot happening with structural change in UKRI at the moment and it is going at such a pace. We have been told that this is an unintended consequence, but it is causing a lot of uncertainty in our community. Uncertainty is the last thing you need. Talent goes where the money is and where things are certain. Things are very uncertain here at the moment, so the talent is leaving. That is not good for UK plc.

Q24 **Dr Sullivan:** I want to build on the points you raised about pausing grant applications. The MRC and BBSRC are also pausing them for a few months, and then they will reopen. I am really sorry to hear about your aspect of it, with the number of postdocs going down from 20 to zero, but what does this mean in real life, as it were?

**Dr Williams:** The pauses had not, potentially, taken into account internationally agreed timelines—for example, theoretical physics has a cut-off. On the ground, that translates into people not being able to get a postdoc in the UK. If that money comes back later, it will potentially be too late for this recruitment round. The delay and uncertainty in the field are just as damaging as any cuts. That uncertainty is not there in other countries.

Q25 **Dr Sullivan:** In theory, you would write an application for a project saying, “This is what we want to do,” but now you have to wait, because you can’t submit it. You wait, wait, wait and the money runs down because you are not getting paid, and you have a mortgage and all that sort of stuff, then you submit it to the funding research councils. We have been able to see the scorecard of the turnaround time. It was from four to seven months processing time. Add in to that—



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**Dr Williams:** It is a huge amount of time. With fellowships as well, you can apply in August and you don't learn if you have that position until May.

Q26 **Dr Sullivan:** Do you think—this is probably a bit of a loaded question, sorry—that, yes, the UKRI needs to pivot and change and go to the buckets thing but, until that is settled, there needs to be some sort of extension to what is currently there so that you can adjust? Fundamentally, the buckets may change and there may be different priorities, so you will need to rewrite and reframe your projects. You can't do that while not earning any money or being somewhere else. Would that be an interesting proposal?

**Dr Williams:** I agree. The communication to early-career researchers has been, "This is changing and now we're going to do the consultations." The consultations should have been done before the changes, or even before the changes were announced as going to happen. Even if it is just potential, the uncertainty that has been injected into the system has been catastrophic.

**Professor Butterworth:** You were also asking about other research councils such as BBSRC and MRC. I don't work in that community so I don't know for sure, but I know from UCL that colleagues are very nervous and are watching what happens with us to see what might be coming down the line for them.

I also see opportunities. There is not unified opposition to this policy change, and it may be that we are heading to a better place, but the transition is being handled terribly. That is something that needs to be dealt with, and it is not just about communications. I know that Sir Ian has been critical of his own communications, and that is true, but it is about more than communications; it is also about the timescales that you are alluding to. I am a little worried, as Catherine said, that we do things like AI and quantum in our area, but we are all in bucket 1. If all this money goes, do we have any route into bucket 2 from PPAN? I'm not sure. We don't know; that is the problem.

I think my colleagues in the life sciences and medical research are worried about the change coming. They are not wholly negative about it. It may be that this is a more transparent and better way of doing things, but you are losing the old before knowing what the new is, which is never a comfortable situation to be in.

Q27 **Dr Sullivan:** My final point: given who we have on our next panel, if you were a member of the Committee, what sort of things would you ask them? Do you have any suggestions on how to improve the transition period?

**Professor Heymans:** I would like to know who made this decision and based on what evidence. What we hear from UKRI is that curiosity-driven research is protected—that's what we want and that's what we need—and STFC is a unique problem and needs to balance its budget. What we have heard in STFC town halls is that UKRI has dictated the budget, which is



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slightly increasing for STFC, but it has also dictated how that breaks down into the buckets. Therefore, the only way to resolve that is this 30% cut in our area, because the other things in bucket 1 cannot be cut. There is a real conflict between what we hear from UKRI and what we hear from STFC. I would like to hear, because at the moment we do not know, who we should be petitioning—they seem to be passing the buck between each other. That's what I would like to hear asked.

**Professor Butterworth:** I absolutely echo that and would also like to know who is going to make the decision. Yesterday, Lord Vallance was being asked about this and said things like, "PPAN needs to be sorted out. This is absolutely a problem." It was recognised as a particular problem. Apologies for being parochial about our own science, my astronomy and nuclear physics colleagues, but this is urgent. We have international meetings coming up at the end of the month where our name is going to be mud if this is not sorted out.

Not only do we need to know who made the decisions, but we need to know who is going to make the decision about whether it can be fixed. That is basically about transitional stuff. It may not be ridiculously costly to fix the initial damage, and then we can work out where we are going after that. It is not only about who made the decisions, but who is going to make the decision that either they cannot fix this or they can and this is how.

**Dr Williams:** I agree entirely with the other two, but I have one comment. If the buckets are going to be made available to us, how is who wins the grant going to be chosen? You are pitting very different areas of science against each other. For example, if you pit using quantum computers for quantum field theory simulations against, potentially, cancer research applications, that is a huge breadth of science. If it is all in the same bucket, exactly how do you win? My question is: what mechanisms are in place to ensure that we do not have this attrition of early-career researchers?

Q28 **Chair:** Thank you very much. We are running out of time, but there are a couple more questions from colleagues on the Committee.

