



UK Engagement with Space Committee

Corrected oral evidence

Monday 7 July 2025

4.45 pm

Watch the meeting

Members present: Baroness Ashton of Upholland (The Chair); Baroness Bonham-Carter of Yarnbury; Lord Booth-Smith; Lord Clement-Jones; Baroness Donaghy; Lord Lansley; Baroness Mobarik; Lord Shamash; Lord St John of Bletso; Viscount Stansgate; Baroness Stowell of Beeston; Lord Tarassenko.

Evidence Session No. 23

Heard in Public

Questions 201 - 208

Witnesses

[I](#): Gabriel Elefteriu, Senior Fellow (Space Power), The Council on Geostrategy; Professor Emma Edhem, Alderman, The City of London Corporation.

Examination of witnesses

Gabriel Elefteriu and Professor Emma Edhem.

The Chair: Welcome back to this public evidence session of the UK Engagement with Space Committee. I am delighted that joining us today are Alderman Professor Emma Edhem, the lord mayor's aldermanic envoy for space technology and innovation at the City of London Corporation, and Gabriel Elefteriu, the senior research fellow for space power at the Council on Geostrategy. They are two extraordinarily eminent people, who I am reliably told are pre-eminent in their field. I am sure we are going to have a great session. I have already explained that votes in the House of Lords sometimes dominate the agenda, but we will try to do as much as we can. Thank you for being here.

Q201 **Viscount Stansgate:** Without further ado, my granddaughter was born two weeks ago and her name is Lydia. Does the United Kingdom have the right balance between national initiatives, the work and co-operation we do with ESA and other international collaboration?

Professor Emma Edhem: I was the lord mayor's aldermanic envoy in 2023-24, but I am still leading on space in the City. This year's lord mayor is not running a space agenda.

First of all, can I say how incredibly timely this Select Committee is? I cannot emphasise that enough. To answer this question, I will set the scene of how I see the world of space and how it is developing.

The world of space, no matter how long it has been going on for, is still embryonic. It started in defence and security—I know you already know that because I have watched the previous sessions and know that you have been apprised of so much already. It came out of defence and security into the commercial sector and that is where it is, embryonically. At the moment, from the outside world, it sometimes looks like there is chaos.

To those in the cosmic world, I liken this to a stellar nebula collapse. Effectively, we are creating a solar system. When you are creating a solar system, there is a cloud and then a star will be formed in the middle. There will be formations in the cloud, all coming together to revolve around that star. We are a middle power, and the star will be either a new superpower or a multi-superpower, depending on where the world is going geopolitically. As a middle power, we will be working around that star. We cannot be the only leaders or at the very forefront because we simply do not have the resources in the United Kingdom, certainly not from our Government, but there are other ways of supporting it.

Do we have the right balance? If we do not get the right balance now, once the solar wind hits, because the star has formed and the planets are rotating around it, the solar wind will push out all of them that have not yet clumped together. We are on the cusp. We are hurtling towards that star being formed.

To start with, look at how much Governments around the world are putting into their space sector. How serious are they? Money does not always translate to, "Well, this is how much we are spending and, therefore, we have it right". However, if there is a great big difference between the amounts that Governments are putting in, when the amount is huge we find that there is an imbalance. At the moment, we know that the US is way ahead.

We are putting in very little compared to many other jurisdictions. We need only look at ESA and at Germany, France and the others. We may be the fourth largest when it comes to contributions into ESA, but fourth is not at the forefront. The amount of GDP that we are spending is quite small in comparison to others in ESA, for example.

Do we have the right balance? We are getting there. Under the circumstances and with the resources that we have, I think we have been going in a good direction, but we can improve upon it. That is why you are here and that is why we are here. I would like to see not just many more Select Committees but much more of this kind of conversation. There can never be enough when we are at an embryonic stage.

As I have said, I know it looks like chaos now. However, I am not concerned about that, because from chaos we start to create order. We are working on the balance. I think that the United Kingdom is actually not doing as badly as sometimes it thinks it is. We just need to keep on pushing forward, no matter how difficult it seems.

