



HOUSE OF LORDS

International Relations and Defence Committee

Corrected oral evidence: The UK's future relationship with the US

Wednesday 12 November 2025

11.35 am

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Members present: Lord De Mauley (The Chair); Lord Alderdice; Baroness Blackstone; Lord Bruce of Bennachie; Baroness Coussins; Baroness Crawley; Lord Darroch of Kew; Baroness Fraser of Craigmaddie; Lord Grocott; Lord Houghton of Richmond; Baroness Morris of Bolton; Lord Robertson of Port Ellen; Lord Soames of Fletching.

Evidence Session No. 19

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Questions 207 - 213

Witnesses

I: Dr Peter L. Hays, Professorial Lecturer, Space Policy and International Affairs, Space Policy Institute, The George Washington University; James Black, Deputy Director, Defence and Security Research Group and European Lead for Space, RAND Europe.

Examination of witnesses

Dr Peter L. Hays and James Black.

Q207 **The Chair:** We have had a rather busy morning. Welcome, Dr Hays and Mr Black. Thank you so much for making yourselves available to speak to the committee and to offer your perspectives on the UK-US relationship in the sphere of space. Our session will be streamed live on the Parliament website and a transcript will be taken, and once available you will be shown a copy of it in case there are any minor changes that you would like to make. Members, if you have any relevant interests, can I ask you to declare them when first speaking? Dr Hays and Mr Black, would you introduce yourselves briefly, and then we will go straight into questions?

Dr Peter L. Hays: I teach at the Space Policy Institute at George Washington University, here in Washington DC.

James Black: I am a deputy director at RAND Europe, which is the European arm of RAND, the non-profit research institute. I am also the lead for the RAND Europe Space Hub.

The Chair: Thank you, both. Let me kick off. How would you characterise the UK-US relationship when it comes to collaboration on space security policy? In particular, how has this relationship evolved in recent years in light of emerging threats, technological advances and shifts in US strategic priorities?

Dr Peter L. Hays: First, let me thank you very much for the opportunity to join you again. I commend the report that was released a few days ago. That has generated quite a bit of very positive response in several online forums. It was extremely comprehensive, timely and very well received. My hat is off to you for that.¹ With respect to the overall state of the US-UK space relationship, it is extremely good in almost all aspects. The United States enjoys an extremely close, productive, efficient and effective relationship with the United Kingdom in almost all aspects of its relationship on space capabilities and their uses.

James Black: RAND has done research on this topic both for the DoD and for the MoD. We also compared this with other countries, other key allies such as the Australians, the Japanese, the French and the Germans. The UK is the most integrated in many ways into the US military space enterprise. We can get into the specifics and the details, but that is in everything from policy, capability development, operations, personnel, training exercises and so on. Both the political situation and the security situation have changed over the last five to 10 years. Pre-dating any one particular administration, there has been an interest from the UK to try to not make it a 50:50 partnership, because that is obviously unrealistic, but at least to redress the imbalance somewhat in terms of our

¹ Witness clarified that he referred to the UK Engagement with Space Committee report, The Space Economy: Act Now or Lose Out.

contribution of capability. There are steps under way on both sides of the Atlantic to go after that.

Q208 Lord Darroch of Kew: As Mr Black has just said, to an outsider, you would imagine that the space relationship between the UK and US space commands is rather unequal given how much America does and how modest our efforts look by comparison. Are there areas of genuine operational collaboration between US Space Command and UK Space Command? How much do we bring to the table in those areas? Are there things that you think we might be doing in the future that are real opportunities or gaps in the current relationship?

Dr Peter L. Hays: You highlight an excellent point, that the United States has the most space capabilities of any state. In that regard, the UK is the closest to being on parity with the United States than any other state. Specific things such as the early-warning radar at Fylingdales and the Molesworth center are exemplars of the best, closest and most productive co-operation on space and intelligence things between the United States and the UK. It is absolutely true that many partners of the United States do not provide an equal share, but the UK is in first position with providing things, and it is really across the board. It includes personnel, policy and participation in war games and exercises. It really covers the entire spectrum. Of course, everyone would like that to be better. Perhaps we can talk about some of the specific opportunities to improve things with respect to our co-operation. Know going in that you are in first position with respect to how much you contribute in a very meaningful way to the United States when it comes to space capabilities.

James Black: To build on that, I agree that clearly there is an asymmetry of capability, scale, funding and so on, and there is always going to be, and that is true in pretty much all areas of military capability. But the UK is very actively engaged. Do we have the breadth and depth of sovereign military capabilities that some other allies have—for example, the French? No, because we have been more integrated with the Americans and so have chosen to spend our money elsewhere in the defence budget rather than necessarily on the military space budget until recently. The level of integration is really deep. You have to look at what senior officials from the US Space Force, US Space Command and Department of the Air Force say. They have been saying over the last five, six, seven or eight years that they really value having this allied integration. They want more of it. They also want to make the American military space ecosystem more friendly to that integration from allies, because there are some antibodies against it, which we can talk about later. That is things like Operation Olympic Defender. We are very actively engaged there. There have been joint manoeuvres in space in September 2025 between the UK and the US. We are involved in things like the Combined Space Operations initiative, which covers policy, ops and capability development.

