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**INQUIRY INTO BRITISH ARMoured VEHICLE CAPABILITY**

HCDC is conducting an inquiry that *“will focus on the procurement and use of Armoured Fighting Vehicles (AFVs) and ask whether more must be done to ensure the Army’s ability to deploy an armoured division.”*<sup>i</sup> This submission provides analysis to assist in answering this question and subordinate questions including:

- *“Whether the Army is currently on track to be able to field the Strike Brigades and armoured division in line with the recommendations of the 2015 SDSR”.*
- *“Whether the Army will be able to match the potential threat posed by peer adversaries by 2025”*
- The 13 more detailed questions listed at the Call for evidence.<sup>ii</sup>

It is based on IISS analysis of global armoured warfare capabilities published in the annual IISS Military Balance and data held in the Military Balance+ database, as well as a strong body of analysis of recent, current, and future wars and the roles of AFVs in conflict. It does not look beyond 2030.

**EXECUTIVE SUMMARY**

Armoured warfare is a capability of great relevance, both currently and in the future. Based on data held by the Military Balance+ database, some 250,000 AFVs are in service globally. Most current British Army AFVs are either obsolete or approaching obsolescence. Together with the introduction of the Ajax and Boxer AFVs, the Army’s plans to upgrade Challenger and Warrior have the potential for a transformational enhancement to British armoured warfare capabilities. Without these improvements British armoured warfare capabilities will become increasingly less effective, when compared with Russian and US armoured forces.

The most challenging peer adversary for the 3<sup>rd</sup> Divisions’ capability is Russia. To match Russian tank or motor rifle formations, in 2025, the division will need to exploit its strengths, but find ways of overcoming its weaknesses. It will have two armoured infantry brigades with Challenger 2 tanks and Warrior infantry fighting vehicles (IFVs). It will have many Javelin anti-tank guided weapons (ATGW), but its adversary would have many armoured vehicles with integral ATGW that can be fired from under armour. The British division has no such capability. The division’s anti-armour capability would be greatly enhanced by allocating it the Apache helicopters of the British aviation brigade. Whilst the division’s armoured engineer capability is a strength, its organic artillery is outnumbered and outranged by much more numerous Russian artillery. This could constrain armoured manoeuvre. The obsolete FV 432 and Spartan AFVs currently filling many support roles would be particularly vulnerable to indirect fire. Modernising British artillery does not appear to be funded.

In 2025, the division will have re-organised an armoured infantry brigade into a strike brigade. This will have much greater operational and strategic mobility than the formation it replaces, increasing options for rapid deployment of medium armour over extended distances, including in Europe. But reducing tank strength by one third means that divisional anti-armour capability, particularly against tanks, will be less. Over time, Russian AFVs are increasingly likely to be fitted with active protection systems (APS) that would reduce the effectiveness of British Javelin and Hellfire ATGW. The disruptive challenge to the effectiveness of ATGW posed by APS does not appear to be publicly acknowledged by most NATO armies, including the British.

The weaknesses of British anti-armour and artillery capability, compared with Russian armoured forces, increases the importance of delivering the Army’s planned AFV modernisation programme.

Abandoning these capabilities would not only reduce the combat power of the Army but would also be difficult to explain to NATO and key allies. Doing so would probably be welcomed by the Kremlin.

## **INTRODUCTION**

Tanks have been key land warfare capabilities ever since they were invented by the British in the First World War. They continue to have two main roles: destroying enemy tanks and AFVs, or providing mobile, protected firepower. Many armies, including the British, concentrate tanks in specific brigades or divisions, along with a wide range of other armoured vehicles. These include infantry fighting vehicles (IFVs), armoured personnel carriers (APCs) and armoured reconnaissance vehicles. There is a wide range of AFV variants on tank, IFV and APC chassis, providing combined arms combat and combat support capabilities. Units and formations primarily equipped with AFVs are normally known as “armoured forces”; their tactics and operations are usually described as “armoured warfare”.

