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**Heather "Lucky" Penney:** [00:00:00] Welcome to the Aerospace Advantage podcast. I'm Heather "Lucky" Penney, your host and a senior fellow at the Mitchell Institute. Here on the Aerospace Advantage, we speak with leaders in the DoD industry and other subject matter experts to explore the intersection of strategy, operational concepts, technology, and policy when it comes to air and space power.

So if you like learning about aerospace power, you're in the right place. And to our regular listeners, welcome back. And if it's your first time here, thank you so much for joining us. As a reminder, if you like what you're hearing today, do us a favor and follow our show. Please give us a like and leave a comment so that we can keep charting the trajectories that matter the most to you.

This week, it's our honor to host Air Chief Marshal Sir Richard Knighton, the head of the Royal Air Force. Bottom line, the US is fortunate to have many allies and partners, but few are as close and as aligned as the United Kingdom. So the plans and priorities for the Royal Air Force in air power and space power are really impactful for the U S air force and space [00:01:00] force.

Which is why we're excited to host Air Chief Marshal Knighton that, and I'm going to try to angle for a pilot slot in one of the Battle of Britain Memorial flights Spitfires. Joining me today for our conversation is Lieutenant General Dave Deptula, and sir, it's always a pleasure to have you with us.

**Lt Gen David Deptula, USAF (Ret.):** Well, thanks Heather. You know, when you think about it, the US Air Force and the Royal Air Force have been working together going all the way back to the First World War. This collaboration continued during World War II with the combined bombing offensive as a prime example. Then the Cold War saw this relationship continue to grow, and it was extraordinarily strong during the Operation Desert Storm Granby air campaign planning cell.

And from then to today, US airmen and their Royal Air Force counterparts I've been flying and fighting together. That partnership now extends into orbit with the RAF and the US Space Force, collaborating on [00:02:00] many levels. Just on a personal note, I fondly remember working with then Wing Commander Mick Richardson in integrating the Royal Air Force into the daily attack plans, the Desert Storm air campaign.

And then a decade later, when I was a commander of the Combined Joint Task Force Operation Northern Watch. Where Air Commodore Andy Lambert was a co-commander of RAF forces. So, it's really a pleasure to have the opportunity uh, to speak with Sir Richard today.

**Heather "Lucky" Penney:** And sir, you mentioned all of the partnerships that we've had with the Royal Air Force.

It's an impressive record, and it also extends past combat operations with our two nations working together on joint procurement efforts like the F 35. We're also working to introduce the E 7, and we both have significant operational expertise in the RPA world. Thanks to the MQ 9.

**Lt Gen David Deptula, USAF (Ret.):** Well, all correct, Heather.

And with that, let's welcome our guest, Sir Richard. Thanks so very much for joining us today.

**Air Chief Marshal Sir Richard Knighton, RAF:** Dave, Heather, it's a great pleasure to be here. Really looking forward [00:03:00] to talking to you. And Heather, I'll just say you need to get in the back of the queue to join the uh... to fly the Spitfire.

**Heather "Lucky" Penney:** It's a deal and it's an honor to have you with us.

Thank you.

**Lt Gen David Deptula, USAF (Ret.):** Well, okay. So Richard, with that, I want to kick this off by getting our audience to understand the broader context of the security environment that's facing both of our countries. The last time we hosted your predecessor, Russia hadn't invaded Ukraine. Now that we're a couple of years into that experience, which really is kind of hard to believe, could you share with us and explain how the United Kingdom, both at a leadership and general population level, is viewing the current security environment?

**Air Chief Marshal Sir Richard Knighton, RAF:** Yeah, thanks David. It's really clear that right across Europe and certainly in the United Kingdom. We recognize that the world is a more dangerous place than it has been for many decades. I think it was the warrior monk David Petraeus said that the "Western world faces the greatest number and the [00:04:00] most complex array of threats we've ever seen."

And that's exactly how it feels. So I would say that in the UK, the level of debate and profile given to the security challenges in the, and the threats that the West faces, the highest I've known in my career. And that is leading to serious debates about defense spending and about what, you the threats are that the UK faces and also really deep conversations about our allies and alliances and where we should focus.

So I would say Dave that the picture you paint of a more dangerous world is exactly reflected in both public discourse and amongst our leadership in the UK.

**Lt Gen David Deptula, USAF (Ret.):** Oh, very good. Appreciate that. A bit of a follow up. How is all that impacting what you and your team members are asked to do? Is it actually helping your modernization program and readiness accounts?

**Air Chief Marshal Sir Richard Knighton, RAF:** So I think the threat that we face is so clear now that it helps me really explain to the Air Force and to the political leadership, [00:05:00] the challenges that we face and the fact that we need to change. We've enjoyed over the last 25 years, the kind of air superiority, wherever we've been. We've enjoyed the opportunity and ability to focus on efficiency.

But what we see in Ukraine is the kind of conflict that we need to be ready to fight. And that requires us to modernize our capabilities, to recognize the importance of electronic warfare, electromagnetic spectrum dominance, but also, more than anything else, really points out the importance of control of the air.