It is a key area and, now that the dancing has stopped, I want to mention that I am aware that we do not have anyone from the humanities or the social sciences giving evidence, and that they are experiencing significant cuts to postdoctoral positions as well. It has been suggested to me that that is part of a move away from humanities and to more investment in the sciences. I just want to confirm with you that your experience, as someone in the sciences, is not that you are gaining more funding from the humanities, for example?

**Dr Williams:** Exactly. Hopefully the evidence I have given today shows exactly the contrary. We are seeing in PPAN an attrition of early-career researchers. Potentially, as you say, that is happening across the board of all higher education.

**Chair:** Which is strange, given the Government's commitment to an

increase in science funding.

- Q29 Martin Wrigley:** I am Martin Wrigley, the MP for Newton Abbot. Unlike my colleagues, I am not experienced in research science. I am an engineer by training and largely a software architect by profession. I do not understand the numbers: overall, the budget is going up and there is more money being spent, yet you guys are talking about devastating 30% cuts—thank you for laying that on the table for us. Who is winning while you are losing?

**Professor Heymans:** That is an excellent question, Martin, because we also do not understand the numbers and that is part of the problem. If you go back through the council minutes for STFC—the council used to be in charge of STFC before UKRI took over; they are now a sort of oversight board—they did not even have the numbers. Their 17 December meeting quotes that there will be “a major shift of funding from curiosity-driven research to priority areas and targeted programmes.” But even at that point the council were not aware of the numbers.

That part is not transparent. From our side, all we know is what we have been told by Professor Dougherty that the budget in our area needs to decrease to roughly 70%. That is what we are working towards at the moment and looking at what has to be cut to meet that.

Where is the money going? We have ideas. Jon has already talked about the increase in salaries for public servants. STFC employs the most because it runs all the facilities for the whole of UKRI. For example, there is the Diamond Light Source, which is a really big major facility primarily used by EPSRC, but also by the Medical Research Council and the biology council. It is hardly used by PPAN scientists at all. Our suspicion is that that is where the money is going, but without the numbers we just do not know.

**Professor Butterworth:** That is exactly the point; we do not know.

- Q30 Freddie van Mierlo:** To build on some of the ideas we have just heard, the buckets that have been laid out by Lord Vallance seem to indicate a greater focus on value and return on investment for UK plc—for example, through university spin-outs—so that we can get more value into the UK, and investment into things that are closer to commercialisation and that can support employment and industry in the UK. Generally speaking, that is probably a good thing, but is it a false equivalence to say that curiosity-driven work is not driving value, employment and benefit in the UK? How can you capture more of that in the work that you do?

**Professor Butterworth:** I completely agree. That was partly what I was alluding to before, and what Catherine said before. We work on these priority areas as well. My goal is to understand the fundamental forces of nature, but I am using tools that can also be used elsewhere. Look at the Crick: Crick was a physicist—these things move around. We are part of the ecosystem that is the national sovereign capability to do these things. Physicists and astronomers are spinning out all the time into these other areas.

So there is an important distinction, in that the goal of my work is not to spin-out; the goal of my work is the exposal of something. But there are the people and tools I work with: the students who work with me go on to do other things, and my colleagues at UCL are working on other things. The universities and national labs are our sovereign capability to do this stuff. That is an absolutely essential component of economic growth.

There is a place for targeted growth—picking a winner and saying, “Back this.” That is absolutely right, and Lord Vallance is correct in his ambition to carve out the heat bath of curiosity stuff that will hopefully spark these things, and then ensure that they are used properly so that we get the economic benefit in the UK. That is totally the right idea. But with the buckets, most of the one that he calls “curiosity-led” is actually going straight to universities, which do all this stuff—they do not just do curiosity-led. The QR element is the biggest job there. I think there is a massive underplaying of the grants that also do curiosity-led work. They are being squeezed. That is what we are seeing and that is why we are here.

**Dr Williams:** There is a connection to industry in the UK being interested in what we are doing. If you are, essentially, moving a cohort abroad, that industry will go abroad. There is a symbiotic relationship.

**Chair:** I said that that was the last question, but Kit wants to come in.

Q31 **Kit Malthouse:** I just want to emphasise that point. I am sorry I was late; I was hosting a big data health breakfast. I worry that we are looking at the PPAN science, and not at the people. Developments in particle physics can take decades, but all those people who go through the research culture of particle physics go on to AI, quantum, photonics—all those other things. It is not that you are just generating the particle physics breakthrough; you are generating the people who do all those other breakthroughs. That is where the investment should be seen—in the capability, not just the science.

**Dr Williams:** We are losing early-career researchers we have invested a huge amount of money in. They have done a PhD, postdoctoral schooling, and gone all the way through university, and we are just letting them go abroad.

Q32 **Kit Malthouse:** Would you agree that cuts to this long-term basic research will impact on the human capacity we have to do this other, more retail, faster-moving stuff?

**Witnesses** indicated assent.

**Professor Butterworth:** I can give you a really concrete example of that. We have a doctoral training centre in UCL that was started with STFC funding a few years ago—it was quite visionary—for data-intensive science, with astrophysics and particle physics leading it. It has trained cohorts of students, with industrial partners co-funding studentships. STFC pulled the funding two years ago. The thing is carrying on with UCL and industrial partner money. That is great, and in one sense it is a success

story, but it is at about half the capacity that it could be if it still had the backing of STFC. Those people are in huge demand—those are the people you are talking about.