Armoured warfare is a combined arms activity. To conduct it, an Army needs more than just units of AFVs, manned by trained personnel. It also needs a full spectrum anti-armour capability. This is, in part, provided by tank guns and the cannon on other vehicles, but is also provided by anti-tank guided weapons (ATGW) and shoulder launched short range anti-armour weapons. Anti-armour defence is also enhanced by the ability to create anti-armour obstacles, including anti-tank mines.

Offensive armoured operations also require engineer support to breach and cross obstacles. Without an armoured engineer capability tempo will reduce and casualties increase. The same will occur if armoured forces lack the full spectrum of combat support and logistic support mounted in armoured vehicles. Self-propelled artillery has an important role in suppressing enemy forces. Concentrated artillery fire can damage all types of AFVs and can destroy light armour.

## **THE UTILITY OF ARMoured WARFARE CAPABILITIES ACROSS THE SPECTRUM OF CONFLICT**

The 2003 Coalition attack on Iraq saw well-trained modern, networked high technology US and UK armoured forces comprehensively over-match less modern and trained Iraqi forces. The decisive role in rural and urban combat was played by the Abrams tanks and Bradley fighting vehicles of the US Army 3<sup>rd</sup> Infantry Division (Mechanised). Their advanced armour was largely impervious to Iraqi anti-tank weapons. This allowed them to conduct “Thunder Runs”; armoured brigade raids into Baghdad, the tipping point of the invasion. Similar armour was fitted to the British Challenger 2 tanks and Warrior IFVs. Both AFVs were almost invulnerable to the copious numbers of rockets fired by Iraqi forces, insurgents and militias. They could move at will through Basra.

Subsequently US and British tanks and IFVs proved essential in reducing casualties and defeating militia and insurgent attacks. The key US battles in Ramadi in 2006/7 and Sadr City in 2008 would not have succeeded without the Abrams tanks and Bradley IFVs of US armoured brigade combat teams. And without the firepower and protection of Warrior the British would have taken much heavier casualties during the heavy fighting against the Shia militia in Basra in 2006-8.

In the 1990s the Canadian Army abandoned their tank capability. But in Afghanistan, the 2006 Canadian battle in Panjawi District, Operation *Medusa* saw unexpectedly heavy fighting, where the Canadian Army’s light armour was overmatched by the Taliban. Canada rushed tanks back into service and has retained a regiment of Leopard 2 tanks ever since. The US Marines and Danish contingent employed tanks in Helmand province. And the British employed Warrior IFVs. Both the British and US Marines employed engineer tanks to breach IED belts.

AFVs played an important role in Russia's 2008 war against Georgia and 2014 intervention in Eastern Ukraine. Wheeled AFVs deploying at speed over great distance were an essential component of the 2013 rapid French intervention in Mali and subsequent stabilisation operations across the Sahel. Forces deployed on international peace missions, make extensive use of AFVs.

The war in Syria saw extensive use of tanks and AFVs by Syrian government forces and rebel groups, including ISIS. Large numbers of ATGW were used by rebel groups, a capability that Syrian forces struggled to counter.<sup>iii</sup> Lebanese Hezbollah provide an illuminating example. Their initial intervention in support of the Assad regime saw them provide a light infantry battalion. It required support from Syrian tanks and artillery. By 2017 the Hezbollah contingent was a combined arms mechanised battlegroup, equipped with tanks, APCs and armoured engineers. The 2016-17 Iraqi government campaign to evict ISIS from captured Iraqi towns and cities made extensive use of AFVs. This saw intimate co-operation between infantry, tanks, armoured bulldozers, tactical drones and precision strike from artillery and aircraft.

