

Written evidence submitted by Adarga.

About Adarga

Founded in 2016, Adarga is a British AI software leader specialising in information intelligence. We work with armed forces, intelligence services, and the commercial sector to achieve information and decision advantage in a world of increasing geopolitical threats. With a presence in the UK, the US, and Australia, we contribute to UK and allied national security and prosperity. Through the Adarga Research Institute, our very own thought leadership centre of excellence and expertise, we work with the UK Government and parliamentarians to contribute to ideas and solutions to the key geopolitical challenges of the day.

Executive Summary

- Though the MOD has developed strategies, such as the Defence AI Strategy, outlining the application of AI in defence and required capabilities, a clear roadmap for how industry will be involved in the development and deployment of capabilities is yet to be articulated.
- The MOD must recognise that the speed at which innovation and technological development take place in the AI sector is rapid and must therefore effectively review procurement processes to deliver at pace, effectively support the domestic industry and ensure our armed forces and intelligence services are receiving the capabilities they need as quickly as required, so as to maintain strategic capabilities.
- Start-ups and SMEs face several barriers to entry, from procurement processes to the infrastructure employed by the MOD. The MOD should seek to undertake an audit to understand international best practice to incentivise AI development at pace, learning from other nations such as Ukraine.
- The Government has several options to support the development of the AI sector. The development of a multifaceted approach, taking into account direct funding, competitions and challenges, increased exports opportunities, education and research programmes, is essential to doing so. Government needs to send the correct investment signals to the private sector to ensure the sector has sufficient access to finance to build the technological tools the armed forces need.
- There have been several developments since the 2022 Defence AI strategy was published, including the proliferation of generative AI, the development of NATO's DIANA programme, further development of AUKUS Pillar 2, and increased UK global leadership on AI as demonstrated by the hosting of the AI Safety Summit at Bletchley Park.
- A refreshed strategy two years on should consider the fast-changing nature of the sector and provide renewed momentum for maximising its potential and its contribution to UK national security and the economy.

1. How clearly has the Ministry of Defence set out its priorities for the kind of AI capacity and expertise it believes the UK defence sector should have, what priorities has it identified, and are these deliverable?

The MOD and Armed Forces have outlined strategies, such as the Defence AI Strategy, for the application of AI in defence and the capabilities that will likely be required. Encouragingly, these have recognised the important role that UK industry will play in their delivery and the need to develop sovereign solutions. However, a clear roadmap for *how* industry will be involved in developing capabilities and ‘on ramps’ to get technologies into the hands of national security users has not been articulated.

The MOD must recognise that the speed at which innovation and technological development take place in the AI sector is rapid and that existing practices for supporting industry are not valid in an era of software-defined warfare. Procurement processes are a prime example: the frameworks that were developed for acquiring military hardware are not applicable for AI capabilities, and the MOD should engage with industry to understand the processes that can be introduced to enable immediate impacts to be achieved.

UK Government must also be cognisant that, for the most part, software is developed by the private sector, where product roadmaps are often measured in months rather than years and capabilities can be developed (particularly by agile SMEs) to High Technology Readiness Levels at speed, put in the hands of users in short timeframes, and adapted and improved quickly based on feedback. This software can rapidly address specific challenges now and in the future – such is the nature of the technology.

Capitalising on this opportunity could be transformational in industry’s ability to innovate and the Armed Forces’ ability to adopt those innovations. Indeed, where rapid testing and innovation is taking place successfully, rapid deployment is often not ensuing. This is being thwarted by long-term budgets having not been secured or having to endure long processes to get these from other programmes.

The lack of modern infrastructure is also a challenge when working with the MOD. Having cloud technology in place is a fundamental building block to a software-defined military that can deploy AI at pace and, like other areas of the public sector, the MOD should ensure it has sufficient capacity to adopt technologies rapidly.

Ukraine’s approach to developing and fielding capabilities following Russia’s invasion demonstrates how a tri-party fusion of industry, the military, and academia can achieve rapid results against a specific outcome and could serve as case study for how to develop and field AI technologies.

UK Government should also seek to understand international best practice for how procurement can support and incentivise technological development through a formal audit process, translating lessons for the UK.

2. What strengths and expertise does UK industry currently have in the field of Artificial Intelligence with defence applications?

Within the UK AI sector there is a significant knowledge community that serves multiple industries, and which has attracted talent, expertise, and companies from around the world.

An extremely small number of British companies are dedicated to serving defence specifically because of the high barriers to entry and the slow nature of procurement processes, which presents challenges to privately funded companies. Those that service defence, such as Adarga, are focusing on maximising productivity and efficiency for the MOD using AI and, fundamentally, driving information and decision advantage in the face of increasingly complex operational and geopolitical risk.

3. How can the UK Government best develop capacity and expertise within domestic industry in sectors such as engineering and software to support the development and delivery of Artificial Intelligence applications in defence?

