



HOUSE OF COMMONS

Defence Committee

Oral evidence: Future Aviation Capabilities, HC 51

Wednesday 21 February 2024

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Members present: Sir Jeremy Quin (Chair); Sarah Atherton; Richard Drax; Mr Mark Francois; Jesse Norman; Gavin Robinson.

Questions 121-213

Witnesses

I: James Cartlidge MP, Minister for Defence Procurement, Air Chief Marshal Sir Richard Knighton KCB, Chief of the Air Staff, Lieutenant General Sir Rob Magowan KCB CBE, Deputy Chief of the Defence Staff (Financial and Military Capability), and Richard Berthon OBE, Director Future Combat Air, Ministry of Defence.



Examination of witnesses

Witnesses: James Cartlidge MP, Air Chief Marshal Sir Richard Knighton KCB, Lieutenant General Sir Rob Magowan KCB CBE, and Richard Berthon OBE.

Chair: Welcome, all, to this session on future aviation capabilities. Before we get under way, Minister, would you mind introducing those you have brought with you today?

James Cartlidge: Good afternoon. It is a pleasure to attend the first Committee hearing I have had with you as Chair. I extend my congratulations to you, and I look forward to working together, particularly as you are a former Minister for Defence Procurement, who understands exactly what the role involves. I will allow my esteemed colleagues to introduce themselves.

Lieutenant General Sir Rob Magowan: I am Rob Magowan, a lieutenant general in the Royal Marines. I am responsible for military capability in the Ministry of Defence.

Air Chief Marshal Sir Richard Knighton: I am Richard Knighton, Chief of the Air Staff.

Richard Berthon: I am Richard Berthon, director of Future Combat Air in the Ministry of Defence.

Q121 **Chair:** Thank you all very much. Minister, just a couple of questions before we get into future aviation capabilities. We saw the written ministerial statement made by the Secretary of State today. Vanguard and her crew have been certified as being fully capable, which is a positive sign for the deterrent and maintaining our continuous at-sea operations, but there was clearly this anomaly. If there is anything you wish to say on that at the start of the session, we would be keen to hear it.

James Cartlidge: As you know, my responsibilities include chairing the Defence Nuclear Board. We have oversight of the nuclear enterprise. We were obviously concerned to see the headlines, and we want to be able to reassure people about, exactly as you said, the fact that there are some very positive developments.

I was on board the submarine with the Secretary of State. What we witnessed was a royal naval crew performing to the very highest standard in a very challenging situation, and I think that that is massively to their credit. As you say, the submarine has been re-certified. This is incredibly significant; it means she rejoins the normal CASD patrol lifecycle. I think that is very important. Of course, there was this anomaly but, as we have stressed, there was an event-specific factor, which means we can nevertheless remain confident in our deterrent.

Q122 **Chair:** The suggestion has been—I do not want to stray into areas that



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make you uncomfortable—that this is event-specific. It would be unrelated to the performance in the worst-case scenario of actually being used in anger.

James Cartlidge: That is correct. As we have stressed, there was this anomaly, but we are very confident in the strategic stockpile of missiles that we would fire in anger. Obviously, we hope that that day will never come, but people should be reassured that we are extremely confident in the efficacy of the missiles and in the wider deterrent.

Q123 **Mr Francois:** On this Committee, we only talk about the deterrent in public very carefully, for obvious reasons, but there will be great public interest in this. This morning Chris Parry, a retired Royal Navy admiral, tweeted this: “the missile operated correctly. There was a test procedural error that meant a command abort had to happen for safety reasons.” In other words, the missile did not flop into the sea; it was deliberately destroyed because of an anomaly with the test. Can you confirm that that is correct?

James Cartlidge: No. That is entirely speculative. I would not want to be drawn into that. You are quite right: we will always seek to minimise our comment on operational matters. We have had this story overnight and we recognised that, given, as you said, that there is, entirely fairly, public interest, we should therefore respond with this written ministerial statement, which we hope provides reassurance. All we are prepared to say is that there was this event-specific anomaly relating to the test-firing, which means that we are nevertheless confident that, were it the case that we had to fire a strategic missile in anger, we would not have to deal with that issue. We are very confident in the deterrent, but we understand, as you rightly say, Mr. Francois, that there will be concerns, particularly among the personnel you are talking about—former forces personnel.

Q124 **Mr Francois:** But the fault was not with the missile itself.

James Cartlidge: I am not going to comment specifically, other than to say that what is definitive is that the submarine was certified. For that to happen, the crew in the submarine have to have performed all their requirements for the test entirely satisfactorily. As I said—and I witnessed it at first hand—that crew performed to an exemplary degree. This was commented on by very senior US naval personnel who were present.

It is important to stress to those who crew our ballistic submarines, who will be hearing about this, that the Government is 100% confident in the deterrent and that it recognises the extraordinary professionalism of the crews required to deliver these duties. There was this anomaly. All we are prepared to say is that there was this event-specific aspect to it, which means we can be confident in our strategic stockpile.

Q125 **Mr Francois:** Good. There was an unsuccessful test in 2016. There was an unsuccessful test now. Isn't the best way to absolutely underline and reinforce confidence in our very expensive deterrent to successfully perform a third test as soon as possible?



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James Cartlidge: I appreciate why you used the word “unsuccessful”. I think this is why I am keen to stress that, in terms of the submarine and the crew, it has been certified after a very long period, as you know, of deep maintenance, which means that that submarine goes back into the line, as it were, and rejoins the CASD flotilla. That is incredibly important. But in terms of what happened, that is classified, beyond saying, which I am happy to, that there was an event-specific occurrence which caused this anomaly.

I would also say that, as you may be aware, there have been something like 190 of these tests, and in a tiny number there has been some form of anomaly. Again, I hope that that gives more confidence. Completely separate to that statistical point, because of the nature of this event-specific occurrence, we are completely confident in the deterrent, and that it remains effective and, indeed, formidable.

Q126 **Chair:** Thank you, Mark. Minister, we will leave it there. Your message is that you have complete confidence in the submarine, complete confidence in the crew and complete confidence in the stockpile, and that this certification means that the CASD fleet is actually strengthened, with the vessel being able to go back out.

James Cartlidge: Completely correct.

Q127 **Chair:** Thank you for that. One area where a vessel is not totally performing as you would wish, however, is the aircraft carriers. I wonder whether you want to give us an update as to where we currently stand.

James Cartlidge: I would repeat the point that the Secretary of State made in oral questions on Monday. Obviously, there has been a fault with the propeller shaft on Queen Elizabeth, so we have brought the Prince of Wales into service. The crucial point is that, although there was some coverage suggesting this was somehow a delay in bringing her into service, in fact, as Secretary of State said, that achievement of getting her ready in eight days was against her readiness of 30 days, which is what she was prepared for. That took 24-hour working, and I pay tribute not just to the naval personnel who helped to deliver that, but to the industrial team, because that was a phenomenal effort. This is why we have two platforms: if one does develop a fault, we can bring the other into service.

Jesse Norman: Just to revert to the line of questions we had earlier, Chair, might I suggest that we at least consider the possibility of having an in camera session with the Minister once the facts have become clearer on the anomaly with the submarine?

Q128 **Chair:** Can we leave that with you to consider and come back to us on, James? I think that what we have heard is reassuring. There may be an opportunity to have something, perhaps in camera, if that is more helpful, to update us in due course.

James Cartlidge: I will reflect on that.

Chair: Thank you. Anything further on the aircraft carriers?



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Q129 **Mr Francois:** Yes. Just quickly, Minister, do you sign off all your WPQs in your name personally?

James Cartlidge: Obviously, if a WPQ is answered in my name, I have to clear it. That is correct.

Q130 **Mr Francois:** Thank you. On 5 February, I tabled a couple of questions to you about the cost of the carrier and the associated elements of the carrier battle group.

James Cartlidge: Is it 12974 and 12978?

Mr Francois: I think it is. The replies were full of errors and anomalies. The cost of the carriers was "c. £6 billion"—no, it was £6.5 billion. That is a big difference. I asked you for the cost of the Fleet Solid Support ship. You didn't answer that. I asked you for the cost of the F-35s. You didn't answer that. I asked you for the cost of the Merlin helicopters and the air crew. You didn't answer that. I asked you for the cost of the Crowsnest helicopters. You didn't answer that. I have to say that that is one of the shoddiest ministerial replies I have ever received.

James Cartlidge: Can you just repeat that? You said you asked about the FSS and the Crowsnest?

Q131 **Mr Francois:** Right, okay. Here we go. There were two; you grouped them when you replied. Question 12974: "To ask the Secretary of State for Defence, what the acquisition cost was of each of (a) the Queen Elizabeth class aircraft carriers and (b) their respective air groups." Question 12978: "To ask the Secretary of State for Defence, what the acquisition cost is of (a) a Queen Elizabeth Class carrier, (b) an air group of 24 F-35Bs with merlin helicopters, (c) two type 45 destroyers, (d) two type 23 frigates, (e) one Astute class submarine and (f) other support ships for a Queen Elizabeth Class carrier Battle Group."

James Cartlidge: To be clear, that does not specify FSS and Crowsnest. I am happy to provide those figures to the Committee.

Q132 **Mr Francois:** That is very kind, but why did you not just provide them in the answer?

James Cartlidge: You did not ask for them.

Q133 **Mr Francois:** I just read you out what I asked for.

James Cartlidge: You did not ask for Crowsnest. Correct me if I am wrong.

Q134 **Mr Francois:** Crowsnest is based on Merlin, isn't it? It is a Merlin derivative.

James Cartlidge: That is correct.

Q135 **Mr Francois:** We will come to Crowsnest later. We have a separate question on Crowsnest but, on all the others, this was just a really shoddy reply. Next time, could we have some more accurate answers please?



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James Cartlidge: I do not agree that it is a shoddy reply.

Q136 **Mr Francois:** Well, do you want me to read it out again?