I would argue that the war in Ukraine illustrates just what happens when you're unable to gain control of the air, and that kind of attritional, First World War like battle. It's one that we don't want to get into, and we won't get into that if we're able to gain control of the air. So for me, this helps me really focus us on our training, on our modernization, but also for our people to help them understand why we need to become more agile and while agile combat employment is such an important part [00:06:00] of our concept of operations going forward.

**Heather "Lucky" Penney:** Sir, I'm so glad that you mentioned, the echoes and resonances of what we're seeing in Ukraine with World War I, and what happens when you do not have air superiority. Here in the United States, we've heard some folks talk about mutual denial, just using, you know, small drones and things like that as being a valid way to move forward that's a future of, warfare.

But like you, I would argue that attrition is not the space that we want to be in when it comes to combat operations. And that there's a reason why post World War I, both the RAF, well, the RAF was founded as a result of that and the United States Air Force the Army Air Forces. We were moving more towards, "over, not through."

And that was really to understand that there was a better and a different way than simply a attritional warfare. But following up on, on Ukraine, you know, the conflict has really driven home the importance of allies and partners. That's a pretty big deal. Obviously, the RAF, the Air Force, and the Space Force have a very special [00:07:00] relationship.

Could you explain how this conflict has helped add extra momentum to our collaboration?

**Air Chief Marshal Sir Richard Knighton, RAF:** So I was in Ramstein two weeks ago at the NATO Air Chiefs, and I came away from that really clear that "Scorch" Hecker, my good friend, who's the commander in AIRCOM and NATO and all of the air forces in it, absolutely understand the threat that we face and the need for us to work closely together.

We were fortunate enough to have General Oleschuk present to us from Kyiv at the conference and to see what that Air Force is facing, what it's doing, and also to understand how that would affect the way in which NATO fights or would need to fight. Provides us with a really clear sense of direction and "Scorch" is doing a brilliant job as commander at AIRCOM.

His priorities around countering A2AD around integrated air missile defense, C2, and his focus on information sharing. All of those things are providing a kind of [00:08:00] momentum. And I came away from Ramstein really energized by the quality of the conversation and the determination commitment of allied air forces in NATO to be ready for a future fight.

**Lt Gen David Deptula, USAF (Ret.):** What about the broader security environment past Europe? One of the HMS Queen Elizabeth's first major deployments was to the Pacific with F 35s aboard and is slated to return next year. Talk to us about how the UK sees its global security interests and how that shapes demands for the Royal Air Force.

**Air Chief Marshal Sir Richard Knighton, RAF:** Well, we're really clear in the UK that the threats that we face are global and our interests are global. Globalization means that our supply chains have become diversified and our policy and strategy from the government is really clear is that a threat in the Indo-Pacific is a threat in Europe.

They're indivisible and we have to think of it in that kind of broad context. It's clear that we've got to worry about our [00:09:00] backyards. NATO is our focus and Euro-Atlantic is our focus. But we've signaled very as a country that we care deeply about the Indo-Pacific and security there. And I think you can see through the AUKUS agreement and through the Global Combat Air Program. Tie up between Japan, the UK, and Italy, that we see that we have long enduring interests in the Indo-Pacific.

And the Air Force, therefore, needs to be ready to fly and fight right across the globe. And that puts an emphasis on our agility and our deployability and to think through that, how we might operate in those theaters.

**Heather "Lucky" Penney:** Sir, I'm glad you brought up AUKUS because I think there's tremendous opportunity with that agreement to really support, um, the alignment of our technologies, especially given, all the challenges uh, fiscal and otherwise that our respective partners face.

But sticking with this topic of global demand. We're seeing adversaries collaborate and coordinate in very opportunistic ways. So they know how to pressure us by spiking demand signals across the [00:10:00] globe in ways that we cannot ignore. And the US Air Force no longer has the force size. Basically, the capacity to deal with two major regional conflicts.

We divested that in the mid 1990s. So I would argue that today's security environment is even more complex. So I'm curious, from the United Kingdom's perspective, how are you seeing these trends evolve, and what do you think it'll mean for allied cooperation, strategy development, and capacity issues?

**Air Chief Marshal Sir Richard Knighton, RAF:** So allied cooperation is fundamental to our ability to keep peace and security across the globe.

Cooperation can occur in multiple ways, but starts with our ability to exercise together to interoperate. And it's a key issue for me for us as chiefs is to ensure that our air forces are able to operate side by side. But actually, if we get it right, we should also be thinking about how we can develop that capability together.

And we're very fortunate. I think in our air forces, particularly across the AUKUS nations is that we already operate similar platforms and [00:11:00] that gives us an opportunity to understand each other, to understand each other's capabilities and to work together to evolve that capability to ensure that it can deal with the threats that we face in the future.

And the strategy question you asked. Well, fundamentally, that's about us finding a way to think through how we're going to work together from not just militarily, but politically as well. And we see that I think through agreements like AUKUS is the political commitment, which we're then following through as the air forces and militaries. To drive that kind of cooperation, collaboration. To ensure that we're able to interoperate in the future.