Adarga would propose that the UK Government identifies specific sectors or areas of opportunity for it to focus on, regarding AI development in the UK through a refreshed Defence AI Strategy. While the UK will not be able to compete with the spend and investment power of, for example, the US, it will be able to build on existing industries and strengths to lead in some areas of AI. Given the UK's existing defence industrial base strengths, the sector feels like a prime opportunity.

4. What can the Government do to help embed UK AI companies in defence supply chains, both domestically and internationally?

The Government can take a multi-faceted approach to supporting the development of the defence AI sector in the UK. Greater incentivisation is essential to achieve the immediate and near-term development of AI applications for UK defence requirements, whether that be through direct funding of technology development, the creation of funded competitions and challenges (akin to the US Defense Advanced Research Projects Agency's challenges, for example), increased procurement for technical evaluation and in-service capabilities, and the development of exports opportunities, amongst others.

As mentioned in our response to question 2, challenges UK AI companies face in pursuing commercial opportunities in defence are high barriers to entry and relatively slow procurement processes, which present particular challenges to 'start-up' or SME AI companies that go through regular funding rounds in order to maintain steady growth and cash flow. The Government should review these barriers to

growth in the defence and security AI sector, perhaps doing so through a refreshed Defence AI Strategy, co-developed with the UK AI sector.

Another way the Government could incentivise relationships is by actively working with relevant trade associations to promote more 'Meet the Primes' for the UK AI sector specifically, connecting the sector with prime contractors and those operating in the UK AI defence sector already.

Moreover, measures such as funding research and education programmes and introducing AI as a component of military curricula will go some way to securing the long-term and wider development of expertise and awareness. Supporting military-industry exchanges – whereby members of the military spend time embedded in industry and, importantly, vice versa – will enable a better understanding of capabilities and requirements to coalesce faster.

The Government should also seek to scope out new export opportunities for the AI sector, working in partnership with industry. This will not only benefit industry and the UK economy, but also ensure that the sector remains globally competitive. The development of an effective exports and trade strategy, co-created by Government and industry, can help drive further opportunities through the pursuit of enhanced or new free trade agreements including AI capabilities. Notably, a replacement scheme for the Tradeshow Access Programme is essential to providing a level playing field for the UK AI sector and ensuring that its capabilities are being showcased to UK strategic partners at trade shows all over the world.

5. How can the UK Government ensure that it champions the UK AI sector in the context of Pillar 2 of the AUKUS Partnership?

The AUKUS initiative represents a generational opportunity for the UK's defence AI industry to shape the future of the sector and to become a global leader. AUKUS also presents significant spillover opportunities for a range of other sectors, thereby potentially providing a substantial contribution to the UK economy, across all nations and regions.

To achieve the aims of AUKUS Pillar 2, a much more concerted effort is required from the Government towards faster adoption and integration, not just of technological solutions in the defence and national security sphere, but of the foundations upon which those technological solutions are built.

The Government can set a much clearer demand signal and create the conditions both for the private sector to mobilise and for the delivery of this support to happen across the partner nations unhindered.

A reimagined and much more intimate relationship between the Government and its technology builders in the private sector is essential. This includes facilitating flows of skills, knowledge, and financing into critical technologies. Furthermore, this will

also achieve broader strategic ‘friendshoring’ goals that are shared across the UK, US, and Australian governments.

This integration of the foundational elements must also be matched by adoption of the technologies themselves. To enable this to happen at pace, we cannot wait for technologies to be developed and retrofit measures to enable them to be deployed. Instead, AUKUS standards need to be devised and made available to developers, to ensure that once a new technology is ready to be deployed it is not delayed by the need for further adaptations or unnecessary procedural bureaucracy. This will encourage companies to develop products which, from inception, are designed for use by the three militaries, which in turn provides a broader customer base, greater commercial opportunity, and further incentives to innovate. Such standardisation is not new to the defence and security sphere – for instance, NATO allies produce common calibre ammunition.

Reforms to the International Traffic in Arms Regulations (ITAR) and Open General Export Licences (OGELs) are badly needed if true technology transfer is to take place across a technology life cycle. Only by achieving a more integrated defence marketplace between the UK, US, and Australia can UK industry reap the benefits of AUKUS Pillar 2.

Moreover, the Government must make better and more immediate use of available commercial technologies that have already found solutions in comparable private sector use cases. AUKUS also needs to become more clearly owned and defined by governments as a collective national security endeavour as opposed to being purely defence programme concepts. This must be reflected in the defence culture, strategy and structure of the three AUKUS partners.

Finally, the fundamental basis of military power in our Information Age is our collective ability to innovate faster than our adversaries. If we are to deter those who oppose Western values, our strategic success can only be measured by the speed of technology adoption across this vital alliance. This is where UK industry has an opportunity to lead by example, setting the innovation pace for the alliance.

11th January 2024