

# Business and Trade Committee

## Oral evidence: Industrial Policy, HC 440

Tuesday 16 April 2024

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Members present: Mark Pawsey (Chair); Douglas Chapman; Jonathan Gullis; Antony Higginbotham; Jane Hunt; Ian Lavery; Anthony Mangnall; Andy McDonald; Julie Marson; and Charlotte Nichols.

Questions 197 – 217

### Witnesses

III: Sharon Todd, Chief Executive, Society of Chemical Industries; Victor Riparbelli, Co-Founder and CEO, Synthesia; Josh Western, Co-Founder and CEO, Space Forge.



## Examination of witnesses

Witnesses: Victor Riparbelli, Sharon Todd and Josh Western.

Q197 **Chair:** Good morning and welcome to our guests on our third panel. We are looking at the approach to the Government's industrial strategy, and we have a session on emerging technologies. I wonder if I could open by asking each of you to tell us a little bit about your organisation and what you consider to be an emerging technology.

**Victor Riparbelli:** Thank you for inviting me. I am Victor from Synthesia. I will give you the very short version. We are an AI company. We have around 350 employees and we develop technology for the creative sectors to produce video using artificial intelligence.

For me, "emerging technologies" is a broad term. Some people may think of it as the size of the company. Other people may think of it as the sort of technology you are using. I would probably subscribe more to the latter. I would say technologies like artificial intelligence are very much emerging technologies. It is something we are still discovering. What is it? How can it be used? How is it going to transform society? I would include output, blockchain, virtual reality and similar types of technologies in that bucket as well.

**Josh Western:** Thank you for having me. I am Josh Western, CEO and co-founder of Space Forge. Space Forge is an advanced materials company first and a space company second. We manufacture next-generation compound semiconductor materials. However, we happen to do that in space. We are based in Cardiff. We currently employ 58 people here. We have an office in the US as well, with two other people.

I believe that "emerging tech" is a bit of a misnomer. I prefer to think that it has finally reached a point of disruption, so people are beginning to call it "emerging." Compound semiconductors are not new. They have been existing for the past 60 or 70 years. Equally, we look at spacecraft. The UK has been launching them since the 1960s. We are just in a position now, in the 21st century, where we can talk about them much better than we were able to before.

**Sharon Todd:** Thank you for inviting me. I am Sharon Todd, chief executive of SCI, which is a charity formed at the start of the last industrial revolution by the founders of the last industrial revolution, so people like William Lever, the Siemens family, the Pilkingtons, et cetera. The charitable objective or purpose of the organisation is to accelerate science out of the lab into industry for the benefit of society. It is quite a big organisation. We network across industry, Government and academia, and interface into energy and a variety of science sectors.

In terms of emerging technology, for me it is when it starts to impact on society. It is when science, for example, starts to become less of a



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theoretical concept and more of an applied concept and something that can then be used for society.

Examples in our space would obviously be genomics, which is a big area. You have heard from Richard Torbett this morning around that. Hydrogen might be another one, and some of the material spaces that Josh has also alluded to.

**Q198 Chair:** We heard in our previous session that in the UK we are pretty good at science, research and innovation, but we are less good at commercialisation. How good are we in the sectors you are familiar with at developing something that is significant for the UK economy from these emerging technologies?

**Sharon Todd:** It is a good point. We used to be good at the commercialisation, but we feel now that we have lost that skill of taking science out of the lab. That has been very much the manifesto that we launched last year. There are a lot of data points—I am sure the Committee have heard many of them—around the de-industrialisation that has happened in the science-based industry in the UK and the fact that the UK is falling behind, not just at a broad GDP level.

If you look at, for example, the last 20 years, the average GDP growth in the UK has been 1.5%, whereas the global average has been 3.5%. We are behind, and many of those economies that are powering ahead have strong industrial strategies, and strong industrial strategies for science.

The point that you made is a very good one. We have a great academic science base and a great asset base to utilise, but we believe a lot more needs to be done to convert that science into valuable products and businesses that then create value for society.