Where I am coming from, I think that we could spend more, but I also appreciate that we have the defence spend coming up and, given the geopolitical climate at the moment, I would wholeheartedly push towards that as much as possible. If there is no proper defence spend, frankly, there will be nothing for us to move forward with.

However, this space is staying ahead of the curve. If we do not stay ahead of the curve today, we will struggle tomorrow. That is something we do not always think about. It is not our fault. In fact, many jurisdictions are like this. They seem to look just at what is in front of them. I would want to push and spend more so that we can be on a par with some of our counterparts.

Gabriel Elefteriu: Thank you very much, Chair, for the invitation to speak to the committee today. It is a very important question. My answer is yes and no. The balance between UK national investment, ESA investment and international collaboration is the result of a very particular space policy model that we have been operating in the UK. The system is working as intended, so if we want to perpetuate this system you could say that we have the right balance in that sense.

You might have heard from other witnesses that space spending through the UK Space Agency is about 80% on ESA, with about £100 million or thereabouts left for national activities, which are mainly grants. Other European countries—Germany, France, Italy—spend around 42% to 46%

of their national space spend on ESA and, therefore, more than half of their budget on national activity, so they have national space programmes.

We do not have a national space programme that is designed to deliver operational capability. As I said, the money that we spend at home is mostly directed to industry through grant programmes and open calls. Why do we not have a national space programme? It is because we operate a light-touch, low-funded and unstrategic space policy model. It is a model in which the Government act as a convener for industry and help it with grants.

The purpose of our national space policy, certainly on the civil side, is economic growth in the space sector. This is what you always hear from officials and Ministers. That is the purpose of our policy model. It does not produce national operational capability and, because we do not have a national operational capability plan, we do not have the project management skills base or capabilities within the UK Government's space enterprise. We need to rely on ESA for project management at scale. The lack of a capability plan is the reason why we do not have a long-term space technology R&D plan, which are normally—as you see with NASA or any other major space agency—tied to a capability objective. You have the technology plan, which develops the technologies that feed into a capability goal at the end of the day.

The model we have is fit for its purpose; I just think that its purpose is wrong in today's climate. The model was created before the world took a very different turn geopolitically and in defence terms, before we had the rise of mega constellations and very strong players monopolising various parts of the global space industry and launching low earth connectivity, as you know. My contention is that that way of doing things—the entire system—is not fit from a UK national interest perspective. If you want to keep the current model, the balance is right and the system is working as intended, but I think the purpose is wrong. We should change the system, so in that sense I do not think the balance is right.

Baroness Bonham-Carter of Yarnbury: I do not know if I understood you correctly, Emma, but you said that this is a pivotal moment and then I think you said that your job no longer existed.

Professor Emma Edhem: I was Michael Mainelli's aldermanic envoy, but as an alderman I am still driving the space agenda.

Baroness Bonham-Carter of Yarnbury: Good, because I thought you were suggesting that at this pivotal moment you had been jettisoned, but you have not.

Q202 **Lord Tarassenko:** We are going to talk a little bit more about the 80:20, because it featured in the session that has just ended, and the 20% that is national space activities. As you said, there is no overarching programme. Lord Lansley earlier almost touched on the question I am going to ask you, which is about the relationship that we have with ESA.

Will it be affected by the fact that ESA appears to be getting a lot closer to the EU, or vice versa, and should we be worried about the implications of that? Interestingly, in the previous session one of our two witnesses, Sir Martin Sweeting—the founder of Surrey Satellite Technology Ltd, probably the most successful company to come out of this country—took very much an engineering approach to this. He said, “For the 20%, let us do what we really want to do and then find the programmes within ESA that match our national aspirations and let us not worry about all the political rapprochement or not between the EU and ESA”. Is that too much of an engineering solution or too easy an answer? Should we be thinking more strategically?

Gabriel Elefteriu: It is always good to think more strategically. The dynamics between the European Union and ESA are certainly closer and they have perhaps the closest relationship they have ever had. I think the current commissioner gets along very well with the current director-general. There is a very good relationship there. This is also driven by the geopolitical context; the European Union, or Europe overall, is realising that it needs to raise its game in defence and that space is a very important aspect of that. Of course, ESA acts as the European Union’s space R&D and delivery partner. In that sense, they are getting closer.