### GLOBAL STRATEGIC TRENDS IN AFVS

There are large numbers of tanks and AFVs in serve with many armies across the world. The IISS Military Balance lists over 5,000 tanks in the inventories of European armies, and large numbers of AFVs are held by many important armies, including those of the US and Russia. The IISS Military Balance Plus database shows global holding of 250,000 AFV s as follows (rounded to the nearest thousand):

- Tanks: 54,000
- IFVs: 44,000
- APCs: 97,000
- Armoured Reconnaissance Vehicles: 16,000

Whilst AFV fleets in NATO and Russia greatly reduced after the Cold War, the Ukraine crisis resulted in increased European defence spending, resulting in acquisitions of additional AFVs. These include Germany buying back 100 Leopard 2 tanks from the manufacturer, Lithuania ordering Boxer APCs and Latvia purchasing ex-British Army Scimitar and Spartan reconnaissance vehicles. US Army is refurbishing and updating its fleet of M1 Abrams tanks, M2 Bradley IFVs and Stryker APCs. France has introduced the VBCI wheeled IFV and has an ambitious programme for new wheeled APCs and combat reconnaissance vehicles. Germany is introducing the Boxer wheeled APC and Puma IFV and is upgrading its Leopard 2 tanks. Poland has an ambitious programme for a wide range of new wheeled and tracked AFVs. The US, France and Germany have plans for future tanks to be introduced in the 2030s.

**Role of AFVs in Future Land Warfare.** Many armies conceptual thinking about the future conflict assesses that enemy armour will be a persistent threat and that tanks and AFVs will have high utility out to at least 2040. The global megatrend of urbanization means that urban warfare will become increasingly important. All the evidence suggests that using AFVs in urban warfare increase tempo and reduces casualties. Given the ease of creating urban obstacles, armoured engineers have great value in urban operations. IISS assesses that armoured warfare, armoured forces and AFVs are likely to continue to be key land force capabilities for the foreseeable future.

**Industrial Factors.** The Western military intervention in Iraq and Afghan show that the way in which armoured vehicles are used, where they are used and the enemies used against, can be very different from what was envisaged in the initial requirement. AFVs now serve for very long periods of time, much longer than envisaged when they entered service. This implies that upgrades and technology insertions for AFVs will increase in importance.

Developing new AFVs can be expensive and demanding. Getting the requirement right, developing an AFV that offers combat effectiveness, value for money and stretch potential is never easy. But it can be done. The large number of M113 APCs, T-72 and Leopard tanks still in service show that AFVs that sell on their own merits can be developed.

Both the US and European AFV industries have excess of capacity. And the large stocks of surplus AFVs left over from the Cold War are an additional disincentive to the development of new AFVs. European companies have been making increasing efforts to export AFVs to Latin America, the Middle East and Asia. These have met with some success. But western AFV manufacturers' export efforts are increasingly having to compete with vigorous Russian and Chinese efforts to export their AFVs. Both nations produce AFVs that are highly competitive in price. For example, the large Indian armoured forces are almost entirely equipped with Russian AFVs, whilst Pakistan makes great use of Chinese vehicles.

### **BRITISH ARMoured WARFARE CAPABILITIES AND PLANS**

Since the Russian threat to NATO's eastern states is heavy in armour, NATO requires a credible land armoured warfare capability to deter and if necessary, defeat Russian armoured forces. Evidence suggests that the British Army expects to play a major role in any such war. The NATO Summits of 2016 and 2018 saw commitments made by the Alliance and the UK, to improve NATO's ability to deter and reinforce and an increased emphasis on armoured forces performing both roles.

The British Army has a single heavy division. 3 (UK) Division is declared to NATO, but could also be employed on national missions, including with the US. It currently contains three armoured infantry brigades, each with a single regiment of Challenger 2 tanks and two armoured infantry battalions with Warrior IFVs. Armoured cavalry regiments are currently equipped with the CVR(T) series of light armoured reconnaissance vehicles. Both these and armoured infantry are also equipped with Javelin ATGW.

The division's three armoured engineer regiments contain armoured engineer tanks that use the Challenger 2 chassis, the Titan armoured bridge layer and the Trojan armoured engineer vehicle which has a primary role of minefield breaching. They also have the lighter Terrier armoured engineer vehicle. The only anti-tank mines are some AT2 scatterable mines.

The divisions' artillery comprises three regiments of lightly armoured self-propelled AS 90 guns and a regiment firing guided MLRS rockets from lightly armoured launchers. The only indirect fire anti-armour capability is a small number of Exactor 2 systems, firing the Israeli Spike NLOS missile for precision attack.