**Q199 Chair:** Josh, you told us you are in Cardiff. How did you come to be in Cardiff?

**Josh Western:** It was a lot cheaper than Bristol and it made geographical sense. One of the important things that we do at Space Forge is that, once you have produced those materials in space, you have to be able to bring them home. Wales is pretty much the only geographic location in the UK where you could bring a satellite back to our own territory. It was very important for us to be able to do that.

I would also say that Wales is one of the last bastions that we have for advanced materials manufacturing in the UK. More historically, that was steel; today, it is compound semiconductors. There is the compound semiconductor cluster in Newport that stretches into Cardiff and Swansea as well, where we produce what are today the most advanced computer chips we have.

**Q200 Chair:** Presumably, what you do is pretty mobile and could be anywhere else in the world. How do we anchor it where you are?



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**Josh Western:** It is one of the challenges I have today. We have been pretty successful at raising venture capital funding. We have raised £15 million to date. 95% of that has been from abroad. Interestingly, our largest single cheque has come from Germany, but most of our investors are based out of the US.

To echo what Sharon was saying, if we look historically at the UK in the latter part of the 20th century, we invented so many things, but so many of them were passed on to and commercialised and scaled elsewhere. That is the question I am now having to answer as a CEO. How do I make sure we can grow and scale here as opposed to going abroad?

Q201 **Chair:** Victor, we did not hear where you were in the UK, but why are you here and what will keep you here?

**Victor Riparbelli:** I am from Denmark originally, if you are wondering where my accent is from. I moved to the UK eight years ago to start my company, Synthesia. We are in London. I moved to the UK because the UK has one of the best foundations for building AI companies. There is great academic talent, there is a great pool of science, and of course it is the financial centre of the European region.

As an outsider, I am pretty happy to be here. Overall, it is a pretty good system. I will very much echo what Josh said before. We have raised around \$160 million in venture capital, and unfortunately more or less all of that comes from the US. Especially in the earlier phases where we were not a proven product and we were not yet successful, it was very difficult to find the type of capital that wanted to take a bet on what started out more as a science project than as a business.

Q202 **Julie Marson:** This whole inquiry is looking at the industrial policy. A lot of the questions seem to focus on picking winners and Government picking winners. In your view, how confidently can Governments pick the technologies that we should be investing in?

**Victor Riparbelli:** I have very low confidence in that. The best way to approach this problem is to say that there are two phases of creating great companies. There is the first phase, which is the discovery phase. This is the early stages of a company's life, where essentially you do not have a business yet. In this phase, you want lots of experimentation. You want lots of iteration. It is positive that Government subsidise some of those companies that cannot raise from the markets themselves. That is a good thing, but that is a very different problem from, once a company becomes successful, making sure you anchor it here and make it as successful as possible.

There is a lot of talk about funding, for example, for early-stage companies. That is a difficult funding environment. I understand that, but it is a very different thing when you look at how we make the most successful companies even more successful and anchor them. Technology is a power law. It is a game of power laws, where very few companies



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make the most by far of the returns. That is, of course, also what we have seen play out over the last 10 or 20 years, where unfortunately most of the global juggernauts in technology are residing in the US.

The UK as a country, as I said before, has a great foundation for doing this. What later-stage companies need, specifically in AI, which is the world that I come from, are competitive advantages that make it great to be in the UK. That could, for example, be subsidised GPUs. That is a very important part of building an AI company. Doing training runs can go into the double-digit millions, but that is very expensive.

It is very important though that this does not become, "Let us build a supercomputer that companies can access," because no serious company is going to use a supercomputer that the Government have built for them. It needs to be easy to use and frictionless. You could say that it is essentially a type of R&D tax.

The second thing that I would urge is access to training data. A country like the UK has vast amounts of data in the NHS, climate and transportation, and this is a gold mine for AI companies. Taking that data, of course anonymising it, putting it into a shape where it is useful, and potentially providing that only to UK-based companies would be a big competitive advantage.

The last one I would urge you to think about is mandating AI adoption in the public sector. The public sector is a huge consumer of software, like any other company is today. Especially for a lot of these sectors like health, it is historically pretty difficult to go to market. If the UK mandated that the public sector uses AI as much as they can to be as efficient as possible, which would be net beneficial for the country, it would also create an amazing way for companies based in the UK to go to market. Those three things are what can make the UK a country that has a real competitive advantage.