**Chair:** We have to end there, but you have made a really important point, Kit. How could we capture that? What question could we ask? Is it the numbers of doctoral students?

Q33 **Kit Malthouse:** Yes, is there an STFC alumnus programme that says, “These people doing amazing things with quantum actually came through an STFC research programme,” so you can map the network of expertise that was created in particle physics, or whatever it might be?

**Professor Butterworth:** There is definitely a very good CERN alumnus programme, but that does not capture STFC.

**Chair:** Maybe you could write to us about how we could capture that—about a question we could ask or a figure we could give, so that we can capture that and see the impact.

**Kit Malthouse:** Or give us five real people.

**Dr Williams:** I have been in contact with some people.

**Professor Butterworth:** We could easily do that.

**Chair:** Quantitative or qualitative.

Sorry that we have run over our time but, as you can see, this is an area of real interest for the Committee, as well as the wider audience in the room and across the country, so a huge thank you for your testimony. Professor Heymans, you talked about coming here to save astrophysics and astronomy. We are very concerned about the evidence you have given, and we will be continuing with that issue in our next panel. Thank you very much.

## Examination of witness

Witness: Professor Michele Dougherty.

Q34 **Chair:** Welcome to the second panel in the Science, Innovation and Technology Committee’s session on science funding. We are pleased to be joined by Professor Michele Dougherty. I shall ask her to introduce herself as part of the response to my first question: when did you first become aware of the cost pressures facing STFC?

**Professor Dougherty:** Thank you very much for the opportunity to talk to you today. To give a brief summary of who I am, I am a planetary scientist. We build magnetometer instruments that fly on planetary spacecraft. I had a spacecraft go to Saturn, and I have one on its way to Jupiter at the moment. I was based at Imperial College for over 35 years. I was a member of the PPAN community that entire time, so I am feeling the pain. For six and a half years, I was head of the physics department as well, so I also have an understanding of the concerns of heads of physics.

Recently, in January of last year, I was seconded into the STFC chief exec role, and on joining STFC I became aware of the projected financial shortfall.

**Chair:** Sorry, when was that, exactly?

**Professor Dougherty:** In January '25. I had been a member of the STFC council before that, and I was not aware of the shortfall when I was on the council.

It was very clear to me when I joined, that STFC would essentially not be able to afford itself going forward unless we did something. To be frank, it is not what I signed up to, but how can I not want to help STFC reshape itself and afford itself? In some form or another, it has supported my research for the last 35 years, and I know how important its success is to the UK research and innovation landscape. In my role, knowing that we have a shortfall, I cannot stand by and allow it to continue.

I am very well known for my transparency—I am sometimes told I am a bit too frank—and I alerted both STFC staff and the science community last year that there was a financial problem. I said to them that I would not be aware of the ultimate impact until the spending review allocations were decided towards the end of last year. However, I did say that we had some difficult choices in front of us, and I wanted to work with them on that.

Q35 **Chair:** Thank you very much. It is clear that you are making the point—and I am pleased to hear it—that you come from the community whose funding you are now managing. You were aware of a shortfall when you took on this role. What was it?

**Professor Dougherty:** It was in the order of £100 million, and potentially up to £150 million. It took me some time to get an understanding of the size of the shortfall.

Q36 **Chair:** What had given rise to that shortfall?

**Professor Dougherty:** From my perspective, there is almost a single answer, although there are lots of other aspects: it was an overabundance of ambition. There were too many new projects taken inside STFC, but also launched within the science community, that our financial environment cannot sustain. In saying that, it is our job as science leaders to be ambitious and to take risks, often when we do not know what the details of those risks are at the start of the process. But it is also the job of leaders to grasp the nettle when we know we cannot afford something any more, and to say that we need to do something and reset our ambitions.

Q37 **Chair:** My surprise is that the STFC primarily does facilities funding—although the scientists you are funding are also really important, and we will come to that—and facilities, by definition are long-term things, so the council responsible for funding long-term things should be able to do long-term funding. Yet you are saying that the council failed to do that, to the

extent of £100 million?

**Professor Dougherty:** I am saying that too many new projects were taken on when there was not the understanding that they could be afforded.

Q38 **Chair:** I find that incomprehensible for any sort of basic budgeting. I take it that there are accounts during this time?

**Professor Dougherty:** I cannot talk to what happened before I joined. All I can say is what I found when I arrived.

Q39 **Chair:** I am sorry, but in terms of governance, I think you do have to talk to the position you are in now and how that reflects what happened before. In terms of the accounting for those new projects, could you name some that were taken on that could not be afforded?

**Professor Dougherty:** There were a whole number of new facilities which were taken on board.

Q40 **Chair:** Such as?

**Professor Dougherty:** The Boulby lab is one. There was the understanding that there would be funding routes for those. That is my understanding of the situation. New money was injected, with an understanding that there would be continued money for those facilities, and Boulby was one of them.<sup>1</sup>

Q41 **Chair:** Was that understanding given by Ministers?

**Professor Dougherty:** I was not in post.

Q42 **Chair:** Will there be minutes of executive meetings and so on that would identify that?

**Professor Dougherty** indicated assent.

Q43 **Chair:** We do want to understand what happened at that time, so let us move on. Sir Ian Chapman talked about cost pressures around currency fluctuations, the Ukrainian war and so on. You are not mentioning that; you are talking about particular projects that could not be afforded.

