

Business and Trade Committee

Oral evidence: Industrial strategy, HC 727

Tuesday 29 April 2025

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Members present: Liam Byrne (Chair); Antonia Bance; John Cooper; Sarah Edwards; Gregor Poynton; Matt Western.

Housing, Communities and Local Government Committee member also present: Florence Eshalomi (Chair).

Science, Innovation and Technology Committee member also present: George Freeman.

Treasury Committee member also present: Lola McEvoy.

Questions 651 - 667

Witnesses

III: Stian Westlake, Executive Chair, Economic and Social Research Council, UKRI; Mike Biddle, Executive Director for Net Zero, Innovate UK, UKRI; Matt Clifford CBE, Chair, Advanced Research and Invention Agency; Professor Ben Morgan, Chief Executive, Advanced Manufacturing Research Centre, University of Sheffield.

Examination of witnesses

Witnesses: Stian Westlake, Mike Biddle, Matt Clifford and Professor Ben Morgan.

Q651 **Chair:** Welcome to this third panel of today's hearing of the Business and Trade Committee, as we pursue our review of the institutions needed to help ensure the industrial strategy is a success. Mr Clifford, I know you have to exit in about 20 minutes' time, so perhaps I can start with you. Could you give us a quick sense of how important Britain's R&D institutions are to the Government fulfilling their industrial strategy ambitions?

Matt Clifford: Thank you for accommodating my meeting, which I apologise for. They are absolutely essential. R&D is one of the very few things that we know fuel economic growth, particularly in the medium and long term. That makes it both essential and challenging because funding things for the long term is particularly hard in a democracy. It is to the enormous credit of this and previous Governments that we have made that long-term commitment to funding R&D.

In order to make that work and deliver the economic growth, which is the Government's top priority, you need a diversity of institutions, many of which are represented at the table today. Without a robust R&D strategy and a plan of how you turn R&D into real-world impact, it is going to be very challenging to deliver the industrial strategy.

Professor Ben Morgan: Good afternoon and thank you very much for having me today. I would echo those comments. R&D is critical to economic growth in terms of the stickiness that you can achieve by working through the lifecycle of innovation, from low TRL, from academia, through the so-called valley of death with the catapult centres, which I represent, through to commercialisation. That is critical.

We have seen some fantastic examples of that. I was working with Rolls-Royce and we supported its UK disc facility, a brand new facility up in Washington in Tyne and Wear. There was a £100 million investment. The AMRC supported about a 50% productivity saving on that product. That product could have gone globally. It supported jobs. It secured that work in the UK. That is just one example of why it is critical.

Mike Biddle: R&D is fundamental to an industrial strategy for our country for the long term. If we knew how to do it, we would have done it already. R&D is a way to explore the things that need to be done. As part of that, by having the focus of the growth sectors, you can then start to say, "What are those north stars? What are the guiding lights? Where might we invest? How can you grow locally and go global, in terms of reaching export markets?"

Fundamentally, you can invest in R&D for the long term as well. We know from independent Innovate UK analysis that every £1 of investment generates £3.60 of direct benefit to the economy. If you look at the wider spillover effect, it is about 7:1.



Chair: Mr Westlake, hopefully you are not going to demur.

Stian Westlake: I am not going to disagree, but I would build on that by saying that it is incredibly important, if we want to achieve these benefits, that public R&D institutions interface well with the rest of the system. Working with businesses, we get £3 of business investment in the UK economy for every £1 of public investment going in. That is crucial. It is also about working with businesses as employers. We do not only produce the ideas that come out of universities, but also the skilled people who do PhDs and then go into fantastic jobs in innovative businesses.

Then there are even things such as the interaction with the planning system. If you want to get people making businesses out of good ideas, it has to be possible to set up businesses and for workers to live affordably around where those businesses are. Getting those connections right is also vital.

Q652 **John Cooper:** You are convinced of the importance of R&D in driving that growth, but do you think that we have the right R&D institutions to ensure that the industrial strategy succeeds? If you do not, can you see any obvious gaps? Is there something that we should be filling at all?

Matt Clifford: I do think we have those institutions and the key—

Q653 **Chair:** I just want to just check this. You basically think the institutional setup we have right now is all good.

Matt Clifford: There are lots of challenges, but I do think we have institutions that are fit for purpose to deliver on the core purpose of R&D.