Maybe my last note on this would be that every company in the world today is talking about how to become an AI superpower. Very few companies have the foundations to do that. The UK has it because we have the talent; the US obviously has it; China has it, and those are more or less the three countries that have the foundations of it.

Now if you take foundation and you marry it with great competitive advantage, that is a winning strategy. You have the UAE and countries in the Middle East. They are already subsidising GPUs. They are saying, "Come here. We will basically give you a free computer," but they do not have the talent and the science pool to make it happen. If the UK wants to win out on this, it needs to combine the amazing foundation with actual real competitive advantage that matters for late-stage companies.

**Q203 Julie Marson:** Thank you. Josh, are you more or less confident than Victor that Governments can predict which are the successful technologies?



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**Josh Western:** I am more confident in the ability to predict, but I probably have the same level of confidence in the level of intervention that requires those winners or those successes to translate through. If we look at some of the sectors under Britain as a science power, they are the right call. They include space; they include semiconductors; they also include the quantum and artificial intelligence, biotech and others.

If we look at the investment into those sectors as a percentage of GDP, they are minuscule compared to our biggest competitors. I speak of competitors from a national security perspective, an economic perspective and a talent perspective. We tend to get on pretty well and work very well with lots of our competitors such as the US and the EU, certainly in academic frames, but we then compete with those arenas for talent, funding, and the ability to make a company a success. That is where I would really like to see more effort going.

We have seen some moves in the right direction. Speaking from the space and semiconductor landscape, we had a semiconductor strategy. We have had a national space strategy. We now have a space industrial plan, but we need to see those translate into, to be frank, interventions that allow those companies or technologies to succeed on what is a very dynamic global playing field.

**Sharon Todd:** Coming from the science side and perhaps echoing some of the things that the colleagues on my right have said, industry is complex. While some choices could be made, and Government have made some in life sciences, AI, clean tech, et cetera, there is not a fundamental understanding of the core drivers that are really going to make some of those sectors sustainable.

What do I mean by that? For example, there are supply chains that need to be built. It relates directly to the point about competitiveness. We can build a business around electric vehicles, for example, but unless we have the materials to supply into the batteries, and unless we have a recycling industry that supports recycling of core minerals and materials that are used in the batteries, we are not going to build a sustainable supply chain.

Have we made a good start? Yes. Is it comprehensive enough? No. There definitely needs to be more thought around some of the core underpinnings that are going to drive sustainability in those choices.

Then this piece about competitiveness is a really critical one. The UK is not performing in terms of competitiveness and making the environment attractive for start-ups to scale up in science, and also for large-scale investments. There are some examples in the area of UK unicorns. We talk a lot about unicorns in the biotech space. Richard might have covered this earlier this morning. Over the last 15 years, there have been 10 homegrown life sciences unicorns created. Only two of them listed in the UK, with the other eight going to the US. There is a whole infrastructure piece that needs to be considered.



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As some of your panellists said before, it is about connecting all those pieces. How do we create a really sustainable, strong foundation that allows businesses, whether they are coming from the creative industry, space, materials or life sciences, to start, upscale, grow and then achieve full-scale investment?

On the full-scale investment and large company investment, the review by Richard Harrington very clearly articulated the issues, but also the size of the prize. He put £50 billion per annum on to the opportunity there if we can create the environment and stimulate industry to come.

For us, the decision by AstraZeneca last year to walk away from the UK manufacturing site and go to Ireland was a real wake-up call. If we cannot support a homegrown business like that—it is 25 years old this year—we have some real challenges. We have to get really gritty about what is and is not working, and then consider that this is a whole ecosystem and infrastructure that needs to be put in place.

**Q204 Julie Marson:** You mentioned the five critical technologies already identified. Do you think the Government have got that right? Is it clear why those choices were made?