James Cartlidge: I am always content to receive feedback and pass that to my officials. I have looked at this answer. It is relatively lengthy for a written answer. We are encouraged to keep them concise for all parties—no one wants us to be overly lengthy if we can avoid it. It does go into significant detail. Obviously, if any of it was inaccurate, I would immediately go back and double-check that just to be clear, but it is not shoddy. It is an attempt to answer—

Q137 **Mr Francois:** Why didn't you give the cost of 24 F-35B aircraft? I did not ask for the lifecycle cost; I just asked what their acquisition cost was. We have 48 in service. We have already bought them. We have another 24 on order. It is a simple, straightforward question.

James Cartlidge: It does answer it.

Mr Francois: It doesn't.

James Cartlidge: If you will allow me—

Q138 **Mr Francois:** What's the cost?

James Cartlidge: I am reading directly from the answer to written question 12978: "F-35B aircraft are procured in batches and the unit price per batch has varied as production has proceeded. There is therefore no single acquisition cost for a group of 24 aircraft as the overall cost will depend on the batch from which each individual aircraft was procured."

Q139 **Mr Francois:** That is ridiculous sophistry of the worst kind.

James Cartlidge: I think you are exaggerating somewhat.

Mr Francois: I'm not.

James Cartlidge: You asked, and we answered. I have seen many a written question where we have given, shall we say, succinct answers. That is a detailed answer by any measure.

Q140 **Mr Francois:** It is not. If it was detailed, it would have a figure in it.

Chair: Minister and Mark, I suspect we could spend the remaining hour and 10 minutes on this, and I do not want us to, particularly as there are important things to cover on rotary wing towards the end of the session, and I do not want that to be squeezed out. Clearly, there is a debate to be had here, but would you accept, Mark—

James Cartlidge: I would encourage Mr Francois to write to me with a follow-up, pursuant to this question, which we will then answer further. That seems to me the entirely proper way to proceed where it is a written question.

Chair: Sure. Thank you both. In that case, we are going to turn to the main event. Gavin, would you like to ask the first question as we move on



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to GCAP, the first theme of this session?

Q141 Gavin Robinson: Thank you very much, Chair, and good afternoon to you, Minister, and to you colleagues as well. I apologise because I have to withdraw from the Committee to attend another one in about 10 minutes, so I will try to get through this couple of questions.

We have been told that multi-year funding will be crucial in delivering GCAP, or the Global Combat Air Programme. Have you, Minister, given any consideration to how you will navigate this issue of multi-year funding? We have had some private briefings, and concern has been raised with us in two respects. One is that this is an election year and political turbulence could prove problematic for the UK aspect of, and the UK commitment to, the overall GCAP.

Secondly and separately, there are other, partner nations within GCAP, including Italy, where there seems to have been almost a national endeavour and a strategic consideration that their involvement in GCAP spans politics and should therefore be a commitment that endures through political cycles.

With those two strands in mind, have you had any thoughts about securing multi-annual funding or giving a level of reassurance on the UK aspect of GCAP that shows that it will endure, come what may?

James Cartlidge: First, Mr Robinson, thank you very much—I appreciate your need for speed, given that you are departing, so no problem.

I think it is an excellent question about, shall we say, the consensus that exists. When you have a big strategic programme like this—it is a top strategic priority for the whole of defence—it is important that there is, ideally, particularly when you have an election year, cross-party support as far as possible. As far as I am aware, there is strong cross-party support; indeed, in relation to the statement by the Secretary of State recently, following the signing of the treaty, I think it was confirmed by his shadow that they wholeheartedly supported this and, therefore, that there is a cross-party consensus in support. I think that that is really important. It is a very good point that you have made.

In terms of a national endeavour, that is, absolutely, already the case. I will bring in the Chief of the Air Staff in a minute, but when you talk about combat air, we in the United Kingdom have a very long tradition of this. On the Typhoon, we have collaborated with other countries to preserve that sovereign capability. That is what this is about for us—sovereignty, in terms of our air capability, for the Royal Air Force. But I will just turn to the Chief of the Air Staff.

Q142 Gavin Robinson: Just before you do, I think you are right to say that the Labour shadow has given a commitment on the notion of GCAP. However, on an overarching basis, the Labour party have been quite clear that they will stand over agreements that are committed to, but that they are unable to give a commitment that they would commit to the financial contribution required if the Government have not already done so. They do that with the caveat that they do not have access to the books. So I



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think there is a need to accelerate the discussions with the Treasury on this to make sure that that commitment is there and cannot be lifted by a successor Government, should that be the case.

James Cartlidge: You are absolutely right; it's a really good point. The reality is that no Parliament can bind its successor, obviously. They could make whatever decisions they wished, assuming they were to form the next Government—obviously, I hope that will not be the case.

I take your point; I think the point is where discussions are at the moment. We obviously have detailed discussion with the Treasury all the time. We are on the cusp of a Budget, and then we will be moving to the SR. What we know for a fact is that we have spent £2 billion on GCAP; we have a further £12 billion committed. That is a very significant investment. I am not aware that that would be vulnerable in a new-Government situation, but I cannot speak for them on that.

I think the important point, as you said, is that you want to see that consensus. I think that, in that scenario, one can make some assumptions about the likelihood of the programme—if not every detail, then broadly speaking—continuing across any potential Government, and I think that that is much in favour of our national interest.

Gavin Robinson: Thank you, Minister. Sir Richard?

Air Chief Marshal Sir Richard Knighton: You described the Italian position of thinking of GCAP as a national endeavour, and I think that is exactly how we see it in the UK. The 2018 future combat air strategy set out the four elements of the strategy and the important components of that.

This programme is vital from a military capability perspective as we look into the future at the evolving threats, which we may come to, and as Typhoon gets older. It offers us an opportunity to develop deep strategic relationships—clearly, principally with Japan and Italy right now, but we expect others to join the programme. Industrially, this will sustain many thousands of jobs and ensure that the UK, in engineering, science and technology, is at the forefront of our peers in the world. As the Minister has described it to me, that is part of the deterrent effect associated with it.

Right now, the budget is managed from head office. As the programme matures over the next year or two, the responsibility for delivery will transfer to the Air Force, along with the budget. I see no diminution of the intent for this to be a national endeavour and to be vital to both the security of the UK going forward and our status as a first-world military.

Q143 **Gavin Robinson:** Thank you for that, Sir Richard. I appreciate the national endeavour comments. Are there still discussions that need to be had with the Treasury about the business case, Minister? Particularly if you go beyond the £12 billion, it engages this multi-annual agreement. Is the groundwork being done for that discussion? Is the business case prepared and ready for approval? Could you give us a sense as to where



that rests?

James Cartledge: You will probably appreciate that we don't go into every detail of our discussions with the Treasury. Much of it is obviously sensitive and there is continuous engagement all the time. What I would say is that this is not unprecedented; we are going about this in the normal way with the build-up to a spending review. What I am confident about is this: this is a top strategic priority across defence; that implies the status it receives in terms of financial prioritisation. We had a three-year agreement, which takes us into 2025. We had the £12 million, and the £2 million already committed and spent.

In addition—I should stress this—don't forget the £600 million from industry, which is really important. As the Chief of the Air Staff just said, we should not forget the industrial aspect of this. It is incredibly important economically, bringing in jobs across every part of the United Kingdom, but also for that sovereign base and capability, so that in a situation of heightened military strife we would retain the ability to service and support whatever aircraft we had available at the time.

Q144 **Gavin Robinson:** From what Sir Richard has said and you have now alluded to, Minister, there are discussions about adding additional nations to this programme beyond the UK, Italy and Japan. I am interested in your thoughts about, first, whether there are any countries that are likely to engage in the programme; secondly, whether that will lead to a diminution of the national contribution that we make and the benefit to our industrial base; and thirdly, whether there is a risk of delay associated with additional nations joining, making a 2035 commencement less likely.

James Cartledge: I will take those in reverse. I want to stress that for all three nations in the extant tripartite agreement, 2035 is a really crucial target date to get this into service. Everything points to that; it is all about achieving that date. We as a country, and I know for a fact that this is true for Italy and Japan, would not want any variation to occur in structure or approach that puts that at risk, just to be absolutely clear. When you talk about other countries, first, I should stress—as I just did—that it is currently a trilateral programme with the UK, Japan and Italy. From the outset, we have been clear that exportability will have to be important. That has always been the case with combat air for the United Kingdom, and with Typhoon for Italy where that is incredibly important, and the same for Japan.

When you talk about some hypothetical scenario of any other country being involved, first, that would have to be approved by the three members. Crucially, I feel very passionately about export being a way of firming up our industrial resilience; far from having a negative impact on the industrial contribution of any country, it sustains it. It is absolutely critical. You only have to look at Typhoon. It has also been true of Tornado and of our combat air, which has been by far the largest part of our military defence exports both financially and in terms of industrial capacity.



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Q145 **Gavin Robinson:** I think there is a fair delineation in your answer between, in my view, joining the programme as a partner who would then get benefits from that partnership, and being an invested purchaser who invests in the programme to get a benefit, which is the export potential. Are we only talking about other nations investing so that they get a product, rather than becoming a partner?

James Cartlidge: It is a good question. The answer is something that I suspect the Chair would have been aware of when he had a responsibility related to exports. We only recently had the Saudi World Defence Show—we go to international defence shows around the world—and we meet partners in the UK, and that narrow word, “export”, implying a transactional process, is now becoming ever more inaccurate as a description. I am not talking about GCAP, but generally, most defence foreign sales are now about partnership, deep partnership, by necessity.

We have a very good example in Poland, one of our largest ever exports: £4 billion for complex weapons, where they will receive IP and have work share. When we specify a future procurement, which I suspect you will mention later—I cannot prejudge this, but when the detail comes out—we will be incentivising our own UK industrial benefit. That is now very commonplace. This concept of the purely transactional export is receding. There will always be some examples of it, and we as a country will almost certainly now and again buy off the shelf for very good capability reasons.