Chair: We are not missing any.

Matt Clifford: We have created institutions with enough flexibility that we can do a lot with what we have. I am here as chair of ARIA, the Advanced Research and Invention Agency, which I think may be the newest R&D funding agency in the UK. I am obviously slightly biased, but I think ARIA added a great deal of institutional flexibility to what we do across the ecosystem. The key at this stage is to make sure that the institutions that we have are well funded and well functioning.

To build on Stian's point, the key thing is to make sure that our public sector R&D institutions have the right interfaces and interface well with the private sector. I overheard the conversation with the previous panel about capital. One of the key things we need to do is less about creating new institutions and more about building the connective tissue between the institutions we have up and down the value chain.

Q654 **John Cooper:** Professor Morgan, do you also think that the situation we are in is pretty good and we have that flexibility that if something comes along—obviously there are unknown unknowns—we can jump on that?



Professor Ben Morgan: In my experience, we do. To qualify, we have lots of institutions across funding bodies, universities and catapults in that applied research space. We have the regional bodies as well, such as the MCAs and the trade bodies. There are various players. They are all pointing in the right direction. I would echo the point that, particularly as the High Value Manufacturing Catapult, we have worked hard to bridge the gaps to be the convener between some of these institutions.

To the previous session on finance, in my experience, when talking with industry, there are questions around access to finance as businesses scale. We can sharpen there; there is something there. This is probably a slightly separate point, but the use of government procurement, particularly around large programmes, could need new institutions to guide that funding because some of those big programmes could really turbocharge supply chains and give certainty to business.

Q655 **Chair:** Is that the missing link, then? We have taken evidence from AstraZeneca, say, in life science and from a lot of defence companies, both of which tell a pretty poor story about the way in which we use government procurement to provide those advanced market commitments, or advanced market clarity, that might be positive signals to investors.

Professor Ben Morgan: You have a good opportunity. If I take UK SMR at the moment, there is a fantastic opportunity there to make a decision that will have global impact. The UK has a good opportunity to be really seen as a leader. I work with a lot of heavy industry, precision machining and casting businesses. That would give them the certainty, alongside the industrial strategy, to invest for growth, jobs and productivity

Stian Westlake: If I can build on that point about procurement, there is an opportunity here. It requires quite a lot of dry, detailed work. For example, at the moment the Cabinet Office is taking a long-established programme, which used to be called Small Business Research Initiative and then was briefly called Contracts for Innovation, and linking it to mainstream procurement. It sounds like a small change, but it is actually very important in allowing things to work through. There is an even bigger opportunity, with the fact that the Government now have missions and the plan for change, to tie those missions through to public procurement.

Q656 **Chair:** Can I just push this point about missions? We have taken some evidence that suggested that missions is a pretty wishy-washy, wide-ended, vague way to approach this and the more recent approach of specifying grand challenges might be a better way of mobilising this. I think you were involved in some of that work about a decade ago. Are grand challenges a better way of articulating and mobilising than missions, or does it not matter?

Stian Westlake: I am struggling to some extent to see the difference, because, for example, the work I am doing with Patrick Vallance on the



R&D missions accelerator programme he is working on is very much a challenge-led approach to missions. How do we specifically want to help, for example, children with special educational needs? How can we use technology to do that?

Q657 Chair: Let me put it this way. The industrial policy has eight priority sectors, which do not look wholly aligned to the research funding that you collectively have in place between you. Do we need to define a better way to align the money that you are pouring into R&D with the industrial strategy ambitions? At the moment, it is quite hard to see the join-up between the two.

Stian Westlake: That is a good question. It also depends a little bit sector by sector when we look at the eight sectors in the industrial strategy. There are some sectors that know that they are dependent on R&D. For example, in the defence sector there are a set of institutions that combine those things. UKRI and others have a bunch of programmes that put R&D money into those and there are the mechanisms to pick those things up.

With financial services or professional and business services, which are two of the other sectors, we do that more at a programme-by-programme level. We have some ongoing industrial strategy programmes, looking at how to make use of R&D, such as AI in financial services sectors. I do not think it would make sense for us to change our entire organisational structure around that, but what matters is that we see those connections and we build the relationships with DBT and others in Government.