**Sharon Todd:** Broadly yes, but to my caveat about the underpinnings to those, such as material science, the Government probably have chosen those. I look at those from my industrial background and I say those are probably high-growth sectors. They are probably sizeable global markets. These are trillion-dollar market businesses. Clean tech is growing at 12%. Pharmaceutical life sciences is growing at 6% or 7%. This is very much in our remit area, but they are very R&D intensive. That means that they often take a long time to come to gestation. They need a lot of patient capital. They need some very specific skills, but when they create value, they can create long-term value. This goes back to my point that we really missed an opportunity with the AstraZeneca plant.

I look at this list and I say that, if you looked at it strategically, they would probably tick a lot of boxes. Broadly, are we heading in the right direction? Yes. Do we have all the underpinnings that are really going to support them and champion them and make sure they are successful? The answer to that is no. There is definitely more thinking that needs to happen.

**Q205 Julie Marson:** Victor, presumably you are pleased that AI is one of those five choices, but what is your view about whether it is transparent how those choices were made and whether they are the right ones?

**Victor Riparbelli:** I am very happy that AI is on the list, first and foremost. Yes, it makes sense. For me, it feels pretty obvious that it should be those five. I have not read all the details of exactly how we came to that conclusion, but for me that seems reasonable.

**Q206 Julie Marson:** We talk about technologies. If you look at it as the cascade, should the Government be picking companies that cascade from



that, and how do the Government do that? Should they be doing that?

**Victor Riparbelli:** That is a smart way of approaching the problem of looking at who is successful rather than who we would like to be successful. As I said earlier, creating new companies is a power law. Very few companies make it. If you look at billion-dollar companies, as we heard before, there were 10 in life sciences last year. Predicting which of those are going to be billion-dollar companies in the very early stages is incredibly difficult. The idea is important, obviously. Science is important. The team is important. There are a bunch of outside factors that you cannot really account for. If it was easy, venture capitalists would be making even more money than they are today.

In general, it is very difficult to predict which companies are going to be successful and which companies are not. Again, I would urge these two ways of looking at it. There is an early-stage funding market. In general, the way the Government should look at that is that there are some companies that can raise funding from private investors, venture capitalists, et cetera. That is great. They are already on their way. Then you probably want to subsidise and help some of those people who may not be able to get over that first gate to get started and begin building something or developing whatever that they are developing.

Then there is the other thing of looking at which of these companies in this broad umbrella of industries that we care about are successful and do we think could become trillion-dollar companies down the line. There, it is not a funding problem. As I proposed earlier, these are companies that are already working. These are companies that can most likely raise capital, and they are looking for a place that is the best garden to grow in, essentially.

If you speak to most successful companies, at least in my industry of technology companies, they are not looking for money or funding. That is not the thing that is on our minds. What is on my mind is that we are a unicorn company today. I want to stay here. I want to build a global technology giant in the UK, but I am already seeing why that is difficult. Some of those things are things that are very difficult to change. There is just more talent in the US that I need to hire. Some of those things are structural around the London Stock Exchange, for example, which has not had a great run in the last 10 or 15 years. Everyone is listing in the US, as was mentioned before.

Then there is the regulation specific to AI, which of course is very much up in the air right now. Do you want to be in Europe right now as an AI founder? No, absolutely not. Everyone is fleeing. Do you want to be here? Yes. What we have heard and seen so far is very reasonable. The US is probably also more on the pro-business side of things. Japan is going in a very extreme direction, saying that you can train on any data that you want, no matter if it is copyright or not. I am not saying that is the right thing to do, but they are taking a very strong stance that they want to be





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a country in which you can build AI companies. There are already a lot of AI companies now starting offices in Japan.

Those are the things that you look for when you are past the point of trying to make something work, which for us at least was the first three or four years of the company, where it was not completely about luck. There was probably some skill involved, but there are a lot of facts that are very difficult to predict, and the private markets are better at predicting that than Governments.

Q207 **Julie Marson:** Josh, do you agree with that?

**Josh Western:** I look at it from the other side of the coin. It is very difficult to get a more foundational technology than semiconductors. It is literally in everything. The 19th century depended on coal; the 20th century depended on oil; the 21st century, as we have already seen, will entirely depend on semiconductors, computer power, the ability to put them into electric vehicles and the ability to conduct quantum calculations, whatever they are. Because they are so critical to so many sectors, you then cannot step away from how critical they are to critical national infrastructure, how everything succeeds, and how we effectively protect our way of life in the West.

