THE BRITISH ARMY'S AJAX: FIT FOR PURPOSE?

BY ROBERT CLARK, DEFENCE FELLOW

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August 2021

Published in 2021 by The Henry Jackson Society

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London SW1P 4QP

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www.henryjacksonsociety.org

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Cover image: Pictured is the new AJAX prototype shown near its future assembly site in Merthyr Tydfil, Wales (http://www.defenceimagery.mod.uk/fotoweb/fwbin/download.dll/45153802.jpg).

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About the Author

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Acknowledgements

The Henry Jackson Society would like to thank, in particular, the following for their assistance in producing this document in rapid order: Tobias Ellwood, Tim Moots, Sophie Colton, Andrew Killeen, Jade McGlynn, Sam Armstrong, the Society's dedicated team of production suppliers, and all those that spoke on condition of anonymity to the paper's author.

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About The Henry Jackson Society

The Henry Jackson Society is a think-tank and policy-shaping force that fights for the principles and alliances which keep societies free, working across borders and party lines to combat extremism, advance democracy and real human rights, and make a stand in an increasingly uncertain world.

1. Foreword
By the Rt Hon. Tobias Ellwood MP, Chair of the Defence Select Committee

In Greek legend, Ajax is described in the *Iliad* as a warrior of enormous stature, second only to Achilles in strength and bravery in combat. Upon Achilles' death, Ajax retrieved his body from Troy which allowed him to compete with other warriors for ownership of Achilles' magical armour. The humiliation of failure so enraged him that it eventually drove Ajax mad and he took his own life.

Today, another Ajax, in the form of the British Army's new reconnaissance (recce) vehicle, is struggling to come to terms with its performance. Whilst no one has yet gone mad, successive defence ministers' stress levels have increased as this project has failed to pass its competitive standards.

The British Army is well overdue a new recce vehicle to replace the eight-tonne Scimitar first introduced in 1971. But, as the House of Commons Defence Select Committee has discovered, the journey to replace this old but reliable war horse, which dates back to 2010, has been a painful one.

Originally planned for delivery from 2017, Ajax was supposed to be a state-of-the-art high-tech lethal addition to the battlefield. But only a handful of the 590 vehicles have yet been delivered. And they are not without their problems, which include vibration issues, noise levels and firing on the move, resulting in test trials being halted twice now.

To compound matters, weighing in at 43 tonnes, it is too big to air transport without partially dismantling. And with the Government's recent Integrated Review confirming that the Warrior fighting vehicle would be replaced by the wheeled Boxer vehicle which has no turret, additional pressure has been placed on the £5.3bn Ajax programme if the Army wants a big gun on the battlefield without using the Challenger main battle tank.

The Ministry of Defence (MOD) has finally conceded that it will conduct a final review to confirm if the problems can be resolved – beyond which the programme would have to be pulled.

This timely paper by Robert Clark dares to consider what Plan B might look like, offering three credible solutions the MOD might potentially consider based on existing viable alternative platforms.

Whatever the outcome, there are serious questions for the MOD. As the National Audit Office has confirmed, the litany of procurement problems experienced by Ajax are also to be found in a dozen of the MOD's 20 largest procurement projects. The MOD owes it to the nation, the taxpayer and our troops to get this right.

Introduction

This research brief examines the recent development of the British Army's new Ajax vehicle platform. Borne of the requirement to replace the aging Combat Vehicle Reconnaissance (Tracked) (CVR(T)), Ajax is the Army's incoming long-range tracked reconnaissance platform.[1] The paper scrutinises the history of the bidding and procurement process from 2010, and the Ministry of Defence's (MOD) conceptualisation of the tracked reconnaissance 'infantry fighting vehicle' (IFV) as an integral component of its new Strike Brigade concept.

The Strike Brigade concept has evolved gradually over time, ultimately resulting in the US-style Brigade Combat Teams (BCTs), which by the spring of 2021 the 'Defence Command Paper' (DCP) sought to restructure the British Army around. Ajax is integral to this, forming the Deep Recce Strike BCT, whilst also supporting the two Heavy BCTs.[2]

However, Ajax is currently four years late – it was due to have begun operational service by 2017.[3] So far, 25 turret-less Ares variants have been delivered for trials.[4] None of these have passed the MOD's Initial Operating Capability (IOC) assessment, and trials have been suspended for a second time over the last seven months due to injuries.[5]

These delays will have a significant knock-on effect for the British Army's deployability over the coming two to five years, as existing platforms, including Warrior, begin to be phased out, whilst Ajax and the Boxer platform are yet to enter service.[6] For an expeditionary army which maintains multiple global commitments, this is a concerning situation for the MOD to find itself in.

Furthermore, the additional time pressures caused by the delays in trials and failed IOC assessment will – in all likelihood – lead to dramatically increased costs. The MOD has already spent £3.2bn out of a £5.5bn budget,[7] with only 25 un-turreted variants yet delivered. At the present rate, and with four years delay, the final costs are likely to either far exceed the original £5.5bn budget or will get to a point where continuing the programme lacks any fiscal sense.