Q658 Chair: How are your research programmes at the moment connected to the eight sectors that are set out in the industrial strategy?

Stian Westlake: In the early stages of the industrial strategy, we mapped the various initiatives that we have in place. We have a range of programmes in all eight areas. We mapped them to the sectors and then made sure that that link had been made with DBT so that it knew what was going on and we connected with the sector teams.

There is also a lot of work being done in Whitehall, which I was less close to, between the DSIT officials and the DBT officials to ask, "How can we make sure we connect those things?" It was quite detailed blocking and tackling, but the aim was to make sure that the connections were there.

Q659 Chair: Do you have a sense of how much of the budget that is in UKRI land at the moment is actually lined up to the eight sectors? The industrial strategy is obviously not the entirety of Britain's research ambitions. We would not expect it to be 100%. How do we as a Committee understand how much research money that comes from the taxpayer is supporting the industrial strategy? It is pretty impossible to figure out at the moment.



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Stian Westlake: We have pulled together those numbers for DBT. I cannot tell you them off the top of my head, but we can send them to the Committee afterwards.

Chair: We would be grateful to you.

Stian Westlake: It is an important question because we need to make sure we are aligned.

Q660 **Chair:** Can we see that in ARIA?

Matt Clifford: This is the point I was making about a diversity of institutions. One of the explicit points of ARIA in the statute is for ARIA to take a very long-term view and not to take direction from Government on what it should research. That is deliberate. That is partly because the industrial strategy rightly focuses on the UK's current strengths and opportunities. Part of ARIA's mission is to think about what the £1 trillion industry of the future that does not exist today is. We are loosely modelled on DARPA, in the US. When you think about why DARPA has been so successful, it is partly by pursuing things that were unfashionable and sometimes ridiculous, frankly, at the time, in order to have extraordinarily big outcomes in the future.

One of the most ridiculed DARPA ideas was the idea of mRNA vaccines and the idea that that should be something that public money went on, when some people thought it was literally science fiction. How much would we have paid to have had that during the pandemic? It turns out an awful lot. There is a huge overlap between what ARIA does and the industrial strategy, but I would be completely candid to say that that is accidental. That is because we are making big bets on what we think the trillion-pound industries of the future are. We are already working on some of those, such as energy-efficient computational power. That is very important in the industrial strategy and very important to ARIA. We have a big bet on precision neurotech, which is not there, but we think it is absolutely the right bet to make for 2035, for example.

Q661 **Antonia Bance:** Can you tell us about the best examples of UK research and development institutions supporting the industrial strategy today? What lessons can we take from these success stories and what barriers are in the way of us spreading this approach to the eight sectors earmarked by the Government?

Mike Biddle: One of the big things that we have learned through the past decades is about consistency of purpose. When you have the policies there and you can see that there is a long-term commitment to them, you can then build programmes and industries around them. If I think back to the work that we started in 2007 and 2008 around low-carbon vehicles, that set the ground for some of the things in the electric vehicle revolution that we now have all around us.

It comes back to the previous question around the plurality of institutions. As well as being an exec director at Innovate UK, I am a



non-exec director of the Advanced Propulsion Centre. There is an example of where you have the plurality of the system across the UK, where you can build programmes together, and where R&D can then enable the opportunities and the growth industries of the future. That for me is the area where we can do it, but it needs that constancy of purpose. I can also think of examples where we have not had that and certain R&D programmes have not necessarily extracted the value that we originally thought, but there have then been spin-over benefits into cybersecurity and things like that.

Professor Ben Morgan: From my perspective, it is where there has been a really strong industry pull and that has been matched in the research ecosystem with the so-called three-legged stool. The first piece is innovation and driving innovation from a mid to low TRL to make business globally competitive.

The second piece is around skills. If we can create the factories and we have the innovation, we have to fill those factories with good, trained-up, skilled people. That is at an advanced apprenticeship level; it is also PhDs, doctorates and lifelong learning.

The third piece, possibly most importantly, is around the supply chain and bringing all those businesses together for a turnkey solution, which creates the stickiness to the UK.

They are the key ingredients, if you like, to some of those success stories. We would like to say that Sheffield and South Yorkshire is one of those, with over £300 million of foreign direct investment that has landed on the old Orgreave colliery. That is one example. There are barriers, such as infrastructure. Highways, rail, public transport and power to sites are critical for advanced manufacturing business.