**Heather "Lucky" Penney:** Sir, I'd like to jump on, this cooperation piece. Especially because one of the challenges and barriers that we often see within the US Air Force is security restrictions. So how security restrictions prevent us from sharing information, whether or not that's within strategy development or even something as fundamental as the threat library for particular, um, major weapons systems.[00:12:00]

How is that impacting and how are you able to break down those barriers? You mentioned General Hecker's priority of information sharing. Can you speak to that a little bit for us?

**Air Chief Marshal Sir Richard Knighton, RAF:** Yes. So the, one of the most important aspects of the AUKUS agreement is for us to use it as a means to unlock some of the rules and bureaucracy around information sharing.

And we're seeing real progress. So I was this week I've been over in the US to partly to visit Eglin Air Force Base, where we have Australia, Canada, UK reprogramming lab. And we're working super close with the US there and that kind of ability to exchange information, extend exchange mission data.

And to build those mission data files using the best information understanding across the nations is what will help us make sure that we are best able to deal with the threat that we face in the future. But I'm under no illusions about how challenging this is, but I feel very comfortable and confident around the [00:13:00] commitment across all the nations to really improve this.

And I have to be... so great shout out to Mr. Kendall, Secretary of the Air Force. He's really led that Dave Alvin and I was with General Jim Slife yesterday and really committed and determined to help us unlock some of these issues.

**Lt Gen David Deptula, USAF (Ret.):** Um, there's another key factor here and that's a credible deterrence.

We obviously don't want to fight when we can secure desired effects short of conflict by shaping adversary decision making. We've argued the amount of conflict in play around the globe would indicate that we're struggling on that front. How do you see that?

**Air Chief Marshal Sir Richard Knighton, RAF:** Yes, that's a really interesting question, Dave.

I feel very strongly that deterrence and thinking through the problems we face through a deterrence lens is something that should really help us think through how we manage our resources and focus those resources. Deterrence really depends on having credible capability. [00:14:00] That is communicated effectively and that our adversaries understand, and we should think about the capabilities that our foes fear.

And also the things that our allies value and think about it as a, as something that we must do together with our allies, because ultimately I feel that it's the alliances and the strength of those alliances that our adversaries fear most. Your point that we are still seeing conflict around the world means that we do need to be genuinely ready to fly and fight.

And it's through that and the demonstrable capability to do that, where we will have some influence in terms of a deterrent effect, but it's a really tough thing to achieve is deterrent effect. And we got to work hard, I think, to think through what are those capabilities?

What is it we're going to say about it and how do we exercise and demonstrate that credible capability to ensure that the most dangerous conflicts don't occur and we dissuade our adversaries from doing something that would lead to escalation and could ultimately lead to war.[00:15:00]

**Heather "Lucky" Penney:** Sir, and you mentioned the strength of alliances and advanced technologies as, you know, what do the foes fear? And that being really crucial and both of our countries are leading the way when it comes to fifth generation air power. The F 35 is a really powerful tool in this regard, especially because we see so many allied air forces looking to modernize and operate with that.

So what are some of the biggest impacts that you're seeing as this technology enters the operational fold and volume as we get more F 35s fielded? I mean the sensor shooter effect construct is very powerful. Plus the survivability advantages afforded by stealth and advanced EW.

**Air Chief Marshal Sir Richard Knighton, RAF:** So in NATO and Europe by the start of the next decade there will be over 600 F 35s.

Less than 10 percent of those will be US. So the really key issue for us is to work out how we're going to use those F 35s with our allies in a way that actually, in an operational design that enables us to [00:16:00] actually suppress and ultimately destroy the enemy's air defenses. That's a major set of the conversations that we have at the NATO air chiefs meeting and something that I say, Scorch Hecker is really really pressing hard for us.

So how do we work together? How do we evolve that capability and that, that depth of understanding for those who nations that haven't been fifth generation operators for some time. I think the other really key element is around the electromagnetic spectrum and electronic warfare. We fundamentally rely on that mission data and those mission data files to be able to survive and to be able to target.

And that will require us to cooperate more effectively and really kind of relearn some of the things that we've lost over the last 20 years. Twenty years ago, when the war started in Iraq and Afghanistan, electronic warfare was much more at the front of our minds. Through that period, we've lost some of those skills and some of that knowledge.

And so we've got to regain that, and work out how we're going to win, fight, and dominate the electromagnetic spectrum. [00:17:00] But in order to allow enablers to fight and win control of the air.

**Heather "Lucky" Penney:** Absolutely. And you know, the E7 will be key to that as well as we work together to rebuild that electronic attack capability.

But sticking with the theme of the advanced capabilities, you also operate the MQ 9. And RPAs have been one of the most impactful air power developments in the past few decades. How are you seeing this missionary evolve, especially as you bring the MQ 9B into the operational realm?

**Air Chief Marshal Sir Richard Knighton, RAF:** So I'm really excited about the MQ 9B being brought into operational service.

It's flying in the UK today. It's the first certified remotely piloted air system to, which will enable us to operate it globally and through controlled airspace without any difficulties at all. And it's still got a really important part to play. In the UK, our MQ 9 fleet is our most lethal fleet.