The MOD should use this latest pause during the suspended trials phase to take stock of the situation. After the trials were halted for the first time in November 2020, 21 soldiers had to receive treatment for damaged hearing, with a further 83 receiving additional in-depth tests.[8] Following the resumption of trials in May 2021, personnel were limited to only 90 minutes inside the vehicle in order to mitigate the continued risks.[9] Even this measure did not prevent further injuries, with two more soldiers reporting hearing loss, and an additional soldier further

[1] "First Ares Armoured Vehicles Delivered to the Army", Army, 27 July 2020, https://www.army.mod.uk/news-and-events/news/2020/07/first-ares-armoured-vehicles-delivered-to-the-army/.

[2] "Defence in a Competitive Age", Ministry of Defence, 22 March 2021, https://www.gov.uk/government/publications/defence-in-a-competitive-age, p.53.

[3] House of Commons Defence Committee, "Obsolescent and outgunned: the British Army's' armoured vehicle capability", UK Government, 9 March 2021, https://committees.parliament.uk/publications/5081/documents/50325/default/, p.18.

[4] House of Commons Defence Committee, "Oral Evidence: Ajax: Recent Developments", UK Government, 20 July 2021, https://committees.parliament.uk/oralevidence/2589/pdf/, p.8.

[5] Larisa Brown, "New £3.2bn Ajax tanks withdrawn again after troops suffer hearing loss", *The Times*, 29 June 2021, https://www.thetimes.co.uk/article/new-3-2bn-ajax-tanks-grounded-again-after-troops-suffer-hearing-loss-xg0q5g30l.

[6] Harry Lye, "British Army outlines how Boxer will fill Warrior capability gap", *Army Technology*, 7 May 2021, https://www.army-technology.com/features/british-army-outlines-how-boxer-will-fill-warrior-capability-gap/:~:text=In%20the%20Defence%20Command%20Paper,planned%20Warrior%20CSP%20upgrade%20programme.

[7] Ameya Paleja, "British Army's Upcoming Armored Vehicle Is Harming Its Crew", *Interesting Engineering*, 22 June 2021, https://interestingengineering.com/british-armys-upcoming-armored-vehicle-is-harming-its-crew.

[8] Written evidence submitted by the Henry Jackson Society, "Defence Select Committee: Ajax inquiry", https://committees.parliament.uk/writtenevidence/37869/html/.

[9] Larisa Brown, "New £3.2bn Ajax tanks withdrawn again".

assessed. An additional five personnel reported to their local medical centres for vibration-related symptoms. [10] This means that at least 112 soldiers have been adversely medically affected while conducting very limited trials.

As of 16 June 2021, all Ajax trials across the four defence estates have been suspended pending a ministerial review, led by Jeremy Quin MP, Minister for Defence Procurement. It is incumbent on the Government to review not only the deeply concerning ongoing problems associated with the Ajax, but also to explore viable and cost-effective alternatives, which are still able to fulfil the role originally intended for a long-range deep reconnaissance IFV platform for the British Army. This paper sets out this approach.

[10] "Ajax Vehicles: Testing", Parallel Parliament, 29 June 2021, https://parallelparliament.co.uk/lord/vernon-coaker/search?search_term=Ajax.

1. Strategic Context: Strike Brigades

The operational requirement for the British Army to field a long-range reconnaissance IFV was first identified in the 'Strategic Defence and Security Review 2015' (SDSR).[11] This recognition came five years after the MOD awarded General Dynamics Land Systems UK (GDLSUK) the initial demonstration phase contract to develop the replacement for the British Army's CVR(T).[12] GDLSUK used the ASCOD 2 chassis and platform, developed in the 1990s and in service with both Austria and Spain, for the British Army's requirement.[13] This concept triumphed over BAE Systems' rival submission for the initial £500m MOD contract, the CV90.[14]

The CV90 was already in service with numerous NATO partners, including Norway which utilises a reconnaissance version, and it enjoys a proven, successful record. The MOD's decision to overlook BAE for the initial contract was controversial, particularly after BAE's insistence that the firm would produce the vehicle in Newcastle, sustaining local and national employment.[15]

The new GDLSUK Ajax platform would subsequently go on to form the backbone of the British Army's new doctrinal thinking. In 2015, Strike,[16] a new force structure and, with it, doctrine, was set out for the first time. Strike would enable the British Army to fulfil Joint Force 2025, a war-fighting division optimised for high-intensity combat operations.[17] The French deployment to Mali in 2013, Operation Serval, demonstrated the practical utility of an expeditionary force held at high readiness.[18]

Given such recent European military advances across different global theatres, the 'Army 2020 Refine' restructuring strategy sought to centre three UK Divisions around two Armoured Infantry (AI) Brigades and two new Strike Brigades.[19] The Strike Brigades would enable 'divisional manoeuvre', whereby two Ajax regiments in each Brigade would allow for long-range reconnaissance to be achieved by a rapid and lethal deployment ahead of the AI Brigades. The first Strike Brigade outfitted with Ajax would comprise the Household Cavalry Regiment and the King's Royal Hussars.[20] The SDSR 2015 stated that:

> We will establish these two Strike Brigades to be able to deploy rapidly over long distances using the new Ajax armoured vehicles and new mechanised infantry vehicles. They will double the number of brigades ready for operations.[21]

[11] "National Security Strategy and Strategic Defence and Security Review 2015", UK Government, November 2015, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/555607/2015_Strategic_Defence_and_Security_Review.pdf, p.31.

[12] "Written evidence submitted by General Dynamics Land Systems–UK", Defence Select Committee: Ajax inquiry, 13 July 2021, https://committees.parliament.uk/writtenevidence/37866/html/.