**Professor Dougherty:** The overabundance of ambition is one of the factors, but there are others. There were inflationary costs that came on to our baseline costs. There were operational costs as well. Some of my colleagues on the first panel mentioned that we increased staff salaries, which needed to be done. Those were extra costs. It was a combination of inflation, operational costs and, I think, launching too many new projects unsustainably.

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Q44 **Chair:** I would have hoped that many of the operational inflationary costs  
Clarification requested by witness. Prof. Dougherty wishes to clarify that she misspoke when making reference to Boulby in the context of new facilities taken on. There were a number of overambitious projects with high science value undertaken but Prof. Dougherty did not mean to reference Boulby in this context.



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could be, if not budgeted for, then hedged in some way. For example, currency fluctuations can be hedged. You are doing long-term budgeting now—at least, I hope you are. Are you repeating the same mistakes? Are there things you are doing now that you weren't doing then to ensure that your long-term budgeting can be long term?

**Professor Dougherty:** Yes, if we do not put contingency into our budgets, we will find ourselves in a similar situation in the future. So we are putting contingency into—

Q45 **Chair:** I am actually not talking about contingency; I am talking about hedging for future costs. For example, currency fluctuations can be hedged for.

**Professor Dougherty:** We are doing that as well, but it is also important to put additional contingency in.

Q46 **Chair:** I agree, but putting in additional contingency is taking money from existing projects to increase contingency.

But let's move on. I have a couple of other specific questions. Did you highlight the risks associated with these decisions to UKRI leadership and DSIT Ministers when you found out a year ago?

**Professor Dougherty:** Yes, I had conversations with all the research councils, as well as with UKRI and DSIT, and I described what I saw as the financial shortfall that was coming towards us.

Q47 **Chair:** Did you then communicate that to the science community? We have heard that the science community heard about cuts, and not about the extent of these financial pressures. When you say you communicated it to the science community, what did you say to them?

**Professor Dougherty:** Last year, before I was aware of what the actual shortfall was—we were going through the spending review process last year, so I did not have definitive numbers as to what the actual shortfall would be—I made it clear in community meetings, council meetings and meetings with UKRI colleagues that we had to make some difficult decisions, but that we could not be clear about what they were and the scale of them until we had an understanding about what our spending review allocations were.

Q48 **Chair:** Do you accept that the decision to pull out of funding the LHCb upgrade at CERN, which we discussed earlier today, damages the UK's international reputation and standing?

**Professor Dougherty:** It certainly has the potential to do so, and if we do not talk carefully to our international colleagues and describe to them the financial situation we are in, it could. But I have made sure to have bilateral meetings with our international colleagues who are involved with CERN. We have also had detailed conversations with Mark Thomson, the DG of CERN—we actually had a meeting with him, Minister Vallance, Ian Chapman and some of our colleagues. Mark is understanding of the situation we are in, and he is also very concerned about the impact on the LHCb upgrade.



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The way that that decision was made is that it was a cross-UKRI decision. There were, I think, eight different projects that were up for infrastructure funding, and there was not enough money to fund them all. I recused myself from that conversation—I chair that committee, and we had two STFC projects within that committee. A cross-UKRI decision was made that we cannot afford it now.

- Q49 **Chair:** We have already heard from Professor Butterworth that that decision has impacted our international standing. You are saying that you don't think it has because of excellent communication on your part. Do you accept that, as a founder member of CERN, and given the importance of that upgrade—and given a commitment from Government on increased science spend—that decision must undermine our international standing and reliability?

**Professor Dougherty:** It certainly weakens our standing. What it does not do is undermine the commitment that we have to CERN. We pay a £175 million a year subscription to CERN, we are the second largest partner in CERN and we will continue to fund all the projects that we are funding at the moment, based on the prioritisation process we will go through over the summer. I am assuming we will come back to that process, so I will not go into it.

- Q50 **Chair:** Yes, we will certainly come back to it. Many colleagues are keen to come in with questions. Before they do, I have one question. Sir Ian Chapman said to this Committee that UKRI's engagement with the research community had not been good enough. We have members of the research community here in the room, and I am sure they are listening. Would you accept that, and would you also share the view that your communication with the research community has not been good enough?

**Professor Dougherty:** I think the way in which the news came out was not good enough. I was not happy with the way in which it came out. I was rushed into sending the email out that I did to the community, because I had an all-staff STFC webinar where I detailed to my staff the level of the cuts we would need to make within STFC.

One of my staff members shared every single slide with the media at the same time as I gave the webinar, and I then had to reach out to my community and let them know what we were going to be looking to do. So the timing was awful, and I was very distressed by those comms. It was not a good way in which to engage with our community on that.

**Chair:** I think that is very clear and I appreciate you confirming that.

- Q51 **Dr Sullivan:** I am interested in the governance. It feels like there is this medium-term financial planning. It may be that you inherited a place that was not as it should be—we are seeing a deficit each year—but that has been coupled with this new bucket framework, which is then forcing the choice between different projects. Some are safe, but then that leaves the postdocs. I am trying to understand who is responsible for the governance of, first, deciding the buckets and, secondly, deciding that medium-term financial planning. I think it was mentioned earlier that you are in an



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advisory role rather than being the actual decision maker within STFC.