Matt Clifford: There are lots of examples within the ARIA portfolio that touch on the industrial strategy, but I would highlight something that we have done very proactively to address what you heard on the last panel and this one about the gap between R&D and commercialisation, access to finance, and the broader ecosystem. We have chosen at ARIA to have a programme-sized allocation of budget to what we call activation partnerships. Activation partnerships are our effort to crowd in capital, talent and expertise, scaling expertise in particular, into the ecosystem.

This is seeking out partners to R&D actors who can help things go to market and scale. In fact, the industrial strategy points to the pace of tech adoption in the UK as one of the biggest growth challenges. This is enabling us to bring some of the best and most successful deep tech investors from the US, in particular California, to the OpenUK offices. It is funding, for example, an NHS trust to be an early adopter of health technology so that the things that we fund in R&D can have a faster go-to-market.



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We think that there is a really important role, especially for ARIA, which has such a strong mandate around doing things differently, to think of not just the science and the tech we are funding, but also how we build that connective tissue that means it actually gets to market and gets to scale.

Chair: I am conscious, Mr Clifford, that I need to release both you and Ms Bance. Thank you very much indeed.

George Freeman: I had one question for Mr Clifford before he goes.

Matt Clifford: I will take one question.

Q662 **George Freeman:** As a Minister, I was very proud to have brought the ARIA Bill through Parliament. It is very nice to have you here. I have two questions I really wanted to invite you to answer first and then the others.

One is on technologies. Technologies are changing the world, attracting huge investment and creating new industries. If this industrial strategy is partly about capturing UK leadership in new technologies for new industries, is that coming through enough? The list I would be looking to communicate as a trade envoy around the world is AI, life sciences, robotics, SMR and quantum. The list I see is the economy divided up into sectors. I just wonder, in terms of technologies, what you feel we should be communicating around the world to say, "Look, this is where the UK really punches above its weight."

Linked to that is ecosystem. The world is changing. We have huge new philanthropic investors. Larry Ellison has put the thick end of \$10 billion down—

Chair: I am conscious you have one minute, Mr Clifford.

Matt Clifford: The areas of focus are the right ones, but they are clearly vast. Between them, I think it is 30% or 40% of the economy. Others would know better. It is a big chunk of the economy. The thing that I think is key from an ARIA perspective is to make very focused, very deep bets within those areas.

Let me give you a very concrete example. AI is clearly an area that everyone is excited about. The reason I have to run off is to my other job as the Prime Minister's adviser on AI. AI is vast and important. The specific bet that ARIA is making is saying that we are going to need more energy-efficient compute. Compute is one of the main ingredients of modern AI and it is extremely energy intensive. There will be a requirement for more energy-efficient compute. Can the UK be the global home of that? I think so. We have put something like £70 million to work on energy-efficient compute in ARIA, but we need to take these focus areas and then make these very granular but very deep bets in where the UK can build trillion-pound industries, where we are the natural leader.



Chair: Mr Freeman, go where you want to go with our remaining witnesses.

Q663 **George Freeman:** It is the same question really. From each of your perspectives, as a catapult and UKRI, how important is it that we recognise that we are in a global race—I say this as a trade envoy in Asia-Pacific—and communicate globally to say, “There are some technology areas that the UK is very powerful and very strong in, so come here to invest in them”? In the context of an industrial strategy, there is that old tension between telling the world that the UK is very good at AI—“Great, how do I invest in it?”—and then cluster mapping. You could go into quantum; you could go into Edinburgh. How do we get that balance right globally?

Professor Ben Morgan: You are absolutely right. We do not shout about some of the brilliant assets that the UK has across the technology landscape. It links for me a little bit back to the grand challenges versus the sectoral approach. With the sectoral approach that we see on the advanced manufacturing sector plan and the IS more broadly, we are building on capability that we have and looking to strengthen and empower those sectors. We are using the technology, and the technology stands in its own right, but it also needs to be applied. I am almost answering the previous question, but I think—

Q664 **Chair:** I am quite interested in whether you think there is a role for both grand challenges and this more—

Professor Ben Morgan: I do.

Chair: It is what we notice the Japanese industrial policy doing, by the way. It is a mixture of missions and grand challenges.

