

Written Evidence submitted by the Human Security Centre

Background

The Human Security Centre (HSC) is an international, independent, not-for-profit foreign policy think-tank based in London. The HSC adopts and promotes the concept of human security as a central pillar of foreign policy in the twenty-first century.

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Executive Summary

- The Integrated Review (IR) and Defence Command Paper (DCP) both identify Russia as the leading threat to the UK, and the outcome of the Russia-Ukraine War will have a significant influence on the UK's military aviation requirements.
- The exact post-conflict landscape is difficult to predict, but it is likely that Russia will be substantially conventionally weakened and that NATO will see its defensive position improve as a result of the war.
- Lessons already apparent from the Ukraine conflict include the value of a forward-deployable air combat fleet to provide reassurance to allies, the importance of strategic air transport, and the value of traditional crewed intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) platforms.
- The UK's decision to cut its Typhoon fleet will reduce air combat mass at least in the short term, which undermines the stated priorities of the IR and DCP. This will be further intensified should the F-35B programme be halted before adequate numbers have been acquired. However, the purchase of the new fleet of Apache attack helicopters is in keeping with both the IR and DCP and a realistic appraisal of their utility.

- The cuts to RAF air mobility assets, most notably the entire C-130J fleet, will directly undermine the approaches outlined in the IR and DCP – most notably the pivot towards “persistent engagement”. It cannot be expected that allies will be able to make up the shortfall in airlift capability.
- The early retirement of the E-3D Sentry aircraft has left the RAF with a critical capability gap at one of the most important moments for European security since World War Two, and the procurement of only three E-7A Wedgetail aircraft reflects neither the tasking that might reasonably be envisaged under the IR/DCP nor the technical maturity of alternative systems that might supplement them.
- The Poseidon MRA1 fleet offers a cutting-edge capability in the maritime realm and the benefits of commonality with allies but is numerically weak in relation to the threats faced.
- Similarly, the Royal Navy’s Merlin Mk.2 helicopter force is stretched to provide adequate anti-submarine warfare coverage while also supplying airborne early warning and control (AEW&C) under the Crowsnest project.

The Impact of the Russia-Ukraine War on UK Aviation Procurement

1. A number of the questions raised by this inquiry will require further progress towards an end state in the Russia-Ukraine War to be comprehensively answered. Russia’s success, or lack thereof, will feed back into UK and European security both directly and via the impact the war will have on Russia’s leadership. These will influence the viability of the proposals to deliver aviation capabilities set out in the Integrated Review (IR) and Defence Command Paper (DCP) in the context of UK commitments to NATO and further afield. Both the IR and DCP recognise Russia as the UK’s most potent security threat and as such place a priority on the defence of Europe.
2. The current (early May 2022) trajectory of the war indicates that Russia will fail in its original goal of enforcing regime change in Kyiv. There is even a possibility that the Kremlin’s forces will be expelled from mainland Ukrainian

territory entirely.¹ However, the potential of Moscow's mobilisation of conscripts and reservists to bolster its force and/or a decision to widen the war, together with the unknowns surrounding the possible use of nuclear and chemical weapons by Russia, leaves open a wide array of potential outcomes.

3. Nevertheless, elements of the post-war landscape are already coming into view.
 - a. Russian forces have already suffered major attrition amongst their ground forces, notable air casualties, and the loss of their Black Sea Fleet flagship. The performance of Russia's military has been dismal. There is little reason to believe this conventional force erosion or institutional failure can be made good in the short term regardless of the conflict's outcome or the decisions taken by Russia's leadership. Sanctions and pre-existing industrial capacity limitations will constrict Russia's ability to replace lost systems and regenerate munitions stockpiles.² This will impact upon the threats UK forces will need to be configured to address in Europe, including HM Armed Forces' aviation components.
 - b. Multiple European NATO members have pledged to substantially increase defence spending in light of the conflict.³ The most significant commitment has come from Germany, which has proposed a €100 billion fund which will support a broader effort to spend 2 per cent of GDP on defence.⁴ Additionally, Poland is increasing its defence spending to 3 per cent of GDP from 2023.⁵ These developments may serve to notably increase NATO's potential in Central and Eastern Europe.