**Professor Dougherty:** As far as the decisions that are going to be made as to what is cut, within STFC, I will make that decision. Within the PPAN grant line, I have agreement from Ian Chapman that over the next three months we will have a prioritisation process, run by our science board. They will engage with the community and will then come up with an option space. We are going to be looking at a 10%, a 20% or a 30% cut. We will look at that option space and then share it with UKRI and with Ian Chapman, so that he is aware of the impacts in that option space. The final decision will be made at a UKRI level, but we need to give them all the information as to what the impacts are.

Q52 **Dr Sullivan:** Who decides on the buckets?

**Professor Dougherty:** UKRI decides the bucket structure, and each of the research councils is responsible for its bucket.

Q53 **Dr Sullivan:** Who decides what research is in bucket 1?

**Professor Dougherty:** The research councils.

Q54 **Dr Sullivan:** So you decide Diamond or whatever is in bucket 1.

**Professor Dougherty:** Diamond is not funded from bucket 1.

Q55 **Dr Sullivan:** For example: "This is in bucket 1. We cannot touch anything to do with this." You have decided what is in there, so what is left?

**Professor Dougherty:** Our bucket 1 consists of the international subscriptions, PPAN grant funding and the project funding that is linked to PPAN work. Those are the three things in bucket 1. I could not think of anything better than "things", sorry.

**Dr Sullivan:** We are talking about buckets. It is really bizarre.

**Professor Dougherty:** I know. Those are the three areas we need to fund out of bucket 1.

Q56 **Dr Sullivan:** That has to be protected. Based on what the Minister is saying about blue-sky research, bucket 1 is fully protected. It cannot be touched for cuts.

**Chair:** It is being touched for cuts.

**Professor Dougherty:** I am working to a financial envelope that, in the worst-case scenario, is 70% of what we got in 2024-25. That is the email that I sent out to the community: that I need information from the community as to what the impact of that would be on the science that we can do.

Q57 **Chair:** Why is it 70% of what you got in 2024-25?

**Professor Dougherty:** That is going back to levels that we were at in 2021-22. I can get the funding line to you—I do not have it in front of me.

**Chair:** But why—



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**Professor Dougherty:** That is what we were rewarded in our bucket.

Q58 **Dr Sullivan:** UKRI is deciding the amount of the bucket for 1, 2, 3 and 4. UKRI is moving how much money that you have to spend for the various different things, but you are deciding what goes into the different buckets.

**Professor Dougherty:** Yes, but in discussions with us. There were conversations over the last six months of last year during the spending review preparation as to where the funding would go. We started to get insight into where our shortfall might be, but we could not share it with the community until it was formally announced.

Q59 **Chair:** You have been informed of a 70% cut in funding for your bucket 1—I am not sure that is what our understanding is. Is it a cut to 70% in your bucket 1?

**Professor Dougherty:** That is the headroom that I have if I look at what is uncommitted as far as our grant money is concerned. We have committed funding to pay for existing grants and existing projects.

Q60 **Chair:** But that is what UKRI is aware of. You are describing this as a cut of effectively 30% in your bucket 1. That is what you are saying the set amount is.

**Professor Dougherty** indicated assent.

Q61 **Dr Sullivan:** Where is the additional money going? There has been an uplift in money, so where is that going? Is it going to bucket 4?

**Professor Dougherty:** One of the things that really excites me about the new UKRI allocations process is the fact that there are these new pots of money. For quantum, there is £1 billion and for AI, there is £1.5 billion. That is going to be multidisciplinary work, where all research councils and their communities can look to those buckets to get grant funding. For me, that is why UKRI was formed.

Q62 **Chair:** I think that you have just brought in new buckets, haven't you?

**Professor Dougherty:** There are four total buckets, yes.

**Chair:** So, the quantum pail.

**Professor Dougherty:** Dr Sullivan asked the question about where the additional money in the spending review is going to. There is a focus on multidisciplinary research: quantum, AI and compute. It is about £2.5 billion over the spending review.

Q63 **Dr Sullivan:** Is that funding call open? Is the research ready to go?

**Professor Dougherty:** They are not open yet. What is happening at the moment is that those areas are putting programme boards together. Those programme boards will have members of each of the research councils on them.

Q64 **Dr Sullivan:** How long will that take?



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**Professor Dougherty:** My understanding is that the governance of them is being finalised, and business cases will be taken to Ian in the next couple of months. We need to get this moving, because this is one of the positive things that is coming out of the allocations process.

- Q65 **Dr Sullivan:** My final question is on the transition period. While we are waiting for the new money to come, which sounds very exciting, there will be a stopgap of six months or a year for postdocs who need to eat. Where will they go? Is there any scope for a transitional arrangement? You could extend what is currently there so that once we are ready—boom!—they can then apply. Then they will also have a good ground base where they can put some real thought—they do really amazing things anyway—into how we can achieve these amazing goals for the UK.

**Professor Dougherty:** One of the things that I would like to do as part of our prioritisation process with—

**Dr Sullivan:** No transitional money?

**Professor Dougherty:** Sorry, what I would like to do is to get an understanding from our science board and the community as to whether that would be something that they would want us to put some of our money into, to be able to keep postdocs going until these new opportunities open up.

- Q66 **Chair:** We have already heard that postdocs are going abroad—

**Professor Dougherty:** Of course, and I am concerned about that.

**Chair:** Because they cannot not eat for six months.

- Q67 **Daniel Zeichner:** I have to say that this feels to me like a terrible mess. You have said that you cannot comment on what happened before your time, but from your description, it seems like a real governance failure that, in your words, over-ambition was allowed. Over-ambition means vastly overspending the available resources. Should you not be asking questions as to how that was allowed to happen?