We do a lot with the Americans internationally in terms of space security norms, deterrence and that sort of thing. You only have to look at the two figureheads of UK space most recently: Major General Tedman,

commander of UK Space Command, and his predecessor Air Marshal Paul Godfrey. They have both had, or are currently in, very senior leadership positions within the US space system. That is not something it affords to all allies. As the other speaker mentioned, there are key bits of infrastructure like RAF Fylingdales. We are investing in new infrastructure together, including through AUKUS, for things like DARC, the Deep Space Advanced Radar Capability, which will have a site in Pembrokeshire and one in Western Australia. Between the three countries, you get global coverage. There have been specific programmes where Dstl, the UK Defence Science and Technology Laboratory, and the US Naval Research Laboratory have done joint satellite programmes and stuff like that. Most of our space capability equity is tied up in Skynet, which is our military satellite communications system. We do not have the same breadth elsewhere, but the Americans are looking for allies to integrate more because it has a political benefit, it has a deterrence benefit, and it has an operational resilience and redundancy benefit.

Q209 Baroness Blackstone: Could I put my question to James Black first because it is about UK policy on space? How far does it diverge from US policy, or are we so dependent on the US that it just derives from the US position?

James Black: Space policy has come a long way in the last 20 to 25 years, particularly in the last five years since the *National Space Strategy* and the associated *Defence Space Strategy*. We contributed research to both. The UK has followed the US in the sense that the US clearly has a more long-standing and deeper institutional understanding of space across government, across civilian parts of government and across the military. Obviously it has been there and is doing more things for a lot longer than us. It has that depth of knowledge and nuance that perhaps has not percolated into the political arena in the UK until the last five years, where we have had a much more ministerial and prime ministerial interest in space. We have then had things like UK Space Command set up in the wake of the US doing Space Force.

If you look at the analysis of the threat landscape, it is very similar. The UK and the US have different geographies, so in most areas of defence we would prioritise Russia more than China, and the Americans would prioritise China more than Russia. When you are in space, obviously things like terrestrial geography do not matter to the same degree, so the threats that we face up there, such as co-orbital threats, cyberattacks, jamming, anti-satellite missiles and the like, affect all of us. There is quite a common understanding of that and of the need for more responsible behaviours in space, and for that diplomatic effort to be backed with hard power—deterrence capability. The divergences are more around the level of funding, scale, people and so on that we can throw at the problem versus the Americans. Clearly, we do not have the same level of ambition for things like space control as they do, but there are not huge differences, and we are going after the same problems as them. That also applies to a good number of European countries and others like the Australians, the Japanese and so on.

Baroness Blackstone: Our NATO commitments do not lead to any divergence?

James Black: No. If you are looking at the space-based spine of NATO war-fighting, you are talking about GPS, space-based intelligence, surveillance and reconnaissance, and satellite communications, be they military, government or civil. The sovereign interest in maintaining that aligns with our bilateral allied interest in maintaining that, which aligns with our NATO interest in maintaining that. We will come on to talk later about ways things can be improved. There are lots of ways in which bolstering UK sovereign capability is entirely coherent with also bolstering the relationship with the US or NATO on this. It does not have to be a zero-sum game. Us doing more and having the ability to do more helps everybody in that picture.

Baroness Blackstone: Thank you. Is there anything that you want to add?

Dr Peter L. Hays: Since 2019, there has been an acceleration with the re-establishment of US Space Command and the creation of US Space Force. I can tell you from personal experience that British officers and space operators have been intimately involved in every aspect of advancing our policy in the United States for space strategy and overarching space policy. British officers were intimately involved in every aspect of drafting documents such as *Competitive Endurance*, which Space Force put out in 2024, and its newest policy and strategy document, the *Space Warfighting* framework. Those clearly lay out what the United States intends to achieve in space. No other ally has played as close a role as the UK has in developing those things.

Baroness Coussins: Mr Black, you mentioned terrestrial geographies and the difference that activity in space brings to that. In that context, what is your view on NATO's opinion that attacks on space assets would trigger Article 5, which seems to have been a contested view?

James Black: NATO over the last 10 years or so has gone on a journey of both cyber and space, which are very interconnected anyway, to first recognise them as operational domains for the military and then to acknowledge that they are not just supporting activities in other domains—air, land and sea—but also increasingly areas of war-fighting themselves, or at least the threat of it. Plenty of UK Government documents outline the level of dependence of the UK economy on space—and, indeed, everybody's economy, not just ours—particularly for things like GPS, timing signals, communications and other things. These are vital to our financial markets, our industrial supply chains and our government services. They are also vital to the military. You only have to look at the situation in Ukraine where there is routine jamming of GPS signals because they are so crucial to the use of precision-guided munitions, and that is a crucial part of how we fight. Without access to space, we do not have the intelligence feeds from spy satellites, we do not have the GPS to guide our weapons or to know where our forces are as accurately and as securely as we would like, and we do not have the

secure communications with people on the other side of the world. It is absolutely vital enabling infrastructure.