We've flown over 160, 000 hours in the last decade and we've dropped over 1, 500 weapons from it. So it is the most lethal platform that we operate. But we should also be really [00:18:00] honest about the fact that it's not going to be the platform of choice in a high end fight. And we saw in Ukraine how the Turkish made remotely piloted air systems were really effective for a few days but very quickly they became, their vulnerabilities became obvious.

So I think MQ 9B still has a really important part to play, that's how we'll deal with some of those global threats and the demands on it for air power that Dave was asking about earlier. But equally, what I think is, we'll see increasingly over the next few years is the emergence of what we describe as autonomous collaborative platforms, or in the US you're describing as CCAs. And those kind of autonomous platforms have the ability, I think, to help us improve lethality, survivability, and deal with some of those mass issues that you described.

**Lt Gen David Deptula, USAF (Ret.):** Uh, Sir Richard, what about the changes in command and control? In the United States we're very focused on collaborative concepts like combined joint all domain command and control plus [00:19:00] is supporting element advanced battle management. Um, we're building out a space enterprise to facilitate this, and we're looking at new technologies like the E7. Plus, the sensor shooter effector aircraft like F 35, F 22, MQ 9, and B 21. How are you seeing the RAF pursue command and control in this era of technological change?

**Air Chief Marshal Sir Richard Knighton, RAF:** Well, back in uh, the last quarter of last year, we published a new air operating concept. So right at the heart of that is this idea of decision superiority. Supported by concepts of agility, integration and resilience, but that decision superiority relies on us being able to move data around the battlefield to get the right information to the commander. Exploit the opportunities afforded by artificial intelligence and machine learning to enable the commander to make better, faster decisions. And I'll be honest, this is still a work in progress and we know for [00:20:00] how difficult JADC2 and ABMS has been to evolve and develop.

My view is that we will have to consolidate around a common architecture and a common set of standards. I don't think that necessarily other NATO nations will buy fully into ABMS, but what we do have to do is make sure we're able to interface with it. We were to share data and that as our strength comes from our ability to integrate those air forces.

To deliver the effect and to fight and win for wind control of the air and a real focus for us in the Royal Air Force is about how we evolve and develop that technology and that capability. Both to enable us to give us that decision superiority, but also ensure that we're interoperable with our US counterparts and part of the reason for me being in Washington this week is to talk to my United States Air Force colleagues about how we're going to make sure that we're interoperable, but with future platforms like NGAD and GCAP, but also with the platforms that we fight with today.

**Heather "Lucky" Penney:** Sir, I'm glad you mentioned NGAD and GCAT, because one of the questions I [00:21:00] really am dying to ask is about the Tempest, your next generation fighter. You've partnered with several other nations on this effort, and the concepts that we've seen are really exciting. And I have to say, I am really enthusiastic about the efforts that our allies are also making to pursue a next generation fighter.

Because I think that's crucial to our strengths together as we interoperate and integrate those capabilities. So what are the mission requirements that you're hoping to meet with Tempest? And how do you see this differing from F 35 and Typhoon and other efforts?

**Air Chief Marshal Sir Richard Knighton, RAF:** So it's the airborne air defense requirement that GCAP Tempest is specifically designed to fulfill.

So it's not about trying to replace F 35. It is about trying to replace Typhoon. Typhoon is a fourth generation airplane, amazing capability, and has been evolved and developed since it came into service nearly 20 years ago, really quite considerably. But what we know is that in the [00:22:00] future, that the threats from ground based air defense systems like the SA 21 or the CS 9, those are really going to challenge us and our ability to fight and win control of the air.

So that future fighter has to be able to operate in those really contested environments. So stealth technology is an absolute given, but also we know that as the Russian and Chinese capabilities evolves and develops with things like the J 20 coming into service, the S U 57. That we're going to, that air to air fight is going to become more challenging.

So we're going to need to have air to air weapons that have got longer ranges. We're going to have to improve our sensor capability and also reduce our signature. Not just in the RF spectrum, but right across through the infrared spectrum as well. So this, um, the GCAP design requirements are around, how to win, fight and win control of the air, airborne air defense, but it will require us to improve our survivability. Improve our lethality [00:23:00] against the kind of threats that we're going to face.

The thing that will really make it 6th generation is our ability to transfer information. It is we don't really define 2nd, 3rd, 4th, 5th generation, but if you take 4th generation as the kind of fly by wire, unstable aircraft, 5th generation is about stealth technology. Sixth generation is really about information.

And that's what we'll do with GCAP. And I completely agree with you that we should be demonstrating as as allies and partners that we've got that skill, those skills and that capability to build the technology that we're going to need.

**Heather "Lucky" Penney:** Sir, thank you. And airborne air defense really for the Air Force, for the US listeners, that's really our airborne dominance or air superiority mission set. So, GCAP or Tempest is going to be the analog to our next generation air dominance aircraft. So, you mentioned information being core to sixth generation aircraft. How do you see your ability to partner with a network, share that information with allied aircraft like NGAD?