**Professor Dougherty:** I am trying to solve the problem that I have in front of me.

- Q68 **Daniel Zeichner:** But if it happened before, what gives you confidence that with the same structures—it sounds like council members were not made aware of these problems—it will not happen again? How can you be sure of that?

**Professor Dougherty:** Because that's not the way I work.

- Q69 **Daniel Zeichner:** Okay. But it seems to me that it is a structural problem. People in Cambridge told me yesterday, when I spoke to them, that this allocation of resources is not a new problem. And Lord Drayson, back in 2007-09, set up what were called the Drayson partitions to try to prevent this kind of thing from happening. Why have those partitions been eroded?

**Professor Dougherty:** They have been eroded over time—that is clear. Something that we as a PPAN community have been talking about ever since I joined the community is the concern about where our PPAN grants sit compared with the rest of STFC.

One of the real positives about having PPAN grants within STFC is that there is the very close link to our lab departments, who help to build the instrumentation, and who build parts of the instrumentation for CERN and for some of the astronomy work that we do. There is a very clear desire from our PPAN community to have that close link, but there is then this bleeding, which happens when funds are short.

What I would like to do, as part of the consultation that we do with the community, is to have an open conversation about where PPAN grants should fit. Should there be a separate research council? Should they go under the umbrella of one of the other research councils? Or is there a way in which we can make sure that those partitions stay in place to enable us to protect PPAN science?

- Q70 **Daniel Zeichner:** I understand the point and I understand how difficult it is to make UKRI actually work, a decade after it was established. However, given that it was known that this fundamental structural issue was there, and that people understood the consequences—consequences we heard about from the previous panel—how on earth can we have got to this position?

**Professor Dougherty:** All I can talk to you about is what I have been dealing with since I arrived.

- Q71 **Daniel Zeichner:** Okay. I have one final point on communication. Clearly, it has not been brilliant. I am told that there were town hall online meetings last week, which you handed to someone else to run rather than doing yourself.

**Professor Dougherty:** I wasn't invited to them. I heard about them when they were going on, because I was told that there were comments in the chat that I wasn't there. I was not invited. With one of the meetings that I was invited to, I could not do it because I was running an interview panel, and I asked if the date could be moved.

- Q72 **Daniel Zeichner:** This is symptomatic of a breakdown of communications within the sector with key people.

**Professor Dougherty:** I must be talking to the community; they are my community. One of the things that I have done since you saw Ian Chapman is I have really been engaging with the community. We had a really good meeting with the early-career researchers yesterday. They have given us some actions, for example looking at the impact of the cuts that we are going to make on early-career researchers across the UK, and how long it would then take to get numbers back up. That is one of the actions that we have taken.

I also had a meeting with heads of physics with Charlotte Dean, the chief exec of EPSRC, where we fielded questions and concerns from them for an



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hour. One of the other meetings that I had was with Minister Vallance and Ian Chapman, and some of the particle physicists.

We are engaging with the community as much as we can. As soon as we get the pro formas back from all the project PIs, we will then start much more engagement with the community.

Q73 **Daniel Zeichner:** A final question. Clearly, these were not the consequences that you and others were seeking. However, given that we are seeing how things are playing out, surely you need to put in place some very quick measures to deal with them, to stop causing this unintended damage?

**Professor Dougherty:** That is why we need to share with UKRI what the impacts of these cuts are, and the community will help us to do that, so that it is clearly seen what the impacts are. Then a final decision can be made.

Q74 **Daniel Zeichner:** And do something about them?

**Professor Dougherty** indicated assent.

Q75 **Dr Sullivan:** Who is making that final decision? Will that be Ian?

**Professor Dougherty:** I will take what the impacts are, and what we can and cannot do, to UKRI—so, to the Executive Committee and then to the Board.

Q76 **Chair:** Is that in the expectation that further funding may be available, or is it just for them to rubber-stamp? Given all these pro formas coming back saying that a 60% or 70% cut will mean that it is unviable and that all these projects will stop, is your expectation, as I hope it is, that further funding would be available? Or is that just the outcome, unacceptable as it may seem?

**Professor Dougherty:** Ian Chapman is well aware that that is why the community is pulling these different option spaces together. They hope that he will see what the impact is and look at whether there is a way to mitigate it, but I cannot speak for him.

**Chair:** You cannot?

Q77 **Freddie van Mierlo:** I have questions on two themes that build on what others have asked. You are accepting responsibility for how things are spent and staying within budget now: that is your job. Who was your predecessor?

**Professor Dougherty:** My predecessor was Mark Thomson, who is now the director general of CERN.

Q78 **Freddie van Mierlo:** How long was he in post for?

**Professor Dougherty:** I think it was five or six years.

Q79 **Freddie van Mierlo:** Does it stand to reason that he is responsible for the overspends you have referred to?



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**Professor Dougherty:** That is where the over-ambition comes in.

Q80 **Freddie van Mierlo:** Thank you. Secondly, we have also heard that there is a shortfall in funding over the next period, and that you expect that to relieve itself in the next few years.