As you may know, there is a new initiative from the European Commission, endorsed by Commissioner Kubilius, for an earth observation government service. That would be put forward to ESA member states. The ESA budget is also expected to rise by perhaps more than 30% at the ministerial later this year. In that sense, the broader picture of European space policy, if you take EU space policy and the dynamics within ESA, is by default a bit of a threat to the UK. The EU Space Act that you have seen coming into place recently is a protectionist measure and we are seeing, as I said, more investment in space in Europe, so its competitiveness in space will grow.

The portfolio and the range of capability programmes that Europe is engaging in, which are controlled by and have terms set by the European Commission, will grow. Obviously, the UK has limited leverage in this context. That is a challenge to our space policy going forward and our position in the global space market in general. There could be an opportunity, if we play more strategically and invest more, to increase our influence in ESA and our leverage in this relationship.

Lord Tarassenko: Sir Martin Sweeting said that, given that our investment is only number four in the league tables, there was still enough within ESA that we could pick and choose what we needed to be involved in and that that was fine.

Gabriel Elefteriu: Again, that is fine in the context of the level of ambition that we have set ourselves. As I said in my first answer, I do not think it is enough. It is very problematic from a UK national interest point of view.

Professor Emma Edhem: In answer to whether that is an engineering way of seeing things, the answer is yes. I find that the technical world, which is brilliant, often fails to see that there is scaffolding holding it up. That scaffolding is law, finance, insurance and diplomacy. The EU and ESA are coming closer together—we need only look at the EU Space Act. That concerns me an awful lot because, when it comes in, we will be complying with somebody else's laws and rules. When we are looking to do further business with anything coming out of Europe, we will be complying with their rules. We did not make those rules. They made those rules. So that makes it much more difficult for us.

Engineers will absolutely be looking at the here and now, and properly so. They need to concentrate their minds on developing what they need to develop, with the relationships they need to develop in that sphere. The rest of us really should be looking at what more we can do. If we have further difficulties in Europe—I am not suggesting that that will be the end—that will create more hurdles that we will have to overcome, because we were not in that tent when it was being developed. This is a very new industry and we will have less say when it comes to Europe.

You have heard in previous sessions about the issues we have already had. I am looking at Galileo, for example. When we Brexited and no longer had access to the PRS, which is the encrypted secure communication data, we did not develop our own. We want to and are going towards it, but where are we on it? How far into it are we? Having been forced to come out of Galileo, we need to develop our own sovereignty. We are not yet sovereign in space. We rely so heavily on others—at the moment it is the US, which is fine. I know there is a question coming up, so I shall not touch on that.

- Q203 **Lord Clement-Jones:** That was very good timing. We have talked about Europe, but there has been much commentary on the changing UK-US relationship in space. How do you see this relationship developing in the coming years? I put that very neutrally. What should the Government's strategic priorities be? One of the things we were thinking of was the risk issues related to things such as GPS and so on, which I know Gabriel has talked about in other fora.

The committee suspended for a Division in the House.

The Chair: Welcome back to this public evidence session. Thank you to our two witnesses for remaining with us despite us having to go to the Lobby twice in that time.

Gabriel Elefteriu: Thank you for that. It is an important question. Of course, the US-UK relationship in space is mostly on the military side, so it is in military space that we find the most substantive aspect of that relationship. I am not sure that it is changing at the moment and I do not think it necessarily should. We work very closely with our American allies. We need each other for space surveillance, for example. The Fylingdales radar, which is part of the US space surveillance network, is a very important capability for the Americans that is in the UK. We have a new

project, the DARC radar, which will be deployed in three countries—the UK, Australia and the United States. There are very important mutual benefits baked into this relationship and the militaries work very well together. As you have heard from other witnesses, the working relationship is very strong, with Air Marshal Godfrey having a position in the US Space Force.