**Air Chief Marshal Sir Richard Knighton, RAF:** Yeah, so that was really part [00:24:00] of my reason for being in the US is to talk to US Air Force colleagues about how we're going to do that and the smart people who are responsible for NGAD and GCAP are talking about how we're going to do that. And there's a whole bunch of issues around security, around classification, around the protocols that are required to make that happen.

But I'm absolutely determined that we will ensure that NGAD and GCAP are interoperable. Both together, but also with our legacy platforms as well.

**Heather "Lucky" Penney:** Sir, thank you. Sharing information is going to be crucial, and I'd like to sort of tie this back to something earlier in our conversation regarding collaborative combat aircraft.

The US Air Force's approach to securing future air superiority involves this uncrewed collaborative combat aircraft capability and concept, and sharing information is going to be key to that. Is the RAF looking at similar concepts, and how are you envisioning using CCAs?

**Air Chief Marshal Sir Richard Knighton, RAF:** Yeah. [00:25:00] So about three weeks ago I published our autonomous collaborative platform strategy, which lays out our approach to developing this capability.

And we published that because we want industry to understand what we're trying to do and understand the thinking and where we've got to with our experimentation over the last few years. We think of it in terms of three tiers of capability. Tier one, which is kind of disposable. Tier two, which is survivable, but we're prepared to live with some level of attrition.

And then tier three is really top end platforms that would be survivable in all kind of circumstances. What we've concluded is, through our experimentation, is that those tier one disposable autonomous collaborative platforms have real utility. Low cost, but a level of performance that will ensure that we are, will improve the, both the survivability and potential lethality of our crewed platforms.

And so I've committed to saying that we will [00:26:00] have a usable operational capability of that kind of tier one disposable ACP by, within a year, and fundamentally it's going to be focused on supporting suppression of enemy air defenses. And that's where we feel that there's a real opportunity and where we are experimentation has shown that we can to get value from that. As technology evolves and prices come down that I could see is moving up those tears and into tier two, perhaps.

So the MQ28 type platforms, but the focus for the UK right now is going to be on those smaller tier one disposable platforms, which we think offer real value for money. Often it's not the technology that's the challenge. It's the simple things like where you gonna store them? How you gonna fuel them? Who looks after them? How do you upgrade them? How do you have the industry ready to produce them when the war starts because you don't want to hold huge stocks of them. These (are) the kind of challenges and questions that we've got to answer.

**Heather "Lucky" Penney:** And we're looking at some of those very similar questions as well.

**Lt Gen David Deptula, USAF (Ret.):** Um, Sir Richard, here's [00:27:00] a related question, but one that you probably don't get very often, but could you ever see the Royal Air Force back in the bomber business?

We know that the Vulcan is famous for the advantages that it brought in terms of range and payload throughout the Cold War and you obviously had the Victor and the Valiant. The sunset of those systems had operational impacts regarding global operations. Given the scale and the nature of the modern threat environment that we've been discussing might you like to see a return of those range and payload advantages that bombers bring to the equation?

And just to give you a bit of our bias, at the Mitchell Institute, we're huge fans of the idea of seeing the B 21 in RAF colors one of these years.

**Air Chief Marshal Sir Richard Knighton, RAF:** Hey, I'd love to see that, Dave. I'm not sure, though, that our defense budget is quite going to stretch to that in the short term. But the broader point you make is about the threat that we pose to our [00:28:00] potential adversaries and deep strike is a fundamental part of that deterrent effect.

And we need to think about how we enable that and support you in that. But yeah, I'd love to see the B21 in RAF colors. Not sure that I'm going to see that during my time as the chief.

**Heather "Lucky" Penney:** Darn, because I'm a huge fan of the Vulcan and the Victors. Um, but you know, speaking of Victor, which transitioned from being a bomber to a tanker later on, let's talk a little bit about the mobility fleet, right?

Give the big girls some love. The A400, the C 17 and the Voyager tanker aircraft have been key linchpins for the RAF and our allied air operations. And the demand for force extension, aerial refueling is only going to expand in future operations. That's something that, that is on my worry beads for Pacific operations.

And as the saying goes, "amateurs worry about tactics, but professionals worry about logistics." And no one kicks adversary targets without tanker gas. So what sort of demand are you seeing placed on this part of your inventory and how are you [00:29:00] expecting that to evolve? Mobility is obviously high demand, low density in the US Air Force. And we just had General Minihan on the podcast talking about those sorts of challenges.

**Air Chief Marshal Sir Richard Knighton, RAF:** Well, we're really fortunate in the UK. The Royal Air Force has been through this remarkable period of recapitalization and our mobility fleet, which was looking quite tired 10 years ago, has been modernized with the A400M coming to service with Voyager in service, we're still operating C 17.

For a while we had the highest life highest number of hours on any of the C 17s in the world. The US have overtaken us now, but um, you're absolutely right. If we think about the kind of conflict that we need to be ready for it's going to demand a degree of operational agility that we have not got used to or not been used to over the last 25 years. And as a consequence that's going to drive up the demand for tankers and for our mobility. I was at WETAC, back in January 23 and it was really clear to me that one of the most significant challenges that the US would face in a South China Sea scenario [00:30:00] is having enough gas in the air and being able to enable agile combat employment through the use of of air mobility assets. Right now in the UK, our Voyager force our tanker force, is under hugely high demand, principally because of the increase in the NATO air policing task and NATO reassured task.