[13] Andrew Chuter, "The British Army's new Ajax vehicles ride too rough, too loud: report", *Defense News*, 3 June 2021, https://www.defensenews.com/global/europe/2021/06/03/the-british-armys-new-ajax-vehicles-ride-too-rough-too-loud-report/.

[14] Roland Gribben, "BAE urges Government rethink on £4bn arms contract by unveiling jobs package", *The Telegraph*, 14 March 2010, https://www.telegraph.co.uk/finance/newsbysector/industry/7443653/BAE-urges-Government-rethink-on-4bn-arms-contract-by-unveiling-jobs-package.html.

[15] Peter Cunliffe, "BAE in battle with MoD to help save British jobs", *Express*, 15 March 2010, https://www.express.co.uk/finance/city/163054/BAE-in-battle-with-MoD-to-help-save-British-jobs.

[16] "National Security Strategy and Strategic Defence and Security Review 2015", UK Government, p.31.

[17] Ibid.

[18] Michael Shurkin, "France's War in Mali: Lessons for an Expeditionary Army", RAND Corporation, 2014, https://www.rand.org/pubs/research_reports/RR770.html, p.15.

[19] "Future of the Army", Army, https://www.army.mod.uk/who-we-are/future-of-the-army/.

[20] "The Future of the British Armed Forces", British Armed Forces Review, 4 January 2018, https://britisharmedforcesreview.wordpress.com/tag/1st-strike-brigade/.

[21] "National Security Strategy and Strategic Defence and Security Review 2015", UK Government, p.31.

The review's goal was to ensure that the British Army remained expeditionary by design, meaning that it can self-deploy and operate over long distances, thanks to increased operational mobility and reduced logistical dependency. It was also envisaged that it would become a more flexible and adaptable force, able to perform a variety of tasks, switching between them both easily and rapidly. As a tracked, medium-armoured platform, Ajax was intended to be the vehicle to spearhead this modernisation.

Beyond the Strike doctrine, however, Ajax fulfils a further battlefield role for the modernisation of the Army. Described in 2021 by the Chief of the General Staff, General Sir Mark Carleton-Smith, as the British Army's "most sophisticated capability" and "effectively a computer on tracks", [22] Ajax is due to incorporate the next generation of 'Tactical Communication and Information Systems' (TacCIS), known as Morpheus. [23] Additionally, Ajax will be outfitted with an impressive 'Intelligence, Surveillance, Target Acquisition and Reconnaissance' (ISTAR) suite to read the digital footprint of the modern battlefield, leading the vehicle to become the Army's first fully digitalised platform. [24] The ISTAR suite includes a comprehensive array of optics and sensors, able to conduct both target synchronisation and target 'hands-off'. Incorporating 'Wide Area Search and Detect' (WASAD) capability, [25] Ajax could be unmatched in its capability to find and track an enemy's digital footprint and electronic signature. This data can then be processed and disseminated in real-time to the commanders, reducing lead-time and increasing lethality. Furthermore, serving as the Army's digital backbone, Ajax will be able to communicate this information across other integrated and future digitalised platforms. This includes the upgraded Apache attack helicopter, incoming Boxer Mechanised Infantry Vehicles (MIV), and the upgraded Challenger 3 Main Battle Tank (MBT).

[22] "Army Chief Unsurprised By Ajax's 'Early Problems'", Forces.Net, 25 June 2021, https://www.forces.net/news/army-chief-unsurprised-ajaxs-early-problems.

[23] "Morpheus Programme: next generation tactical communication information systems for defence", UK Government, 1 August 2016, https://www.gov.uk/guidance/morpheus-project-next-generation-tactical-communication-information-systems-for-defence.

[24] "Ajax: The future of Armoured Fighting Vehicles", General Dynamics United Kingdom, https://generaldynamics.uk.com/systems/land-systems/ajax/.

[25] "Generic Vehicle Architecture", *Think Defence*, https://www.thinkdefence.co.uk/from-scimitar-to-fres-to-ajax/generic-vehicle-architecture/.

2. Strategic Incoherence: The 2021 Defence Command Paper

Released shortly after the Government's 'Integrated Review of Security, Defence, Development and Foreign Policy' (IR) in March 2021, the MOD's 'Defence Command Paper' (DCP) sought to synergise the UK's defence posture to the Government's recent geostrategic realignment. [26] Notably, the Government placed an increasing emphasis on two important developments. Firstly, the ability to maintain a more forward deployed military presence across the globe; and secondly, the need for a tilt to the Indo-Pacific region – the new centre for the global economy and, with it, emerging threats to world peace and international security.

However, in its attempts to restructure the British military around fighting future wars, and not the wars of yesterday, the DCP lacked strategic coherency in several places. As a result, the DCP leaves several significant problems for the MOD to address, with regards to both Ajax and to the future of the Army's imminent restructuring from the DCP. These incoherencies include cuts to British Army personnel by 9,500 by 2024, down to the smallest standing army Britain has had since 1714, with a reduction to 72,500 full-time trained personnel. [27] Undoubtedly a short-term cost-saving measure, these cuts will severely constrain the Government's desire for a more forward deployed military presence, as laid out in the IR. [28] In essence, the British Army will be required to do more with less.