An armoured battlegroup was deployed to Exercise *Saif Sareea* in Oman in 2018. A rotational armoured battlegroup from the division is deployed to Estonia as part of NATO's Enhanced Forward Presence. The division has also found the framework brigade for the NATO Very High Readiness Joint Task Force (VJTF). This included a high readiness armoured battlegroup. This and reporting of the divisions' training and exercise programme all suggests that the Army expects the division to play a major role in both NATO Article V contingencies and other operations including in the Middle East. The division has also trained to operate as part of a US Corps, alongside US armoured divisions.

The Army is to re-organise by re-rolling an armoured infantry brigade into one of two new "strike brigades". These will have two mechanised infantry battalions equipped with a new Mechanised Infantry Vehicle, the Dutch/German Boxer wheeled APC. An armoured cavalry regiment optimised for reconnaissance and a medium armour regiment will both be equipped with the Ajax family of tracked scout vehicle. All these units will also have the Javelin ATGW. The Ajax vehicle is funded and being delivered, with the first unit receiving its vehicles in 2020. The Mechanised Infantry Vehicle

programme has received MoD approval. The first Boxer vehicles are to arrive from 2023. The Army plans that when the armoured infantry brigade converts to the strike brigade role in 2024, its tank regiment would give up its tanks, to be replaced by a medium armoured regiment equipped with Ajax. This will reduce the division's tank numbers by about one third.

**Likely Role of British Armour in a European Conflict.** UK defence policy appears to assess the Russian threat as the greatest in Northeast Europe, the Baltic states and Poland. It appears that the British-led battlegroup in Estonia is an enduring commitment, to contribute to deterrence by deploying forces with credible capability for combat against Russian forces. Given that Estonian forces have no tanks, the British battlegroup in Estonia represents a considerable proportion of the NATO armoured warfare capability in that country. The battlegroup's potential contribution to the defence of Estonia against a Russian attack provides a demanding mission against which to assess the capabilities of British armoured battlegroups.

It is possible that the 3<sup>rd</sup> Division could be deployed to deter any Russian attack on NATO. A more challenging but equally probable scenario is for the division to take part in a NATO counter offensive against Russian forces that had successfully seized NATO territory. Achieving this in a timely fashion and without excessive casualties is an extremely demanding war-fighting challenge, probably the most demanding mission against which to benchmark the division's capabilities. Subordinate challenges include breaching and crossing obstacles, attacking prepared defensive positions in rural, wooded, and urban terrain, and defeating armoured counterattacks. The commentary below is based on assessments of the role of British armour in these scenarios.

#### **THREAT FROM RUSSIAN ARMoured FORCES.**

**The Challenge Posed by Russian Armoured Vehicles.** Any Russian attack on NATO would see extensive use of Russian armoured forces challenging British armour. These would have a large number of different types of AFVs, from lightly protected armoured personnel carriers to modern tanks with advanced armour. In the early stages of any conflict NATO AFVs would be considerably outnumbered. Russia continues to upgrade the protection of its armoured vehicles. In recent years Russia has been displaying prototypes of a new range of armoured vehicles that appear both better protected and heavier than previous Russian systems. These include the Armata tank, with a radical layout of the crew in the chassis and an unmanned turret, the Kurganets tracked IFV/APC and Bumerang wheeled APC/IFV.

**The Disruptive Challenge Posed by Russian Active Protection Systems (APS).** Ukrainian forces report that Russian tanks have used jammers to interfere with the guidance of Ukrainian ATGW. Current "hard kill" APS, such as the Israeli Trophy system, can disrupt both guided and unguided anti-armour weapons such as the Kornet ATGW and man portable rocket propelled grenades (RPGs). The new Russian armoured vehicles are fitted with integral active protection systems. Over time the numbers of Russian AFVs fitted with such protection is likely to increase.