I look to the tools that Government have at their disposal to be able to invest, characterise and protect those technologies to keep them here. For some of those early-stage companies mentioned, or even at an academic level, accessing grants is fairly easy, provided you have the right team and you know how to put together a proposal for Innovate or one of the research organisations. Equally, I am not coming here cap in hand asking the UK Government to put some money in. We can just be able to spend the money we are already spending much better, leveraging it in a different way.

For example, if I take the balance between grants and contracts, contracts to an investor are worth, for every pound spent on a contract, probably about £10 to an investor, whereas for a grant to an investor it is probably worth about 50p. You could use the same pot of money. You can keep the company and hold it to account much better and, if anything, have better control out of its deliverables, because some grants will reach the conclusion of, "Sorry, this did not work," but it was a research organisation or a research task to see whether or not it did at that second stage.

Contracts from those same bodies—it could be Innovate, the Ministry of Defence, the UK Space Agency or out of the UK semiconductor strategy fund—will allow the UK to much better leverage global markets to its advantage. We have certainly seen that in artificial intelligence, not least with some of the money that you have been able to raise in the UK. That is a phenomenal achievement. There is the opportunity for the UK to be able to replicate that in every one of those five critical sectors, provided we spend the money we have more wisely.



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Q208 **Chair:** You spoke about interventions earlier. When you said “interventions”, I did wonder whether you were talking about investment or grants, but you are saying definitely not. You would much rather have business orders.

**Josh Western:** Government can certainly be a customer of what I can do at Space Forge.

Q209 **Chair:** That is the intervention that you would like to see, rather than funding through grants and one-off bits of support.

**Josh Western:** Grants have their place. If I take the space sector, for example, last year saw the space clusters infrastructure fund, one of the biggest releases that the UK Space Agency has ever done. It allowed companies, including ours, to purchase the capital equipment that we need to establish an industrial base here.

What we then need is the ability to run work through that industrial base. That is where grants have their place. I would say, though, that I would keep the investments that the UK Government are able to make. We see those in the likes of NSSIF—the national security strategic investment fund—and the British Business Bank, et cetera, which can encourage companies to stay here and scale here for what is chiefly a pretty small piece of leverage.

Q210 **Charlotte Nichols:** I wanted to pick up on one of the points that you were making earlier, Victor. Legislation around online safety and digital competition is such a bin fire, because it tries to put the genie in the bottle after the fact. I speak to civil nuclear companies in my constituency, which tell me that the questions that they are asked by the regulator are completely irrelevant to the type of technology that they are proposing.

How do we get the balance right with emerging technologies, and particularly things like genomics and artificial intelligence, to create a framework where we can be sure that everything is safe and appropriately regulated, and where you have the stability that you need to invest, but where we are not putting up those artificial barriers that you referred to in the EU and so on? Where do we find that balance?

**Victor Riparbelli:** Again, I can speak to my industry. Life sciences and other industries will probably be different. In AI, the most important thing is that we focus on reducing the outcomes that we do not want. We do not focus on algorithms or specific technologies or size of training runs, which feels very arbitrary in some sense.

Look at AI. We can sit down in this room today and make a pretty good list of areas in which AI can have a harmful impact. It can be used for impersonation with deepfakes. It can be used to induce bias in medical decision-making and a lot of those sorts of things. We need to start from that and work backwards in terms of how that works with the current laws and whether they are up to date. If we take impersonation and



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deepfakes, for example, it is already illegal to impersonate someone, but how does the law slot into a world in which this is going to be possible with AI?

It is very important to start from the outcomes and not rush into making regulation. A lot of the things that AI will create harm with are already issues today. It is not because they create net new issues. They amplify or slightly change the shape of an existing problem. There is too much discourse around people making up sci-fi ideas of what AI is going to do. That is an important part of the discussion, but that should maybe be 10%; 90% should be about, "We know that we have these technologies today. We know that they can create harms. How do we reduce the things that everybody can agree we do not want?" The UK has done pretty well on this so far. In the EU, there was a lot of talk at some point about technical details in terms of the size of models you are allowed to train.