That is where that sense of dependency comes from and with that, therefore, comes the sense of threat. If someone is to hold that at risk, that compromises a serious national interest of any NATO ally and, indeed, therefore, the alliance as a whole. That clear signal from NATO, that attacks in that space could be equivalent, for example, to an attack on land, is important in sending a deterrence signal to stop that sort of thing happening. That is not to say that subversive activities do not happen in space pretty routinely. They do. It is the same with cyberspace. Indeed, we have seen incursions through the air into Poland. In all domains you can have ambiguous, grey-zone, hybrid threats, but absolutely we need to be clear that if things go beyond a certain point that is a red line for the alliance and could compromise our collective security.

Baroness Coussins: Thank you. Would you agree with that, Dr Hays?

Dr Peter L. Hays: I do. Your question also reveals that there is less automaticity with respect to how NATO might respond and there is less convergence of opinion with respect to what attacks in space comprise. There are ongoing debates with respect to that. I would not consider the statements of NATO with respect to Article 5 applying in space the same way as traditional thoughts about land, air or sea attacks.

I do not think it is well understood, but today we are living in the era of space warfare. Once you had the Israelis intercepting incoming Houthi missiles in space with their Arrow 3 system beginning in 2023, I do not know how else you can define that. It is not really the way most people thought warfare in space would first develop. We are definitely living in the age of space warfare today, and I am hopeful that NATO and others will give more thought to exactly what they mean with respect to attacks in space. If there is no consensus on exactly what those things comprise, it is less likely we will have co-ordinated responses to them.

Q210 **Lord Alderdice:** You both talked a lot about integration, working together and close partnership. For which capabilities does the UK rely entirely on the United States? How does that create dependency and affect the UK's strategic autonomy? Collaboration is one thing, but it can produce dependence. To what extent would that reliance constitute a vulnerability for the UK, particularly given potential shifts in US defence policies or priorities?

Dr Peter L. Hays: That is an excellent question. The vulnerabilities and dependencies that I will outline do not apply just to the UK. First and foremost in my mind is reliance on the global positioning system, GPS. The Galileo system is compatible with that, but GPS is the gold standard, and it is what is used in military contexts for almost all applications. Positioning, navigation and timing are certainly a major dependence. Another very critical dependence is on missile warning, tracking and defence. The United Kingdom would be dependent on the Space-Based

Infrared System and the US nuclear command, control and communications network for many aspects of what the United Kingdom would do in the event of some kind of strategic attack of that nature. Launch is another area. The United States is almost wholly dependent on SpaceX, Elon Musk's company. It launches more satellites than the rest of the world combined and has done that since 2019.

I highlight those three areas as critical dependencies on the part of the UK. They are long-standing ones, except for the launch aspect. A key aspect for your consideration is what level of dependence is acceptable. The United States is also struggling with that question with respect to SpaceX in particular.

James Black: That is a very good list, and I agree, so I will not repeat the ones that Dr Hays already shared. The lack of at-scale space-based ISR for the UK military is another key dependence. We draw a lot on the US intelligence feeds. We give back processed data and insight from that, so it is a two-way relationship, but clearly the US provides the bulk of the imagery in the first place. Although there are programmes under way like ISTARI with UK Space Command to expand our capabilities in that space, they are clearly nothing like the scale of the US military or indeed the US intelligence community.

We have to take a nuanced view on the balance here. We have the "Own, Collaborate, Access" framework from the Defence and Security Industrial Strategy in 2021. We did some work for the UK MoD Space Directorate on the *Defence Space Strategy* trying to operationalise that and how you make choices about where you have sovereign capability, where you work with the Americans, where you work with the Europeans, where you go commercial and so on. The reality is that it is always about trade-offs, because developing a fully sovereign solution to things would be very expensive, which unless you increase the budget means you are buying fewer ships, tanks and aircraft. There are ways you can contribute more to the relationship with the Americans, which in turn gives you both more sovereign capability and more leverage—they do not depend on us to the same degree that we depend on them—and it establishes a level of integration, as we talked about. Clearly, we do not have the sort of counter-space space control capabilities that they have. We do not have the panoply of space-enabling support to operations that they have. However, as mentioned, we are able to access them to a greater degree than others, and that is not out of the kindness of their souls; that is because we also provide material contributions. Niche contributions though they may be in some areas, those niches are valued and add redundancy resilience beyond what the US system can sustain on its own.

Q211 **Lord Bruce of Bennachie:** We are asking these questions because the relationship has been changing rather dramatically, not just recently but over time. Therefore, the question arises as to what extent we can rely on both the Americans and the commercial players. Elon Musk has 7,000 satellites in play and has already personally threatened to suspend them in certain contexts. The question we have to ask is: how can we possibly

rely on that? Elon Musk has used some very extravagant language about the United Kingdom, saying we face civil war and all kinds of pretty extreme things. How can we trust that? Also, to what extent are those vulnerable to an enemy saying, "We can take him out"? Do they have any protection? It is a two-way street. We rely too heavily on them. How risky is that? Are they potentially at risk anyway themselves from enemy action? What are the practicalities? We cannot set up our own totally autonomous space, but we have to be in a situation where whatever we do have is reasonably reliable and resilient, and right now it does not feel like that.