The crucial point, as I have said, is that this is a trilateral partnership. Whatever we did with another country in terms of partnering would require the support of all three countries. Equally, from the beginning, we have all been clear as nations that exportability is very important to the programme.

Q146 **Chair:** International partnerships are great, working together is fantastic, but getting things done is sometimes difficult. Are your minds grappling with the issue of how you maintain momentum on the project? This is coming from everyone, all the witnesses, unsurprisingly: how do you avoid the vicissitudes of politics in each of the partners causing delays and stuff being shoved to the right? Do you have a mechanism to ensure that you can maintain good pace, given the tight timeframes?

James Cartlidge: I will bring in Richard in a moment, to go into the detail. The construct for GCAP is learning lessons, particularly from Typhoon, to ensure that the way we set it up is geared towards success and achieving the timescales that we want. The overarching point is that that 2035 target is militarily crucial. This capability is not a luxury. If we want to remain competitive militarily, we will have to develop it. The Japanese have their threat, and they have their fighter, the F-2, coming out of service. We all have those challenges—we obviously have the Typhoon, et cetera—so there is total focus on this. While you are absolutely right that, with three nations, there will be the usual detailed discussions and negotiations, we are all focused on that. Yes, there will be specific lessons we have learned from other programmes and specific methods we use to keep tight. I pass to Richard.



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Richard Berthon: The first thing to say is that from 2018 onwards, we spent several years talking to a wide range of international partners—extensive and deep conversations about their ambitions, aspirations and their interest in partnering with the UK. That process led to the 22 December announcement to work with Italy and Japan. Again, however, that was based on an extensive analysis of our common interests, whether military, industrial, political or so on.

For a start, therefore, we have three partners who have very similar and common interests. That provides a really strong foundation. The fact that we are all F-35-operating nations also gives us a powerful foundation of fifth generation to build on, and it helps us to work on requirements.

As we have taken the work forward, we have made really fast progress since the 22 December announcement. When I first started this job, I was told it would take three to five years to get a treaty in place to set up a delivery structure, but we have had the signature within one year from the initial partnering agreement. That is testament to some extraordinary work between the three countries. We have also—just now—reached agreement on the system requirements document. That is a very deep requirements document, agreed jointly across the three partners. Again, a mismatch of requirements tends to be the thing that undermines international partnerships as they play out.

The third, and maybe most important, lesson from previous programmes relates to the delivery structures. We have extensive experience from combat air and wider defence procurement programmes of how to organise and deliver international partnerships. We have learned in particular from our experience in Eurofighter through NETMA. The lesson of that is that the governmental and industrial structures that deliver the programme are fundamental to pace and to avoiding the programme being knocked off course by individual national changes resulting from quite small but, in some cases, very tactical decisions later down the line.

We have been developing what is known as the GCAP International Government Organisation, on which the treaty was signed at the governmental level. Our industry colleagues are pursuing very ambitious and far-reaching delivery construct conversations at all levels with their international partners. The empowerment of those organisations—the vesting of authorities and responsibilities in them—requires the nations to take that step and trust the organisation we are establishing. That gives us a structural solution that delivers pace and prevents small decisions from adding years and years on to programmes, as has happened elsewhere.

Q147 **Chair:** You have the system requirements set up, which is good news by the sound of it. The other area that is always vexing is workshare and how it is designated, and there you have a number of conflicting issues, including the pressure of sovereignty versus specialisation, and the pressure of whether it is best in class to do this or whether it is just 33-33-33. Are you getting to a resolution on that? To what extent have the Governments been involved in that, or is it industrial partners saying, "It



is sensible if we do this and this"? How is that being determined, and when can we see resolution on it?

Richard Berthon: It is very much both governmental and industry. Each of the countries needs to maintain political support for the programme, and of course political direction in terms of both industrial and economic policy and military and sovereign requirements is very much the reason why all three countries are doing this programme. We have given industry some parameters—a framework to work within. Beyond that, we want them to do a lot of the hard negotiation between them. I would say that we are about 70% of the way through that negotiation at this point. Again, that is very rapid. As you would expect, there are areas that require further negotiation, which involve industry and Governments to nail down exactly what that looks like.

We are fortunate to be working with Italy and Japan, in that we have two other partners with a credible sovereign industrial base and technology. Both countries have invested heavily for many years in their combat air capabilities, and they bring relevant and important capabilities to the table.

One of the other things that we studied in the period to 2022 was the industrial alignment between the parties. We feel that there are sufficient balances of strengths across the three parties. We are then of course trying to ensure that the programme is as efficient as possible and that we avoid duplication between the parties. That is where we are now in the negotiation.

The next important milestone for the programme is the launch of a joint development phase at some point in 2025. We have the rest of this year, essentially, to nail down the final aspects of work allocation. It is important to stress the real difference between this and Typhoon. In Typhoon, work allocation was agreed at a very early stage in the programme for its entire lifecycle, and that is a very inflexible model. We are entering a design development phase and are dividing up responsibilities with our industrial partners to best deliver that phase. We are also baking in flexibility so that when we enter into test certification, production and manufacturing, we have the flexibility to do that in the most efficient way possible.

Q148 **Mr Francois:** If you went back five years and said that we are going to have a trilateral programme to develop a sixth-generation fighter with Japan and Italy, no one would have believed you. The Committee is impressed with this programme. It has tremendous potential, both militarily and for the prosperity agenda. This is very exciting stuff. Tornado was a collaborative programme, which Air Chief Marshall Knighton will remember fondly. It was a fantastic aircraft, but it took a while to come into service. Eurofighter is a fantastic aircraft—Typhoon—but that was delayed by many years by all of these different squabbles over workshare and such like. How, specifically, are you going to make sure that we learn lessons from those other two successful collaborative programmes to ensure that this thing does not get bogged down in



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endless arguments over who does what?

Richard Berthon: The answer is, very specifically and at multiple levels. I have already mentioned the lesson learned in terms of delivery structures and I will just say a little bit more about that.

The NETMA construct, delivered through Eurofighter GmbH, is one where the fundamental responsibilities still reside in the customer nations—the four customer nations—and then in the four industrial partners. There was not this crossing of the Rubicon, as it were, into a genuinely empowered governmental and industrial delivery structure.

That means essentially that you are constantly trying to bring together four disparate views, pulling in different directions, and without—on the industrial side—a single design authority. That is something that we will vest in the prime contractor on the industrial level. Having a design authority that sits centrally is a very specific lesson that we have learned.

You will know that Herman Claesen, my counterpart in BAE Systems, used to run Eurofighter GmbH. Of my program director and my head of delivery, one used to run Typhoon and the other has worked in NETMA. I therefore have very direct experience—lived experience—of the challenges and issues of working in that context.

I think it is fair to say that the Italians came to the table very much wanting to learn the lessons of Eurofighter as well, so we have a common purpose in that. The Japanese have not conducted a multilateral programme of this nature before, but it is very clear that they are robustly focused on pace, and I think that has brought pace very much to the forefront of the programme and makes it the top priority.

I am often asked which of performance, cost and time is the most important? We have all agreed that time has to be the most pressing one and that performance can be delivered in a more incremental way.

Q149 **Mr Francois:** For the record, Mr Claesen is an impressive leader. When the Committee went to Warton to look at this programme, he was the man who gave us the briefing. I think it is fair to say that we came back impressed.

James Cartlidge: May I just make one point on this, which I think is really important? You've just spoken about Warton—quite rightly; the factory of the future and so on—and of course there are some very different factors now at play in terms of the industrial production side, the technology that will be used and the potential for AI. It will be digital design by default in the various manufacturing methods. Yes, you are absolutely right that it is ambitious compared with previous programmes, but perhaps justifiably so, given both the technology and this pressing sense militarily. Obviously, some of the programmes that you are talking about occurred before the end of the cold war, so it is not like there was not a significant military incentive then. What is different now is the sense that technology means threats are evolving so fast.



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I don't know if it would help, but I was going to ask General Magowan to talk about this aspect, because obviously it is the sense of the way the threat is evolving that makes the three nations feel the need for speed and pace.

Chair: I think that Jesse wants to come in on digital and AI, and that might be where MilCap—military capability—would want to respond. Before getting that: Sarah, did you want to raise a point on this issue?

Q150 **Sarah Atherton:** Richard, the Minister mentioned empowering industry and I know he is a keen advocate for small and medium-sized enterprises, but there are a lot of defence manufacturers sitting below the primes that are probably eager to get a slice of this. At what point should they be prepared to get involved? And what is the process of involving SMEs?

Richard Berthon: There is a very fine balance to be struck here, between the vital importance of the lead system integrator and beneath that the domains, such as power and propulsion or sensing, having a system integrator, and having a very wide base of talent and of technology that the programme can draw on.

In order to move as fast as we are seeking to do, we have sought to empower the lead system integrator and those subordinate sub-system integrators. That means working with them from the outset, and putting a lot of empowerment into the industrial structures that they develop with their international partners. At the same time, negotiations on work allocation and how different technologies from different countries are being brought to bear in the programme are going on. We want to make sure, first, that the best of British is being brought to bear, but also that we are targeting our investment in the right way, and that if another country is going to lead in an area where it has invested heavily, we do not then duplicate investment in that.

I have very regular conversations with my industrial partners, and have done for several years, about how we bring to bear a much wider ecosystem across industry. The technology initiative launched initially in 2016 by the now Chief of the Air Staff, and then relaunched, as it were, in 2018 under Team Tempest, brought over 300 British companies into that direct supply chain. Now that we have a greater sense of the delivery structure, of the roles and responsibilities, of how we are organising the programme, of what technologies we have invested in using the £2 billion that the Minister referred to earlier in this technology initiative, and of where there are still wider opportunities, we are at the point where we can have a more expansive conversation with the wider supply chain. I've got a very experienced head of commercial, and one of her priorities is to work out, working with the likes of BAE Systems, Rolls-Royce, Leonardo UK and MBDA, how we bring that wider supply chain to bear.