This can end up being a very odd world in which you are not allowed to do certain things or write certain algorithms. At the same time, the technology is moving ahead, so maybe those rules that were made six months ago are completely outdated six months later. Let us focus on the outcomes that we do not want and work backwards from that, because very few people who work in these industries are interested in any of those harmful outcomes. Where it becomes trickier is if you say, "You cannot train this type of algorithm," so I would start there.

**Q211 Charlotte Nichols:** That it is very interesting and very pertinent, given that the Government have today announced some new work coming forward on deepfake pornography. That output-based discussion is going to be a very live one over the coming months.

**Sharon Todd:** I represent perhaps a more established sector than one that is emerging, but your point is a really interesting one. If we are going to drive renewable carbon, for example, or hydrogen, and some of these new emerging technologies, if that is what we are calling them, I wonder whether we sometimes make the process of regulation very complex. We should start with what the principles are that we are trying to drive and, in that conversation, have key stakeholders, including industry, say what the outcomes are that we are trying to drive, and then work back from there to where the regulation needs to be.

The regulators are already very heavily tasked. Trying to make incremental steps forward is always challenging when there is a day job to do, so I just wonder whether this is an area where the UK could be agile, it could be innovative, and it could bridge what it does quite well, which is sit between the carrot-and-stick approach that comes from the US and the EU—and you can derive which one I am referring to there—but we are quite good at finding that agile middle ground that is also grounded in science. For us, the regulation would have to be grounded in good, independent science. There is a real opportunity for the UK to think very differently about regulation and how it sets up new regulation.



**Josh Western:** Effectively, my activities are somewhat unregulated. You may know that space is currently treated like international water, and so, in many ways, I operate as a space pirate when I make things up there. If you have seen “The Martian”, that gives a very good explanation.

If I give a real-world example of one of our upcoming missions, we develop and build the platform in the UK. We develop the materials manufacturing technology in the UK. It then gets exported temporarily to America, where it goes for launch. It spends some time up in space—maybe six months. At the end of that production run, it deploys its re-entry technology and comes back.

Right now, it comes back to Portugal, because we cannot establish the correct regulation here with the CAA. I am very happy to work with them, because Portugal can close down about half of the Atlantic. The UK cannot do that. Having the opportunity to work with a friendly country where we can do that and eventually transport it here is excellent, but that then presents me with a very strange problem which is, “Did I ever make that material in the UK? If not, did I make it in Portugal?” If I made it in Portugal, the biggest cost is not even going to space; it is the imports and duties and customs that I have to pay when I get the material back here.

Our CFO at Space Forge has worked some miracles and has, basically, done a map of places where we can return spacecraft to, which are then close to freeport organisations, which we can then freeport about to do that.

I would add to that that you may have seen that the UK had a launch last year, from the UK. It was the first time ever, and we were on board. The CAA has done an incredible job, along with the UK Space Agency and Department for Transport, in being able to allow that activity to happen. We can license a launch out of the UK. We can license to operate a satellite out of the UK. What we cannot do currently is license a return vehicle out of the UK.

When we started Space Forge back in about 2018, there was only one other company in the world proposing to do anything like what we were doing. We are now actively tracking more than 40 “competitors” that are operating in regulatory environments and have already gone ahead, either because they are not too bothered about being beholden to UN articles, et cetera, or because they have, essentially, just adapted to have a much more robust and agile regulation framework across those disparate activities. That is something that I am really keen to be able to push on and work with Government to be able to achieve here.

Q212 **Charlotte Nichols:** We have been speaking a lot about how different Departments’ policies interact with each other and maybe cause unintended consequences in other places. Are the proposals by the Government to cut the number of international students to UK higher education institutions short-sighted?



**Sharon Todd:** Yes.

**Victor Riparbelli:** Yes.

**Josh Western:** Yes.

Q213 **Anthony Mangnall:** I hope that I am sitting in front of two future billionaires. What you are doing is extraordinary.