James Black: I agree. The commercialisation of space has seen huge development over the last 10 years in particular. When we talk about the commercialisation of space, we really mean the American commercialisation of space. There are not British or European SpaceXs. There are ongoing efforts to grow the UK ecosystem. There is the industrial consolidation within continental Europe of the major space businesses of companies like Airbus and Leonardo, but there is not any show in town like SpaceX on launch in terms of the economics of that, the costs, scale and responsiveness that it can offer. All those things matter from a national security perspective. It is not just how much it costs to get up there, but it is also when I can get it up there. What is the queue? How long do I have to wait? Is it going to be timely enough to serve an operational need or fill a gap?

We are investing in developing a UK space launch capability in industry, but not at anything like that scale. There are also some fundamental geographical reasons why launch from the UK is different from launch from Florida: you are closer to the equator and it is cheaper to get up there because of the way gravity works.

It has been shown in Ukraine to be about much more than launch as well. Things like Starlink and space-based connectivity and internet are vital not just for the Ukrainian military—we have seen Starlink terminals strapped on drones in the Black Sea and all sorts of things like that—but also for the Ukrainian population, who are cut off. They might be isolated. They are having their infrastructure hit by Russian attacks. Being able to access the internet is vital to their economy, their humanitarian provision and all those sorts of things. A lot of that comes back to that one particular company, but there are others growing their own megaconstellations.

The third thing beyond that is the imaging. For decades, it used to be that you needed to be the National Security Agency of the US to have spy satellites. Pretty much anyone can now open their phone and access some commercial satellite imagery if they want. That has been a huge change. Companies sell that. We used it a lot in Afghanistan. We have seen it being used a lot in Ukraine. Those are huge opportunities because they mean we can access new things cheaper at scale, and we can also have resilience. You can have a military or government-only service, but then you can also use commercial services to give you back-ups and

redundancy. They may not always be as good in some areas, but it is an added thing that the enemy would have to take out.

Does that create a geopolitical dependency and an industrial dependency? Yes. Does it mean that those companies are increasingly subject to cyberattacks and other things? Absolutely. We saw, literally, on the first day of the Russian invasion of Ukraine in February 2022 a cyberattack on Viasat, a commercial satellite company providing services to the Ukrainian Government, which, by the way, had cascading effects through all sorts of unanticipated areas. German wind farms stopped working because of that cyberattack. So, yes, it is a dependency, but we have to balance the opportunity of cost and scale with that dependency.

That is where going back to the things like the “Own, Collaborate, Access” model is important. We need to be really clear about where sovereign UK and/or government-owned capability is non-negotiable, and then beyond that seek to make things as commercial as they can safely and cheaply be, because it will give us access to things we would not otherwise be able to afford. It is finding that balance of the kernel of things that we absolutely have to have complete control over ourselves, and effectively driving that to the bare minimum for strategic and industrial reasons. Then for anything else, we work with allies—the French, the Germans, the Americans, whoever—or we go and get it from a commercial market. If we are getting it from a commercial market, we accept that there are levers that we will not have to pull in terms of controlling those companies.

Dr Peter L. Hays: First, that was an outstanding response and very comprehensive. Following my testimony to you in June, I was invited to do an op-ed for the *Financial Times* titled, “Musk-Trump feud is a wake-up call on space”. My basic point there was that I do not think there is a good understanding of just how dominant a position Elon Musk has created. It is a vertically integrated, complete space service, from the launch vehicles to the satellites to the services that the satellites provide. No other entity ever in the history of space has created such a dominant enterprise. He has launched more satellites since 2019 on an annual basis than the rest of the world combined. That is a really stunning level of dominance. Everybody is reliant on that. The United States, as I mentioned, is struggling with having alternatives to SpaceX because it is so cheap and reliable, and providing services that are so important. We are moving in the United States towards more government instead of commercial contracts with Starlink and things like Starshield, which are feeds that will go only to the Government. Again, I just do not think there is really great understanding of that. It is not just for the UK; it is across the world. His dominance is stunning.

This also presents challenges to the basic premises of Westphalian state sovereignty because you have a private actor making decisions about the use of force—when is it and is it not acceptable? It is hard to find parallels to the way that Musk exercises that power today. There is growing recognition of that in the United States, and I hope elsewhere in

the world. It is something that must be really carefully considered because it is eroding state sovereignty at a very basic level.

James Black: I should add that it is something that other people beyond the UK are clearly waking up to and taking actions on. NATO had a Commercial Space Strategy out recently that is partly about integrating commercial space into what NATO does more. It is also recognition that we need to de-risk that as well. The EU Space Act is trying to use the single market clout that it has, which is not as great in space as in certain other areas, to raise some of the things like cybersecurity requirements that you place on space companies in order to sell into Europe, and then use that as a way of driving things like improved cybersecurity into the supply chains of, for example, American providers that might be supplying. There are things being done in international law already, like the Liability Convention. We already have provisions that make clear if a commercial space actor from a certain country puts something up that it is that government's, and by extension that military's, responsibility even though they did not put it up there. Absolutely, this is a transformation that, as you say, is stunning over the last 10 years, and it really does test a lot of basic concepts that we have that do not really apply in traditional areas of military conflict.