At the same time, the United Kingdom Space Command has made progress in developing and putting in place the premises for developing UK defence space capability. We have had the launch of one satellite already, the Tyche satellite. There are more coming and there is a budget for them, the ISTARI constellation and so on. Perhaps things are not moving as quickly as we would like, but they are moving forward. We are increasing the sovereign part of our defence space mix and we should do more on top of that, but I do not see why the baseline UK-US space military relationship could or should change.

Lord Clement-Jones: You are really on the optimistic end of the spectrum in that respect.

Gabriel Elefteriu: I am.

Lord Clement-Jones: You have seen some of the evidence we have had from people such as Dr Bleddyn Bowen saying that there is a bit of a conundrum there, but are you content that, even though we should be doing more on sovereign capability, that relationship will hold firm?

Gabriel Elefteriu: I think the direction of travel for UK defence space is to have more sovereign capability. It is quite clear that this Government are persuaded that we need to do more on that. Again, there are questions as to whether we are doing enough and at the right speed. I do not think we are; we should do more, and faster, but that is a separate question. On the direction of travel, it is certainly the way we are going.

The other main reason why we should stay close to the Americans as much as we can—I have mentioned this to your colleagues in the other place on the Defence Committee—is that they are the only game in town among our allies on strategic warfare capabilities, which are becoming increasingly important. We are talking about counterspace weapons; of course, they are now initiating the Golden Dome missile defence architecture, which is a system of systems with a very important space layer. It also includes space-to-earth intercepts. We are talking about a completely different class of military capability. There is no one else, including the Europeans, who is even close to developing that kind of capability. We are in a good position to be a trusted ally of our American friends and we should take advantage of that.

Lord Clement-Jones: Emma, are you equally optimistic? Do you see it in defence terms in the same way that Gabriel does?

Professor Emma Edhem: I do. I sit on many of the tables and we have an incredibly close relationship with the United States. No matter what

gesticulation we might see elsewhere, we must look beyond the fog that is created in the media or outside and we must not go towards divide and conquer. We must stay close to our strongest ally. We have a special relationship for a very good reason. When I started this conversation, I spoke of a solar system and the star that is forming. There are very few in this world that can compete with the United States on space. Even though we have the likes of China, India and others that are hurtling forwards, when we look at the amount of spend and at the capabilities, the difference between the United States and the rest of the world is too huge for others to catch up.

Even though, of course, space is dual use or multiuse, I want to look at this as pure defence and then come back to the commercial sector. On the defence and security side, it is an absolute no-brainer. It must continue come what may. They need us as much as we need them; that is why we have a special relationship. In the commercial sector, we have universities that are second to none. We have brains that create visions and R&D that the US values. That is why they often come to the United Kingdom to shop for what is new and may be necessary for them—albeit they may take it back to the US, although I would like to keep some of it here. This is the very strong relationship that we have.

When I was looking at how the globe will potentially be divided up when it comes to all matters space—we will not have all space under just one jurisdiction—I started looking at the United Kingdom and what our strength could be. We need to have that coherence—some sort of vision and a strategy for our country. Of course, being in the City, finance immediately came to mind, but then I thought that we cannot compete on finance with the United States. It has its liquidity and is not as risk averse as we are in the UK. We tend to be more nervous. That is the culture and mindset in institutions here, which are more risk averse about investing in something as embryonic as space. The US is not. However, if there is going to be an international finance space hub, that does not mean it will not be spread out to other jurisdictions—particularly the UK, because we are second to the US in finance and very influential.

The US will be at the forefront of that, but we have something that the rest of the world does not. We do not seem to recognise it and I think we have let go of it. It is the law and insurance—our pensions are remarkable. Our legal system is second to none in the world and no other jurisdiction can compete. When we look at trade and investments, they use our law. Then they go to international arbitration so they can use our law. Our relationship with the United States should be to support it, but maybe with the UK creating—I know there is a question coming up on this so will not go into it in detail—the norms and laws.

Q204 Lord Lansley: Could I ask you to think about our relationships with other existing space powers—other countries with space activities or those developing them? Which of our bilateral international partnerships do you feel have been most successful thus far and shown the greatest promise? Of the countries developing space programmes, such as India, Japan,

Australia and the Gulf states, which do you think offer the best opportunities for the UK Space Agency to partner with?