More immediately, the DCP reiterates the MOD's support for Ajax, whilst scrapping the Strike Brigade concept from the SDSR 2015 in favour of Brigade Combat Teams (BCTs). Modelled on their US counterparts, BCTs offer tactical and operational flexibility, with each Brigade a self-contained formation allowing for manoeuvre whilst integrating organic combat support and combat service support elements.

The new make-up of the British Army will now be two Divisions, based on 1 UK Div and 3 UK Div. 1 Div will incorporate two Light Brigades, centred around light infantry and light cavalry operating the Jackal high-mobility weapons vehicle. 3 Div will remain the British Army's principle war-fighting division, incorporating two Heavy BCTs. Each of these will contain one MBT regiment with the upgraded CR3, and one Ajax regiment. In addition, the Heavy BCTs will contain two AI Battalions re-rolled with the incoming Boxer MIV, and one artillery regiment. In addition to the two Heavy BCTs, 3 Div will include one Deep Recce Strike BCT. This will be formed of two Ajax regiments and one artillery regiment. The purpose of the Deep Recce Strike BCT will be to surge ahead of the main division effort (the two Heavy BCTs), and locate and screen the enemy:

> A new Deep Recce Strike BCT will combine the Ajax's formidable sensors with enhanced fires systems to provide long-range persistent surveillance for the coordination of deep fires. [29]

However, 3 Div has now been made less manoeuvrable than before, with the loss of one Brigade (SDSR 2015 and Army 2020 Refine conceived of two AI Brigades and two Strike Brigades). In addition, the Deep Recce Strike BCT appears to be more like a Heavy BCT due to the lack of infantry dismounts, and the fact that Ajax is tracked reduces both deployability and battlefield

[26] "Global Britain in a Competitive Age: Integrated Review of Security, Defence, Development and Foreign Policy", UK Government, 16 March 2021, https://www.gov.uk/government/publications/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy.

[27] "Defence review: British army to be cut to 72,500 troops by 2025", *BBC News*, 22 March 2021, https://www.bbc.co.uk/news/uk-56477900.

[28] "Global Britain in a Competitive Age", UK Government, p.22.

[29] "Defence in a Competitive Age", MOD, p.53.

manoeuvre when compared to both the Light BCTs based in Jackal, and the Boxer MIV, both of which Ajax must deploy in front of as the lead reconnaissance element. This restructuring from the DCP has in effect led to 3 UK Div now being the only heavy Division of any major NATO military to have fewer than three manoeuvre Brigades.

There are further doctrinal shortcomings regarding the DCP and the use of the BCTs, in particular in conjunction with the cuts to personnel of an entire division, and the reduction by one-third of MBTs.

The final doctrinal shortcoming between the need for Strike/Deep Recce Strike and the Ajax's ability to fulfil that requirement is deployability. As a tracked vehicle, Ajax requires transport to deploy. Unlike Boxer MIV which is wheeled, road moves are out of the question for the Ajax. There are several platforms which were originally intended to fulfil deployability purposes for Ajax: RAF A400s; C130 *Hercules*; C-17 *Globemaster*; and *Voyager*. Of these, the A400 cannot transport Ajax due to its weight (43 tons-plus fully fitted); [30] the C130 is being retired early in 2023; [31] and *Voyager's* primary role is air-to-air refuelling (AAR) [32] so its incorporation cannot be guaranteed. Only the C-17 remains for any means of transporting the Ajax. Even then the Ajax must be partly dismantled before transport, [33] which then necessitates reassembly, adding delays to what is intended to be a rapidly deployable, expeditionary force. Furthermore, the RAF maintains only eight C-17 *Globemasters*. [34] With a maximum payload of 45,000 kilograms, [35] each plane could only carry one dismantled Ajax. With an incoming fleet of 589 vehicles, there is clearly no sustainable deployment plan.

The lack of a deployment plan for the Ajax further impedes the Government's IR, given the tilt to the Indo-Pacific region for a more forward deployed British military. This is in addition to the more immediate threat posed by Russia. The Ajax is incapable of being transported to eastern Europe, never mind the Indo-Pacific, without a significant investment in heavy-lift airframes, which is unlikely to happen. The MOD's inability to deploy an overweight tracked vehicle, which is to form the backbone for an entire Division's manoeuvre and reconnaissance, highlights the strategic incoherence which the MOD's insistence on pursuing Ajax demonstrates.

Doctrinally, this is the single biggest flaw: the MOD's plan to base the UK's single war-fighting Division's (3 UK Div) manoeuvre element on a vehicle which is largely non-deployable, due to a combination of (over)weight and tracks over wheels. This flaw could have been overcome in the DCP by either increasing heavy-lift airframes, or by replacing Ajax with a wheeled platform which is significantly more deployable. By retiring the C-130 fleet early and doubling-down on Ajax, the MOD has effectively made a rod for its own back.

30 House of Commons Defence Committee, "Oral Evidence: Ajax: Recent Developments", p.2.

31 "Defence in a Competitive Age", MOD, p.56.

32 "Voyager", Royal Air Force, https://www.raf.mod.uk/aircraft/voyager/.

33 House of Commons Defence Committee, "Oral Evidence: Ajax: Recent Developments", p.2.

34 "UK armed forces equipment and formations 2020", UK Government, 10 September 2020, https://www.gov.uk/government/statistics/uk-armed-forces-equipment-and-formations-2020, Table 7.

