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Our 10 Year Rule
A warning on AI adoption in UK Defence

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About the Author

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Maxwell graduated with a first class Joint Hons BSc in Politics and History from the London School of Economics & Political Science, where he was also twice consecutive President of the Hayek Society. Whilst at LSE, he was a Don Lavoie Fellow in Political Economy at the Mercatus Center, George Mason University. He is a Fellow at the Consumer Choice Center. He is a winner of MHP Group's '30 To Watch' (2023).

Note to readers:

This briefing was submitted to the House of Commons Defence Select Committee on the 16th January 2024 in order to educate policy makers on the massive capability gaps in Defence, given it is the primary role of government.

Recommendations

- Move to a proactive approach to AI capability development and deploy capabilities today without perpetual delay waiting for ideal conditions
    - Do not wait for the MOD's data strategy to progress, or for massive hand-labelled data sources. Training on available data (including open source data and internal classified sources) and using self-supervised and low-shot learning AI techniques can enable capability gains today.
    - Do not wait for or overly rely upon future secure cloud solutions, edge computing and on-premise hosting should be used now.
- Support Small and Medium Enterprises (SMEs) to overcome bureaucratic challenges, and the "chicken and egg" problem of not being able to do classified work (except typically after years of delay), because they have not managed classified work before, including:
    - Secure Compute - Offer at-cost secure hosting/cloud services or blueprints for self-provision to handle classified data.
    - Facility Security Clearance - Provide or sell at-cost secure facilities to provide SMEs locations to handle classified data.
    - Personnel Clearances - Hold clearances on behalf of SMEs at-cost (similar to its own employees), to facilitate their participation in classified defence work.
    - Commercial Frameworks - Make existing frameworks like G-Cloud accessible to SMEs, without needing to wait for infrequent entry windows which introduce years of delay.
- Separate software and hardware contracts, avoiding "Prime" bias, or at minimum create distinct "lots" within procurements
    - Stop bundling software and hardware by default, and make this the exception, to genuinely get "best athlete" support. Bundling is the default because MOD fears integration challenges.
    - No matter how astute the MOD considers itself as a customer, the Primes exploit bundling to their advantage and dominate the integrated contract market, especially given cultural MOD biases towards hardware over software.
    - Seek to purchase COTs (commercial off-the-shelf) products, and hardware-agnostic software solutions, rather than developing new software from scratch for each hardware platform. Hardware is the commodity, software is the differentiator.
    - Unbundling and COTs also opens up opportunities for a broader range of suppliers, including smaller, more agile firms that specialise in AI and software
- Comprehensively reform acquisition and commercial processes to enabling a rapid end-to-end process
    - Streamline business case and approval processes, especially for lower value

projects and cutting-edge technology.

- Pull capabilities through after experimentation programmes - initiatives like DASA should provide a realistic pathway for SMEs to scale up, rather than offering false hope, consuming scarce resources and condemning them to the "valley of death".
- Embrace genuine "agile" development, giving capability owners the opportunity to get end use feedback, "fail fast" and "learn by doing" to quickly test new opportunities. MOD is still culturally dominated by lethargic "waterfall" development, where only years or decades later programmes are declared a failure, with no accountability, as incentives block early intervention.
- Abolish social value criteria in procurements and return to scoring tenders based on the quality and price of the capability - as explored in more detail in the ASI's dedicated report on the Social Value Act,[1] it adds waste to the procurement system and reduces value for money for taxpayers.

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1 To read more, visit https://www.adamsmith.org/research/the-price-of-everything-the-social-value-of-nothing-how-the-social-value-act-damaged-british-procurement

Historical parallels

In the aftermath of World War I, famously dubbed "The war to end all wars", Britain drastically reduced its military capabilities. Our policy known as the "Ten Year Rule" was based on the assumption that no cross-continental war would occur in the next decade. It led to a dangerous complacency in military preparedness.