Baroness Fraser of Craigmaddie: Following on from that, Mr Black, you said that everything is a trade-off, and that bolstering our sovereign capability is entirely consistent with our US partners and all the rest of it. We have just had this explanation about the massive dominance of one commercial actor. As UK policymakers, are we making the right trade-offs? Are there things that we are not doing that we should be to ensure that our capabilities are balanced? I want to really push you on where we should focus.

James Black: An obvious example would be the quite nuanced and occasionally fractious debate around UK launch. You will hear different things about the economic viability of UK launch for civil and commercial purposes at scale. It absolutely has various niches, but is it going to suddenly be the next SpaceX? No. Bluntly, that is never going to happen. As I alluded to, it is not even just about the company, the technology or whatever that we deploy; it is also about the geography. Is there a market for responsive space launch for national security purposes? You might have something that you really need to get up there quickly either in peacetime or because there is a war going on, something has been taken out in space, and you need to replace and replenish that. Yes, but if we are going that way we need to recognise that that means that the UK Government, and the UK Ministry of Defence specifically, will be a key anchor client for whatever that industry is. We will have to accept that that is a more expensive way of doing things than sticking stuff on a SpaceX Falcon 9, and we are going to have to be willing politically and financially to pay the added costs to sustain that sovereign launch capability for that responsive national security purpose. That is an obvious example where we have said we want to do launch. If we are going to do that, you have to then follow up with seriousness about how

the MoD is going to place contracts for people to launch things and stuff like that, because that will help to sustain that industry.

Regarding other areas, we talked about ISR. Commercial satellite imagery is a more diffuse industry. It is not as heavily dependent on one company. There are multiple options to buy things from different people. With Starlink, there are things like OneWeb and other alternatives. The level of deep vertical integration and dominance of SpaceX in launch is not quite replicated in other areas, so we have more ways of diversifying our portfolio of whom we buy from, or buying with allies and partners so that we can buy multinationally and get scale that way. There are different ways of treating a problem. Are we going to stand up as British SpaceX? No, it is not going to happen.

Lord Alderdice: You mentioned a couple of times that there are practical geographical problems about us being able to do these things in the UK. One of the other places where these launches have taken place for a long time and can take place is at the cosmodrome in Kazakhstan, which the Russians still have the lease for part of but not exclusively, and that will run out over a period of years. Airbus is using the possibility of launch facilities there. Have you any thoughts about that as an alternative launch facility potential for the UK?

James Black: I have not looked into that in detail. I do not think RAND has looked into that in detail. There are other options such as French Guiana, where the Europeans have long launched from. Clearly, if you are going to do it in any third country, you must have some assurance about the security of that country and the relations, geopolitics and so on. People do not know commonly that the Americans used to launch stuff from there all the time,² and they would ride up on a Russian rocket to the International Space Station. There are strange bedfellows historically in space launch because of the limited ground infrastructure. You could absolutely look at a diversified range of launch sites, but, clearly, if we are talking from a military and defence lens, you have to be very sure about the security of those. That is including things like wartime strikes. It is not even just cybersecurity or whether you have enough fences around the perimeter. It is whether this thing could be hit by a missile in a war context. That brings you back again to whether you will feel more comfortable launching it from the UK, the US or from a NATO ally's territory somewhere.

Dr Peter L. Hays: I would echo a lot of those comments. It is a tough thing that you are asking. I have a hard time seeing clear areas where on a technological basis there is a clear path for the UK to compete real effectively with SpaceX or some other dominant commercial partners of the United States. I would encourage more of a holistic view of where the UK's comparative advantages lie. In a lot of cases, it is more about your experience and expertise in coalition, politics, strategy and other areas. You have centuries of experience doing that in ways that the United

²

Witness clarified that he was referring to Kazakhstan.

States does not. Do not discount those kinds of things just because you are not a world leader in technology.

I want to emphasise that the US Government spend a lot of money on space, and we do not have a clear path to reduce our reliance on SpaceX. It is a hard problem. It has captured a dominant position because it is so good at doing these things and provides outstanding, reliable services at very low prices. It is hard to see how that is going to change. But states around the world need to consider that very carefully, think about where their most clear sovereign responsibilities and comparative advantages lie and capitalise on those things.

The Chair: Before we move on, how does Chinese and Russian launch capacity compare with SpaceX? Do they rely on SpaceX, for example with GPS from their satellites?