35 "Globemaster (C-17)", Royal Air Force, https://www.raf.mod.uk/aircraft/globemaster-c-17/.

3. Red Flags

Even before the 2021 IR and subsequent Defence Paper, there had been several warnings over the ability of GDLSUK to deliver Ajax on time and within budget. These warnings go as far back as 2010 when the MOD chose GDLSUK for the initial contract over BAE. The decision came despite BAE's CV90 being proven and with the subsequent offer to relocate more manufacturing jobs to BAE's Newcastle plant. Whilst hard to ascertain, there was much speculation within the military at the time that the MOD was acting with the intent of precluding BAE Systems from monopolising British defence. [36]

Additional problems from the early manufacturing process almost a decade ago are now surfacing. Shortly after GDLSUK was awarded the production contract worth £3.5bn in 2014, it was reported that the first 100 Scout SV (later named Ajax) platforms would, in fact, be manufactured wholly in Spain, [37] before being shipped to the UK for assembly. The problems in the Spanish manufacturing process of this first batch are reported to have included intermittent and unpredictable quality control, which it is said has contributed to the problems causing injuries to the British troops involved in the now-suspended trials. [38] The first batch of 100 with allegedly faulty quality control are dispersed amongst the fleet being trialled in the UK, with the other models being assembled at GDLSUK's south Wales facility. Quality control faults were said to include poor welding issues and inconsistent hulls, which have led to the secondary problems of excessive noise and vibration for those inside. [39]

Claims of substandard manufacturing in the first batch of 100 vehicles are even more concerning given that these 100 are now four years over-schedule. The first batch was supposed to be delivered, successfully trialled, and operationalised within the Army by 2017. So far, only 25 vehicles have been built and delivered to the MOD, [40] which has withheld awarding them the Initial Operating Capability (IOC) due to the noise and vibration problems which persist and cause injuries. GDLSUK now has only four years until 2025 when all 589 vehicles have to be manufactured. It has taken the first four years to build only 116 (20%), none of which the MOD has deemed meet the IOC. Furthermore, GDLSUK must now ensure that all vehicles are up to correct manufacturing standards that do not cause injuries to the troops using them. The task is likely to be a difficult one given that the first batch of 100 made in Spain are already dispersed throughout the fleet; identifying their structural and manufacturing weaknesses and then retrofitting them is likely to be both time-intensive and expensive. It is imperative that GDLSUK ensures any problems do not exist throughout the remainder of the fleet.

However, the signs are said to have existed from as early as 2010 concerning the propensity for injuries. An evidence session on Ajax was held by the House of Commons Defence Select Committee on 20 July 2021. Carew Wilks, Vice President and General Manager of GDLSUK, when asked about the noise and vibration issues, told the Committee that: "this has been a feature of the design since 2010, when we started work on the programme". [41] The point was

[36] Mark Nicol, "How top brass blew £3.5billion on a dud that is a menace to troops: Ajax is the British Army's new tank that's too heavy, makes crew sick and can't fire on the move... all thanks to a mix of cronyism and incompetence", *The Daily Mail*, 30 July 2021, https://www.dailymail.co.uk/news/article-9845773/How-brass-blew-3-5billion-dud-menace-troops.html.

[37] "British Army's Ajax armoured fighting vehicles to be built in Spain", *Army Technology*, 11 May 2016, https://www.army-technology.com/uncategorised/newsbritish-armys-ajax-armoured-fighting-vehicles-to-be-built-in-spain-4891205/.

[38] Dr Jack Watling, "The British Army's Greek Tragedy", *RUSI*, 22 July 2021, https://rusi.org/explore-our-research/publications/commentary/british-armys-greek-tragedy.

[39] Ibid.

[40] House of Commons Defence Committee, "Oral Evidence: Ajax: Recent Developments", p.8.

[41] Ibid, p.10.

later elaborated upon during the Committee and these early noise and vibration issues were said by GDLSUK to fall within legislation limits. [42]

Contacted in advance of the publication of this report, GDLSUK declined to comment but a source said that many of the above claims were "unfounded allegations" and directed readers to the evidence submission provided by GDLSUK to the Defence Committee of the House of Commons.

The broader concern here is that there has been a potential for a military cover-up of the noise and vibration problems, or at least the full extent of these problems. At the Defence and Security Equipment International (DSEI) in 2017, Kevan Jones MP recalls that several people working on the Ajax problem in the British Army confided their concerns regarding the noise and vibration issues. [43] That is a full three years before the Minister responsible, Jeremy Quin MP, declared that he was only made fully aware of the extent of the problems in November 2020. However, a number and range of sources had confided in defence journalists back in 2017 regarding the scale of the problems. This includes sources from Lockheed Martin Ampthill who are involved in the turret manufacturing; several independent engineering contractors involved in both development and testing; members of the Armoured Trials and Development Unit (ATDU), Land Command and Defence Equipment and Support (DE&S); and people within the MOD. [44] The worry is that senior military personnel did not communicate these concerns and very serious problems upwards through the chain of command for fear of Ajax potentially being decommissioned, adversely affecting certain regiments.