Chair: Jesse, I know you want to touch on digital, both in manufacture and operation—that may be a good point if you want to bring in further points regarding the pace of change in terms of weaponry, Minister.



Q151 Jesse Norman: There will be a lot of new technologies in this next-generation system and, it seems evident, a lot of AI. You have talked about sensors and other capabilities that would have to be integrated into the supply chain, the operational construction and the system itself.

Can you give us some sense of what we are talking about? We are talking about a supersonic aircraft with a great deal of AI and other capability built into it managing autonomous vehicles or other weapon systems—is that right? How do you think about the risks of AI, both in building now and in specifying what may be completely unknown 10 years hence?

Richard Berthon: I will start with a little bit of history. We have worked with the UK's primes, the leads in this area and a deeper supply chain over the period from 2016 onwards to mature technologies to a level that we can bring them into the programme. Some of those will reach a technology readiness level where they are mature enough to instantiate the programme in its earliest stages—by 2035. Some will require further maturation and be brought on board a little bit later. We are very fortunate: we have had a reinjection of capital into the technology base, and particularly the skills base, in the UK that we can build on and pull through into GCAP.

You are absolutely right that the capability we are delivering in GCAP is focused on a core platform to start with, as a result of very significant analysis that we have done of the options, which is matched by both our peers and our major adversaries and concludes that a crewed platform—or platforms—is still required at the heart of a future combat air system.

At the same time, it is clear that technology allows us to connect this core platform to a range of different capabilities—that's both across wider additive capabilities performing a combat air role, and much more widely across the force in a multi-domain sense. We are very conscious that we are a tip of the spear, if you like, in trying to push the boundaries of multi-domain integration as a major investor into the future.

Q152 Jesse Norman: Can I nudge you a little more on that for a second? Obviously, the danger with technology is that the people who really know what they are talking about are 27 and the people who are commissioning are 57—there is a massive difference of view between the two sides. That would be one worry about how you maintain and manage that talent.

The other worry, obviously, would be that one is setting oneself up for a potentially highly asymmetric situation in which some of these technologies are escalating in ways that we would never have imagined. You will have seen the testimony that we received in the AI sub-committee work, which suggests that some of this domain-specific general intelligence will or could be available in the next four or five years. That could be a complete game changer.

Richard Berthon: The most important aspect of the programme in that regard is something known as open system architecture, which is essentially the operating system. If you think of your iPhone, it is the iOS



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that sits at the heart of it. While it requires constant refreshing, it provides you with an architecture that you can then plug capabilities into. As long as future capabilities are developed to those architectural standards and we have provided them to our industry and international partners, it is significantly easier to integrate additional new technologies down the line.

In terms of artificial intelligence, there has been a school of thought that we do not need a crewed platform in future and that we should just rely on uncrewed. I think that would be foolhardy at this point in time. While we are all excited that artificial intelligence—and machine learning, perhaps more accurately—provides greater opportunity, the environment we are talking about this capability operating in, which is likely to be hugely contested and denied, requires the use of humans in order to allow the use of kinetic force in particular.

That requires us to deliver in an incredibly dynamic and complex environment; it should not just rely at this point on an algorithm. In the shorter term, we can absolutely leverage machine learning in support of the crewed aspects of the capability. We are planning to very much utilise that technology in doing that, but this is not yet a fully uncrewed, AI-driven capability.

Chair: Do any of you want to come in on uncrewed and on loyal wingman in particular? That is just to cover off the issue, which I know the Minister is springing on to in terms of how technology will evolve.

Q153 **Richard Drax:** I would like to ask something on the question of uncrewed. I see that in June 2022 the MoD cancelled a project called Mosquito, which was an uncrewed combat aircraft demonstrator. There is a quote on one of the reasons or conclusions of the MoD on why it was cancelled, which is that “more beneficial capability and cost-effectiveness appears achievable through exploration of smaller, less costly, but still highly capable additive capabilities.”

What we are talking about here, as I understand it, is an uncrewed version of Tempest, which is a hugely expensive aircraft. How will the uncrewed aircraft factor into the existing combat and future combat air force mix? How are you addressing those questions? When do you expect the first loyal wingman, as I think it has been dubbed, to fly alongside Typhoon and F-35? Perhaps you, Air Chief Marshal, could also say what you see the ratio of crewed to uncrewed might be.

James Cartlidge: I will pass this question to my loyal wingman.

Air Chief Marshal Sir Richard Knighton: I will answer on Mosquito first. That was a really good example of investment in innovation and learning, which was extracted from it at the point where we decided that we would not continue with the programme, because we had learned as much as we needed to and needed to think about how we pivoted to the next phase of our development.

In terms of our thinking around the strategy for uncrewed systems and what we call autonomous collaborative platforms, we think of them in the



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context of cost versus capability. We broadly put them into three brackets. Tier 1 is small, much cheaper, so probably several orders of magnitude cheaper than a crewed platform capability—we are talking hundreds of thousands of pounds; we judge those to be completely disposable and we would not expect them to come back from a mission.

Tier 2 is described as attritable, so we would expect them to come back sometimes. We could tolerate losses, but clearly, as it gets more expensive, the economics of that model shift. Then, tier 3 is for platforms that we would expect to be completely survivable and we would want them to come back all at the same time. That is similar-ish to some of the work that was done under a programme called Taranis some 15-plus years ago.

Our analysis shows, in terms of the cost-benefit between what operational benefit you get and the cost of those platforms, that our first focus should be on those tier 1 platforms. Quite a lot of the work we have been doing over the last few years has led us to that conclusion and some of that technology. I anticipate having a usable operational capability within a year that can work alongside our current combat air fleet and improve their survivability, certainly, and potentially their lethality.

In the circumstances, what I think we will see first will be smaller drones that include electronic warfare packages that enable us to suppress enemy air defences and allow our Typhoons, for example, to get through a threat or get closer to a target. We are learning a lot from the experience we are seeing Ukraine and Russia have in the war in Ukraine and trying to take that knowledge, expertise, the advice we are providing and the information and intelligence we are gathering and applying that in that way.

In the first instance, it will be those tier 1 capabilities. As we develop our understanding of the operational concepts—how we would employ them and what those platforms might do—that will teach us more about where the price point is that makes sense.

To give you some examples, the Americans have just announced five contracts for what they call collaborative combat air, which is similar to our autonomous collaborative platforms, where they are putting aside \$5.8 billion across five platforms over the next few years to evolve that thinking. We will see where their analysis takes them and our analysis takes us in terms of where we go next. Right now, however, small drones—and as I say, within a year I expect to see us being able to employ them operationally.

There are a number of other issues I could talk about in terms of certification, but hopefully that gives you an indication.

Q154 **Richard Drax:** Tier 1 being the top, yes?

Air Chief Marshal Sir Richard Knighton: The lowest—smallest. Tier 1 is the smallest.



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Q155 **Richard Drax:** Tier 3—

Air Chief Marshal Sir Richard Knighton: It is the top end, yes.

Q156 **Richard Drax:** Would you see the higher rate as more likely to be manned?

Air Chief Marshal Sir Richard Knighton: All those I am talking about are uncrewed systems there.

Q157 **Richard Drax:** There is a potential of an unmanned Tempest, yes? Potentially.

Air Chief Marshal Sir Richard Knighton: You can imagine, in the way Richard Berthon described, that as technology evolves we could transition from a crewed platform, which is the current design, into one that could be uncrewed. However, given the focus on the timeline of delivering capability by 2035, risks associated with the technology and particularly certification of that technology, in the short term it will be crewed, but in the longer term we could absolutely see that that might happen.

James Cartlidge: Basically, there are already platforms that are uncrewed that you are purchasing for a significant investment and you will want them to return, and they perform, for example, ISR function. We have had those in service and whichever tier they apply to, to me the key point is that you are expecting those to come back. Then, at the other end, you have literally one-way attack or what some people call kamikaze systems, where, by the very definition, like artillery or a missile, you are firing it to achieve its kinetic effect.

Q158 **Richard Drax:** That is my point. You want a Tempest to come home.

Air Chief Marshal Sir Richard Knighton: Correct.

Q159 **Richard Drax:** Because they are not going to be cheap, whereas the cheaper range, you can prepare to take—

Air Chief Marshal Sir Richard Knighton: They are more disposable.

James Cartlidge: To me, it proves a point. There has become a tendency to talk about this area as if it is one type, but actually, already the variation is extraordinary and will continue to grow because the proliferation is so extensive.

Q160 **Chair:** Thank you, Richard. With virtually every platform we have produced, there is always a point where you turn around and say, "It is so sophisticated and so highly spec'd. If only we had thought about export 20 years ago, we could have done so well." I know Gavin touched on this earlier, but are you thinking right at the outset of this programme about exportability? There are a number of repercussions with those discussions, but is that something being discussed between the international partners?

James Cartlidge: Crucially, the thing I have most wanted to prioritise across defence procurement is exactly how you get exportability into



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acquisition from the outset. There are several reasons for this. Where you have that as a very material consideration—although it may not be relevant; it may be that there are reasons you would want whatever that platform capability is to be purely sovereign—I want to see that considered in detail.

All other things being equal, the consideration of exportability is likely to reduce the tendency towards what I would call the overly exquisite. There will always be this, “Well, hold on a minute, will that undermine its international saleability, and so on?” Obviously, yes, it is also about the viability of the industrial production.

This has really struck home in defence. I have been very encouraged by how the prioritisation on exportability has really started to strengthen, including in the land domain. Where arguably we did not push it as much previously, we have now got some pretty developed land export campaigns. It is because we have learned the lesson. They used the NLAW in Ukraine early on, and then picked up the phone to the factory and were told, “Well, it’s fine if you’re prepared to wait several years.” The point is that if you maintain the aggregate demand as much as possible, you support your industrial base. It is that self-fulfilling ability to keep producing, which you also need from a sovereign military point of view. I have been very keen to have that across the board. In terms of GCAP more specifically, as I said earlier, at the very outset when the three leaders agreed to the programme, it was recognised that exportability would be a priority.