**Professor Dougherty:** Yes, we are hoping to get some headroom.

Q81 **Freddie van Mierlo:** Is it sensible to build a contingency fund in that period, when you are facing shortfalls in funding?

**Professor Dougherty:** You are right. I was not clear enough: we are not going to do that in the next couple of years. Once we start getting headroom, we will then put some contingency in. It would be crazy to put contingency in now when we are potentially cutting some really good science.

Q82 **Freddie van Mierlo:** What contingency do you have at the moment?

**Professor Dougherty:** None.

**Freddie van Mierlo:** None. Okay; thank you.

**Chair:** Great—well, not great, but thank you very much, Freddie.

Q83 **Martin Wrigley:** You clearly have a very difficult position. First, I just want to clarify a few things. You talk about a shortfall of between £100 million and £150 million. Is that real or projected? Is that the actual loss your organisation is making right now, or is it projected in your numbers?

**Professor Dougherty:** Sorry, I do not know where £250 million came from.

**Martin Wrigley:** I said £100 million to £150 million, which is what you said.

**Professor Dougherty:** I am sorry—I thought you said £200 million; I misheard. We now have a projected shortfall of £162 million at the end of the spending review in '29-30.

Q84 **Martin Wrigley:** What is your actual shortfall today?

**Professor Dougherty:** We expect that UKRI will help us out with about £50 million this year.

Q85 **Martin Wrigley:** So you have a £50 million overspend right now, which is projected to increase to between £100 million and £150 million. You said that that would be in a worst-case scenario.

**Professor Dougherty:** The worst-case scenario I was talking about was a case where we would need to make 30% cuts to our PPAN budget. That is the worst-case scenario. That is in the email I sent to the community, saying that we are being asked to look at a potential 70% of what we were doing in '24-25. We sent the pro formas out to ask those questions so that we could see what the option space would look like for us to make that 30% decrease across our PPAN budget.



**Q86 Martin Wrigley:** Why is the £50 million shortfall of today, which clearly needs addressing, projected to grow to three times that amount? Where does that growth of loss come from? Rather than cutting existing work today, why are you not looking at cutting where those increases in spend are projected to be to get the bulk of your savings?

**Professor Dougherty:** That is what we are planning to do. We will take the bulk of the savings that need to be made by '29-30 internal to STFC, and within our multidisciplinary facilities and national labs. We will stop doing things so that we can afford ourselves in '29-30.

**Q87 Martin Wrigley:** Sorry, but that does not answer my question. Why are you choosing to stop things, while allowing other things to expand beyond the budgets allocated to them?

**Professor Dougherty:** That is what we are going to stop. We will not allow any expansion to take place.

**Q88 Chair:** I just want to understand, on Martin's point. We have heard from postdocs that they are going to model 60% cuts. They have not got increases in their costs. They are being asked to model cuts, but they are not saying that their costs are going to increase. Why are you asking people who have not had increasing costs to make cuts? Is that what you are saying, Martin?

**Martin Wrigley:** Yes.

**Professor Dougherty:** Sorry, I misunderstood the question. Within the PPAN envelope, which I described to you earlier, there are three different areas that we cover. One is PPAN grants, which help cover early-career researchers, another is international subscriptions, and the third is projects that we run for PPAN grants. For example, there is ATLAS on the particle physics side, or some of the work that has been done at the UK Astronomy Centre—the MOONS instrument that was delivered to Chile. Those projects are all part of our bucket 1.

Costs on the projects are increasing over the next few years, and, because of those increases, we will have to decrease our grant funding line to stay within the envelope.

**Q89 Martin Wrigley:** That is exactly my question. That is the choice you are making. Why are you not controlling the costs on those projects? They are clearly running out of control, by increasing their spend by £100 million.

**Professor Dougherty:** We are partly doing that. We have been receiving pushback from the community for doing that; they are asking for additional money to run some of those projects, and we are saying that we cannot do it. There are some committed costs that we cannot get out of. For any new additional costs for those projects, we are saying that we simply cannot afford them.

**Q90 Martin Wrigley:** That sounds sensible. What is preventing you, since you have chosen what is in each bucket, from moving some things from bucket to bucket, such as the quantum you talked about and we heard about



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being cut? Why are you not taking advantage of that new funding? Overall, there is more funding, so it comes back to the question I asked the first panel: they are losing, so who is winning?

**Professor Dougherty:** I do not have responsibility for those new buckets.

- Q91 **Martin Wrigley:** No, but you have a responsibility to make sure that your organisation makes best use of those buckets, and presents the best possible route forward to transition from one structure of funding to another.

As an engineer, I have run foul of finance budget rules many times. Having seen Network Rail unable to protect Dawlish by building an offshore wave-breaking reef because it is not on their land, which means that they cannot spend money on it, I suspect that you are falling foul of the same sorts of budgeting issues. It sounds to me, from what you have heard—this is through a thorough lack of understanding, so I could be entirely wrong—that you need to be more creative in allocating your expanding budget to your existing people, rather than to projects. Have you considered that?

**Professor Dougherty:** I am considering that, but, because we still do not have clarity about the new areas of funding and how the calls will come out for quantum, AI and compute, there is nothing I can do in the short term about that, other than say to my community and my staff that there is real potential there.

- Q92 **Martin Wrigley:** I think that you have to project upwards. From what you are describing, I think that you are being too passive, and accepting what you are given. Are you pushing upwards and saying, “If we are going to make the move we need to make nationally in quantum”—I think that we have already lost AI; it is a lost cause largely—“we need access to this, so that we can transition our existing people into this new source of funding.”