Worryingly, in September 2019, the Australian Armed Forces decided to cut the Ajax from its phase three trials to find a replacement for its IFVs. [45] An official explanation lists both the turret (the CT40mm which is incompatible with Australia's IMV, the Boxer CRV, which uses a 30mm Lance 2.0), in addition to the requirement for eight dismounts, not the six which Ajax is more suited to. [46] However, there was widespread and credible insider speculation from within Australian defence that in fact Ajax's various flaws were already well known in the UK press and the MOD. This in turn could have led to the Australians mainly shunning Ajax due to warnings directly from the British Army. According to an Australian contact of the well-placed defence analyst Nicholas Drummond, Ajax was seen to display low room for growth; involved high engineering costs from GDLSUK; was an already aging platform (ASCOD 2 was developed in the 1990s); and was seen to be heavily overweight – with the ultimate conclusion that Ajax was "borderline not fit for purpose". [47]

Fourteen months on from the Australian Department of Defence's decision not to progress GDLSUK's Ajax for its replacement IFV trials, and three years on from concerns about the noise and vibration problems circulating amongst the UK defence community, only in November 2020 did the full scale of the problems befalling the MOD's Ajax programme come to full public attention. On 9 November 2020, testing was paused due to these safety concerns, which had resulted in 21 personnel requiring hearing treatment and a further 83 requiring monitoring. [48] By March 2021, trials had resumed, but with mitigations in place. These included a top speed

[42] House of Commons Defence Committee, "Oral Evidence: Ajax: Recent Developments", p.10.

[43] Ibid.

[44] Francis Tusa, (@FTusa284), *Twitter*, 16 June 2021, 10:06a.m., https://twitter.com/FTusa284/status/1405089324039917568.

[45] Julian Kerr, "The reasons behind the Land 400 Phase 3 decision", *Australian Defence Magazine*, 19 September 2019, https://www.australiandefence.com.au/defence/land/the-reasons-behind-the-land-400-phase-3-decision.

[46] Ibid.

[47] Nicholas Drummond (@nicholadrummond), *Twitter*, 1 July 2021, 9:05a.m., https://twitter.com/nicholadrummond/status/1410509736433401856.

[48] "Ajax: 'Troubled' Programme's Trials Suspended Again", *Forces.Net*, 30 June 2021, https://www.forces.net/news/ajax-troubled-programmes-trials-suspended-again.

of 20mph (less than half the intended speed) and no reversing over obstacles higher than 20cm (when considering that rapid mobility in difficult terrain is a primary characteristic for a tracked vehicle this is completely unacceptable); due to the severe noise problems, personnel were limited to 30 minutes inside the vehicle. [49] All of which would – if maintained – render Ajax unfit for combat purpose.

In early June 2021, an independent investigation by the Government's Infrastructure and Projects Authority (IPA) stated that the "successful delivery of the programme to time, cost and quality appears to be unachievable". [50] The leaked report stated that powerful evidence found the programme will not be able to deliver the required number of vehicles to the British Army for planned operational deployments by 2024. The report further stated that, given the continued limitations on the Ajax's use, there is "a real risk" that exposing the British Army to these vehicles in their current condition would undermine soldiers' confidence in Ajax. [51] The report lends weight to the contents of several conversations the author has had with serving personnel who have been based at Armoured Trials and Development Unit Bovington and involved in the Ajax trials since 2020.

As of July 2021, the MOD is in a position whereby the delivery of a doctrinally questionable vehicle is so far delayed by four years, and IOC accreditation has been refused to the only 25 vehicles delivered by GDLSUK. The process of accrediting the IOC, the trials managed by the British Army since 2019/20, have resulted in at least 112 service personnel sustaining injuries – some life altering. To accurately determine the problems which have led to these injuries, the MOD is now having to cover the added financial costs associated with the independent diagnostic tests currently underway. [52]

[49] Danielle Sheridan, "New British tanks costing £3.5bn cannot be driven safely over 20mph, reveals leaked report", *The Telegraph*, 2 June 2021, https://www.telegraph.co.uk/news/2021/06/02/new-british-tanks-costing-35bn-cannot-driven-safely-20mph-reveals/.

[50] Jonathan Beale, "Major design flaws in Army's new armoured vehicles, report shows", *BBC News*, 3 June 2021, https://www.bbc.co.uk/news/uk-57348573.

[51] Ibid.

[52] House of Commons Defence Committee, "Oral Evidence: Ajax: Recent Developments", p.13.

4. Alternative Platforms

In autumn 2021, Jeremy Quin will report his findings thus far on the Ajax programme to the Government. There remain three viable alternative platforms available to the MOD should the ongoing and increasing delays be ultimately deemed too costly. More likely still, the Government's own independent IPA report's prediction will bear fruition: the programme now looks to be unachievable entirely, unless the operational effectiveness of the British Army is to be markedly constrained. The alternatives below each have their own merits, both from an operational capability approach, and from the perspective of the UK defence industry and manufacturing base.

The Combat Vehicle 90

The Combat Vehicle 90 (CV90) was proposed by BAE as a competitor to the Ajax programme in 2010. Designed in the early 1990s, the CV90 is currently used by several NATO members, including the Norwegian armed forces which uses the recce variant. [53] The benefit to the MOD of a proven capability is that the CV90 receives multinational funding for research and development, extending its in-service life and cost-sharing R&D between NATO members. The unit cost can be expected to be between US$4 and US$6m, meaning that a fleet of 245 Ajax replacements would cost approximately US$968 million, or £700m. [54] This is a considerable saving compared to the current £5.5bn budget for Ajax. If kept in the UK, the manufacturing process would take much longer; however, the industrial capacity for the production of the CV90 does exist externally should the MOD be willing to subcontract manufacture of some of the vehicles abroad.