Professor Ben Morgan: There is a hybrid approach, because when you work cross-sectorally, in terms of a grand challenge, or maybe across a technology, you can be slow to get to market. We need to be quick to get to market with new products. We need it for climate change, energy security and national security. We need to move at pace. Where grand challenges and the technology come in is where we can get the diversity of working cross-sectorally and the economies of scale. It is things such as digital. It is the ontologies of a digital twin. I do not want to go into that; I do not have the time. Working across those things, they can be common across sectors. We could be selling our digital capability far more.

Mike Biddle: We can also talk about the opportunities across the UK to be a testbed. We are a great place to try these things; George, you have spoken about that before as well. That gets to the strengths of the UK system. The things that I look after now are more in the net zero space. Clean energy is part of one of those priority growth sectors. We have shown that we can do that in a way that will spread benefit across the UK.



The industrial decarbonisation challenge is one of the previous challenges from the industrial strategy challenge fund launched under the previous Government. By the very nature of where those clusters are across the UK, when you decarbonise them—and you need technology to decarbonise them—you are going to be in places that are not the greater south-east. The six clusters outside London are responsible for about half of the emissions of the country.

We need to tackle that. Nobody knows how to do it yet at scale. The things that we have been funding have shown a pathway to that, which the Department for Energy Security and Net Zero is now taking forward, and hopefully, with its further programmes, we will see what comes. The work that we have already done in partnership with the Department is on track to save 11 million tonnes of carbon by 2030 annually and possibly even as much as 18 million tonnes. The co-investment, though, is four times. We are nearly at £1 billion of co-investment that is already realised through that.

That gets to some of the conversations you have had earlier and what you have heard from the other witnesses about how you get the public money to drive the private money and investment. That is the piece for me. It is about bringing that all together.

Stian Westlake: This comes back, Chair, to your point earlier that you need a mixture of a demand-led approach and an approach based on challenges in technologies. Where it comes back to the question you asked is that, in addition to being a little ambidextrous from that point of view, UKRI and other organisations need to make sure we are doing that sense making so that other people, investors, businesses, can really understand what is going on there.

I reflect on the work that you put in place in your ministerial days to do cluster mapping and to ask, “How can we demonstrate what is going on?” UKRI has been investing recently in what we call metascience capability, but effectively it is the ability to understand what we are doing and to tell that story effectively. That is particularly powerful in the world of industrial strategy and technologies, because it allows us not just to hold ourselves to account, but to tell potential partners and potential overseas investors what the UK is really good at and where the opportunities to invest are.

Chair: The clock is slightly against us, but I will turn to Mr Western.

Q665 **Matt Western:** I am sorry; I had to pop out, so I missed some of the evidence you were giving. You may have heard the previous session, but I am really interested to know what your thoughts are about the financial side of innovation, not simply about government funding and the allocation to innovation. We were talking about scale-ups before. Do you think that we have a culture in this country that satisfies the development from idea and innovation into commercial opportunity? It is a question about culture.



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Mike Biddle: There is plenty of opportunity, but I do not necessarily think we seize it as much as we could do. It is about, “Why can’t you grow in the UK?”, and you absolutely can. We are very good at the start and we are starting to get better at the scale. We need to make sure that those companies then stay for the future.

We have examples where that has happened, but there are probably too many where we have not captured all of the value that we could have done. Through the coming years we are looking to build on the work we have been doing and make sure that we do not just start things, but we scale them and get them to a point where they will stay in the UK, which gets to the stickiness that Ben was talking about earlier.

Stian Westlake: The short answer, in terms of appetite for risk and finance risk, is that we could certainly do better. Pushing Mansion House to get more access to capital and supporting more entrepreneurs—in particular, one of the ways that happens is that they get mentored by the previous generation of successful entrepreneurs—is worth doing and will help.

I would caveat that, though. I have been around the world and asked people questions about innovation and innovation policy in almost every country I can think of. Everybody seems to think that their country has a unique problem and is not as good at turning ideas into businesses as it ought to be. You even hear this in places such as Germany and Israel, whose performance we would be envious of. I sometimes think that is because we all compare ourselves with the US, which is the one place that has a hyperactive venture capital sector doing really well.

I guess this is what I mean by that. By all means, let us try to do better, but it is wrong to beat ourselves up and think that the UK has a specific and unique problem.