¹ The expelling of Russia from Crimea is likely to prove militarily too challenging and politically counterproductive owing to geography, the belief in Moscow that it is Russian territory, and a pro-Russian population.

² Watling, J. and Reynolds, N (2022). 'Operation Z: The Death Throes of an Imperial Delusion'. RUSI, April 2022, pp.10-15 [Online]. Available at: <https://static.rusi.org/special-report-202204-operation-z-web.pdf> [Accessed 6 May 2022].

³ Mackenzie, C. (2022) 'Seven European nations have increased defense budgets in one month. Who will be next?' Breaking Defense, 22 March [Online]. Available at: <https://breakingdefense.com/2022/03/seven-european-nations-have-increased-defense-budgets-in-one-month-who-will-be-next/> [Accessed 6 May 2022].

⁴ Marksteiner, A. (2022) 'Explainer: The proposed hike in German military spending'. SRPRI, 25 March [Online]. Available at: <https://www.sipri.org/commentary/blog/2022/explainer-proposed-hike-german-military-spending> [Accessed 6 May 2022].

⁵ Popescu, A. (2022) 'Poland to increase defence spending to 3% of GDP from 2023'. Janes, 4 March [Online]. Available at: <https://www.janes.com/defence-news/news-detail/poland-to-increase-defence-spending-to-3-of-gdp-from-2023> [Accessed 6 May 2022].

- c. The remainder of the conflict and its aftermath is likely to see Ukraine continue to enhance its armed forces, and partially transition from Soviet-origin weapons systems to systems sourced from the West. The latter is occurring both as a result of the limited stockpile of former Eastern Bloc weapons, parts and munitions available for transfer to Ukraine, and the superior performance of many Western systems. This transition is likely to eventually include combat aircraft and long-range air defence capabilities. Ukraine may also obtain formal and informal security guarantees from Western powers. Collectively, a militarily powerful Ukraine embedded within Europe's security architecture (even if not within NATO) would result in Ukraine becoming a major complicating factor in any future Russian moves against NATO, and is likely to force a diversion of Moscow's military resources to manage the threat.
- d. The expected accession of Sweden and Finland to NATO will enhance the challenge Russia faces on its north-western border region by increasing their exposure to allied precision strike systems, and in doing so force Moscow to divert forces to counter this threat.⁶ Many of the assets, including aircraft and ships, which threaten NATO's lines of communication across the Atlantic and which are capable of striking the alliance's rear area including the UK are based in Russia's northwest. Moscow's additional task of having to manage the threat from Sweden and Finland in wartime would impact the combat and support aviation requirements of Britain.⁷
- e. On the deficit side, until there is a major change in the political situation in at least one of the countries, Belarus must now be assumed to be a forward-operating location for Russian ground and air forces that is available for Moscow's unlimited use without a meaningful veto by the Minsk government. This has extensive implications for the security of the Baltic States and Poland, including from an aviation perspective, as it

⁶ Notably, Finland has recently ordered 64 F-35A stealth aircraft from the US, and it is planned to equip them with stand-off munitions such as the JASSM-ER land attack cruise missile. NATO member Norway is already in the midst of purchasing 52 F-35A aircraft which will be equipped with (amongst other systems) the Joint Strike Missile. Both offer options for striking military bases on the Kola Peninsula among other locations.

⁷ Submarines operating out of the Kola Peninsula region represent one of the foremost threats to the UK in its NATO role.

greatly broadens Russia's possible avenues of attack should Belarusian territory and airspace be freely accessible. Russia's retaining of recently captured Ukrainian territory would also present additional forward basing options to Moscow.