**Sharon Todd:** I am not a billionaire.

**Anthony Mangnall:** Sorry, I was referring to you, Sharon. I beg your pardon. You can decide whether it is Josh or Victor that is not there. What you have been saying is fascinating. The Chair has probably asked the questions that I was going to ask, but I wonder if, on reflection, I could ask about a couple of your remarks. Josh, you mentioned the three strategies, and I just wonder whether you think they are cohesive and work together, or whether they have been very piecemeal and have come about because we are reacting rather than being pre-emptive in these areas where we should be.

**Josh Western:** It is a combination of all of the above. I have operated across the space and semiconductor industry. When I joined the space industry about a decade ago, there was the innovation and growth strategy, then there was the update to the innovation and growth strategy, then there was the industrial strategy challenge fund, then there was the national space strategy, and now, from that, there is the space industrial plan. The semiconductor industry has effectively done without until having the UK semiconductor strategy.

What has been important that I have seen, from the space side at least, has been the space industrial plan and elements of the national space strategy finally bringing different Departments together. I would really like to see more cross-Government discipline in being able to join that up. Otherwise, as we have had previously, we have a separate space strategy on the civil side and on the defence side. It is pretty much impossible to separate the two.

Q214 **Anthony Mangnall:** In the Budget, we announced a British ISA. Given your comments, Victor, about how much investment is attracted from the United States especially into your business—I think you quoted £168 million—what does that say to you about the Government shifting in terms of encouraging investment into British businesses. Is it the right mood music, or, “Far more needs to be done. Get on with it?”

**Victor Riparbelli:** It is a great first step. The issue of attracting investment is hard to fix with a single policy. There are a lot of cultural things around this, mainly being that the interest from venture capital investors in the UK, for example, is just general. They have less risk appetite than in the US, because they have a lot more money in the US. It makes more sense to make big bets. They have seen much more of these successes.



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It is not a blanket policy that can solve this problem, but it is a step in the right direction. The last three years after covid happened have changed a lot, and investors have a more global perspective, but still the most important thing for attracting outside investments, especially from the US, is that we get those success stories here. We are getting them now. There are great companies here now, and what that tells investors in the US is that great companies can be built in the UK.

**Q215 Anthony Mangnall:** What I am scared about is that you are going to grow your businesses here and then either move and list them somewhere else—and we have mentioned the London Stock Exchange and the failure to see big listings of late—or you are going to sell. I would prefer you to list here and grow a multi-billion-pound company in the UK. I wonder if either of you could speak to that. What keeps you in the UK? I cannot ask you when you are going to list, but perhaps you could just give us some idea of what will keep you here.

**Victor Riparbelli:** You are right to fear that. That is, unfortunately, what happens to a lot of great technology companies early in their lifecycle. The London Stock Exchange problem is very real. I have not met a single founder of a billion-dollar company in the UK who has ever even considered that an option, and so there are some structural things to look at there, for sure.

Secondly, it is about some of the things that I talked about before. If the environment is on par with the US in terms of the regulatory environment, it is easier as a founder to look at the US and say, “There is a lot more capital there. There is a lot more talent. Why would I stay in the UK?” That is where these competitive advantages that I described earlier come into play, which is not something that they are doing in the US.

If you are building a health tech AI company, for example, and you could get access to a trove of NHS data—and you would get that access only if you were rooted here—that is a very real thing. Every AI company in the world right now is budgeting tens, if not hundreds, of millions of dollars to acquire proprietary trading data. That is a real competitive advantage that you could provide with these types of companies.

The GPU subsidy is another interesting thing here, where essentially you create a competitive advantage that makes it better for someone like us to stay in the country. The reason why I do not mention investment here is because, just being very honest, that is not an issue for the best companies and those that you really want to keep here. These are highly competitive rounds, with lots of great investors from all over the world. Capital is not the issue. It is not what is going to make us stay here.

**Q216 Anthony Mangnall:** In terms of data and intellectual property, and where we are on this, how much of that is also within the bandwidth of what keeps you here and what makes us attractive? I say this from a trade perspective. We are very proud of what we are signing with places



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like Singapore, where we have digital partnerships. We would argue that we are leading the world in terms of having this new standard and benchmark. How do you feel about it and what does it say for your businesses?