Gabriel Elefteriu: This is a slightly difficult question because Britain's international space partnering is very small scale. The terms on which these relationships are developing are very modest. You can look at this question from a political point of view, and I think we should—you want to develop closer space relationships with your allies to support wider geopolitical interests. In that sense, we look at Indo-Pacific countries such as Japan and Australia and synergies with other defence programmes that we are running with them—the GCAP with Japan or AUKUS with Australia—and how those programmes can be used to enhance our space collaboration as well. Of course, the counterargument is that those programmes are focused on a particular mission, so why complicate them with a space layer?

In general, the main problem is that we do not have enough available funds for meaningful international space activity. The way to think about our international space partnerships again comes down to what is in our national interests. What missions is the UK interested in pulling together or in fact leading or co-leading? In general, when it comes to international partnerships outside ESA—as well in ESA—we usually contribute instruments to other people's missions. We do not see many UK-led, UK-flagged space missions. I think that is where we should focus our attention. That is how we should look at international partnerships: not look at how we should contribute to projects led by other countries but generate projects ourselves and go out to see who can and wants to be part of something that we lead. To be able to do that, you must have a clear understanding of your national interest, your space strategy and what you want to achieve, and more funding available to create the basis for that collaboration.

Lord Lansley: Of course, there are international partnerships in the area of space science that we perhaps contribute a good deal more to because of the strength of our university and research sectors. To what extent can those partnerships be boosted by London being a source of capital for such projects?

Professor Emma Edhem: That would be an absolutely brilliant strategy if we can get it together. That does not mean that we cannot, but these things must be done step by step. We should be developing our science partnering, but in our financial centre, as I have said, one of the issues we have is risk averseness. This is something that we need to work on. It has been an ongoing, perennial issue for us. How is it that the US can create or invest in these unicorns, of which four or five fail, and then make a few billion out of the one that does not? We have a tendency to be nervous for some reason, to look at every single aspect and then not invest just in case we might end up losing the money.

I was speaking to someone earlier today—I will not mention his name but he is from this city—about the same thing. He said that it is a cultural mindset. I am saying that it is not a cultural mindset, because we are an

international finance centre and the people who come here are from other jurisdictions that are not so risk averse. We need to look at our regulations; we created them to make us safe custodians of money and we have done very well at that, but, in doing so, we have also perhaps created this fear of risk. How can we do what you are asking? We should be keeping our talent here instead of letting it go abroad. To do that, I think we need to start with the regulators.

Q205 **Lord Shamash:** My colleagues will know this, but I am obsessed with our launch capacity. I think the launch capacity we have here is very poor, as we heard from the Minister last week. There is no guarantee of any money to see it further developed. To what extent is our restriction on launch capacity impacting our relationship with ESA, Europe and elsewhere?

Professor Emma Edhem: Not all jurisdictions will have launch capacity and they do not all need to have it, but if we have launch capacity that puts us on the map. I would encourage us to have it, but if we do not have funds from our Government then we need to find them from outside. That is where the City comes in. It is not always about what we can do and what money our Government can spend if they do not have it. We must get creative about finding that money. I am not talking about going to another jurisdiction and asking it to give us the money; we must be very careful about looking outside of the United Kingdom for money.

Lord Shamash: From the City's point of view, a lot of the countries in Europe are space locked and we are not. I am amazed that we have not been able to entice that investment into the UK to develop it more.

Viscount Stansgate: I have a quick question in light of what you have just said about a risk-averse culture, which is really important. The Mansion House reforms, which have been much talked about in the City, might yield the possibility of more pension fund money going into space-related scale-ups and so on. Do you see that as a possible way forward and a way of dealing with the risk-averse culture that you have referred to?