Q161 Chair: As part of that, I trust you are talking between the three countries as to how exports would be licensed and agreed? I am sure you would not necessarily have got there yet, but there have been recent issues—happily, they seem to be resolved—among some of our partners on the Eurofighter Typhoon. These are issues that we are pre-warned about. I trust those discussions are ongoing as well.

James Cartlidge: Absolutely.

Q162 Chair: Do you have a timescale for when you think that will be resolved? Would it be a treaty? How would you actually put that into place, in terms of individual nations wanting to go down export campaign routes?

James Cartlidge: All focus at the moment is on standing up the trilateral entity, ensuring that we can commence manufacturing. As Richard rightly said, with all these issues around workshare and so on, the pace is already very extensive. One of the issues that the IPA raised about the problem was, “Will you get a treaty signed?” That was a risk. Well, we have ticked that box. We have the treaty. I think we have made huge progress. In time, as the capability and industrial production develops, we will want to turn our attention to those export opportunities.

Richard Berthon: Mr Chairman, to reassure you, and as the Minister said, right from the outset in the December 2022 Prime Ministers’ agreement we put exportability at the heart of this. We have always been



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very clear with our Italian and Japanese partners that exportability must be a core component of the programme.

The GIGO treaty signed at the end of last year made a further step, and it empowers the intergovernmental organisation to play a role in managing and supporting exports, which again is a key responsibility that we wish to transfer into that organisation. I have a trilateral exportability working group between myself and my international directors. We are conducting a joint analysis of the future combat air market, which provides us with very important underpinning analysis.

Of course, the transfer and export of military technology remains a national responsibility. In the programme, and particularly in Japan, we have seen that, although they have very limited experience of this, the Japanese Government have moved incredibly fast and come an incredibly long way since the three base principles on defence exports. The Government have recently agreed a very significant enablement of what would become GCAP exports, and I am very comfortable with the direction of travel across the three partners.

On the point of the capability itself in an export market—I am sure that we will talk about this later—we are talking about a very important military capability, and one that needs to fit within the combat air capabilities of a wide range of different partners—for ourselves, within the context of F-35, and potentially for a wider partnering or export market as well. I think that the very level of capability that we are talking about makes this an attractive proposition. We have always taken export into account, as the air marshal said back in the combat air strategy in 2018. We were very clear that this was going to be a critical part of our approach, and I think we have embedded that into the thinking, perhaps at a much earlier point than most programmes would have naturally done.

Chair: Thank you.

Q163 **Jesse Norman:** Air Chief Marshal, you talked about the current design of the system. When will we be able to see the current design? When will what it looks like and what your specifications and expectations are be a public fact?

Air Chief Marshal Sir Richard Knighton: I will talk a little bit about the threat and specifications, and then Richard, as the senior responsible owner, can talk about when we will be through preliminary design review and availability. In our thinking generally about capability development, we start with the threat from our potential adversaries and consider the evolution of technology.

If we look at the trends in terms of the threats, what we are seeing is improvements in the potential detection of aircraft both through radar and across a wider range of frequencies, as well as infrared, so our adversaries will be able to detect aircraft at greater ranges. Our adversaries are also developing their own stealth technology, so it is harder for us to see their aircraft. Particularly in China, we are seeing the development of much



longer-range air-to-air weapons—the PL-15 is in service and they are developing it into the PL-17.

We are also seeing our adversaries proliferate some of this technology, particularly stealth technology. For example, at the recent world defence show in the Kingdom of Saudi Arabia, China had the J-31, which is its export variant of a fifth-generation stealth aircraft. The Russians had Su-75 on show, trying to sell it; we know that countries are actively discussing potential purchases with Russia and China.¹

In the context of that threat, the requirements for a new platform are better signature, meaning lower signature across a broader range; better range and more payload, so that we can carry a larger, longer-range air-to-air missile; and critically—this is really the difference with a sixth-generation aircraft—fusing and integrating of the vast amount of information that will be available in that battle space. All those things are driving the requirements that are driving the design.

When you design aircraft, there is always compromise; the laws of physics are such that there has to be some degree of compromise. But as Richard described earlier, and perhaps because Italy operates both Typhoon and F-35 like us, and Japan operates F-35, there is quite a strong consensus about what those requirements should be and where the trade space might be. That is the input into the requirement setting; I will pass over to Richard to describe where we are in the design review process.

Richard Berthon: Thank you. We have been conducting initial design for the past 12 months or so with the partners, based on an understanding of that evolving system requirement that we have just completed as a major artefact. That has meant comparing different concept choices, which our industry teams go through to a level of maturity with concept design digitally, so that we can understand everything from aerodynamic performance and kinematic performance all the way through to issues around survivability and so on. We have done a lot of design already.

That has given us the ability to make some profound design choices in the concept that we want, and I am very comfortable that the down-select of those design choices is maturing well. We have shown in public a degree of representative models, both digitally and physically, of the sort of capability we are talking about. This is going to be a very sensitive capability with some particular characteristics that we will wish to protect.

While we will be able to show greater degrees of representation, and obviously at a point there will be an aircraft that will be on a runway, we will wish to preserve some of the particularly sensitive aspects for as long as possible. For example, when they rolled out the B-21 in the United States, you will have seen some of the very careful photography, even though that now sits in a hangar. Some of the characteristics will remain very sensitive throughout.

¹ Su-57 Fifty Seven was meant to be said



One thing you will see—and as I think you saw already in Warton when you visited, Mr Norman—is that we are a significant way through developing a concept demonstrator. It is not a prototype of what the GCAP platform will be, but it is a reasonably good representation of some of the characteristics that will play through into the GCAP platform itself.

Q164 **Jesse Norman:** Thank you. That was a much longer answer than I was looking for, but I am very grateful to you both.

Putting together these technologies and the kind of skills you are talking about is obviously going to require an incredibly skilled workforce. I should declare an interest, because we are trying to build a next-generation specialist STEM university in Hereford; this is the kind of thing that they will be wanting to look at, and maybe others will look there.

How have you thought about skills: the pipeline, the capabilities and the organisations you are going to work with? The traditional worry in technology and engineering is that without a pipeline or parallel activity the skills can get stale or get exported. How do you think about those issues? What kinds of decision have you made or do you anticipate making?

Air Chief Marshal Sir Richard Knighton: Perhaps I will start with my experience in 2014 when we established the future combat air system programme and started to put it on the path that we are on today. Part of the trigger for that was the recognition that the skills in the UK to design and develop a combat aircraft were dying—we were losing them. The commitment that was made in 2015 to the future combat air system programme and what subsequently became the future combat air system technology initiative, or FCAS TI, was principally about developing the technologies that we would need to build a sixth-generation combat aircraft. A key part of that was to sustain the skills we had and develop the skills that we were going to need.

Richard will talk about the numbers, but there are 3,000 people now working on FCAS who were simply not doing that 10 years ago. Many of them are new to the industry: engineers straight out of college or with secondary degrees. With a programme that is going to run for many years, and with a peak of the design over the next 10, our biggest challenge is going to be getting enough people into the programme with the right skills. We are in that positive position now because of that investment we made to deal with exactly the issue you describe.

Richard Berthon: To build those skills, you cannot just bring the people on board and not give them something to do. The fact that we have these technology projects for people to work on, particularly something like the demonstrator, means a very powerful combination of bringing new talent in, giving them some very difficult engineering challenges to work on, and having a very clear sense that what they are working on is important and will see the light of day.

We have worked closely on skills with our industry partners as a team over the past couple of years. I think there was a degree of scepticism about



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whether the industry would be able to build its skills base in the time we needed it to. I am very pleased that across the main companies that we are working with, we are seeing a really rapid build-up of skills. On apprenticeships and on every job that they are putting into the market, they are oversubscribed by times 10. I think that gives me a sense, at least, that we have a sufficiently attractive product for people to work on and a job to do.

We have something called the Tempest early careers network, which we put together with industry partners and the MoD. That is a group very much at the younger end of our workforce. We talk to them a lot about what brought them in, whether they are going to stay, and what would bring their younger brother or sister into the programme. They really are our best advocates for it. We are encouraging them to go out and talk to academia and universities. We have been a pipe cleaner for the Defence Suppliers Forum, which is looking at people and skills, and we have provided our demand signal, as it were, into that.

I think the fact that we have a long-term demand—people can see that this is a programme that the Government and the nation are committed to, and that this is incredibly exciting and important—brings them into it. Lastly, the fact that it is an international programme helps, because we will require the best of Italian and the best of Japanese, as well as the best of British, in the programme.

Chair: Do any colleagues want to probe further on GCAP? If not, we will move on. Sarah, would you like to take us forward?

Q165 **Sarah Atherton:** The Hawk trainer has been successful and has also been a successful export, but the MoD has started a comprehensive capability investigation into the future of combat aircrew training and a future aircraft. Would you like to give me an update on progress?

Air Chief Marshal Sir Richard Knighton: Sure. Hawk T2 was a derivative of the original Hawk. It came into service over 20 years ago, and right now it continues to meet our needs for fast jet training for Typhoon and F-35. But it was always planned to go out of service around the end of the next decade—2040 is the out-of-service date we describe. We are pretty clear that it will not meet the requirements for a Global Combat Air Programme solution. As a consequence, we need to plan now and start a programme for the replacement of Hawk as an advanced jet trainer.

The analysis is looking at the training system requirements: what is it that we need our pilots to be able to do, and what do we therefore need that aircraft to do? It is also looking at widening it. One potential opportunity that we are exploring is how we might use an aircraft that was principally bought and developed for training to provide what we describe as surrogate training for the in-service GCAP. Instead of flying the all-up combat aircraft every day, for some of those missions you could get all the training that you needed through what we describe as a surrogate platform. The benefits are that it is cheaper to fly and operate, and that it



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does not give away your tactics or have some of the electromagnetic emissions from the aircraft that GCAP would provide.

