Center for Strategic and International Studies

TRANSCRIPT

Event

Reflections on the UK's Role in Defense

DATE

Wednesday, August 13, 2025

FEATURING

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Chief of the Defence Staff, United Kingdom

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Transcript By
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Seth Jones: Welcome to the Center for Strategic and International Studies.

I have the enormous pleasure of welcoming Admiral Sir Tony Radakin. He's the professional head of the United Kingdom's armed forces, military strategic commander, and principal military advisor to the prime minister and the secretary of state for defence. Admiral Radakin previously served as the first sea lord and chief of the naval staff from June 2019 until early November 2021. Commissioned into the Royal Navy in 1990, he has served in numerous command and staff appointments, both ashore and afloat, and in command of U.K. and international forces.

His operational tours have included the Iran-Iraq tanker war, security duties in the Falklands, NATO operations in the Adriatic, countering smuggling in Hong Kong and the Caribbean, and three tours in Iraq, each in command. I understand that this will be your last public speaking event as chief of the defense staff, but I know there is more to come. Word on the street has it that you are an avid squash player and sailor and have four boys. So as someone who came from a family with four boys, I'm sure you will have your hands full. Welcome, Admiral, to CSIS.

Admiral Sir Tony Radakin: Well, thank you very much, Seth. And it's a pleasure to be back in Washington. Thank you to Lord Mandelson and the British defense staff, and to the Center for Strategic and International Studies for hosting, as you said, what is probably my last public speech as chief of the defense staff.

There normally comes a point when a chief steps down that they let forth on all the frustrations and opinions they've bottled up during their time in post. Those of you hoping for me to let rip or to spill the beans on the inner workings of the four different administrations I've served will be somewhat disappointed. I'm afraid I'm going to be irritatingly consistent. My narrative today is pretty much the same as it was at the outset of my tenure four years ago. And for those of you who haven't made it through one of my speeches before, the gist is as follows: We are in a new, more dangerous era, but Britain remains safe. NATO is stronger. Russia is weak. And the West has the military, economic, and intellectual heft needed to buttress the global system.

Sometimes I've been accused of being an optimist or, even worse, complacent. But this is less about optimism or pessimism and more about confidence and judgment. A case in point is Ukraine. When Russia invaded Crimea, the world looked the other way. And it could have easily done so again in February 2022. I remember the meetings of the

National Security Council as Russian forces mounted on the border. I'm sure you all recall the images at the time, convoys of armored vehicles tens of miles long, the chilling site of mobile crematoria, residents in Kyiv making Molotov cocktails.

At the time, we thought the Russian military was more capable than it has proven to be. We had limited confidence in Ukraine's defensive strategy. The prevailing view was that Russia would take Kyiv within weeks, if not days. The choice was whether to back Ukraine or not. Some around the table remained quiet. Others looked awkwardly at their shoes. But, thankfully, this time around it was the bolder voices that prevailed. The lion's share of credit must go to Boris Johnson, Ben Wallace, and Liz Truss for their leadership, particularly in pushing through those first supplies of lethal aid.

It was a significant moment when both the gut instincts and principles of politicians triumphed over the potential inertia and innate caution of the Whitehall machine. That decision was magnified internationally and pursued similarly by Rishi Sunak and Liz Truss as prime ministers. And in the same vein, credit must also go to Keir Starmer and John Healey, who backed the government to the hilt in opposition, and for the consistency of their approach in office over the past year. This is an example of Britain at its best, true to our values and interests, consistent in our strategy, united across both sides of the aisle on defense and security, ready to act quickly and boldly, and lead others to do the same.

So that's my theme today, how confidence must shape our approach to a more contested world. And I offer the following points in support. First, that Britain has good reason to be confident in the quality of our armed forces and intelligence services, in the strength of our defense construct, and that the path before us now is the right one. Second, NATO too should be confident in the enormous overmatch we enjoy, in Russia's weakness, and Putin's dilemma, and how that should embolden our strategy of deterrence. Third, the return of statecraft. How our leaders are prepared to use the military instrument alongside the other levers of national power to advance our collective interests. And finally, a point on technology and the need to retain our advantage, especially with respect to artificial intelligence.