Um, A400M is proving to be a really capable aircraft. It flies twice as much as the C 130. One and a half times further and about 25 percent faster. So I'm not, it's not a sales pitch, but I'd love it if you bought it. But it really is a very impressive asset, but I'm really clear that we don't have enough.

And made a commitment in 2021 to increase the size of the A400M fleet, and I'm hopeful that that will happen because that is the kind of enabling capabilities that's going to be fundamental to supporting Agile Combat Employment and that operational agility that will be essential.

**Heather "Lucky" Penney:** So, how are you anticipating the need to support those distributed operations like Agile Combat Employment? And how are you thinking [00:31:00] about that kind of distributed operations and basing playing into RAF force design conversations?

**Air Chief Marshal Sir Richard Knighton, RAF:** So I'd start, the way I describe this is it's a kind of a "stepped" journey.

We can't go from where we are today, which is highly efficient, but it's kind of garrison efficient. Where we've over the last 25 years really focused on driving up driving down costs and increasing efficiency. But we've done that by consolidating around a smaller number of bases, by outsourcing and greater reliance on elongated supply chains, and reduce stockpiles. So we've got to work through, how we use the forces we've got today to make ourselves more agile. Some of that's around mindsets, just around exercising that muscle. But as we think through this, we're going to need some more assets. We're going to need more weapon stockpiles and the UK government is committed to doing that.

But I think we're going to need more stockpiles for spares and the like. And we're going to have to get used to operating from different [00:32:00] airfields. With Sweden and Finland coming to join NATO, that's, we're learning a lot from them. That's their, their standard operating procedure has been to operate disperse and deployed.

And it's going to take us some time to get back up to those skills. But as I said earlier in the podcast, it's exactly the kind of challenge that Scorch Hecker in AIRCOM is up for, and I see the Royal Air Force as, focus over the next two or three years is going to be on improving that ability to operate in that agile way.

**Heather "Lucky" Penney:** I'm glad you mentioned, um, the distinction between the large basing and efficient garrisons that we've been, that mindset, that paradigm we've been operating on. And the realization that you will, we will need, we all will need more capability to be able to just to do this to kind of distributed operations.

**Air Chief Marshal Sir Richard Knighton, RAF:** Yeah, absolutely. We're going to, we, there's no way that we're going to be able to deliver a truly agile combat employment concept without thinking that we're going to [00:33:00] need more investment and more assets. And my challenge as the chief is to kind of understand what that looks like and work out what the benefits are and then make that case as we, we head into some kind of of defense review. But we're learning a lot from what's going on in Ukraine. The UK, the Royal Air Force has a very close relationship with the Ukrainian forces and we understand well how they're operating, what they're doing. And I think there's a much we can learn from them.

As I said, much we can learn from the Swedes and the Finns. And ultimately I think Dave, you've might've said this is over 270 airfields that we could operate from right across Western Europe. And we just need to get used to doing that and practice doing it. There's a whole bunch of challenges around that logistical, C2 challenges, distributed C2.

Um, but one of the things that I know about is that they love a challenge and they can be hugely creative. So I have every confidence in our airmen and airwomen to find a way through these challenges.

**Lt Gen David Deptula, USAF (Ret.):** Uh, Sir Richard, what about the space power portion of your portfolio? What are some of the key missions that you're looking at and planning to [00:34:00] execute?

**Air Chief Marshal Sir Richard Knighton, RAF:** Well we're really at the foothills in some respects. So we've stood up the Space Command about three years ago now, just over. And really proud of what first Space Commander, Air Vice Marshal Paul Godfrey and his team have done. But our defense space strategy that we published about three, four years ago, really lays out our focus and journey that we want to get on.

So firstly, it starts with domain awareness. If you don't understand what's going on, then you can't know what threats you face and you can't attribute the kind of nefarious actions. And that's fundamental for our ability to exercise space control and potentially deterrence in space. We've got a program of investment in operational capability demonstrators, and much of that is focused around building low Earth orbit ISR constellations. Whether that be electro optic or, I think, particularly around synthetic aperture radar.

And ultimately, I'm hopeful we might be able to do GMTI. Ground Moving Target Indication from from space. And we've [00:35:00] got a bit, some big decisions to make in the middle of this decade about where we're going to focus our resources and funding. But when we do that, we've got to do it in the context of an international arena.

And you know, there are no borders or boundaries in space. And so what we need to be able to do is work with our allies, work with the commercial sector to find out how we build the kind of resilience and capability that we're going to need as an alliance in space. And the Combined Space Ops organization and the growth of that is a really good indicator of the kind of cooperation that we're going to need to deal with the really complex array of threats that we see in space.

**Lt Gen David Deptula, USAF (Ret.):** Well, thanks for that and that's a great segue into a bit of a follow up. And that's when you're looking at these missions that you describe. I'm sure you're kind of looking at and judging what do you do organically? What do you rely on allied partners for? And how is the best way to harness commercial [00:36:00] services?