In the short term, APS could be partially countered by adjusting tactics, such as simultaneous volley firings of anti-armour weapons. And indirect fire could help damage APS systems, which of necessity have to be mounted outside the vehicle armour. But even if such tactics were successful, the overall effectiveness of anti-armour weapons would still be reduced. The Norwegian Ministry of Defence has publicly recognised this problem, by planning to replace the Javelin missile with a weapon that can penetrate APS.<sup>iv</sup> The IISS has not seen any evidence in the public domain showing that any other NATO armies, including the British, have recognised this disruptive threat, let alone made plans to counter it.

The British Army is investigating the utility of APS for British armoured vehicles. But this is a narrow, symmetrical approach. It is just as important to view the impact of APS as introducing a challenging battlefield asymmetry: that the increased fielding of APS on Russian armoured vehicles would

considerably reduce the ability of British ATGW to counter Russian armoured forces with ATGW. This is because the cannon of Warrior and Ajax will only have a limited effect against Russian tanks. So the advent of Russian APS makes tanks of increasing importance in NATO armies.

### **ASSESSMENT OF BRITISH ARMY AFV MODERNISATION PLANS**

In 2019 former Defence Secretary Penny Morduant assessed that:

*“Deterrence relies on a credible threat of hard power. And the reality is wars are still won or lost on land. We need to seize and hold territory endures and yes, the future may look very different in years to come, but meantime, while armour is relevant it must be capable, and we must be competitive.*

*We have not been.*

*Challenger 2 has been in service without a major upgrade since 1998. During this time the United States, Germany and Denmark have completed two major upgrades, whilst Russia has fielded five new variants with a sixth pending*

*Warrior, is even more obsolete, and is twenty years older than those operated by our key allies. Since Warrior’s introduction in 1988 the United States and Germany have conducted four major upgrades and Russia has invested in three new variants. ...”.*<sup>v</sup>

She could also have said that even more obsolescent still are the FV 432 tracked APCs, introduced in the 1960s, many of which still serve as support vehicles. As are the combat vehicle reconnaissance (tracked) CVR(T) family, the current equipment of British armoured cavalry regiments. The Spartan APC remains in service as a support vehicle. This was introduced into service in the early 1970s. Retention of FV432 and CVR(T) is equivalent to the RAF retaining in service the Harrier GR1, Phantom and Jaguar fighters introduced in the 1960s and early 1970s, or the Royal Navy retaining County Class destroyers and Leander Class frigates.

**Armoured Vehicle Modernisation.** Boxer is successfully in service with the German and Dutch Army and saw action in Afghanistan. Problems introducing it to British service are very unlikely. The intended modernisation of Challenger and Warrior is more ambitious than the US modernisation plans for its Abrams tanks and Bradley infantry fighting vehicles. Both vehicles will have new guns and fully digitised turrets, greatly improving their combat effectiveness. Whilst the names, hulls and chassis remain the same, the combination of new guns and turrets has transformational potential. British tanks will be able to achieve full interoperability of tank ammunition with the US, Germany and 11 other NATO countries. Warrior will be able to fire on the move, increasing its effectiveness and survivability.

The Ajax family of vehicles should have revolutionary effects, both in its reconnaissance role and as a medium weight fighting vehicle. Just as revolutionary will be the programmable ammunition fired by the 40mm gun on Ajax and the upgraded Warrior. The airburst capability that will make the two vehicles much more effective against enemy infantry. Had Warrior and Scimitar had this capability in Iraq and Afghanistan, insurgent and militia fighters would have been defeated more quickly and British casualties reduced.

It would be wrong to see the upgraded Challenger and Warrior AFVs as simple linear incremental evolutions. They should be seen more as “leap ahead” capabilities that fuse new turrets, weapons and technology with existing chassis. The best analogy is the 1990s replacement of first-generation RAF Harrier GR1/3 by Harrier GR5/7/9, a greatly improved capability that just happened to have the same name and appearance.

**Armoured Engineers Are a British Strength.** Given trends of urbanisation and the increased potential use of IEDs and landmines, armies that aspire to conduct armoured warfare require an adequate armoured-engineer capability. Analysis of global armoured-vehicle numbers in the IISS Military Balance+ database suggests that many of the world's armies have insufficient armoured-engineer capabilities. The British Army is a rare exception, holding a significant proportion of Europe's armoured-engineer vehicles.