The second area where we might use a capability like that is to provide what we describe as “Red Air”, but a capability where we simulate another aircraft trying to attack the GCAP in this case. Thinking about the breadth of that requirement enables us to think through whether there might be a single solution. I know that you had Tristan Crawford from Aeralis in to give evidence. Tristan’s and the team’s model of a modular system would enable you to deliver capability for a number of different scenarios. It is something that we are very interested in.

I would like to bring that capability investigation to a conclusion before we get into the next spending review and defence review, because that would be the point at which we would need to establish a programme. Right now there is no money set aside in the defence budget for a replacement for Hawk, but 2040 is only 16 years away, so we will need to have our evidence gathered and developed to be in a position to make a case for investment as we go through the next spending review and defence review. The more widely that capability can support, the better the argument is. It is quite a complex area where there are quite a lot of trade-offs, but I am confident that we will get to the position where we can lay that out and initiate a programme once we have been through the spending review and defence review.

Q166 **Sarah Atherton:** We have been told that synthetic training will increase to 80% of the overall training, versus 20% live training.

Air Chief Marshal Sir Richard Knighton: There will always be, in my judgment, a space for live training. There is a lot of good evidence from our own experience and from other countries that if you dial back too much on the live training—the interplay of the physiological effects of flying and the opportunity to train in that properly realistic context—you might find that you lose some of the skills, and then when it comes to people being brought into combat they are not as effective.

The 80:20 number is kicked around, but there is no definitive evidence that that is the right answer. Right now, we are looking at 50:50 as a target for live synthetic training at the frontline. We do a bit more training in the simulator at various points in the flying training programme.

It is unquestionable, to my mind, that we will rely on synthetic training for the flying training to get to the frontline, but also at the frontline. It is cheaper, and there are some things that you just cannot do in the live environment without giving away your tactics and your capability, so we have to do that in a synthetic environment. Our thinking around the training system will not be just about the aircraft; it will be about the synthetic solutions that sit alongside it as well.

Q167 **Sarah Atherton:** On military flight training, how are things going at Valley with Ascent?



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Air Chief Marshal Sir Richard Knighton: Across military flight training, the situation has considerably improved since this time last year. I was at RAF Cranwell on Thursday last week. I sat next to the gentleman who won the sword of honour, who was about to start flying training. He graduated on Thursday and will start flying training in June. He expects, and I expect him, to run through that system, assuming he is good enough in his fast jet, without any breaks. So there is very significant improvement.

James Cartlidge: Can I say something on that? As you know, I was recently in Wales. Part of my visit was to Hightown barracks in your constituency, but I also had the pleasure of going to Valley and discussing these matters there. It was stressed to me that for the first time we were at a stage where the number of people being trained exceeded the number who were on holds. Obviously we would not have wanted to be in that situation anyway, but that is the first time it has been like that for some time. There is still more progress to make, but generally, particularly with improved availability from the Hawk—that itself is improving but still not absolutely where we want it to be—all these factors have led to that improvement. As you know, there was a significant increase in holds, above where we would want it to be.

Air Chief Marshal Sir Richard Knighton: On Hawk specifically, we still have problems with engine availability. That constrains aircraft availability, which limits the number of pilots that we can put through that system. I am expecting us, for the next few years, to continue to need to put pilots through international systems, for example the NATO system in the US and Italy. We continue to drive Rolls-Royce, Safran, which is responsible for the components that have failed, and BAE Systems hard to improve the output from Hawk.

Q168 **Sarah Atherton:** I know that at Valley they have only 60% of the QIs they require. They want 10 QIs; they only have six. That is obviously going to have an impact on flow. What are you doing to monitor Ascent and the progress, as you have highlighted, that has already been made?

Air Chief Marshal Sir Richard Knighton: The air and space commander is responsible for oversight of the aircrew pipeline steering group and also chairs a quarterly management board with the most senior people in Ascent. Below that level, there are multiple governance structures around that in order for us to keep absolutely on top of their performance. We have absolutely no question over what their performance is and are able to see precisely how things are going. The drive and determination—actually, on both sides—to improve matters is something that I am very comfortable with.

The fundamental problem we have right now with Hawk is that we do not have the components to build the engines and to put enough of the engines into our aircraft, and that is going to be a problem for at least the next three years and potentially longer. That is why we will have to export some of that training. It is not where I want to be, but we are finding a way through it to ensure that we have enough pilots flowing through the system to get to the frontline. Ultimately, what I want is Hawk to perform



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to the level that it was originally designed, built and contracted for. If we can do that, we will be back to that position.

Chair: Thank you. Let us turn now to rotary.

Q169 **Mr Francois:** For context, gentlemen, on 4 February the Committee published a report called "Ready for War?"—and the answer was basically no. The last paragraph of the summary says, "Despite the United Kingdom spending approximately £50bn a year on defence (plus more for Ukraine) the UK's Armed Forces require sustained ongoing investment to be able to fight a sustained, high intensity war, alongside our Allies, against a peer adversary." In pub English, that means if we were fighting Russia today, within about two months we couldn't sustain it because we would either run out of ammunition and weapons, and/or run out of equipment because much of it would be destroyed.

In that context, let's look at some rotary programmes. First, what is the cause of the ongoing delays to the new medium-lift helicopter programme, and how could they be justified? For this new programme, a competition has been about to start for several years. This cropped up at Defence questions, as you know, Minister. Why has this been endlessly delayed?

James Cartlidge: Obviously, there was a very broad point at the beginning of your question about warfighting readiness. In the rotary context, of course, yes, this is an important procurement. We hadn't given a fixed date for when the next stage of competition would be announced. My recollection is that the first time I was asked about it was at the previous orals in November, when I said that we hoped to have the next ITN stage by the end of the year, but we could not guarantee it. In the end, we have not achieved that, but it will be published very soon, as I said, in orals this week.

Mr Francois: I thought it cropped up on Monday. Anyway, perhaps I am getting—

James Cartlidge: Exactly. What I said was—

Q170 **Mr Francois:** Your opposite number basically said it has been delayed four times, so when, actually, is it going to start? What are the timings on the competition? What is the in-service date, the IOC date, for the new medium support helicopter?

James Cartlidge: First, absolutely, on Monday I confirmed that it would be published very soon—

Mr Francois: When?

James Cartlidge: Very soon.

Mr Francois: We have been waiting for years.

James Cartlidge: It will be published very soon.

Q171 **Mr Francois:** That is not very helpful, Minister.



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James Cartlidge: What I was referring to was that, when I was first asked about—you asked about the delay—we had not given a specific date. The one I had given was off the top of my head in November orals, when I said by the end of the year, and I accept that there was a delay. But it will be very soon and, I am hoping, before the end of this month.

Q172 **Mr Francois:** When is the IOC for the helicopter?

James Cartlidge: I will pass that on.

Lieutenant General Sir Rob Magowan: We have not declared an IOC date because, as the Minister said, the invitation to negotiate will be out shortly, and that needs to run through a competition. We think there is going to be a healthy competition and, as a result of that, we will then be able to declare how many aircraft we will design and build in this country, and when the in-service date and the IOC date will be, but we cannot do that until we have run through the competition.

Q173 **Mr Francois:** That is not quite right, is it? Very often, we declare what an IOC is going to be and then we run a competition to meet it.

Lieutenant General Sir Rob Magowan: But that is the case here.

Mr Francois: No, it is not the case—

Lieutenant General Sir Rob Magowan: It is the case here, because we are not declaring a date until we run through the competition.

Q174 **Mr Francois:** Often, you do declare a date; you just have not done it on this one, because it is so delayed, right?

Lieutenant General Sir Rob Magowan: That is correct.

Q175 **Mr Francois:** Okay, so no date for that. Is it now inevitable that Puma will have to be extended beyond 2025? You spent quite a lot of money upgrading the Puma a few years ago. I think that the upgrade was done in Hungary, from memory. We have this upgraded Puma, which we are going to have to run on. How long do we think we are going to have to run that on for? It is quite expensive to keep it flying, isn't it?

Lieutenant General Sir Rob Magowan: At the moment, we are not planning to run it on beyond '25, but we may well need to. But, again, how long we run it on depends on the answer to your first question—

Q176 **Mr Francois:** Okay. If we did not run it on beyond '25, we would have a capability gap until the new one came in, right?

Lieutenant General Sir Rob Magowan: That is correct.

Q177 **Mr Francois:** All right. So we might have to take risk on that.

Lieutenant General Sir Rob Magowan: That is the balance of judgment that we will have to make based on—

Q178 **Mr Francois:** I just think that the Committee is disappointed that, after so many years, you still cannot tell us what the dates are. This has been



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going on for years. I am not the MP for Leonardo in Yeovil—it is Marcus Fysh—but if he were here, he would be tearing his hair out. So, okay, that is that one.

The Secretary of State told us in November that he was considering cancelling an order for 14 Boeing Chinook ER 47 helicopters from the United States. Where are we on that? What were the main factors influencing that potential cancellation? Have we cancelled it or ordered it? What is the status of that one?

James Cartlidge: I will pass that to General Magowan shortly, but the top-level political position is that we have not made a final decision. However, sincerely, we are expecting to make one soon, and obviously you will be updated at the earliest opportunity. I think it is well known that there have been issues around cost growth. When that happens, it is entirely right that we assess these matters, because this is public money. In terms of whether we proceed—as to your question—we have not made that final decision yet. In terms of the Secretary of State, that was the previous answer you were given, but I think we are now very near to that.

Lieutenant General Sir Rob Magowan: Exactly that—you would expect us to drive the best possible deal through the US Department of Defence and into the prime contractor—in this particular case, Boeing—which involves price negotiation and, as we have discussed in this Committee before, the foreign military sales process with the US. We want to ensure that we are able to get the best possible deal through that FMS process. That involves constant negotiation and reform of FMS. As the Minister said, we think that, both on price and on FMS evolution, we will be able to make a decision very quickly.