**Professor Dougherty:** That is a very good question. Yes, we are engaging with the responsible offices for those areas. We have ensured that we have STFC representation on the programme board, because we have so much expertise in STFC and our PPAN community. Some of the staff that we will have to lose in STFC to be able to afford ourselves could very easily take up new roles in the quantum and AI areas. That is why we need these two processes to be moving together: so that we can keep the best people.

**Chair:** Thank you very much. We are coming close to the end, so I think we will finish after Kit’s question.

- Q93 **Kit Malthouse:** I just wanted to pursue what Martin was saying about appealing upwards. Given what we heard from the previous panel about the fundamental damage this will do to the research environment and to the development of expertise for wider promulgation in the science community, it would be perfectly possible, if UKRI wanted to, to cross-subsidise you—to say, “Look, this is a one-off structural problem; we could



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draw money for this.” UKRI typically has a capital underspend of about 1%, or £20-odd million, that they could put towards it. But there are other things that could be done.

What conversations have you had with the Department about, for example, reclassifying the subscriptions that you pay as international treaty obligations, so that they would not necessarily come out of the funding envelope? That would mean Treasury approval, but, given the strong case we have heard made about the foundational nature of this science—in terms of not just the science itself but the human beings who are developed within that context—there should be a way to overcome this. Have you had that conversation? Is there an appreciation of the importance of this, at the departmental and then Treasury level, that would allow you, to be honest, a bit of creative accounting?

**Professor Dougherty:** I am having that conversation with Ian Chapman, and with DSIT as well, because we work in lockstep with DSIT and with our international partners as far as the subscriptions are concerned. That is part of the outcome I want from the prioritisation process we are going to do—what the impact will be on our community if we keep responsibility for the international subscriptions. That is part of the conversations that are ongoing.

Q94 **Kit Malthouse:** Also, UKRI’s budget over the years has been sort of manipulated to ensure that the DSIT budget is fully spent. I think last year, or the year before, they spent about £800 million more through UKRI than they were budgeted to spend, but that was because DSIT wanted to make sure they did not have a return for the Treasury. There is flexibility in there, so if you are having that conversation and it is resulting in 30% cuts for some of these, should we be saying to the Minister next time we get them in front of us, “Why did you say no to Professor Dougherty?”

**Professor Dougherty:** No one has said no yet; this is part of the conversation. But I have been asked, with my community, to look at what the impact of the 30% would be. I need to follow through on that as I am having those conversations.

Q95 **Kit Malthouse:** From our point of view, although it is a lot of money, in the great scheme of the Government Budget, it is not a huge amount of money—it is a rounding error for the Treasury—so there should be a creative way to overcome what you are telling us is a temporary, historical problem, rather than an ongoing structural issue. That is where we are struggling a bit.

If you do not mind, Chair, would it be possible, Professor, once your conversation with the Department—and therefore, by proxy, with the Treasury—has concluded, for you to let us know? We would then like to understand from the Minister why they have taken the decision to say no to you for the money that should be made available when that is something that we think is—or seems to be, and we are being told is—so damaging.

**Professor Dougherty:** It has always been a concern that the cost of the international subscriptions is impacting on science, and that will be part of the ongoing conversations.

**Kit Malthouse:** It would be easy just to move it out—reclassify it. It is an international treaty obligation; you have to pay it, whether we like it or not.

**Chair:** Yes, another line in the thing. Thanks very much, Kit. Lauren, you have a final quick question.

Q96 **Dr Sullivan:** It sounds like there is an awful lot of work going on behind the scenes. While that is happening, what is your message to the PPAN community for why they should stay?

**Professor Dougherty:** That we are world-class at what we do. We have had these financial resets in the past and we come back stronger. We have a difficult year or two ahead of us as we get through this. I know that is not much comfort to our postdocs at the moment, but I have a vision in which we will come out of this so much stronger. We will have a clear understanding of our costs and we will generate headroom so that we can take on new opportunities. I am doing the very best I can for the community; will they please engage with the prioritisation process we are going through? I need to know what the impact will be, so I can make that clear to UKRI.

Q97 **Chair:** Thank you very much for that message to the early-career researcher community, who I know are very concerned, as we have heard this morning. I think the message from the Committee is that the extent of the impact on our existing science base, by which we really mean scientists and early-career researchers, is unacceptable.

From what I can infer, this is a temporary issue. I have the impression that you expect that the new funding pots, with the £1 billion on quantum and so on, will be able to address some of the temporary shortfalls. This is an example of doing the cuts first and the new funding second, which is causing real harm to our science base. In addition to asking the community to work with you over the next three to four years until we get into a good place, can you give a commitment that, as Kit alluded to, you will look to bring in funding to close the gap in the short and medium term?

**Professor Dougherty:** Absolutely, yes.

**Chair:** Great. The Committee will look forward to holding you, Lord Vallance and Sir Ian Chapman to account on the consequences and the success of that endeavour.

Professor Dougherty, thank you for your time this morning. We have put a number of very hard questions to you; as you are aware, that reflects the sense in the community that things have been badly handled. We are incredibly concerned about the impact on scientists and on our scientific base in these incredibly important areas, so I am sure that this discussion



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will continue.