James Black: The Russian space sector has been having a rough time of it recently, for fairly obvious economic sanctions-related reasons as well as underinvestment, brain drain and a failure to really capture the commercialisation drive in the broader global space economy. Obviously, it was really strong. It was the first country to put a man in space and all that sort of thing. It then went through waves of cuts post-1991. In the last five years, it has really dropped off, where things like the war in Ukraine have disrupted co-operation with the West. It has made it harder to access technologies, and it has more generally put a strain on that. We have seen changes in the leadership in the Russian space industry recently to try to go after that, and they have had new policy documents and so on that suggest they want to go in a more private sector innovation direction. You have to heavily caveat that with it being relative to quite a low base particularly compared to the Americans.

The Chinese certainly have been not just investing heavily in government and military space capabilities but also growing their private companies in the commercial sector. They want to do that not just for economic reasons but also because it contributes to their influence around the world if they can go around touting an alternative to an American service, and then can perhaps sell that to people with fewer human rights qualms and all those sorts of things. It feeds into that idea of their digital belt and road initiative. They are certainly actively investing in that space and megaconstellations.

You cannot access SpaceX if you are the Russian Government—or one hopes not. Certainly, they are indirectly affected by the changing economics of space that SpaceX has driven, which makes some of their own offerings less competitive now and has incentivised both countries to look again at how they manage their own space industries even if they are not direct customers of the Americans.

Dr Peter L. Hays: That is again a great response. In my judgment, there is really limited possibility that the Russians will re-emerge as world class in any space technology. I just do not see that happening. By contrast, the Chinese have been very interested in what Elon Musk is doing, and

they are trying to replicate that in a variety of ways. In the coming years, we will see much more intense competition between the Chinese and SpaceX. I am not sure how that will play out, but it is clear that they want to have an alternative to SpaceX for the reasons that the other speaker highlighted and their own sovereign concerns. This is something that they have decided that they must have and cannot rely on others. We are going to see that increasingly. Their civil-military fusion is probably a more effective and efficient model than we see anywhere else in the world. The United States is still struggling with how to treat an actor as dominant as SpaceX from a policy perspective.

Q212 Lord Soames of Fletching: Dr Hays, we touched on this tangentially, but how does the US-UK intelligence relationship extend into the space domain? That is the first bit. I have one other question that my clever neighbour just reminded me to ask you about. What about the Indians in all this?

Dr Peter L. Hays: With respect to your first question, I will say categorically that I know of no other partnership that enjoys as close a relationship as the United States and the UK in intelligence drive from space. It is a model for the rest of the Five Eyes, it is very long-standing, and the procedures are very well developed. Folks in our intelligence community in the United States understand in great detail what the rules and laws are in the UK, and they are able to effectively leverage areas where laws in the UK are more permissive, and vice versa. The net result is that I cannot think of a more effective partnership than the one between the National Security Agency and GCHQ. They exercise it in many ways every day, and go to the places where things are more permissive in each domain.

With respect to the Indians, that is a good question. It is hard to see where they are heading in space. They certainly put a lot of emphasis on that. Their overall traditional approach has been far more civil-oriented than military-oriented, but we have seen a lot of movement towards the military side more recently. I do not see any prospect that they are going to be a serious competitor to either the Chinese or to SpaceX. They have their own sovereign concerns and will continue in those areas, but I do not see them becoming world-class competitors.

James Black: I will tackle these questions in reverse. On the Indians, I agree. They have been investing heavily in their industry. They have some good capability and good areas. They are not the US or China, but they are up there with Japan and France and that sort of thing. They are a serious player. They have an economy that is large and only going to grow larger, and lots of very talented people whom they can apply to this problem. There is strong political ambition from their government around this and a clear long-termist vision to go with that.

Specifically on the intelligence sharing and intelligence community point, we have done work for the DoD in the US looking at the barriers and enablers of integration with the UK and other allies in space. One thing that comes up again and again is barriers to information and intelligence

sharing. Those are seen to be much better in the intelligence community than they are in the DoD. The barriers are predominantly on the American side because of the tendency to slap "no foreign" on things as a classification. It is a much more seamless experience between the UK and US intelligence communities. As I alluded to earlier, we take receipt of a lot of data and intelligence feeds from the Americans as part of that relationship. We contribute some back. Also, crucially, we contribute analysis and insight. We have the National Centre for Geospatial Intelligence at RAF Wyton, part of what was UK Strategic Command. I have not seen an org chart recently, but I assume it is part of Cyber & Specialist Operations Command now. That provides really good, detailed analysis. We take 100% of the feed and give them back X percentage that we have then processed, dealt with and combined with other forms of intelligence and so on to build up a picture.

We are very good at that sort of thing and that is much appreciated. As I said, the information and intelligence sharing between the intelligence communities is good. We can come on to it later, but it is a bit harder sometimes with DoD. We are still the deepest and most integrated; there are just certain friction points that could make that go even further. I would not want to overstate the extent to which it is a barrier. It is more about slowing things down and adding friction and more procedure and faff that does not always need to be there.

Lord Robertson of Port Ellen: In terms of interests, I have to declare that I am a senior counsellor with the Washington-based Cohen Group and I am on the advisory board for RAND Europe.

The Strategic Defence Review, on which I was the lead reviewer, has a special chapter on space recognising the crucial importance to our defence of space generally. Before I ask my specific question about that, you mentioned at the beginning some document that was produced this week.