Professor Emma Edhem: I would like that, but pensions tend to be quite risk averse because they answer to those whose money they are handling. If we can find a way of siphoning even a small amount from that, we are the second-largest holder of pensions so it would be in the trillions. You are absolutely right: the Mansion House compact was a genius creation, but now we must move it forward. The Mansion House compact is at the very beginning. Sir Nicholas Lyons created the vision; now we have to see it through, make it happen and move it forward. You are 100% right. What is the solution? What is the way forward? How can we change that mindset? Can we change any rules, laws or regulations so that we can take that part of pensions and put it into not just space but lots of other things?

Q206 **Lord St John of Bletso:** We had the pleasure of visiting the Harwell innovation hub a few months ago. It was fascinating to see the massive

talent pool, the burgeoning businesses and the scope, as you rightly said earlier, for the UK in embryonic form. You mentioned the huge talent pool in our universities. What diplomatic, industrial or economic levers can the Government pull to achieve the UK's footprint internationally? How can we be better known? You mentioned the constraints in our budget, but we have the potential to punch above our weight.

Professor Emma Edhem: I agree, we very much have the potential to punch above our weight, and we do. The United Kingdom is still highly regarded in so many aspects, if not perhaps all. When it comes to diplomacy, we have outreach to every corner of the world. Every diplomat I have spoken to in the UK says that the one thing that the United Kingdom is known for is our international links, which are second to none anywhere in the world. When we have that capability right here in the UK, we do not even need to travel abroad. We have it here, and we are creating an army of diplomats from industry, the support services or the professional services, each of which are diplomats in themselves. When they fully appreciate and understand that what they are creating in the UK is in our national interest and that of national security, you have ready-made diplomats when you reach out to industry and the support services.

Gabriel Elefteriu: I am not exactly sure what increasing our international footprint necessarily means. We can look at it from various perspectives. To reiterate what I said before, our international activity needs to be driven by a strategy. There needs to be a reason why we do things internationally and pursue certain partnerships, not just for their own sake. It needs to be capability and project led. In the days of "global Britain", when the concept was in vogue in this country, I wrote about whether a maritime observation constellation could be proposed to allies in the Indo-Pacific, which we could lead and get other countries in the region to join, such as Australia, Singapore, Japan and so on. We could even get India interested.

That would be one way of increasing this footprint, but it needs to be project led and serve our national interests from the point of view of increasing the UK's space power. This is very important. We should not lose sight of the concept of space power as the driving notion and purpose of UK space policy. This is fundamental for the future of the country in the coming decades.

I will raise another example. We used to have the International Partnership Programme, which was a £150 million programme that I think ended in something like 2017 or 2018. It ran for a number of years and was funded with international development money, from the overseas development budget. It brought space solutions to development problems, developed and deployed by UK companies. Again, that is one way in which you can increase our footprint—by having Britain lead or be part of the push to address development problems through space services. You must have a budget behind that kind of policy initiative, which we do not have any more.

Lord St John of Bletso: On international partnerships, can you elaborate on what bilateral agreements we have for sharing technology, data and expertise and collaborating on joint missions?

Gabriel Elefteriu: Our main international collaborations are through ESA, so the main weight of our international work is through that. The UK Space Agency is running a suite of bilateral missions. For example, we are launching the MicroCarb satellite with France and there is the IMAP mission with NASA and the AXIS project through the international bilateral fund with India. That is a very small project at the moment, but it could grow bigger. There is LiteBIRD with JAXA, the Japanese agency. There is a suite of individual programmes but they are all set up in different ways. I believe the UK is part of a consortium on LiteBIRD, which goes back to my point about the distinction between us contributing to a space mission as a junior partner or as part of a wider consortium, and leading missions ourselves.

Q207 **Baroness Mobarik:** Professor Edhem, I was so pleased to hear you say that, by having our own sovereign launch capability, we would be putting ourselves on the map. Like Lord Shamash, I am a very passionate supporter of that. Can the Government do more to champion international trade for the space sector? For example, on international trade, the Scottish Executive have established the first Scottish Government space trade envoy and Space Scotland has stated that there is untapped potential in freeport-style models for space-enabled trade. Could the UK Government do more?