Q666 **Matt Western:** We were recently in Japan and we saw evidence of a particular approach, where they were actively encouraging innovative start-up businesses to come to Japan and look at developing their idea there in Japan. This included start-up businesses from Israel and Canada that were looking to scale. Japan was actively looking to bring in some of the best and great ideas from around the world. Is that something you think we could also be doing?

Professor Ben Morgan: It absolutely is. If we focus on hard tech, for instance, which is more my background and more my speciality, we have some fantastic assets that the world can use. There are around £800 million of capital assets across the High Value Manufacturing Catapult network that can be used to prototype, scale and plan, from a design and engineering piece through to scale-up and factory development as well. There is a fantastic opportunity.

It is becoming more of an active space in the UK. I totally agree that there is a cultural problem. If you spend any time in MIT or these types



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of places, people fail and they get on with it. They pick themselves back up. In the UK there is a bit more of a fear of failure rather than embracing that. There is a cultural piece. Perhaps we can do more entrepreneurial work in the education sector earlier on in people's development.

We have a great opportunity. Where we have seen particular success with start-ups and spin-outs is where we have had some industrial pull, plus a minimum viable product. There is already a market there. That makes it much easier for the investors to come in and support that business because they know there is a multinational, a large company or an SME willing to pay and put money down for that product.

Q667 Chair: This afternoon, we heard some mayors tell us about the need for devolved skills funding. We had some banks tell us about the need to sort out their capital market a bit. You have given us some really useful insights into how we can enrich the flow of ideas. Between the people, the money and the ideas, we have covered a lot of territory this afternoon.

As a last question, how often do you talk to the other people we have had through the Committee today? How often do you hang out with the head of the British Business Bank or the National Wealth Fund, Mr Westlake?

Stian Westlake: Our most important link is probably with the metropolitan combined authorities and mayors. We funded innovation accelerators, which was an investment to build the ability of metropolitan combined authorities to invest in innovation. All of this is subject to the spending review, but we are in the process of designing the next investment programme so that metropolitan combined authorities can be making those local R&I investments. It has been a real success story how metropolitan combined authorities have grown in ambition and connectivity in their areas. That is a really important link.

We connect a fair amount with the British Business Bank in the more applied end of what we do. It is less a part of my business but more Mike's and EPSRCs. There is the potential to strengthen that link. There is the potential to share more data and potential to get even better at how we understand. We work closely with the skills agenda, particularly when it comes to the advanced skills that we are delivering, PhD skills in particular. You can never really have too much connectivity in this area.

Mike Biddle: One reason that we exist is to hang out with these people, with purpose. In terms of the regional piece, we have nine local action plans, which are actually looking at how you explore and understand some of the cluster opportunities. Andy talked about that earlier. We have those local action plans in place. We have a specific MOU as well with Manchester for certain activities.

In terms of trying to build that pipeline for the scaling and staying piece, we have been working much more closely with British Business Bank over



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the past few years and trying to make sure that there is that path in terms of the idea space, the things you might grant fund, the things you might provide a loan for, and then how you provide access to some of that scaling capital. We fundamentally need to think about the UK as a system. Innovate UK is there to help map that system and connect across it. Hanging out with purpose is what we are here to do.

Professor Ben Morgan: Particularly around the mayoral combined authorities, we work very closely with the Welsh Government, where we have a facility in north Wales as well as in south Wales. We have a very good relationship with the South Yorkshire Mayoral Combined Authority and with Oliver Coppard. He is a big advocate of advanced manufacturing, it being a key part of the heritage and DNA of Sheffield. We are very well supported and that has leveraged globally mobile programs of R&D, most recently a big programme with Boeing, Composites at Speed and Scale. It is an £80 million R&D programme, which has huge opportunity for the next generation of short-haul aircraft to land that work. There is a big export opportunity for the UK.

From my perspective, there is a little bit of work to do with British Business Bank, particularly on the finance side. We have operated more at the earlier angel investment and private equity stage, which is probably why I highlight that scale-up stage as somewhere where there is a bit of work to do.

Chair: Some common patterns are emerging. Thank you very much indeed. That has been very clear evidence. We are really grateful to you in helping us get this report right. That concludes this panel and that concludes this session.