Q179 **Mr Francois:** When I was in the Pentagon a few weeks ago with the Public Accounts Committee, the number of 2 billion was being bandied around for 14 helicopters.

Lieutenant General Sir Rob Magowan: 1.5 billion is what we are saying.

Mr Francois: We are saying 1.5 billion.

Lieutenant General Sir Rob Magowan: 1.5 billion is the commitment.²

Q180 **Mr Francois:** Okay. We already have 60 Chinooks, though some of them, like Bravo November—

Lieutenant General Sir Rob Magowan: We haven't got 60 Chinooks.

Mr Francois: We used to have.

Lieutenant General Sir Rob Magowan: We haven't now.

Mr Francois: How many have we got now?

Lieutenant General Sir Rob Magowan: Fifty-five.

² The CH-47 ER programme has an ABL of £1.478bn.



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Q181 **Mr Francois:** Okay, so we have 55 Chinooks. With all the other pressures on the budget, how can we possibly justify spending another \$1.5 billion on 14 helicopters?

Lieutenant General Sir Rob Magowan: I think we have had this conversation before—I think with Mr Drax. I will repeat what I said before. If the Government of the day want to prosecute the targets by the special user in the future against the pacing threat, then the answer is the CH-47 Extended Range. If the Government of the day does not want to do that, we do not need it.

Q182 **Mr Francois:** We will not go around the withdrawal of C-130J again, for fear of upsetting my friend and colleague Mr Drax. However, as you know, the Committee was not impressed by that decision. If we do buy this aircraft, it is yet another massive, big-ticket, dollar FMS sale that goes to Boeing.

Lieutenant General Sir Rob Magowan: That—

Mr Francois: Hang on. They got Apache, Poseidon and Wedgetail—we will come on to Wedgetail in a moment. What industrial benefits have they offered back to the United Kingdom? As you know, this is a massive issue, and there are some other members of this Committee—Mr Jones and Mr Spellar, who are not here this afternoon—who, if I can be their vicar on earth for a minute, are very annoyed by how much money we have given Boeing and how little we have had back for it industrially. What is the industrial plan if we buy them?

Lieutenant General Sir Rob Magowan: That is why I had a meeting with Boeing—because we have had conversations at this Committee before about Boeing. That is why I saw them in my office two weeks ago and asked them to answer that question in detail, which they have done. I can read through it or just give it to the Committee. It is an open document, entitled “Boeing’s contribution to the UK’s defence industrial base”. It includes both commercial and defence. It is quite detailed; it is only two sides. Rather than boring everybody by reading it out—

Q183 **Mr Francois:** Perhaps you could send us that.

Lieutenant General Sir Rob Magowan: I can send it to you. I agree with you, and we continue to put pressure on Boeing. That was part of this deal, if the Secretary of State signs up to it: that we ensure that there is benefit to the UK industrial base from CH-47 ER as well as the other range of capabilities on contract with Boeing, which are in this two-page document.

Q184 **Mr Francois:** We will take an in-principle decision fairly soon to either buy it on certain terms or not buy it. The Americans have an expression, which is “fish or cut bait”, and we have an English expression about pots. One way or another, we will take a definitive decision on this within the next few weeks.

Lieutenant General Sir Rob Magowan: Shortly.



Mr Francois: Shortly?

Lieutenant General Sir Rob Magowan: Yes.

Q185 **Mr Francois:** Shortly is a very busy space today.

All right, I will move on to Crowsnest. If we look at page 23 of the report that I referenced, it says: "The Royal Navy's Merlin HM2 fleet has only 30 aircraft but is over-tasked, responsible for both most Navy airborne anti-submarine warfare missions and Airborne Surveillance and Control taskings." It then says, in a footnote, "when fitted with the Crowsnest system". We have spent more than £400 million on Crowsnest, and it still has not achieved initial operating capability. It went on the CSG21 deployment in a trial capacity—we had a bit of a debate about that once—but it still has not achieved IOC. What is the IOC for Crowsnest?

James Cartlidge: It did in July last year; it achieved IOC in July last year—that is my understanding.

Lieutenant General Sir Rob Magowan: Yes, that is correct. I think you might be thinking of FOC, which is 2025. IOC was in July 2023.

Mr Francois: Forgive me.

James Cartlidge: It is understandable. I often confuse them myself.

Lieutenant General Sir Rob Magowan: For the record, it is £429 million we have spent.

Q186 **Mr Francois:** Thank you very much; that is helpful. Wedgetail is not a rotary wing aircraft but an AW capability which dovetails to some extent with Crowsnest. Have we now signed the full business case for Wedgetail?

Air Chief Marshal Sir Richard Knighton: I think I may have said this to the Committee back in November last year—

Mr Francois: We are a persistent lot.

Air Chief Marshal Sir Richard Knighton: I expected the full business case to be submitted in the first quarter of this year, and that is still the case. Before the end of March, the full business case will be submitted, and it then needs to go through a process of approval by the investment approvals committee. We are still on track to do that.

Q187 **Mr Francois:** It is still happening.

Air Chief Marshal Sir Richard Knighton: Correct. In terms of the capability, I expect the first flight of an aircraft this year, and I expect a usable operational capability in 2025.

Q188 **Mr Francois:** So, IOC in 2025.

Air Chief Marshal Sir Richard Knighton: Just to anticipate your question, Mr Francois, no, I am not happy that that is fast enough. But we



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are driving the organisation as hard as we can, and Boeing particularly hard, to deliver that.

Q189 Mr Francois: For the record, we withdrew the AWACS aircraft several years ago under the Integrated Review, so we have had a massive capability gap for several years. Yet again, it is Boeing that are taking the mickey out of us, isn't it? When will we get to grips with this company?

James Cartlidge: I also engage with Boeing, as does MilCap. I have met the—

Q190 Mr Francois: With respect, not very effectively, by the looks of it. Why do these things keep being so late?

James Cartlidge: If I am right, in the case of Wedgetail, as I think you know, there have been significant impacts from the reopening of the commercial aviation sector, which has delayed their industrial side—that is certainly my understanding. But that does not mean that I am satisfied with a delay in any of the programmes—absolutely not.

If I may address your wider point, on warfighting readiness—

Q191 Mr Francois: Just to stay on this for a moment, Minister, we have lost our AWACS aircraft. The Russians like to throw around cruise missiles, as we know. We have a number of fixed radar sites on the east coast. If we had to do this for real, all experience from Ukraine suggests we would lose all those radars to cruise missile strikes in 24 hours, and then others, with some very specialised capabilities that we won't talk about now—we would be blinded. We have a very limited number of mobile radars. This is an extremely serious capability gap, and it has gone on for far, far too long, hasn't it?

James Cartlidge: I stress our interoperability with NATO, but I am happy to bring in Rob.

Mr Francois: Those other aircraft could be tasked elsewhere. We can't guarantee the NATO AWACS force would lend us some AWACS, because they might be fighting somewhere else. That is a complacent assumption. We should have our own, and it just keeps slipping to the right, doesn't it?

Lieutenant General Sir Rob Magowan: The fundamental point that I would make, and I think that you are making, is this: is integrated air missile defence an operational risk in the UK inventory? The answer is yes. Is it an operational risk across the NATO theatre? The answer is yes.

We are learning these lessons. We did not think about that so much when we were operating in other countries, but we are really thinking about it now because of the operational context in which we are supporting our partners. That is why we are determined, with NATO and nationally, to increase our IAMD capability across a range of areas. The fact that you are identifying an operational risk is absolutely right. We accept it.

Q192 Mr Francois: To summarise, a new medium-lift helicopter: still no firm date. ER 47: still no firm decision. E-7 Wedgetail: still no firm date, and



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no signed contract.

Air Chief Marshal Sir Richard Knighton: There are contracts signed. In terms of the full business case, a big chunk of that is about the support contracts. We do have a contract signed to deliver all three of those aircraft.

Q193 **Mr Francois:** Forgive me; I take your point, but until the full business case has gone through, she can't come fully into service. I think we could agree on that.

Air Chief Marshal Sir Richard Knighton: That's fair.

Q194 **Mr Francois:** If I am Vladimir Putin, you are not frightening me at all. I am looking at us thinking, "These people are easy meat."

James Cartlidge: If I may now address your wider point about the Committee's report. It is entirely right that you should be focused on that. It is clear that the military challenge that we face has changed significantly in recent years, particularly since the invasion of Ukraine. We do now need as a Department to increase our focus on the risk of European warfighting; that is absolutely self-evident. You are right, as General Magowan said—of course we now need to look at where the risks lie.

In terms of whether we frighten Putin and our ability to fight against Russia and so on, there are several points. First of all, obviously, our capabilities have been reduced in part, as you know—I know you know this point very well—by supporting Ukraine, and that, in turn, has had a fundamental strategic impact positively in our favour and in favour of our national interests. Obviously, we need to sustain that. It has resulted in the Russian forces being degraded, while at the same time, NATO, the coalition that we would be a part of in a warfighting scenario, has grown in size, with one definitive new member and, as like as not, two new members—one with very significant reserve forces, but both adding significantly to our total effect.

Q195 **Mr Francois:** That is true, Minister. Fair point—I will meet you halfway. But we have given them no jets, when we have a bunch of Typhoons sitting in a hangar doing nothing, and we have given them very, very few helicopters. Your point is stronger in the land field, but this is an air systems inquiry today. In terms of jets and helicopters, we have given them barely anything at all.

James Cartlidge: We have given Ukraine thousands of air systems. They are uncrewed air systems—

Q196 **Mr Francois:** I am not talking about drones; I am talking about jet aircraft or helos.

James Cartlidge: But drones in Ukraine have been a key part of the fight; they have been incredibly important.