This policy of de-investment in military capability proved perilously shortsighted. Not only did it leave Britain ill-prepared for the ensuing conflict, it also contributed to making that war more likely by diminishing Britain's deterrence. Despite the growing threat, exemplified by Japan's invasion of Manchuria in 1931, the policy was only abandoned in March 1932, after years of disarmament conferences - too late to effectively counter the rise of militarism in Nazi Germany.

While today our rhetoric and diplomacy is less naive, we are again witnessing a fundamental underestimation of emerging threats, and complacency in capability development. As we observe the return of war in Europe with Russia's illegal invasion of Ukraine, escalating tensions surrounding Taiwan, and renewed instability in the Middle East, the threats to security are on the rise globally.

President Putin's 2017 declaration, "whoever leads in AI will rule the world," [2] underscores the strategic importance of AI in modern geopolitical dynamics. China, as a global leader in state-directed AI research and advancements in AI swarming technology, also signals that our adversaries are advancing at pace. The Iranian-produced Shahed loitering munitions, (or kamikaze-suicide drones / FPV bomb drones), being experimented with in Ukraine and Middle East, increasingly equipped with accelerated AI targetting, also highlight the evolving nature of military engagement where AI plays a pivotal role.

Learning from history and recognising the paramount importance of AI in contemporary and future warfare, it is imperative that the UK accelerates its AI development and adoption in defence. This is not merely about keeping pace but about leading in a field that is set to define the next era of global power dynamics. The decisions made today regarding AI investment and adoption will critically determine the UK's readiness, resilience, and position in a world where AI-driven warfare is not just a possibility but a present reality.

Failure to urgently deliver AI in defence risks leaving the UK perilously exposed in an era dominated by AI-driven threats - a catastrophic dereliction of the government's primary duty to protect its citizens.

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2 Putin Wants Russia to Win the Artificial Intelligence Race, The Moscow Times, https://www.themoscowtimes.com/2023/11/14/putin-wants-russia-to-win-the-artificial-intelligence-race-heres-why-it-wont-a83103, accessed 15 January 2024

AI Rhetoric-Reality Gap

Adam Smith Institute analysis highlights a glaring contradiction between rhetoric and reality - while 99% of strategic speeches highlight the importance of AI, less than 1% of contract awards (by volume or spend) deliver upon this vision - what we call the, "AI Rhetoric-Reality Gap".

ASI research (in preparation for a future report) examined a sample of MOD major public speeches focusing on MOD capability development. Senior generals, officials and politicians consistently referenced AI in their public contributions. This was compared against a sample of contract awards through the Government's procurement transparency tool, 'Contracts Finder'. This disparity paints a picture of a defence strategy more focused on oratory flourish than on actual technological advancement.

The Ministry of Defence's (MOD) current approach to Artificial Intelligence (AI) in defence is alarmingly lethargic and excessively focused on documents and PowerPoint presentations rather than the actual delivery of real, tangible capabilities. This feedback is mirrored across engagement forums and industry, albeit few defence suppliers dare challenge their end customer.

The preoccupation with theoretical frameworks and "foundational" technologies also contributes to sluggish capability adoption, which is not just inefficient, but perilously inadequate given the rapidly evolving global threat landscape. The UK is not only failing to adequately prioritise AI but is also moving far too slowly to keep pace with its peer adversaries, leaving the nation at a significant strategic disadvantage.

The primary role of any government is to ensure the security and safety of its people. In this era of warfare, where AI plays a critical role, the MOD's approach is tantamount to negligence. The focus on bureaucratic processes, lengthy strategy documents, implementation of data foundations (rather than training AI on currently available data sources) and impressive but hollow presentations fails to translate into the urgent development and deployment of AI capabilities.

While our rivals are actively incorporating AI across their battlefield capabilities, the UK's efforts remain largely on paper, mired in administrative inertia and a lack of decisive action. When the US looks across the atlantic at its NATO allies, it too recognises our capability gap. There is ever reducing desire to compensate for our inadequacies, especially with a potential isolationist Republican administration.