**Utility of Strike Brigades.** The US Army and French Army have 'medium weight' combined-arms brigades equipped with families of wheeled armoured vehicles that can move rapidly on roads over long distances. These capabilities have been invaluable in Afghanistan, Iraq and Mali. Such a capability has been absent from the British Army. Once the mechanised infantry battalions of the British strike brigades are equipped with Boxer the Army would have an equivalent capability, albeit without the organic protected firepower conferred by turret mounted cannon or missiles.

Ajax's cannon and sensor suite will provide additional capability, but the ability to destroy enemy tanks will depend on Javelin ATGW. The utility of the missile is diminished by the British being unable to fire it from any vehicle turrets. So in any conflict with Russia, a strike brigade will have less anti-armour capability than an armoured infantry brigade. This could, to some extent be compensated for by employing the brigade on missions that require less anti-armour capability, for example in wooded and urban terrain and in rear area security.

Where a strike brigade will have greater utility is in operations requiring rapid movement over great distance. Examples include the 2013 French intervention in Mali, where French wheeled armour moved over thousands of kilometres in a few days. Should there be a need to rapidly deploy forces to south east Europe or the Balkans, mechanised infantry battalions would be able to move more quickly by road than by sea. But the AFVs of the other half of a strike brigade, the two Ajax equipped regiments, are all tracked. This reduces their ability to move quickly by road. Rail movement and even rapid deployment by air may help overcome this. But the planned organisation of strike brigades does not appear to include high speed heavy equipment transporters to carry Ajax at speed by road.

**British Armoured Warfare Capability Limitations.** Despite the considerable investment in AFV modernisation, British armoured forces will still have some limitations in comparison with the Russian and US armies and some key NATO armies. All of these could be eliminated by additional investment.

Whilst Ajax's advanced sensors and digital turret will greatly improve its capability as a reconnaissance vehicle, its utility would be greatly improved by having an organic sensor mast.<sup>vi</sup> And it is also clear that having an organic capability for small drones and unmanned ground vehicles within Ajax sub-units would greatly improve its effectiveness. Other armies, including those of Canada, the Netherlands and Italy are in advance of the British Army in these capabilities.

There are also differentials of AFV firepower between the British and many other NATO armies, as well as the Russian Army. Britain does not fit turrets to its wheeled AFVs. Many military armies do so. For example, Canada where LAV III vehicles used by mechanised battalions have a turret with a 25mm gun. The US Army has fitted the Stryker APCs of a Stryker brigade combat team with turrets fielding either 30mm cannon or Javelin ATGW and plans to fund similar enhancements to at least two more Stryker brigades. Many Russian Army BTR series wheeled AFVs now have turrets with cannon. Australia is procuring a variant of Boxer with a 30mm cannon. The French Jaguar, its wheeled equivalent of Ajax, will have a turret with both a 40mm cannon and integral ATGW.

Another firepower differential is the capability to fire ATGW from underneath armour. In the Cold War, the British FV 438 and Striker AFVs could fire Swingfire ATGW from under armour. In the 1980s it also had a some Spartan APCs equipped with Milan turrets. Between 1991 and 2005 these

capabilities were all abandoned. The turret of the US Army's Bradley IFV has two TOW ATGW, the Soviet/Russian family of BMP infantry fighting vehicles, widely in service globally, has always had ATGW mounted on the turret and the new German Puma infantry fighting vehicle will have two turret-mounted Spike missiles. So, when British armoured infantry and mechanised infantry battalions and armoured cavalry regiments are attempting to manoeuvre against the enemy, the only way of rapidly firing Javelin ATGW will for crews to stand in open vehicle hatches. This will be slower than if the British had ATGW equipped turrets and the operators will be much more vulnerable to enemy fire.

The new strike brigades will have different strengths and weaknesses to British armoured infantry brigades and US army Stryker brigade combat teams. But it is an "inconvenient truth" that their formation, by reducing British tank numbers reduces the anti-tank capability of the 3<sup>rd</sup> Division.