James Black: Sorry, that was Dr Hays.

Lord Robertson of Port Ellen: We all looked around the table puzzled at that.

Baroness Crawley: It is a special committee on space.

Lord Robertson of Port Ellen: In Parliament?

Baroness Crawley: Yes.

Lord Robertson of Port Ellen: It produced a report, which you have seen and we have not. We are not aware of the report.

Going back to the previous answers that were given in relation to intelligence sharing, we have a completely different legal system in this country. The United States has rigorous export control regimes involved. Do these interfere with that close intimate relationship that you spoke about in terms of our intelligence sharing, especially in space?

James Black: I can base this on the research we have done at RAND. There will always be differences in policies, regulations and so on. First, the frictions exist more potentially with the DoD or military intelligence rather than the US intelligence community. Secondly, they are certainly not confined to issues of export control, law or regulation. Some of it is also practicalities of things like the infrastructure. Do we have the SCIFs, the secure rooms, that allies can talk in and meet in at certain classification levels in the right places and in the right facilities? Is there sufficient IT provision of secure networks that can talk to each other, or are we relying on turnkey solutions where someone has to take something off one system and move it across to another? To a great degree, some of those more practical challenges are bigger.

Similarly, it is often a cultural challenge more than a legal or regulatory one. If you look at the policies and so on that the US institutions have, they set out quite clearly how you can share things with allies, how to go about that and so on. If you are a US military officer sitting in US Space Command somewhere and you have spent most of your career just doing stuff for the US military, not doing it necessarily so integrated with allies, as we are in space, your default setting too often is to apply the "no foreign" rule to things and do that as default rather than to only do that when necessary. Some of that is a cultural and a behavioural thing rather than what the letter of the law says. You have foreign disclosure officers, FDOs, in the US system who give guidance to people and provide approvals. Again, it is really about continuing to educate people on how you improve that.

I alluded earlier to how deeply integrated some of our senior space leaders are with the US system. We have the inaugural Space Command Commander, Paul Godfrey, over there at the moment. He is Assistant Chief of Space Operations in US Space Force, specifically focusing on future concepts and partnerships. Part of the reason for having someone like him in there is to drive change in the US system about how it shares information, trying to simplify it and not making it so that you have to ask so many different people for approvals and all those sorts of things. It is trying to make being integrated with allies the default rather than thinking about it primarily from a US-centric lens and then adding the allies and sharing information later.

Lord Robertson of Port Ellen: Despite that, rigorous technology transfer restrictions apply. Do they in any way limit co-operation?

James Black: In terms of technology transfer, yes. Clearly, you have to think about export control. One of the things that AUKUS pillar 2 has gone after is space. We can debate how far AUKUS pillar 2 has gone in general, but specifically on space it has gone quite far relative to the other areas. The big win of AUKUS is less about developing specific capabilities and more about things like aligning export control laws and making it easier for companies in different countries, or organisations in different countries, to share technology and information, and not fall foul of a long bureaucratic process to get approvals. Absolutely, they have

been impactful. Part of the reason the US has such a technological lead is that it tries to hold on to its technology. There are opportunities for us to share that more with it now that we have things like AUKUS pillar 2 under way and there has been alignment of some rules on different sides. Will it ever be perfect? No, because, as you say, we have different legal and regulatory systems, and so on. Is it moving in the right direction? Clearly, there is a lot of effort on both sides of the Atlantic and obviously in Canberra.

Lord Robertson of Port Ellen: It is an interesting answer in relation to the work of the committee looking at US-UK relationships. Dr Hays, do you want to add anything to that?

Dr Peter L. Hays: I do. I appreciate that the previous speaker drew a large distinction in terms of co-operation between the intelligence community and the Department of Defense. That is exactly right. The problems, in my perception, are far more on the US end than on the UK end. These are perennial problems with overclassification of things. I supported Dr Larry Gershwin, who is the national intelligence manager for space and technical intelligence. I literally saw, almost on a daily basis, very close co-operation between particularly the NSA and GCHQ. When it comes to the Department of Defense, though, things are much more episodic. It is constrained by how many things in the space world are not just top secret but held in special access programmes. The ability to share those with either international or commercial partners is really limited. A number of people have been pushing for years that some of those things need to come down to lower classification levels that will help with sharing. There has been some limited progress on that, but I would suggest that there needs to be a lot more.

I can give you a specific example. It is not just current things; it is declassification of things in the past. One of my colleagues at George Washington University, Aaron Bateman, wrote a book called *Weapons in Space*. He was able to get declassified British documents from the 1980s that the United States has still not declassified. It is important to know exactly what was being thought about on the Strategic Defense Initiative and how Brilliant Pebbles would contribute to that. By partnering with the Brits, we in the United States were able to get more information than was available to us from our declassification system. We have some real problems. Some progress is being made, but a lot more needs to take place. Often, it is as simple as just saying, "Fact of"; "We have this thing. We're not going to tell you any detail about it, but we're going to acknowledge that it exists". I would suggest that that is a good way to get around some of these most significant classification barriers.