Software is eating the world

In "Why Software Is Eating the World," Marc Andreessen outlined back in 2011 how software-driven solutions are revolutionising industries.[3] This concept has yet to properly land within UK Defence. MOD's current approach is transfixed by a hardware-centric mindset, a reluctance to recognise AI as a revolutionary category, and a lack of vision for radical innovation, revealing a significant strategic misalignment. The MOD must pivot towards a software-first approach, acknowledging the unique capabilities and opportunities that AI brings.

The MOD's procurement strategy is heavily skewed towards hardware. This focus is entrenched in a traditional view of defence capabilities, overlooking the transformative potential of software and AI. As Andreessen's insights revealed in various industries, this approach is increasingly anachronistic in an era where software solutions offer agility, adaptability, and cost-effectiveness far surpassing that of (increasingly commoditised) physical systems. The MOD's persistent prioritisation of hardware procurement over software innovation reveals a lack of alignment with the modern technological landscape, where software is not merely an adjunct, but a fundamental driver of capability.

AI is not merely an enhancement or an add-on to existing systems; it represents a fundamental shift in the nature and capabilities of defence technology. However, the MOD seems to underappreciate this transformative potential, treating AI as a secondary consideration rather than as a primary strategic focus.

The MOD lacks a vision for discontinuous innovation. Marc Andreessen highlighted how major innovations in the software industry did not just incrementally improve existing products or services, but rather, they created discontinuous leaps forward. Companies like Uber, Airbnb, and Netflix redefined their respective industries by leveraging new technological platforms to offer unprecedented services.

Similarly, AI in defence requires a paradigm shift - a move from incremental improvements to embracing radical, transformative capability changes. AI needs to be treated as a binary capability that can determine winners and losers in conflicts.

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3 Why Software Is Eating the World, a16z, https://a16z.com/why-software-is-eating-the-world/, accessed 15 January 2024

The role of the private sector - "industry"

Adam Smith's economic principles, particularly his observations on specialisation, competition, and the profit motive remain as relevant today as ever, even applied to Defence AI.

In "The Wealth of Nations" Smith famously used the example of a pin factory to demonstrate the benefits of specialisation. He observed that:

> *"A workman not educated to this business nor acquainted with the use of the machinery employed in it could scarce, perhaps, with his utmost industry, make one pin in a day." But with specialisation across "eighteen distinct operations", "ten persons, therefore, could make among them upwards of forty-eight thousand pins in a day"* [4]

In this example, the division of labour allowed workers to focus on specific tasks, significantly boosting productivity.

This principle of specialisation holds true in the complex field of AI. Unlike the government, which often operates with broader training and skills, the private sector harbours firms that specialise in AI, and elite individuals who lead the field. This focus breeds a depth of expertise and innovation akin to the heightened efficiency in Smith's pin factory. In these specialised environments, the nuances and potential of AI are not just understood but are pushed to their limits, enabling groundbreaking advancements.

However, for this specialisation to effectively translate into innovative AI solutions for defence, the MOD must facilitate a truly competitive market. Merely defaulting to the usual incumbent defence primes, which often lack advanced AI capabilities, is not enough. Instead, the MOD must cultivate a landscape where diverse, specialised firms compete. This competitive ethos is crucial, as it propels continuous innovation and technological advancement. Firms vie not only for contracts but also for technological leadership, ensuring that the MOD has access to the most advanced AI solutions.

Moreover, the private sector's involvement in AI development is underpinned by the profit motive. As Smith observed:

> *"It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to*

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4 An Inquiry into the Nature and Causes of the Wealth of Nations, Adam Smith, Book 1, Chapter 1

their humanity but to their self-love, and never talk to them of our own necessities but of their advantages"[5]

In the realm of defence, the pursuit of profit leads to cost-efficiency - assuming a competitive market is maintained. Firms driven by self-interest and the desire for profitability are compelled to innovate and reduce costs to win contracts. While firms ought to have a strategic goal to support the security of the UK, as with MOD insiders, their profit motive creates extra incentives. Pursuit of profit not only encourages lean operations for these companies but also benefits the MOD, as it means access to state-of-the-art AI technologies at more reasonable prices.