4. In sum, it is possible to envisage a European security landscape where a militarily weakened Russia will face a NATO reinvigorated by enhanced military, political and financial commitments from existing members, the addition of highly capable new members, and the embedding of Ukraine into the West. A potential downside to this development could be a leadership in Moscow with access to improved forward operating locations.
5. This leaves open a number of possible options to modify the UK's approach to defence, including the following.
 - a. Further enhancing the UK's commitment to Europe/NATO in light of:
 - Moscow's proven aggression;
 - the poor performance of Russia's forces demonstrating that Britain's Armed Forces can make a meaningful contribution to the direct defence of Eastern Europe;
 - the need to free the US to focus on the Pacific and China.
 - b. The UK 'tilting' further away from Europe on the basis that:
 - the poor performance of Russia's military and the enhancement of European NATO's military, political and geographical position means that mainland European states can largely manage the challenge posed by Moscow;
 - the weakening of Russia means that the threat posed by China and instability in sub-Saharan Africa need to be higher on the list of priorities.
6. As well as the likely post-war regional picture, it is possible even at this stage of the conflict to identify lessons relevant to UK military aviation.
 - a. The ability to forward-deploy combat aircraft has allowed the UK and Western allies to assure Eastern European states of their security while complicating Russia's calculations should it wish to widen the war.

'Backfill' of air combat capabilities by the US and Western European NATO states may facilitate the transfer of combat aircraft such as MiG-29 fighters from Eastern European NATO members to Ukraine.

- b. The air transport of key weapons systems including anti-tank missiles and short-range anti-aircraft missiles – initially directly to Ukraine in the weeks before the conflict broke out, and then to Eastern Europe for shipment across the Ukrainian border once hostilities commenced – has proven critical to Ukraine's defence.⁸ The rapid deployment of UK and allied ground forces to Poland and other Eastern European states by air has allowed for the bolstering of their defence. The ability of the UK and allied states to rapidly reinforce the peacekeeping contingent by air in Bosnia may also be helping contain the Russian effort to support Bosnian Serb separatists in that country as an asymmetric response to the West's support for Ukraine.⁹
- c. The UK and its allies have been able to make extensive use of large, non-stealth intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) aircraft such as the RC-135, E-3 Sentry and E-8 Joint STARS aircraft to generate situational awareness and support Ukraine with data on the disposition of Russia's forces. While they would struggle to survive should Russia opt to target allied airborne ISTAR assets directly, their utility below that threshold is undeniable.
- d. Russia has been unable to neutralise Ukraine's air force or long-range air defence systems despite Moscow's possession of a stockpile of precision-strike standoff weapons and a large conventional air force. This runs counter to previous analysis which expected Moscow to establish dominance early in the conflict. Explanations for this failure include Russia's unwillingness or inability to expend the number of precision-guided munitions required for the task, inability to coordinate complex

⁸ The loss by the Ukrainian airliner Antonov of a number of its outsized cargo aircraft during the Russian invasion and the elimination of the Russian heavy cargo airline Volga-Dnepr Group as a provider has reduced the available options to Western militaries seeking to 'contract out' their air transport.

⁹ Čančar, I.F. (2022) 'Russia's New Front with the West in Bosnia'. RUSI, 21 March [Online]. Available at: <https://www.rusi.org/explore-our-research/publications/commentary/russias-new-front-west-bosnia> [Accessed 6 May 2022].

large-scale air activity, and inexperienced pilots.¹⁰ However, it should not be assumed that such shortfalls will be encountered in future opponents the UK may face.

- e. Basic models of remotely piloted aerial systems (RPAS) that lack significant stealth characteristics (beyond their small size), significant self-defence systems or speed have proven more resilient to Russian air defences than was previously expected, with Ukraine's Bayraktar TB2 proving to be a star performer.¹¹ It has been speculated that Moscow's surface-to-air systems have struggled to lock-on to the small aircraft. However, as with the challenge Russia has with the Ukrainian Air Force in general, it is likely that much of this success is down to Russian military failings rather than fundamental technical barriers to bringing down such aircraft, and it is important not to 'over learn' this lesson. Ukraine's use of unmanned air systems (UAS) (often modified civilian models) to deliver light munitions and target artillery strikes has also been notable. Russia has also utilised uncrewed aircraft for reconnaissance, targeting and attack missions, although available details are limited.