Q213 **Baroness Crawley:** Mr Black, you referred to future concepts and partnerships. Could you look 10 years ahead and see how integrated our UK-US partnership is as far as space technology is concerned regarding shared assets, command structures and that kind of thing? Could you look at where, commercially, conflict in space could be? If there were two commercial space entities, SpaceX and the Chinese commercial version,

where does that leave accountability for the sovereign states from which those commercial organisations occur?

James Black: That is a great question. On the first one, if you were to look for a positive future scenario of how this could go further and deeper in 10 years, you would be building on a lot of the encouraging rhetoric that we have had out of senior leadership, military and governmental, both in the Biden and the Trump Administrations about wanting to do more with the UK and others. There is an appetite from the US, absolutely, to integrate more. As I say, that is for self-interested reasons, but it aligns with our interests as well. That is great. The opportunity is there.

The challenge is the 'say-do' gap, and that exists because of the complexity of the US system, particularly for space. You have diffuse roles and responsibilities within the DoD when it comes to space. You have the Office of the Under Secretary of Defense for Policy. You have the US Space Force and the US Air Force. You have the Office of the Secretary of the Air Force International Affairs, SAF/IA. You have US Space Command. You have a dozen other organisations, and that is before you even get outside the military. Lots of different bits of the US system are responsible for bits of working with allies, be that training, exercises or capability development. That is a very complicated web or mess for a small country like the UK with finite capacity in time and effort to try to navigate. It means to put allies at the beginning of every conversation about developing joint capabilities, but in practice it is very complicated just to align the military requirements across the US military, without even tacking on the Brits or the Australians or whoever else is going to perhaps be in that mix. I have talked already about some of the regulatory, organisational, cultural and overclassification issues that exist on the US side.

What would look better in 10 years would be, on the US side, a more consistent vision for how, when and where it wants allies integrated; clear, sustained leadership to drive the cultural and behavioural change in support of the actual policy that exists; and concrete efforts to particularly deal with the information-sharing barriers that we talked about, because they undermine a lot of things. If you were going to be really ambitious, you might say we could have something more like a space Mutual Defence Agreement in the way that we have around nuclear, which is a really deep integration between the two national enterprises—government level, industry level, military intelligence and whatever—but that is a National Security Council-level decision. That is not something the DoD can do.

On the UK side, what would look good in 10 years if we are contributing more to that relationship is funding—no surprise—for defence, which would be nice, and translating that quickly into capability. We have lots of programmes under way. That is great, but we want to scale and move from R&D, experimentation and one or two satellites to having the resource to then do that at a larger scale. That is never going to meet

what the Americans do, of course. We will still be a junior partner, but we will be less of a junior partner.

There is a final thing to add on your commercial point. It is not a unique challenge for space, but in many areas, not just the UK, many countries face trade-offs between whether you go with a US or a Chinese commercial solution to something, or US or Chinese technology. We see it in things like AI as well. Absolutely, the way to manage that sovereignty is, going back to the "Own, Collaborate, Access" model, to develop national sovereign capability industrially and technologically in the areas that are non-negotiable for us for our national interests, and then in other areas work with our allies and partners to exert influence over those companies by buying multinationally, having purchasing power, or work with the Governments and companies in question, in this case the US, to make sure we have leverage over them as an important buyer, partner in the military and so on. Does it give you full control? No, but it is about managing different pots of risk or of cost, political, financial or operational. You will not be able to compete with the US or China directly. We need to try to find a way of navigating that relationship most in line with our interests.

Dr Peter L. Hays: As the previous speaker mentioned, it is important for the UK to understand how fragmented the US space ecosystem is and where the most effective points of entry are into that, because that will be required for the foreseeable future.

With respect to moving forward, particularly with where the UK's most opportune niches might be in space, I would suggest that the UK needs to work closely in a very transparent and consistent, long-term way with the United States to identify specific mission areas, particularly where the United States is willing to be more reliant on commercial and international partners. If you think about these things with respect to specific space mission areas, probably one end of the spectrum is things like nuclear command, control and communications. I do not envision the United States is doing a lot of outsourcing in that mission area. The opposite end of the spectrum would be things like environmental monitoring, space weather and space situational awareness. In those areas, there might be really great opportunities because the United States will be much more willing to be reliant on its commercial and international partners. Developing a consistent long-term strategy mission area by mission area, I would suggest, offers the best opportunities for some kind of long-term development of those areas in which the US is willing to be more dependent.

Of course, that is going to be reliant on the US taking a consistent approach as well. The UK and others can encourage that, discuss where their comparative advantages lie and help the US recognise that it does not have to do everything. That is the traditional model for the US. It is hard to move off that in space, but there is increasing willingness to do so. We have the commercial space integration strategy as well as the commercial space strategy. They lay out very clearly that these kinds of

things need to happen and be accelerated. They are great opportunities. Again, I would suggest trying to go after that mission area by mission area.

The Chair: Dr Hays and Mr Black, thank you very much indeed. You have been extremely helpful to us, and we are very grateful. As I said at the beginning, we will send you a transcript of what has been said in case there is anything that you need to correct. Thank you so much.