Could you give us a couple of thoughts on your perspectives in this respect?

**Air Chief Marshal Sir Richard Knighton, RAF:** Yeah. So the big question for us is or guys, a principle guys, is it own, collaborate, or access? That's when we think about the technology and capability. And we saw in Ukraine how the commercial sector played a really important role in providing both imaging from space, but also communications through space.

But I think Ukraine also demonstrates that we can't always rely on the commercial sector. We have to have some sovereign control and trying to find the right balance with our allies to make sure that we have across the alliance, the capability we need is going to be a really key piece of work.

There's no point in my view the UK or any other nation replicating capability that the Alliance already has. We should be talking about our capability development in the context of what each of our nations has and what we're going to bring to the fight. And I'm seeing General Saltzman this afternoon, that's exactly the conversation that we're going to have.[00:37:00]

Where is it that UK investment can help in this international collaboration? And I think that we'll find that there will be a part for the commercial sector to play. Dual use technologies, um, will support us and buying some information as a service. But we can't rely entirely on, on that commercial sector.

We will need to develop some sovereign military owned capability as well.

**Lt Gen David Deptula, USAF (Ret.):** Now, that's a great perspective, obviously, um, could you elaborate a bit on how does the United Kingdom Space Command fit into the mix and what are that organization's objectives?

**Air Chief Marshal Sir Richard Knighton, RAF:** Well, we, as I said, we stood up the Space Command about three years ago and it was really a symbol of the increasing focus and importance on the space domain.

And I say very proud of what the team has done to build up that capability. And they've got a responsibility for space operations capability development, and also how they build international relations. And they certainly [00:38:00] spend plenty of time at conferences, as far as I can tell, which I'm starting to think I might need to join them a bit more frequently.

But the team are really trying to evolve and develop. The capability that we currently have and make sure we set ourselves on the right direction because there's no question in my mind that the domain is going to become increasingly important over the next few years and we need to be able to play our part in that alongside our allies.

**Heather "Lucky" Penney:** Sir, you've already spoken about, integrating capabilities across the alliance in space. So making sure that we don't, are not overly duplicative and that we fill each other's gaps. And in many ways that's, we're already kind of doing that today with personnel. So members of the RAF are highly integrated into the US Space Force and Space Command operations. And can you speak to the value that delivers?

**Air Chief Marshal Sir Richard Knighton, RAF:** I think it's a really important role that liaison officers have for both nations. So, for the US, having UK personnel embedded in Space Command and the Space Force enables them to bring their [00:39:00] skills, their expertise, their knowledge into the US System, but equally, it gives us an insight into the UK, into the way in which, you know, let's be honest, the space superpower, which is the United States, does its business. And when we bring those people back into the UK and back into space command and back into the Royal Air Force, they come with that insight and understanding that enables us to make better decisions and hopefully accelerate the delivery capability, learning from the path that that the US has forged ahead of us.

**Lt Gen David Deptula, USAF (Ret.):** Sir Richard, we just you may or may not know, just hosted our Space Power Security Forum this past month. And one of the key messages delivered by General Saltzman and his team was the need to get serious about space control. Um, as you've mentioned, and we've discussed adversaries are contesting space and we need to respond.

It's key to credible deterrence. None of us, at least in the West, wanted to see this happen, but [00:40:00] our adversaries made the move and so we need to respond. How are you viewing these trends from the United Kingdom's perspective?

**Air Chief Marshal Sir Richard Knighton, RAF:** In a very similar way to the US, we really do recognize the increasing threat in space, and we recognize our need to understand what's going on in there, and as General Saltzman said, to think through how we're going to exercise space control.

Because without it, we run the risk of denuding ourselves of capability on the ground, in the air, and on the sea. And we run the risk that of conflicts escalating in space and then transmitting themselves into traditional conflict in land, sea, and air. So, the increasing importance of space to the very way in which we live as society, but also challenges and threats that we see principally from China, but also Russia as well.

An increasing number of actors in space. Particularly from the commercial sector, which complicates the challenges and the threats picture and how we might exercise that [00:41:00] control. So I think in the UK, there's a very clear recognition of the importance of the domain, the deteriorating threats, security situation and the threats that we face and the need for us to improve a space domain awareness. A need for us to exploit some of the capability and technology the UK has to deliver space based capability and to help our allies ensure peace and security in space.

**Heather "Lucky" Penney:** Sir, I'm going to shift the conversation from the ultimate high ground space to the high latitudes in the Arctic.

We just had the Swedish Air Chief in and it was a great conversation. The Arctic region isn't another domain that hasn't been really contested in the past decades, but now we're seeing Russia and China push really hard there. We've seen their playbooks in the South China Sea, in Ukraine, and beyond, and their actions are not benign.

They're focused on control for their own interests, not for the benefit of the commons. So how is the RAF looking at that challenge?