During its in-service history, the CV90 has been used on operations in Afghanistan and on exercise in Scandinavia, [55] showing its versatility in different terrains and climates. Notably, the CV90 can match the firepower of the Ajax's CT40mm with a 40mm cannon that uses a munition programmer. [56] The elevation on the cannon also allows it to be used as an anti-air gun and to engage elevated urban targets.

Crucially, the CV90 is fully digitalised and has an open digital architecture for future development and applications, including the British Army's TacCIS. The vehicle's ISTAR capabilities also match those of Ajax, and it also has an LSAS-like 360 view called 360 Battleview. [57] The CV90 weighs up to 37 tonnes, [58] making it lighter and more easily deployable when compared to Ajax, which requires dismantling in order to be flown.

The Warrior Capability Sustainment Project

The recently cancelled Warrior Capability Sustainment Project (WCSP), which began in 2009, also has the potential to replace Ajax. The WCSP had an initial budget of £1.27bn, but this overran by an additional £227m. [59] Despite the WCSP's reputation being tainted with overspending and

[53] "BAE Systems Delivers First of 144 CV90s to Norway", BAE Systems, 25 February 2015, https://www.baesystems.com/en/article/bae-systems-delivers-first-of-144-cv90s-to-norway.

[54] "CV9035 JK III", Army Guide, http://www.army-guide.com/eng/product2095.html.

[55] "CV90", BAE Systems, https://www.baesystems.com/en/product/cv90.

[56] "CV90 Strong. Agile. Evolutionary.", BAE Systems, https://www.baesystems.com/en-media/uploadFile/20210407065736/1434554723973.pdf, p.2.

[57] Ibid.

[58] "Bae Systems presents the new CV90 MK4 Infantry Fighting Vehicle", *Army Recognition*, 26 January 2018, https://www.armyrecognition.com/iav_2018_news_show_daily/bae_systems_presents_the_new_cv90_mk4_infantry_fighting_vehicle.html.

[59] House of Commons Defence Committee, "Obsolescent and outgunned: the British Army's armoured vehicle capability", UK Government, 9 March 2021, https://committees.parliament.uk/publications/5081/documents/50325/default/, p.17.

delays, the majority of issues stemmed from the MOD, and not Lockheed Martin UK. [60] These included the unavailability of GFX and changes made to the turret specification as late as 2016.

The MOD currently holds 759 Warrior vehicles; [61] therefore, upgrading existing stock should in theory be cheaper than buying an entirely new platform such as CV90. However, due to the age of the existing stock, parts such as the vehicle hulls will need refabricating sooner.

The upgraded Warrior uses the same stabilised cannon as the Ajax. However, this cannon has drawn criticism for being more expensive than alternatives. Amongst the Warrior's further upgrades were digitalisation, a modular armour system, and increased situational awareness aids. The new electrical capabilities have meant that the upgraded Warrior does require three times more electrical power than previously. [62] However, by converting the IFV to a recce vehicle, there is room within the vehicle where dismounts would have once sat.

The Warrior also benefits from being lighter than the Ajax by over fifteen tonnes, allowing for quicker transportation of the vehicles and without having to dismantle them. Warrior's support variants also exist within the MOD, some of which suitably fill the role of the Ajax platform's Apollo and Argos vehicles.

The Boxer Combat Reconnaissance Vehicle

Rheinmetall's Boxer Combat Reconnaissance Vehicle (CRV) is a recce variant of the recently procured Boxer vehicles that are replacing the Warrior IFV. Some ministers have already highlighted Boxer as an Ajax alternative. [63] Britain currently has 508 ordered which are being delivered at a rate of one per week. [64] If the Boxer CRV is chosen, the production capacity must be expanded to get these vehicles in a timely manner.

The CRV variant is currently used by the Spanish Marines and the Australian Army. Much like the CV90, the Boxer is a tried and tested platform, used in its other variants by key NATO members such as Germany. The multinational use of the vehicle attracts continuous investment and development. Similarly, by using the same vehicle as the Australians, the British Army will become more interoperable with our ally and a fellow Five Eyes member, an alliance the Integrated Review aptly branded "unique and highly valued". [65]

The Boxer CRV has an open electronic architecture for future developments and applications, crucial to any role in replacing Ajax. The vehicle also has many C4ISTAR assets coupled with a sensor suite making it "akin to a land-based F-35 Joint Strike Fighter". [66] The Australian Boxer CRV also has a new Lance turret; however, this only has a 30mm cannon. One potential costing to be aware of would be the upgrading of the turret to the CTA40mm that is used on Ajax and the WCSP. Perhaps one of the most attractive selling points of the Boxer CRV is its survivability. The L-shaped engine, external placement of flammable liquids and hammock-like structure are but some of the aids reducing the risk of user casualties. [67]

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60 "Written Evidence submitted by Lockheed Martin UK", UK Government, https://committees.parliament.uk/writtenevidence/12158/pdf/, p.4.

61 House of Commons Defence Committee, "Obsolescent and outgunned", p.17.

62 "Follow-up written evidence submitted by Lockheed Martin UK", UK Government, https://committees.parliament.uk/writtenevidence/14111/pdf/, p.4.