Now, I hope a U.S. audience will indulge me if I start with a tribute to the British armed forces. As I reflect on the past four years, the level of operational activity has been remarkable. In Europe, training 60,000 Ukrainians, being right at the forefront of NATO's denial and deterrence, whether the British Army in Estonia, the Royal Navy in the North Atlantic, or the Royal Air Force over Baltic skies. In the Eastern Med and

Middle East, delivering aid to Gaza, being ready for an evacuation from Lebanon, striking Houthi targets, protecting international trade in the Red Sea, including downing a ballistic missile – a first for the U.K. In the wider world, safely recovering 2,500 people from Sudan, the largest and longest evacuation of any Western nation, reassuring our commonwealth partners in Guyana, two carrier deployments to the Indo-Pacific. And at home, being at the forefront of national life through a jubilee, a state funeral, and a coronation, assisting with small boats, stepping in for the Border Force at airports, being ready to pick up armed policing duties in the capital.

Of course, I don't want to pretend that we do not have significant challenges. For the past 30 years, we have been asking the armed forces to make do with less, even while the operational demands increase. There have been too many deferrals and delays, too great a mismatch between resource and ambition. We're continuing to feel the pinch as a consequence of decisions taken 10 or 20 years ago. And I don't underestimate the demand this places on our people. That is now changing. And we are on a path of greater investment. But it will take time for the effects to be felt in terms of new capabilities, improved readiness, and better support to achieve the ambition of the government's Strategic Defense Review to return our armed forces to a much more substantial level of warfighting readiness.

But nothing should take away from what the armed forces achieve on behalf of the nation every day. And throughout my time as CDS, they have never failed to step up to deliver all that has been asked of them. They are simply magnificent. And thank you to all of them and their families.

Ladies and gentlemen, the world is more dangerous, but Britain, the United States, and our allies are safe. We are safe because of the quality of the men and women in the U.K.'s armed forces, civil service, and defense industry, as well as our intelligence agencies. And we're safe because we are the beneficiaries of a remarkable defense construct which ought to be the envy of most nations on the planet. It's based on our status as a nuclear power, our membership of the world's strongest and largest defensive alliance, NATO. And that our closest ally is a superpower called America. This is the kind of security construct that keeps a nation safe for the last 80 years, and the next 80 years.

The deterrent is being renewed at a time of heightened nuclear rhetoric and proliferating nuclear risk. NATO has rarely been more relevant, more unified, or more focused, and enjoys an insurmountable overmatch against Russia. And the bridge between Europe and America remains. The United States may be refocusing on the homeland and the

Indo-Pacific, but it is not stepping away. President Trump's administration has been clear that the vital nuclear guarantee remains, as well as its conventional power in the Euro-Atlantic theater. And that was underlined by the recent appointment of a hugely respected American general as SACEUR.

And America has been consistent in expecting its European allies to step up to shoulder their fair share of the burden. And that is now happening. Pax Americana can give rise to a new age of Pax Europa. For my country and for our European allies throughout NATO, the decision to spend 5 percent of GDP on national security, with 3 ½ percent allocated to core military spending, is simply profound. I don't doubt how difficult this decision is for a government that is contending with economic headwinds and competing demands on the public purse, but defense remains the first duty of government. And this is the responsible thing to do in a more dangerous world.

I've been fortunate to work for four prime ministers, each of whom took their defense responsibilities with the utmost seriousness. That included Boris Johnson and his team devoting a day to meet with nuclear experts and historians to really understand the nature of Britain's nuclear enterprise. It included Rishi Sunak and Jeremy Hunt being generous with their time in their first days in office to listen to Ben Wallace and I as we talked them through the defense spending pressures, and to agree to further investment required. And I really welcome when the Prime Minister Keir Starmer speaks of the end of the peace dividend and a new era of a defense dividend. And a chancellor whose stated ambition is to make the U.K. a defense industrial superpower.