Professor Emma Edhem: Absolutely. We can and we should, because it will only boost our economy. When we boost any industry, it comes back with huge returns. At the moment, even though the industry is almost like a white space—not quite white space any more—when something is new, the more and the faster that we can boost it, the more likely it is that we will be in that game. Then we will be creating the laws, policies and rules that we will then abide by. I say that, yes, we must.

Secondly, we need to create whatever incentives we can for international trade on matters space. Give it a special category so that we can put ourselves into the centre of that game. If we do not have the money in the Treasury, let us find different ways of putting ourselves on that map. This is potentially one of them. We can start talking incentives.

Gabriel Elefteriu: The best thing that the Government can do to help UK businesses do better internationally is to demonstrate confidence themselves in these businesses. The Government should procure more services from UK space companies, become an anchor tenant for more services delivered by UK companies and help them go into foreign markets having already had that badge of confidence from the British Government.

Q208 **Baroness Donaghy:** Emma, you have referred a couple of times to this question, describing it as scaffolding, of the new norms and rules of behaviour in space. Would you like to comment on initiatives such as

Astra Carta, the Earth Space Sustainability Initiative and UN diplomacy? Are we a global leader, as you suggest, and how should we remain so?

Professor Emma Edhem: We are a global leader in law, but that does not mean that we are a global leader in space law. On the initiatives that we are involved in, other than Astra Carta, we are joining others. They are somebody else's initiatives. I applaud our King for coming up with Astra Carta. When we start something new—I know I keep on saying this, but I will say it one more time if I may—do not look at it as perfection unpolished. The fact is that he came up with it. We have that and it belongs to us. At the moment, Astra Carta is very UK-centric. We have not yet rolled it out. I know it is somewhere in the region of 111 or 112 signatories, but they are not all international. It still seems to be UK-centric and it is about sustainability, which I am a huge fan of.

As for the others, as I have said, we are very influential when we sit on these tables, but have they worked? Well, if they have worked we do not need to go any further, but we are not in a position at the moment globally where the norms, laws, standardisation and regulations are where they should be. We do not even have traffic regulations, debris regulations or data regulations. We may have the Outer Space Treaty, but there is no enforcement. Even Astra Carta has no enforcement. A number of these things are diplomacy as opposed to law. I have been advocating that we need a global, cohesive body. I appreciate that we have the UN, the Artemis Accords and so on, but we need something that is not government-run.

We are in a geopolitically volatile world and, when we sit at these diplomatic tables and try to create treaties and regulations, somebody somewhere will say no, because we are in a world where the considerations go beyond what is really required in space. "What does my country want?" is where we are. Many years ago, we had very similar issues with commercial trade on the seas. The International Chamber of Commerce created the Incoterms, where industry came together and said: "If our Governments cannot seem to get together and come up with some cohesive standardisation, we will create it ourselves". That is what it did. The Incoterms were born. Industry realised that if it complied with them, it would be to its benefit. It then used international arbitration to see those through and a number of countries started to adopt the Incoterms.

With space, maybe it is time to create some form of international space chamber or organisation, but not because each country will agree to it. It will be industry run. I have already started to speak to a number of insurance companies, which have created norms and policies. They seem to have different ones, but if you put a Venn diagram together you will see that there is some commonality. If we take that commonality and build it out so that they become part of our norms, we will bring industry to the table. It will start the norms as it did with the Incoterms. If there were to be such an organisation, if we had any money to spend, I would spend it on the United Kingdom being the one to set up an international space chamber.

Gabriel Elefteriu: It is very good that the UK is at the forefront of norms and rules and so on. I just observe that that in itself is not the route to space power. An over-focus on these kinds of initiatives, especially when they are connected to arms control initiatives, can sometimes prejudge or even pre-empt policy directions that our defence space policy needs to take in developing certain types of counterspace capabilities. The community that supports space sustainability goals and norms is generally ranged against the notion of space weaponisation and so on, which I think is unfortunately a reality of our times.

The Chair: Thank you both very much. You have been incredibly generous with your time and I think we have all learned a huge amount from you. Inevitably, there are other meetings that people have to go to, but that does not mean that we have not listened with enormous interest and we will read back everything that you have said. I will now draw this public hearing session to a close.