UK Aviation Procurement

Combat aircraft

7. The DCP has committed the RAF to the retirement of the Tranche 1 Typhoons by 2025, and this will reduce the number of combat aircraft available to the RAF in the short term. The commitment to further purchases of the F-35B beyond the initial 48, which was recently confirmed by Air Marshal Richard Knighton to foresee a medium-term programme of 74 aircraft, will to some extent compensate for this loss.¹² However, this will still leave the UK with a

¹⁰ Bronk, J. (2022) 'The Mysterious Case of the Missing Russian Air Force'. RUSI, 28 February [Online]. Available at: <https://rusi.org/explore-our-research/publications/commentary/mysterious-case-missing-russian-air-force> [Accessed 6 May 2022]; Bronk, J. (2022) 'Is the Russian Air Force Actually Incapable of Complex Air Operations?'. RUSI, 4 March [Online]. Available at: <https://rusi.org/explore-our-research/publications/rusi-defence-systems/russian-air-force-actually-incapable-complex-air-operations> [Accessed 6 May 2022].

¹¹ Perrigo, B. (2022) 'Ukraine's Secret Weapon Against Russia: Turkish Drones'. Time, 1 March [Online]. Available at: <https://time.com/6153197/ukraine-russia-turkish-drones-bayraktar/> [Accessed 6 May 2022].

¹² Allison, G. (2022) 'Britain confirms plans to purchase 74 F-35B jets'. UK Defence Journal, 1 May [Online].

restricted force mass and unable to endure significant attrition. It must be recalled that in addition to forward-deploying combat aircraft to locations in Eastern Europe and Cyprus, the limited surface-to-air missile capability possessed by the UK means that almost all kinetic homeland air defence taskings are carried out by combat aircraft, further reducing flexibility to deploy them abroad.

8. The decision to sustain a pure F-35B purchase rather than look to 'split' the next stage of the procurement between the F-35B and the conventional take-off and landing F-35A is sensible in terms of fleet commonality, the ability of all aircraft to be carrier-capable, and the option to deploy the F-35B to more austere land sites that the A-variant could not tolerate due to take-off and landing runway requirements. This allows for direct cooperation with the US Marine Corps, as well as the militaries of Italy, Japan, South Korea and Singapore who either operate or plan to procure the F-35B. While Russia has failed to adequately disable Ukraine's airfields, it must not be assumed that this failure will be repeated by other actors in future.
9. The decision to replace the Army's Apache AH1 (a modified UK-built variant of the US AH-64D) with fifty US-manufactured AH-64E rather than sustain a bespoke UK Apache model represents a sensible move towards US/UK fleet commonality. The number purchased represents a sensible compromise between recognising the virtues of the attack helicopter and the inherent vulnerability of such aircraft to modern air defence systems. The decision to not arm the aircraft with the UK Brimstone missile and instead order the US Joint Air-to-Ground Missile (JAGM) was made for reasons of cost and to tap into US logistics support and weapons stockpiles, although it runs counter to the Government's efforts to more fully utilise the UK defence industrial base.¹³

Air mobility

10. The decision to retire the RAF C-130J Hercules fleet by 2023 will substantially reduce the UK's air transport capabilities, an illogical move given that both the

Available at: <https://ukdefencejournal.org.uk/britain-confirms-plans-to-purchase-74-f-35b-jets/> [Accessed 6 May 2022].