And then the defense budget itself, which successive prime ministers have been prepared to revisit in response to the deterioration of global security. Our trajectory to spending 5 percent of GDP by 2035 is now set. It means we have the certainty needed to deliver the vision set out by the government in their Strategic Defense Review – recapitalizing the army to lead a NATO Strategic Reserve Corps, restoring a tactical nuclear role to the Royal Air Force, doubling the size of the Royal Navy's attack submarine force, developing a sixth-generation fighter, adding thousands more long-range missiles to our inventory, and embracing technology much more strongly through directed energy weapons, through hybrid carriers, and through investment in cyber, space, and AI. And all of this underpinned by a new relationship with industry and a better deal with our people, particularly on pay and accommodation. Taken together, this is a response that matches the challenges we see in the world and will keep Britain safe and prosperous.

This leads me to my second point, NATO and the enormous overmatch we enjoy over Russia. Early in my tenure at CDS, I traveled to Moscow with Ben Wallace and met my counterpart, General Gerasimov, where I warned him that invading Ukraine would be a catastrophic mistake. I'm even more convinced of that nearly four years later. Last year, Russia gained half of 1 percent of Ukraine's territory in return for over 400,000 killed and wounded. This year, it's taken a similar amount of territory for a further 200,000 killed and wounded. More than a million lives sacrificed in total for Putin's special military operation.

And what about the wider cost? The Black Sea Fleet has been sent scuttling by a country with barely a navy. Russia's strategic bomber force has been decimated by a country with barely an air force. And Russia has had to shift its economy to a war effort, which it will be incredibly hard to row back from. Putin is left with a dilemma – agree a ceasefire with his stated aims incomplete and little to show his people in return for the lost blood and treasure or continue the war indefinitely and watch his country become even weaker and poorer chasing the false dream of subjugating Ukraine.

In the meantime, we should not be cowed by Putin's rhetoric or his campaign of state-sponsored sabotage. Disgraceful as they are, they do not change the calculus. Indeed, the very reason Russia is pursuing sub-threshold attacks against us is because Russia is unwilling and unable to do so through more overt means. Putin doesn't want a war with NATO. He can't even win a war against Ukraine. To be sure, Russia is more dangerous because she is weaker and because Putin has no compunction about using violence to achieve his aims. And we need to be clear-eyed about the threat, which is felt most keenly by those Baltic and Nordic nations that border Russia.

But personally, I'm wary of too great an emphasis on homeland defense or Fortress Europe. We need to defend forward. Russia has more cause to be fearful of an alliance of 32 than the other way around. The policy of NATO is to deter. And we deter by demonstrating to Russia that we are stronger, that we are ready to fight, and that we will beat them. That means contesting Russia in every domain – nuclear, land, sea, air, cyber, and space – as well as in the diplomatic and economic arenas. It also underlines the imperative to double down on our efforts to support Ukraine's ability to defend its courageous people against Russian aggression, and for them to preserve their hard-won freedom and independence through a just and lasting peace.

These last two, diplomacy and economics, matter most, and bring me to my third point – the immense latent strength of Europe, America, and our partners. Sometimes we forget how strong the West remains.

Europe and North America account for half the world's wealth. NATO spends more on defense than Russia and China combined. The tech hubs of America's West Coast and the universities of Europe remain as vibrant and innovative as they've always been. And we're able to draw upon the most extraordinary breadth of partnerships.

From the British point of view, these include Five Eyes, NATO, the Lancaster House Agreement with France, the Trinity House Agreement with Germany, the joint expeditionary force of 10 Northern European nations, the Five Power Defence Arrangements with Southeast Asia, our deep and historic ties to the Gulf monarchies and the island nations of the Caribbean, AUKUS, GCAP, and our burgeoning relationships with Italy, Norway, Japan, and South Korea, and many others.

For America, your network is even greater. We talk about the U.K.-U.S. special relationship, but the truth is you have special relationships all around the world. In April 2024, the U.S., France, and other regional partners joined together to prevent hundreds of Iranian missiles and drones reaching Israel. Only America could have coordinated such a complex operation. Only America could draw together partners from Europe and the Middle East in this way.

Compare and contrast the strength and utility of our partnerships with those of Russia. In 2022, Russia and Iran signed a strategic partnership clause. But Russia has done nothing to support Iran in its recent predicament. Nor has China. When the axis of four comes under pressure, it dissipates. As for Beijing, China's interests require stability in the world above all else, as is the case for any truly global economic power. And Russia's experience in Ukraine provides a sobering analogy with respect to Taiwan. War is an unpredictable force. There is no guarantee that it will be short, sharp, or decisive. The likelihood is the opposite. And the consequences and reverberations are immense – a point I made to my counterpart, General Liu when we met in April.