**Air Chief Marshal Sir Richard Knighton, RAF:** Well, I think that you're absolutely [00:42:00] right that we're going to see evolving threat as the ice cap starts to melt and we get access, it's easier access into that northern region. With Finland and Sweden now joining NATO and the likelihood that the UK will be part of that same region, that Northwest region as Finland and Sweden.

I think that's naturally shifting our focus right across the military Army, Navy and Air Force in the UK to how we fight and can operate in those, in those areas. Back in the eighties and nineties we did that quite routinely. We would deploy their regularly. We started to do that again and we're seeing increasing numbers of deployments for the Royal Air Force into that area in the high north. Not so much in the winter yet, but that will come with time. So I think that as the NATO C2 model settles and with the UK focused, but probably in that Northwest region. So alongside Norway, Finland, Sweden, Denmark, I expect us to play an [00:43:00] increasingly important part of air security and air operations in that region.

**Lt Gen David Deptula, USAF (Ret.):** Now, we talked a lot about technical capabilities today, but, as I'm sure that everyone out there realizes it really all comes down to people. Could you talk to us a bit about how you see the state of your own personnel and what are areas of high demand, low density and where you're seeing mission demands evolve the skills required to do certain jobs?

**Air Chief Marshal Sir Richard Knighton, RAF:** The first thing I'd say is that I'm always immensely proud of the people in the Royal Air Force. And when I go and talk to the young men and women who, who make the Air Force work, quality shines through. But I'll tell you that my biggest concern is the workforce, is our people. We're seeing higher rates of exit than we've seen historically.

We've had some challenges with recruitment right across the armed forces. And in the UK, there's a [00:44:00] high number of job vacancies and what employers want are disciplined, highly skilled, technically competent, trustworthy people. Those are the kind of people that we produce in the Royal Air Force.

And so they're in high demand outside of the air force. So the thing that I worry about most that I worry about every time I come into work is making sure that we've got the people, the number of people we need. Sufficient, motivated, qualified people to do what we need them to do. And, you know, what we do is really important in the Air Force.

More important now than it's been for many years. And so making sure we've got the numbers of people we need to do that is really my number one priority.

**Heather "Lucky" Penney:** Goodness, I think the US Air Force could say the exact same thing regarding our airmen. Sir, we're about out of time, but if you were to take out your crystal ball and look into the future, where do you see the Royal Air Force in five to ten years?

And are there particular areas where we should track progress?

**Air Chief Marshal Sir Richard Knighton, RAF:** Well I mentioned earlier that the Air Force has been through this remarkable period, recapitalization over the last 10 years. Pretty much everything we operate [00:45:00] is is less than 10 years old.

**Heather "Lucky" Penney:** You're so lucky!

**Air Chief Marshal Sir Richard Knighton, RAF:** But the thing is, what that means is that we're still gonna be, what we've got today is pretty much but certainly by 25, when he seven and MQ nine B comes in service. That's the force we're going to have to fight with the next 15, 20 years until GCAP comes into service.

And so the real focus for me is on how do we get the most out of the full structure that we've got? How do we generate more from what we've gotten that by focusing, targeting investment? And then how do we ensure that capability is evolved and developed? As the threat and our enemies evolve and develop their capability.

So for me, over the next five years, what I really want to see is that we bring those new capabilities into service. We bed them in. That we focus our resources and energies on getting as much as we can out of those platforms that we have. The people that we need, I talked about the problems earlier to, to Dave.

And that we've we've devolved and developed that operational mindset that ensures that we're able to deliver that operational agility [00:46:00] that we require, that agile combat employment. As I look out beyond that, it's really about how we're going to enhance that capability. I think that by the end of this decade, we will see autonomous collaborative platforms and CCAs much more ubiquitously than today.

And I fully expect them to be part of the force the force mix. And then as we think further into the future, it's about how we're going to bring GCAP into service and how we're going to operate a 6th generation Air Force alongside our 5th generation platform in F 35 and all the enabling support that comes with it.

I also would expect to see space as playing a much bigger part of my force structure and a much greater level of capability in and through space.

**Lt Gen David Deptula, USAF (Ret.):** Well, we have come to the end of our engagement. This has been a fantastic conversation and Sir Richard, I can't thank you enough for spending the time with us.

From all of us at Mitchell [00:47:00] Institute, we wish you all the best in your endeavors, to best exploit the advantages of air and space. Have a great day.

**Heather "Lucky" Penney:** And sir, it's always a pleasure to catch up with you. Thank you.

**Air Chief Marshal Sir Richard Knighton, RAF:** Well, it's been a great pleasure and a great opportunity to talk about what I love most, the Royal Air Force.

And thank you so much for your great questions and for the opportunity to talk about the things that really matter to me and doing it here in the US and the opportunities that it provides as the two closest allies that, that is not lost on me. And so thank you very much indeed for having me.

I've really enjoyed it.

**Heather "Lucky" Penney:** With that, I'd like to extend a big thank you to our guests for joining today's discussion. I'd also like to extend a big thank you to all of our listeners for your continued support and for tuning into today's show. If you like what you heard today, don't forget to hit that like button and follow or subscribe to the Aerospace Advantage.

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Thanks again for joining us and have a great aerospace power.