**Utility and Limitations of Apache helicopter anti-armour capability.** With its aviation brigade due to receive 50 new AH64E Apache helicopters, the British Army will have a powerful rotary wing ATGW capability. Allocating the aviation brigade to the 3<sup>rd</sup> Division will greatly increase its anti-armour capability. The British Army would be one of the few NATO European armies with an equivalent capability to a US Army aviation brigade. But the aviation brigade's effectiveness will be limited by two "inconvenient truths". The first is that the Russian Army has a much greater air defence capability than the British army. Secondly, enemy AFVs fitted with active protection will be much less vulnerable to Hellfire missiles.

**British Formations Have Much Less Artillery than Russian Formations.** Russian indirect fire is likely to outgun, outrange and outnumber indirect fire available to UK and NATO formations. NATO and UK brigades can typically expect direct support from a single artillery battalion. Russian brigades are habitually organised with three times as much organic mortar, gun and rocket artillery support. This will place their opponents at a considerable disadvantage, increasing the chance of artillery fire damaging AFVs, and destroying light armoured vehicles. This increases the importance of replacing the remaining FV432 and CVR(T) vehicles in the Army. It also increases the importance of modernising the Army's artillery, an enhancement that does not appear to be funded.

#### **IMPLICATIONS OF ANY WITHDRAWAL OF BRITISH HEAVY ARMOUR CAPABILITY**

Media reports suggest that the current Integrated Review includes an option for the UK to give up tanks and heavy armoured capabilities. This would be part of a shift of Army capability from "sunset" to "sunrise", with a potential increase of cyber, long range precision fire and early entry capabilities.

**Potential Effects.** UK abilities to counter enemy armour would reduce. They would further reduce as active protection was increasingly fitted to enemy AFVs. Without heavy armoured forces, Army units and formations would be less capable. The Army would become less effective in urban warfare, with operations taking longer and incurring more casualties. Abandonment of British heavy armour would be very difficult to explain to the military leadership of the Baltic states, Poland, Germany and the US, as well as Australia and Canada, both of whose armies retain tank regiments. British military influence with the US Army, key NATO armies and across the alliance would reduce. NATO members might come to question the British assertions that the UK based HQ Allied Command Europe Rapid Reaction Corps HQ is NATO's premier war fighting Corps HQ. Withdrawal of British heavy armour capabilities would probably be welcomed by the Kremlin

*3 September 2020*

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<sup>i</sup> These three questions are taken from "Progress in delivering the British Army's armoured vehicle capability Inquiry" Statement on HCDC website. <https://committees.parliament.uk/work/460/>

<sup>ii</sup> <https://committees.parliament.uk/call-for-evidence/205/progress-in-delivering-the-british-armys-armoured->

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<sup>iii</sup> Two reports by Bellingcat are particularly useful: Seven Years of War — Documenting Syrian Rebel Use of Anti-Tank Guided Missiles. <https://www.bellingcat.com/news/mena/2018/05/04/seven-years-war-documenting-syrian-rebel-use-anti-tank-guided-missiles/>

Nine Years of War — Documenting Syrian Arab Army's Armored Vehicles Losses.

<https://www.bellingcat.com/news/mena/2018/03/27/saa-vehicle-losses-2011-2017/>

<sup>iv</sup> Future acquisitions for the Norwegian Defence Sector 2017-2025. MOD Norway document 11 April 2017

<https://www.regjeringen.no/en/aktuelt/future-acquisitions-for-the-norwegian-defence-sector-2017-2025/id2549263/>

<sup>v</sup> <https://www.gov.uk/government/speeches/defence-secretary-keynote-speech-at-the-land-warfare-conference-2019#>

<sup>vi</sup> The Canadian Army's Coyote armoured reconnaissance vehicles have an integral mast that can mount electro optical and radar sensors. The German Army's Fennek reconnaissance vehicle has an integral mast mounting electro-optical sensors. The British Army fitted a mast with electro optical sensors to one of the Mastiff vehicle variants used as part of the Talisman counter-IED capability in Afghanistan.