America, Europe, and our partners don't have to watch helplessly from the sidelines as the post-1945 settlement deteriorates. We have the financial, military, and intellectual might to buttress and defend the world order and confront those who undermine it. But we do need the confidence and willingness to wield the military instrument. We've seen this in the way Israel has neutered Hezbollah in Lebanon, through the willingness of the United States to strike at Iran's nuclear facilities, and through the extraordinary outcome of the Hague Summit. Soft power, by itself, is rarely enough. As the great U.S. President Theodore Roosevelt declared, speak softly and carry a big stick.

And that leads me to a broader point. Too many of the contemporary

discussions over the future of defense are reduced to simplistic either/or debates. The world is seldom that neat and tidy. In most cases, the answer needs to be "and" – hard and soft power, regional and global, Atlantic and Pacific. And in the same way, for technology it's a false choice to think we can simply dispose with the old altogether in order to make way for the new, or that there is an easy tradeoff to be had between capability and mass.

I remember 15 years ago when we were fixated on counter-insurgency operations and Afghanistan was the U.K.'s main effort. There was a tendency for anything not deemed relevant to that task to be regarded as needlessly exquisite. Why was the Navy building anti-air destroyers when all it really needed was cheap and cheerful corvettes to go after Somali pirates? And couldn't the Royal Air Force make do with Tucanos rather than Typhoons? Thankfully, we worked hard to protect enough of these kinds of platforms and preserve the warfighting instincts required for peer competition. And it's good job we did, because these are precisely the big sticks and capabilities that are in demand now to counter a resurgent Russia and to defend against the kind of long-range missiles that the Houthis are using in the Red Sea.

My point is twofold. We do get many of the big decisions right – more than we give ourselves credit for. And we are better at strategy than we think. But at the same time, we need to be wary of simplistic choices. The strategic context has, and will continue, to shift at pace. Resilience and redundancy, and the ability to flex and adapt, and an understanding of the value of all the levers of power and the quality of a nation's underlying security construct are the attributes for long-term security. We're still going to need submarines, and jets, and armored vehicles alongside our mass ranks of drones and uncrewed systems. How we shape the future is never one or the other. It is the application of all the levers of power. That is both classical and orthodox teaching. It's just that we sometimes need reminding.

And then my final point is on AI. My worry with this debate is that we embrace our inner geek by focusing on the technology and its applications, and we miss the broader point about the strategy that needs to accompany it. What we have seen from the AI revolution to date is nothing compared to what is just around the corner. Whoever reaches artificial general intelligence, and then artificial super intelligence, will be the ones with an enormous military advantage. I may currently have a 10-minutes advantage in targeting my opponent to take out a datacenter, but that margin is getting smaller exponentially. And if ASI means I fall one second behind my opponent, I may never catch up.

It's a race we must win. But that's very difficult for most countries to do. It's the preserve of only a few. So we need to think of it in the same way as we did with nuclear. People like Gundbert Scherf of Helsing are right to challenge us as to whether we need to be pooling our efforts through a Manhattan-type endeavor, and through the architecture of international security that followed. ASI will become a very significant advantage that can be shared and enhanced by alliances of like-minded nations. And it may become a fundamental element of a nation's security construct in the way I described earlier – nuclear collective security, America as a principal ally, and, in the future, ASI.

And, turning to my earlier themes, that requires Europe and America working together, utilizing all our advantages across the instruments of power and ensuring we continue to maintain the relative peace we enjoy today. The good news is that that is within our gift. Perhaps the even better news, as I depart the stage, is that this will be for others to decide and do. And I leave delighted with having had the opportunity to serve, and the privilege to both lead and stand on the shoulders of giants – the dedicated and extraordinarily able men and women who serve in uniform and keep us all safe. Thank you.

Dr. Jones: Thank you, Admiral. You hit on a number of topics that I wanted to follow up on. And they're really under this broader rubric of the evolving and, indeed, the future changing character of war. So one of the items you mentioned was artificial intelligence. One could broaden that to include other technologies – quantum, for example. So the first part of the question is really, where do you see this headed? And what do you assess, at least in the near term – the next two to three years – the impact of artificial intelligence, and potentially a few other technologies, will be on warfare and the evolving character of warfare? Air and missile defense and other areas, practically?