In essence, the profit motive within the private sector can act as an accountability mechanism, ensuring that firms not only innovate but also deliver cost-effective solutions. This is crucial given tax payers ultimately pay the MOD's bills, and given well documented procurement challenges in wider MOD programmes (where competition and contracts were weak).

Examples of key UK Defence AI capability gaps to address:

1) Royal Navy

As an island nation, the United Kingdom's reliance on maritime strength for its security is paramount, especially considering the critical undersea cables and gas pipelines that are vital for its infrastructure. The significance of Artificial Intelligence (AI) in enhancing submarine and maritime warfare capabilities is therefore not just beneficial, but essential to prosperity.

The AUKUS partnership highlights key AI applications in this domain. For example, enhanced Anti-Submarine Warfare. AI integration with platforms like the P-8 Poseidon aircraft is vital for quickly interpreting sonar data to track submarine threats, a crucial aspect of the UK's maritime defence strategy.

However, there is a concerning discrepancy between the potential of AI in submarine warfare and its actual implementation within the UK's navy. Addressing this gap is not just a strategic necessity but imperative for national security.

With around 95% of the UK's imports and exports transported by sea, including essential goods and commodities, the security of maritime trade routes is critical. This reliance on seaborne trade, which accounts for a substantial portion of the UK's GDP, highlights the necessity of robust naval capabilities, including AI adoption. Safeguarding these vital trade routes against emerging global threats is not just a matter of national security but also of economic resilience, ensuring the continuous

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5 Ibid., Book 1, Chapter 2

and unimpeded flow of goods essential for the UK's economic prosperity and growth.

2) British Army

The conflict in Ukraine has starkly demonstrated the escalating role of AI in land warfare, particularly through the use of AI-enhanced loitering munitions. These advanced technologies, epitomised by the deployment of Iranian-made drones like the Shahed series, showcase a significant shift in warfare dynamics, where drones equipped with AI capabilities for target identification and engagement pose a formidable new threat.

There exists a noticeable gap in the UK's current capabilities to effectively deploy and counter such AI-enhanced capabilities. While the global proliferation of advanced drone systems, influenced by countries like China, continues to advance, the UK's preparedness lags.

Electronic warfare (EW) capabilities have also been proven vital. General Valeriy Zaluzhny, commander-in-chief of Ukraine's armed forces, has emphasised that EW is "the key to victory in the drone war."[6] AI capabilities need to be developed with EW resilience in mind.

To maintain strategic and operational effectiveness in modern land warfare, it's imperative for the UK to accelerate the integration of AI technologies.

3) Royal Air Force

The Global Combat Air Programme (GCAP), involving the UK, Italy, and Japan, is a testament to the growing recognition of Artificial Intelligence (AI) as a critical component in the evolution of fighter jets. This initiative, which includes the UK's Tempest program, is set to deliver a sixth-generation fighter jet by 2035, integrating advanced AI systems such as the Intelligent Virtual Assistant (IVA) to enhance aircraft operations and data processing.

However, while GCAP signifies an acknowledgement of AI's importance in aerial combat, there is a significant delay in its practical application. The anticipated operational readiness of these AI-enhanced fighter jets is not expected until 2035, indicating a considerable gap between the pace of technological advancement and the actual deployment of AI in current military aircraft.

This slow pace in adopting AI technologies in fighter jets could potentially leave the UK and its allies at a strategic disadvantage, especially in an era where rapid technological

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6 Military briefing: Russia has the upper hand in electronic warfare with Ukraine, Financial Times, https://www.ft.com/content/a477d3f1-8c7e-4520-83b0-572ad674c28e, accessed 15 January 2024

progress and swift deployment are key to maintaining aerial superiority. The challenge lies not only in conceptualising AI's role in future combat but also in actualizing these technologies in a timely manner to keep up with the evolving landscape of aerial warfare.