In terms of Typhoons in hangars, we have been deploying them recently, as you know, in the Red sea. Obviously, we have to be able to guard our homeland and conduct constabulary patrol, and so on.



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The scale of what we have publicly provided to Ukraine is huge. However, there is a point that one of our Northern Ireland colleagues made recently, which is that you have to add into that the scale of international support, which is a result of our efforts to cohere that support. So I think across the board it has been incredibly powerful.

In terms of the readiness of our armed forces, the point I am making is that that has been affected, obviously, by that donating process. We are starting to replenish. That has involved, for example—

Q197 Mr Francois: For brevity, we gave them the first tanks; our Challengers unlocked the Leopards and the Abrams. Right? We gave them the AS-90s; that unlocked a whole bunch of other artillery systems. They are just beginning to get F-16s, but not even the American ones. And if we had given them just four or even six Typhoons, looking at the other two examples you can argue politically that that would have unlocked a lot of those jet aircraft much quicker.

One of the reasons why the summer offensive did not succeed is that it did not have any close air support. It was never going to break through those very deep defences on the Surovikin line without air support.

James Cartlidge: I have got two very esteemed colleagues—

Mr Francois: I've got one more point, and then I will hand back.

James Cartlidge: On the combat air point, which I will bring in the Chief of the Air Staff on, what I would say is this. You used the example of the AS-90. You are absolutely right: the AS-90 has been gifted into Ukraine. Of course, we are also providing support, because it is not just about giving the platform; they have to be able to repair it and maintain it.

We have then undertaken a rapid procurement of the Archer system from Sweden, as what we call the interim artillery replacement—

Q198 Mr Francois: Fourteen of them.

James Cartlidge: And at the same time, we will be moving—I hope in a relatively pacy fashion—to procure the enduring solution, and we are making progress on that internally within the Department. That underlines the sense in which this is a very dynamic position. There are capabilities, platforms and munitions that we will be acquiring relatively shortly.

Q199 Mr Francois: When are we going to hear more about the enduring solution? Soon, presumably?

James Cartlidge: Soon, yes.

Q200 Mr Francois: Good—"soon". Great.

Lieutenant General Sir Rob Magowan: Can I just add a couple of things, Chair? I will make three points, if I may, Mr Francois. First of all, I'm not aware of a crude rotary wing demand as a priority for Ukraine's armed forces. Secondly, we looked at Typhoon and have discussed Typhoon in this Committee, and we outlined—in general terms—the



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reasons why we did not donate Typhoon at that particular time. However, we are very willing to have a closed session to go through what we call those pan-line of development reasons why; there were a range of those, but it was a secret ministerial submission.

Q201 **Mr Francois:** Rob, it was the symbolism. You take the point. Anyway—go on.

Lieutenant General Sir Rob Magowan: And my third point is that clearly, like you, we study the battle space very closely in Ukraine. Again, I think it is a bold statement to say—I am just quoting, or paraphrasing, your words back to you, Mr Francois—that the reason Ukraine did not break through this year was that they did not have enough close air support. I haven't read that. If that is the case, I would be really interested to see that intelligence or that information.

We are not seeing a great deal of crude, close air support in manoeuvring troops in the close battle in Ukraine. There are a lot of other factors, but we're not seeing that prevalent—

Q202 **Mr Francois:** You can't, because they haven't got the capability to do it.

Lieutenant General Sir Rob Magowan: I don't think that—it's just a different battle space.

Q203 **Mr Francois:** A last point and then I'll hand back to the Chair. We talked about carriers. The RFA Fort Victoria, the support ship for the carriers, can carry helicopters; that is not her primary purpose, but she can be a lily-pad. I got an answer recently that said she is about to go into a maintenance period.

James Cartlidge: In Birkenhead.

Q204 **Mr Francois:** Right. How long is that going to be for, because the fleet solid support ships—the new ones—are years away. While she is in for that refit, we would have to rely on allies or use smaller ships that are not as capable. How long is she going to be in that maintenance period/refit?

James Cartlidge: I believe that in the interim we are using the Tide class tankers for supply. Rob is looking up what the timescale is on that; I don't know. But yes, you are right—she has gone in for what is called an upgrade, in Birkenhead. But that is a very standard thing.

In fact, I think that was the story upon which rested the previous claim that we could not deploy a carrier. Of course, that wasn't based on the fault that then became apparent, but that is why we have two carriers. And now the second carrier, Prince of Wales, is coming into line.

Q205 **Mr Francois:** Yes, but we have spent a king's ransom—we can say that now—on a carrier strike capability. It still hasn't got modern support ships, and the Tide class cannot do what Fort Victoria can do, and they certainly cannot do what the fleet solid support ship can do. That been delayed for years, so we have a hobbled carrier capability. When,



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general, does she come back out?

Lieutenant General Sir Rob Magowan: I haven't got the date, so we will have to give the date back, but, again, if you are alluding to whether we have an operational support gap or risk associated with carrier as Fort Victoria goes into a refit, we rely, as the Minister has just said, on the Tide class and allied support before we get to FSS, yes.

Air Chief Marshal Sir Richard Knighton: What I do know is that Fort Victoria will accompany CSG25, so it will be out and ready to work up and support the carrier strike group deployment in—

Q206 **Mr Francois:** The last thing is this: your boss, the Secretary of State, at Lancaster House, said that we are moving from a post-war to a pre-war era. Presumably, the policy of the Department that he leads is that we are now preparing for war.

James Cartlidge: Correct.

Q207 **Mr Francois:** Right. Against whom, and when?

James Cartlidge: Well, I mean, I think the—you know, the—

Mr Francois: He said it—your boss.

James Cartlidge: Yes, I listened to the speech, and he was obviously primarily referring to the very evident threat that we face on the eastern European flank. We have had sabre rattling from that political entity only in recent days. It is my view—in keeping with your report, which, as I said, I think is very timely—that we should be focusing our efforts on the preparation for what could be warfighting in Europe. I think that that is absolutely a key priority.

Q208 **Mr Francois:** Look, he has just murdered Navalny, so the essence of what you are saying is that we are now preparing, should deterrence fail, to fight a war with Russia.

James Cartlidge: Well, I understand why you say that, but, just to be clear, preparation, from a conventional point of view, is part of deterrence. You are absolutely right: we need to send the signal that we are willing to up our game. That is why I think it is so important for European countries to be stepping up to the mark in terms of their spending—in terms of their contributions to Ukraine.

We have actually seen very significant contributions across the continent, and we also need to show that preparation of our capability. If we go back to the first item, why I feel very strongly about GCAP is that, if our adversaries were to see us not continuing to engage in seeking to maintain that competitive capability advantage, that is what would undermine our conventional deterrent.

Q209 **Mr Francois:** But, at the earliest, we will get that in 2035.

James Cartlidge: But hold on. That is correct, but the point I am making, Mr Francois, is that, if, tomorrow, we said that we were not going to do



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that any more, that would undermine our deterrence. As a country, the fact that we continue to invest in maximising the competitiveness of our capability is a part of our total deterrent effect.

Lieutenant General Sir Rob Magowan: Can I just say for the record that, despite the operational risks that we are carrying and that we have exposed in the last 20 minutes or half an hour, if we had to warfight in Europe, tonight, as part of the alliance, then we could.

Q210 **Mr Francois:** What is the Russian word for “soon”?

James Cartlidge: Well, on “soon”, we are not saying “in due course”. We could say in “due course” but we are not saying that, and there is a reason why, and you know—

Q211 **Mr Francois:** You could have said “shortly”.

James Cartlidge: Mark, you know, as a former Minister, why—because “in due course” has a certain connotation that is not expeditious in chronological terms, whereas to say “soon”, one, as a Minister, has to know that we are going to be delivering something imminently. That is correct on all the points where we have used that word.

Mr Francois: As they say in Essex, “Yeah—whatever.”

James Cartlidge: I do not know what the Suffolk translation is, to be honest.

Chair: I think we already had your peroration, Minister, which is good stuff. Jesse, is there a very quick point you wanted to make?

Q212 **Jesse Norman:** Very tiny. Mr Francois has listed a whole range of programmes on which Boeing has been sub-par. Do you recognise this? Do you think it is a problem with Boeing? Do you consider that failures in its commercial business is an adequate excuse in a pre-war context? And what arguments are you having with the top of that firm to make sure it delivers on all these programmes?

James Cartlidge: First of all, that has not been true of all of its programmes. I am pretty sure that P-8, for example—

Jesse Norman: No, on the ones that Mr Francois—

James Cartlidge: P-8 is an incredibly important platform that supports the continuous at-sea deterrent, for example. My recollection is that that was procured in a very timely fashion. We have had the problems with Wedgetail, which, as I said and alluded to, I believe are linked to industrial factors.

Let me be completely open. It is not just Boeing. There are many programmes where there are issues that have linked to these accumulated supply chain issues that came out of the pandemic and have then been impacted by a situation in which, after all, nations are all chasing ordnance. There is more demand for it. Supply chains are under pressure. That does not excuse these factors, but that is undoubtedly the case.



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Having said all that—this is something that I know the Committee is focused on, as am I—there is no doubt that, in the round and putting aside Boeing, our acquisition system needs to be faster and more agile. That is absolutely definitive. A part of that is a closer relationship with industry where are very frank with it. We have excellent relations with our key defence partners.

In terms of Boeing, I think the thing that has possibly riled the Committee on Boeing before has been a sense that there is not enough industrial contribution. Some of those platforms were very clearly what we call “off the shelf”. We all want to see greater industrial participation. If you are getting nearer to a warfighting scenario, you have to know that you have key sovereign capabilities within your sovereign area, as it were, that you could deploy if you are in a tougher military scenario. That is a priority. That is why we have GCAP. GCAP is there primarily—

Q213 Mr Francois: When is your big announcement on procurement reform? Will it be before Easter?

James Cartlidge: It will be soon.

Chair: On that point, Minister, MilCap, Chief of the Air Staff, Richard Berthon, thank you very much indeed for your evidence today.