Adm. Radakin: So, thank you. I mean, maybe several points. So the first one is the classic one, that we're in a competition. So that notion that we need to invest in order to maintain a comparative advantage in order to win. And I think that's the – that's the here and now. Are we doing enough to grasp these technologies so that they can have the impact that you – that you'd suppose? The second one is that I think their initial impact is going to be a speeding up of the tempo of conflict. So you're right to say it's an adjustment to the character. The nature remains the same.

But if I look at some of the targeting advantages that we currently have, and global systems that allow you to generate targets quickly, the speed at which nations will be able to come to sufficient targeting solutions for a range of effectors to be used – it's the tempo element that quantum and AI will allow the current systems to be even more effective. And

that then potentially gives you an enormous advantage. And then the longer-term piece, to me, is whether or not the comparative advantage is so great that it then – it then gets you into the nuclear type of scenario, where a small subset of nations have an enormous comparative advantage over the vast majority of other nations by dint of the weight and the impact of their military power.

And the converse is true for the smaller power that might be adept in using these new technologies. Does it somehow neuter and potentially undermine what we've thought of as being the traditionally large military powers? So I think in those ways it's very, very similar to what happens in the conventional space now. It's an addendum to it.

Dr. Jones: Sort of two follow up questions that are interesting. One is, with the world that you've just outlined and the importance of these types of technologies – and I think, as you noted, sort of, there's a relative component to this because our respective adversaries are also attempting to expand their capabilities in these areas – how do we prepare our soldiers, our sailors, our air crew pilots, and others to understand and utilize this? And how also do we work with the private sector? Because much of what you've described is – this is in the hands of the private sector.

Adm. Radakin: Yes. So I think it's your second point first, to be honest. So I don't think this is, right, let's look in on ourselves, and – I think this is a look out. And the U.K.'s recent defense review talks about the need to have a stronger relationship with industry, the need to be better at embracing technology, and so on. So if the expertise lies outside of defense, then let's get on and bring it in, and make those partnerships. So that feels like the more – and that's happening, but that needs to be strengthened.

The second element is that we need to adapt as well. So in the way that new capabilities come online, new equipment come online, and we train people in those skills, this is exactly the same. And it might mean that we need to invest in those people that have got those digital skills, that are much more technologically able. It may be less in the physical domain than we tended to look to our soldiers, sailors, and aviators. And that we need to ensure that we've got this this resilience all the way through the system, such that we can make the most of the opportunities that are in the technological space. I think we've done that in the past. I think we tend to be slow as to how we – as to how we change and adjust. And we need to be – we need to be sometimes pushed and shoved. And then we need to get on with it. And that's what I think is happening at the moment.

Dr. Jones: Yeah. And I know that on the U.S. side there's been a push, and it's been longer than the last couple of years, on working – establishing and working with bodies like the Office of Strategic Capital, the DIU, increasing the relationship with Silicon Valley technology companies, and other technology companies, the intelligence sides in In-Q-Tel and the intelligence community's willingness and ability to reach out.

But I did want to focus a second on another area that you mentioned. And we've certainly seen it in the war in Ukraine. We've seen the Chinese increasingly use uncrewed and autonomous systems. We've seen them used in a range of ways that probably we didn't see 10 years ago. Used for not just ISR or strike, the way I used them in Afghanistan, but also targeting, battle damage assessment, and a number of other missions. Really integrated into a much broader effort. So how do you see the role of uncrewed systems evolving? And not just across the air, but also sea – the surface, subsurface, land-based systems? And then, you know, as part of that too, where does autonomy come in along those lines?

Adm. Radakin: Yes. So thank you. I think you said Chinese. I think there may be Chinese components, but it's Russian use.

Dr. Jones: That's true too, yes.

Adm. Radakin: So just – so I think this is – again, to one level. So on the technological debate, I worry that we almost become drone-tastic. That, to me, it's much broader than just drones. So it's the earlier conversation that we had, alongside the huge debate about drones. I also think the other feature of this is that is an and conversation. You're still going to need those traditional platforms. You're still going to need to hold ground. That's the physical relationship with a nation's territory. But the opportunity that exists with drones to adjust the way that we've traditionally fought is here and now. And you're right to say that it's across all domains.