**Victor Riparbelli:** I am probably less well placed to answer those things, because I run a purely software business. I have a lot of respect for folks like Josh, who run, in many ways, much more complex businesses, both on the production and delivery side but also very much on the regulatory side, so maybe I will pass it over to Josh.

**Josh Western:** By their nature, both semiconductors and space are global businesses—space because you can see the whole planet, and semiconductors because, even down to the raw material extraction, you have to go to a different country to get access to those. Those partnerships are incredibly important.

What I would say, though, perhaps somewhat in contradiction to Victor, is that some of those things that he listed as disadvantages are to our advantage. The US has a much bigger population and, arguably, a bigger talent pool, but it can access only US talent. One of the real benefits to being in the UK is that we can access talent from the rest of the world. As much as we are 50 people at Space Forge, we represent 23 countries—Australia, Japan, Brazil and some EU member states. To be honest, Space Forge is beginning to look a bit like a model UN. I am very proud of that, not least because our lunch times are incredible.

I am also speaking from a much earlier stage of company than Victor is when it comes to investment. While I certainly have ambitions to list, I have made no decision on that yet. Those choices are a problem for future Josh. What I would say is that I have very much seen that characterisation of risk appetite in some of those early stages. I have had 30-minute phone calls from the first 50 employees at Uber. At the end of those 30 minutes, they have gone, “Put me in for £500 million,” whereas the UK angel ecosystem is very much about, “How do I preserve my SEIS or EIS tax allowance?”

I believe that, fundamentally, if that is your first question, rather than, “How can I make an excellent return with this incredible technology?” we are at odds. The British ISA was a step in the right direction, but I would like to see much more appetite in those earliest, almost nascent stages of technology investment, if anything encouraging almost an EEIS—an entrepreneurial tax relief—which encourages those people who have succeeded in the UK to put back in.

I have very few champions to look at, both in the semiconductor landscape and the space landscape, that have succeeded in growing incredible companies in the UK and stayed here, as opposed to having come from and moved back abroad or taken their business elsewhere.

Q217 **Anthony Mangnall:** Sharon, would you like to add a point on this road



to commercialisation?

**Sharon Todd:** I absolutely would. There is a huge danger here that we try to pick off one or two things to fix. That has been a massive issue with our whole approach to industrial strategy for the last 20 years—“Let’s just pull one lever here, or maybe another lever here,” or somebody shouts loudly over here.

The point was made earlier about, “What is at the heart of our industrial strategy? What does it mean?” We have a statement to be a science superpower. So what? What does that mean? What are the KPIs? What are we trying to drive? It is about that systematic, more detailed and thoughtful approach that really sets down structures and ecosystems that will survive, whichever companies come to the UK, and help them thrive, grow, list and create jobs and value for the UK.

There is a real danger that we try to pick off two or three things and think that we have fixed the problem. This is a systemic problem. It is one that has come from a lack of attention to detail and a holistic view. We need to take a long-term view. We need—and I am sure that many people in front of you have said the same thing—cross-party support. It needs to be bedded down into systems, processes and structures, but we need core interventions that happen in sequence, together, and that are really going to drive start-ups to scale and go to large-scale, and then to list. That is also going to drive large-scale companies to invest significantly in the UK too, because that all adds into the infrastructure. We just need to be very careful about picking one or two things to fix.

**Chair:** May I draw this session to a close by thanking our witnesses for a really interesting session? We do not regularly talk about AI. We do not talk about AI enough. We certainly do not talk about what goes on in space.

In terms of what I picked up from the session, Josh, you said that, when you started in 2018, you were the only company doing what you are doing, and now there are 40 across the world. Where an emerging technology exists, there will be plenty of other people who will go for that. We need to keep our first-mover advantage, and we will do that by the access that we have to a UK talent and science pool, which, again, you reminded us is worldwide rather than just necessarily here in the UK, which is a positive for us and something that we should really bear in mind. Thank you very much indeed.