¹³ Lye, H. (2021) 'UK confirms selection of JAGM over Brimstone for Apache'. Army Technology, 8 June [Online]. Available at: <https://www.army-technology.com/analysis/apache-jagm-uk/> [Accessed 6 May 2022]

threat in Europe and the IR's approach of "persistent engagement" will increase air transport demands.¹⁴ While there is a proposal to purchase additional A400M Atlas aircraft towards the end of the decade, this remains at the planning stage. If unrealised, the result would not only be an indefinite reduction in capacity, but also additional strain on the C-17 fleet – an aircraft type which is no longer in production and cannot be readily replaced if lost in combat or an accident, forcibly retired due to a lack of airframe life, or subjected to an expensive life extension programme. Even if the A400M fleet is increased, there will be a capability gap when the smaller C-130J – a platform long favoured by Special Forces – is retired that will not be plugged. In contrast, Germany and France, the two largest users of the A400M, are in the process of activating a joint C-130J squadron of ten aircraft to supplement their air transport and in-flight refuelling force.¹⁵ It is baffling that the UK is heading in the opposite direction, and the move can only be put down to financial considerations. The retirement of the BAe 146 has also reduced RAF air transport flexibility.

11. A contraction in the size of the fixed-wing transport fleet cannot be seen to be in keeping with the 'Global Britain' strategy or the details of the DCP and its supporting documents. At the most basic level, a global force orientated upon persistent engagement will require extensive and continuous air transport support even in the most benign circumstances. The decision to pivot elements of the Army towards a greater focus on multiple persistent small operations with partner militaries is embodied by the formation of the Army Special Operations Brigade and the 11th Security Force Assistance Brigade.¹⁶

¹⁴ "Persistent engagement" is defined in the IR as "deploying more of our forces overseas more often and for longer periods of time, both with NATO and alongside our wider network of allies and partners". Ministry of Defence (2021) 'A Global Britain in a Competitive Age: The Integrated Review of Security, Defence, Development and Foreign Policy', p.73 [Online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/975077/Global_Britain_in_a_Competitive_Age_the_Integrated_Review_of_Security_Defence_Development_and_Foreign_Policy.pdf [Accessed 6 May 2022].

¹⁵ Machi, M. (2021) 'France, Germany launch joint tactical air squadron and training center'. Defense News, 2 September [Online]. Available at: <https://www.defensenews.com/global/europe/2021/09/02/france-germany-launch-joint-tactical-air-squadron-and-training-center/> [Accessed 6 May 2022].

¹⁶ Ministry of Defence (2021) 'Future Soldier', pp.42-43 and 70-71 [Online]. Available at: https://www.army.mod.uk/media/15057/adr010310-futuresoldierguide_30nov.pdf [Accessed 6/5/2022].

The expansion of 16 Air Assault Brigade Combat Team will similarly be of limited utility if there is insufficient airlift to deploy and sustain them.

12. Air transport support from allies cannot be guaranteed as their political goals and military priorities will not always coincide with those of the UK. Even when they do, they will have their own capacity issues.
13. While the retirement of older Chinooks without one-for-one replacement (reportedly reducing the overall fleet size from 60 to 51)¹⁷ has a financial underpinning, it also reflects the reduced size of the Army and a recognition that helicopters have a significant level of vulnerability to modern air defence systems that the Armed Forces are increasingly likely to encounter. Additionally, the replacement helicopters (14 of which are on order) will be better configured to support long-range Special Forces-type operations than their predecessors. Nevertheless, a reduction in fleet flexibility will be unavoidable.
14. The planned out-of-service date for the Puma HC2 remains under review.¹⁸ It would be detrimental to UK defence air transport capacity for it to be retired before the planned New Medium Helicopter (NMH) has entered service. Nevertheless, the Puma is an elderly platform in need of replacement.

ISTAR and Maritime

15. The decision to retire the E-3D Sentry has left the UK without a fixed-wing airborne early warning and control (AEW&C) capability at a critical time for European security. A further escalation in the Russia-Ukraine war to include NATO would leave the UK dependent on allies to provide coverage of the British mainland. This gap will at best not be closed until 2023.
16. The decision to cut the planned purchase of E-7A Wedgetail AEW&C aircraft from five to three aircraft can only be explained as a cost-saving measure.