And I think in many ways, Ukraine is leading the world both in terms of its industrial supply of drones, and also – and development of drones – and then in its tactical application. So you see a country without a navy that is able to operate at distance against a Russia that has an esteemed Black Sea Fleet that has always has a presence and an impact, and has been largely neutered through drones. That's astonishing. On the land side you're seeing effectively dead zones being created. Which have always existed, but the notion that they are increasingly 20-30 kilometers, and that anything that moves is monitored and risks being taken out at distance, that, again, is shaping how it's working.

And in the air, I think the other facet is kind of two elements. One is long-range drones, so attacks now by Ukraine into Russia that are reaching 2,000 kilometers on a regular basis. And then the other piece is the Ukrainian Operation Spiderweb, where you have managed to get drones into Russia, and then you activate those drones, and you use Russia's telecommunication system to control those drones, to have the impact that you want against the air bases. I think that's just going to proliferate in the way that they're being used. But I caution that it means – I caution when people think that every future fight is going to be just drones. Maybe it's the sailor in me.

The underwater will increasingly have submarines operating with drones, but your submarines will continue to be the dominant power play because of the strength that they have in terms of a crew, the decision-making that that allows, the stealth qualities that still exist with submarines, the ordnance that can be carried, the fact that that can still include nuclear weapons. That's an enormous entity in itself. And therefore, the drones will be used to support keeping that submarine safe, or maybe to attack your opponent's submarine –

Dr. Jones: Or lay mines, or –

Adm. Radakin: Or lay mines, and stuff. So I think those – that's why I see these things as being much more supplementary rather than they are somehow substituting the way that we're currently fighting.

And then the piece – the piece that you mentioned about autonomy. I still think that we've got a long way to go in terms of autonomy. Most of the drones that we are using, or contemplating using, are less in the autonomous field. There's still a preponderance of first-person view. There's still that very human control. I think that element is where it does start to blend with artificial intelligence. And then you get the prospect of thousands of drones, and they're being controlled by, I don't know, 10 people, because you've used your support from AI and the algorithms that you can control and utilize in order to magnify the impact of the mass of drones.

And the really significant impact is, does that mass equation change when it's very few humans employing a large amount of military power, and there are not so many humans that are putting themselves in harm's way? That, I think, is emerging. But that still feels a little bit more around the corner, compared to the other aspects that are here and now.

Dr. Jones: So one part of what you just outlined, and I think gets to a debate that continues to exist in the – not just the U.S. context, but in other defense

areas. Which is, how does one think about balancing some of the smaller attritable, cheaper types of platforms, like drones, with some of the bigger, more expensive ones?

It is interesting in the war games that that we have run, including ones that take place five to six to seven years into the future, or as we look at operational concepts for very specific wars against very specific adversaries, you know, what some of us have argued is that you need bombers. On our end it's been production of B-21. You need submarines. As you noted, nuclear-powered submarines, not just attritable UUVs. And you need – potentially need manned or crewed sixth-generation aircraft – fifth or sixth generation. Is that how you still see the need for both types of platforms? And how do you think about it, just in terms of the operational level of war?

Adm. Radakin: So, I agree with everything that you've said. The dilemma that I think it's provoking for future warfighters is, when you can – when you can create that cheap, mass technology that has such a significant effect for such a low cost, you then generate this mass problem. But the other – the problem is then magnified, and you're seeing this in Ukraine, because a lot of the drones are actually decoy drones. And if you're the defender, you have to shoot everything down, even though it may only be 10 percent of them that is actually armed with a warhead.

So your traditional views of defense were that if you have a layered defense and that the defender has the advantage, and that actually you have that comfort that you know what might come at you, but you've got enough to keep your area or even your nation safe. I think that's the piece that is the most challenging, because you're right at the beginning to sort of say it starts to play with just basic economics. Now this is always applied. So it's not different, it's just it's becoming more complex. And in effect, you've got more choice. Because the attacker can have access to more offensive power that can go deeper than was previously the case. And that is – that does feel very, very different. So the notion of long-range drones and the impact that they can have.