63 Tobias Ellwood MP (@Tobias_Ellwood), *Twitter*, 30 June 2021, 7:37a.m., https://twitter.com/Tobias_Ellwood/status/1410125302785773570.

64 House of Commons Defence Committee, "Obsolescent and outgunned", p.21.

65 "Global Britain in a Competitive Age", UK Government, p.61.

66 "CRV Solution Profile", *Rheinmetall Defence*, https://dtrmagazine.com/wp-content/uploads/2016/06/CRV-Solution-Profile-Boxer-CRV.pdf, p.5.

67 Ibid.

Unlike Ajax, Boxer is a wheeled vehicle making it far faster on road moves. The CRV does, however, still retain the ability to keep up with tracked armour off-road, which is crucial if supporting British or allied main battle tanks and the new British Heavy BCTs. Additionally, the CRV weighs up to 38 tonnes,[68] lighter than the 42-tonne Ajax, making it more deployable and fulfilling the expeditionary nature laid forth by both the IR and the DCP.

Lastly, by expanding Boxer's role within the new BCTs, the British Army can limit the variety of spare parts needed and streamline the production process further still, in turn simplifying logistical needs and ultimately enhancing the Brigade's self-sufficiency. Boxer's vast number of variants and its modular design also mean that replacing Ajax's support variants is very achievable.

[68] Ben Coleman, "Project LAND 400: defining the army," Australian Strategic Policy Institute, February 2018, https://s3-ap-southeast-2.amazonaws.com/ad-aspi/2018-02/SI126%20sssss%20Land%20400%20defining%20the%20armyV3_0.pdf?l_g4LUCZOjHuHdY3cAkzqNXK8WZhyJP4.

Conclusion

Ultimately, the ongoing delays to the Ajax platform are causing serious concern amongst the British Army. This is not only limited to procurement and finance, but for the British soldiers themselves who are suffering. In some cases, this includes potentially life-altering medical injuries whilst trialling the vehicles. Currently, Ajax is at least four years delayed, with the full suite of vehicles due to be in frontline service by 2024. It is likely that the trials of only 14 un-turreted vehicles will not be resumed until 2022 – only two years before proposed frontline service.

The longer these delays are allowed to continue, the more deleterious the potential impact could become to the UK's Global Britain strategy, which seeks to achieve a more permanently deployed military presence across the globe. Ajax, as the focal point of the new Deep Recce Strike BCT, is an integral component of the British Army's recently updated Strike doctrine. Therefore, a decision must be made before the end of this year whether to press ahead with it, or to develop an alternative strategy and platform for the Army.

In reaching this decision, the MOD must consider if the problems facing Ajax can be alleviated in a timely and cost-effective manner, and whether the troops themselves have confidence in this equipment, which is currently causing injuries to those trialling it. At present, neither of these tests appear to be met.

Both the Boxer and the Warrior are well-known to and popular with the British Army, with the CV90 also receiving strong support from within the defence community.

If a long-range, fully digitalised tracked reconnaissance platform is the preferred option to spearhead the new doctrine set forth for 3 UK Div with Heavy BCTs and the Deep Recce Strike, then the CV90 and Warrior CSP offer clearly viable alternatives for the MOD. However, the Boxer CRV offers excellent protection, deployability, commonality and impressive C4ISTAR capabilities.

All three alternatives offer cost-saving measures to the British taxpayer in comparison to continuing with Ajax, and especially so if the inherent mechanical problems persist when the trials resume after the autumn. In addition, the alternatives presented here also offer sustained lethality and, significantly, much increased deployability – absolutely crucial if the Army is to fulfil the Government's vision laid out in the recent IR.

However, if these delays are allowed to persist by the MOD, the detrimental effect caused to the British Army's combat effectiveness in pioneering a more forward deployed global presence will severely hinder the recent vision the MOD set out. Crucially, severe challenges to the Army's deployability, lethality, and effectiveness will remain for at least a generation.

The Defence Secretary Ben Wallace has previously appeared to distance himself from the troubled Ajax programme, [69] stating that his priority is the safety of the personnel operating them. With at least 112 injuries sustained so far, this surely cannot be allowed to continue any longer. In addition, Mr Wallace affirmed as recently as June 2021 that any additional costs would be met by the contractor. [70] However, the MOD is already being made to pick up the bill for the noise and vibration testing currently underway at Millbrook, as revealed in July's evidence session by GDLSUK at the Defence Select Committee. [71]

[69] Helen Warrell, "Defects with UK army's new tank go back to 2019, minister admits", *Financial Times*, 16 June 2021, https://www.ft.com/content/8be0a6e5-f75c-4ef8-9b44-2c2950c1a6f9.

[70] Ibid.

[71] House of Commons Defence Committee, "Oral Evidence: Ajax: Recent Developments", p.13.

Dragging out this failed programme any further will ultimately be a waste of taxpayers' money, and a failure of duty of care to the British Army personnel involved in any future testing. There is widespread unease across the Royal Armoured Corps about Ajax. An alternative, smaller, cheaper, but still as capable and more deployable platform, must now be sought. Troops lacking confidence in their equipment, should it ever materialise, is an outcome that the MOD can ill afford.

Title: “THE BRITISH ARMY’S AJAX:
FIT FOR PURPOSE?”
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August 2021