¹⁷ Perry, D. (2021) 'Chinooks in £1.4 billion deal, but sees fleet shrink' Flight Global, 13 May [Online]. Available at: <https://www.flightglobal.com/helicopters/raf-to-receive-14-new-block-ii-chinooks-in-14-billion-deal-but-sees-fleet-shrink/143726.article#:~:text=Helicopters-,> [Accessed 5 May 2022].

¹⁸ Jennings, G. (2021) 'UK 'continues to review' Puma retirement date'. Janes, 21 December [Online]. Available at: <https://www.janes.com/defence-news/news-detail/uk-continues-to-review-puma-retirement-date> [Accessed 5 May 2022].

While three aircraft represent a 'better than nothing' capability, even five aircraft is arguably below the minimum requirement to support homeland defence, overseas operations, training and maintenance downtime. The argument that such platforms are too vulnerable in a modern environment has been partly countered by the experience of the Russia-Ukraine War. The US has recently selected the E-7A to at least partially replace its own E-3G fleet – effectively acknowledging that networked uncrewed airborne platforms, space-based sensors and other systems are not going to be able to adequately fulfil the air surveillance role in the near-term.¹⁹ There may be an opportunity for the UK to acquire additional aircraft from this production run should the resources become available.

17. The purchase of 16 Protector RG Mk.1 RPAS aircraft to replace the current Reaper fleet is a sensible investment that simultaneously recognises the utility of such aircraft without overcommitting the RAF to a platform that would be unlikely to be survivable in an environment in which advanced air defence systems are present. This will grant the UK the ability to deploy armed surveillance air assets persistently in permissive and semi-permissive environments at low cost – a particularly helpful capability when providing security assistance.
18. The Poseidon MRA1 (P-8A) fleet of nine aircraft represents a potent capability, but numerical strength remains an issue. The original 1996 contract for the Nimrod MRA4 was for a fleet of 21 aircraft – a number identified in a considerably more benign military environment than seen today. The UK fleet would need to be augmented by the US in the event of a major crisis in the NATO region, and the RAF would be unable to make more than a token commitment to an 'out of area' coalition operation without sacrificing its taskings closer to home. However, sharing a common aircraft with the US, Australia, India, South Korea, Norway, New Zealand and Germany will result in a favourable interoperability environment.

¹⁹ Losey, S. (2022) 'It's the Wedgetail: Air Force to buy E-7 to replace AWACS'. Defense News, 26 April [Online]. Available at: <https://www.defensenews.com/air/2022/04/26/its-the-wedgetail-air-force-to-buy-e-7-to-replace-awacs/> [Accessed 6 May 2022].

19. The Royal Navy's Merlin Mk2 fleet is badly overstretched. While primarily tasked with anti-submarine warfare, the force of 30 aircraft has also recently taken up the burden of the AEW&C role under the Crowsnest project. Both tasks are critical to support operations at sea, including those of the *Queen Elizabeth*-class carriers. Notably, despite the poor performance of the Russian military in Ukraine, Moscow's submarine fleet represents a potent threat – to say nothing of China's growing subsurface force. The decision to extend the Merlin's out of service date from 2029 to 2040 is only likely to worsen this issue as the Navy has to balance demands with an ageing fleet. At a minimum, plans to replace Crowsnest when it is due to retire in 2029 require urgent progress.
20. Air transport aside, the primary contribution of UK aviation towards supporting Ukraine has been through ISTAR capabilities – chiefly in the form of the RC-135W Rivet Joint electronic surveillance aircraft. This would have been considerably enhanced had an AEW&C capability (currently being supplied by the US, France and NATO) been retained. The loss of ground surveillance capability when the Sentinel R1 airborne battlefield and ground surveillance aircraft were retired in 2021 has also resulted in a dependence on US aircraft.

9th May 2022