And the defender has got the dilemma of all of the traditional high level – whether it's a long-range bomber or it's a very long-range missile strike or ballistic missile. But you've also now got these long-range, cheap effectors, all of which have significance when either your territory and your nation is embarrassed, or it's able to go for specific target and overwhelm a small area. That to me, is where you then – in this competition, you then come up with your counter systems. You're already seeing that in Ukraine. So if Russia might have a view to be able to create a thousand drone strikes an evening by the end of the year, you're seeing Ukraine being able to create counter-drones that can

manage with that volume.

That's the classic one effector versus another effector. The piece for me that starts to come into play is both whether or not you can have other means of defending. So is it the – is it EW? Is it your ability, in intelligence terms, to see what your enemy is doing earlier, so that you can respond earlier? Is it some of the acoustic measures that then trigger and cue you onto things? So I think you then get into what feels to me like traditional defense, where you've got this layered approach, you've got a variety of systems as to how you best respond, and then you come up with the technology of – because your risk is that you're going to be overmatched, your decisional ability is to what do you need to take out and what is actually going to land in a safe place, probably becomes key.

And you saw some of that with the way that Israel defended itself. That, yes, these were large strikes coming from Iran, but the ability of Israel to take the decision that that particular missile is not going to – really going to have any impact, and I will let it land, but this one is going to hit my airfield, I'm going to take it out. That's why I think it's this combination of systems that is going to be key. And can you have the brain, and the processing power, and the intelligence to then give you the advantage? And that – at one level, that sounds new, and complicated, and so on. At another level, it's just a variation of what we do at the moment.

But it goes back to this overriding theme that things are becoming – if nations and interests between states and different groups are becoming more contested, then the way that those contests are taking place is becoming even more complex. And therefore, we need to respond in the way that we are, which is collective effort, greater investment in defense, embrace the technology, maintain that assuredness that you've got a comparative advantage over your potential enemies. And that's what I think countries are doing.

Dr. Jones: And strengthening the industrial bases along those lines.

Adm. Radakin: Absolutely.

Dr. Jones: So one very brief last question – it's a big topic but just wanted you to touch on it briefly – is the role of space and counter space. It is – we've seen a big increase in the commercial side of space. Actually, much cheaper launches now, much larger numbers of satellites, particularly in low earth orbit. So how do you see space evolving and counter space evolving, as part of a changing character of war?

Adm. Radakin: You're right, that is a –

Dr. Jones: Very briefly. (Laughs.)

Adm. Radakin: That is a big question. And I'm not – I'm not known for my short answers. Can I – so it's already evolving. There are already more threats emerging in space. There's already – countries are utilizing space. There's already a comparative advantage with countries that can use space in order to enhance what might be medium-level technology that they bought 10-20 years ago, but it can be honed either by the targeting or either by the effects from space to ensure that your missile gets through. That's here and now and it's increasing.

The bit that's worrying for me is that the rules that govern space are less clear. And again, the sailor in me. So I go – I harp back to the 1600s and a Dutch legal philosopher called Grotius, who created this amazing legal paradigm called the high seas that allowed nations to use the high seas up to, in those days, three miles off the coast, these days 12 miles off the coast. But you had a regime that at least allowed nations as to how they were going to use this domain called the high seas. I think what needs to happen, whilst people are developing and looking as to how they can use space, a regime in a much stronger way as to what are the rules for utilizing space has to be put in place.

And that, to me, is where think tanks like your own, we need that help to say, well, how could that be done? Because that can be done much more quickly than anything else. And that might be a way of at least regulating what could become an anarchic area. And then that really does lead to instability and big question marks about security. And we've got to head that off. And that's more than just having the counter-space capabilities. It's about having established regimes, and codes of behavior, and understanding what might happen, and a transparency as to how nations are behaving in space. And that needs to be strengthened.

Dr. Jones: Well, thank you very much. It's an interesting domain, and one that, again, we've seen a big increase in capabilities both on the space and the counter-space side. Really appreciate your few minutes in coming to the Center for Strategic and International Studies. Congratulations on a very successful and eventful four years. And warm wishes for the next stage of your career. But thanks for joining us today.

Adm. Radakin: Thank you very much for having me.

(END.)