

Written evidence submitted by ADS Group.

1. About ADS

- 1.1. ADS is the trade association for the UK's aerospace, defence, security, and space industries, representing more than 1,300 members. We work with those sectors to secure the UK's advantage, enhance our international positioning as a go-to destination for innovation, and deliver on our sustainable leadership goals.
- 1.2. Whether representing industry, connecting our members with business opportunities, or driving forward innovation and growth, ADS is at the forefront of an array of activities, events and programmes that benefit our members. ADS members are the custodians of a world-leading advanced engineering and services workforce, fuelling UK prosperity, and providing more than 417,000 jobs to the UK each year.

2. Executive Summary

- 2.1. In an era defined by exponential technological advancements, the integration of Artificial Intelligence (AI) into military operations has emerged as a powerful but highly debated method of enhancing a country's capability. AI systems can provide considerable value in the defence context and must be exploited effectively to maintain the UK's competitive advantage, and to ensure the national security of the UK and its allied partners, including NATO and Five Eyes. To enable this to be done to best effect, it is also important for both UK Government and industry to collaboratively address any public concerns around the ethical use of AI, accountability, and the potential for bias.
- 2.2. The MOD has set out its aspirations for integrating AI into UK defence in its 2022 Defence AI Strategy, which was warmly welcomed by industry. However, the detail around the implementation of these priorities has not yet been articulated fully. The MOD must work closely, and at pace, with industry to formulate a roadmap for the rapid development, testing, assurance, and deployment of AI throughout defence. AI must also be developed in a responsible way, through robust regulation and ethical frameworks. MOD should work with industry to develop these frameworks, and to enable the UK to be leaders in international rules and AI standards.
- 2.3. UK Government must also work alongside industry to ensure that the UK has the correct skills base to capitalise on the opportunities that AI can offer to the Defence ecosystem and ensure the UK can grow its thriving AI capability. UK Government should develop a cross-departmental, long-

term workforce strategy, recognising the cross-sector synergies and advantages of AI. The strategy should invest in education and training, promote STEM subjects, and careers in AI, and reform the Apprenticeship Levy to allow for greater flexibility of use.

3. 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?

- 3.1. The MOD have published strategies for the application of AI in defence and have set out broad aspirations and priorities for defence AI capacity and expertise. These have recognised the key role that industry will play in their delivery, and the setting of an ambitious agenda through innovation programmes is welcome. However, the detail around the implementation of these aspirations has not yet been articulated, nor cascaded down to the operational level. Clarity on project and procurement pipelines is also key, as this gives the demand signal needed by industry to plan and to invest in the skills needed to deliver on those areas.
- 3.2. Systemic, rapid experimentation and deployment of AI is a clear priority of the MOD; however, these plans are in an early stage of development, and the current processes in place are not suited towards this. The MOD has recognised the need for rapid cycles of development and deployment, but existing practices and frameworks for supporting industry, particularly procurement practices, are not best shaped to deliver this. The recent Procurement Act 2023 is a welcome step from UK Government in reforming how it procures, however we are yet to see the implementation of this Act. MOD should work with industry to understand and develop processes that could enable immediate impacts to be achieved, to improve procurement processes for AI, and develop practices that allow for faster experimentation and learning. MOD and industry need to work to establish frameworks of expected responsibility for AI system operators to responsibly manage, store, transmit and process data.
- 3.3. Software and AI is mainly developed by the private sector, where product roadmaps are often measured in weeks and months rather than years, and capabilities can be developed at speed, and adapted and upgraded quickly based on user feedback. Ukraine's approach to developing and fielding capabilities demonstrates how a collaboration between industry, academia and UK Government can achieve rapid results, and can serve as a case study for how to develop and field AI technologies. MOD should look for ways to speed up and streamline procurement processes and contracting for AI to ensure that the entire lifecycle from concept to acquisition keeps pace with technological evolution. DE&S is already

starting this work, but for the UK to maximise the potential of AI, more focus should be given to this. Rapid testing and associated innovation are an area that the MOD should look to maximise, working hand in glove with industry to ensure not only rapid development, but rapid deployment.

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

- 4.1. The broader UK AI sector has attracted talent, investment, and expertise from around the world; however, the relatively high barriers of entry and the slow nature of procurement mean that there are comparatively few AI companies working in the UK defence industry. Having said that, the ecosystem of AI expertise in defence is a rich one, with significant expertise in academia, SMEs and in the established defence supply chain. Methods to pull through more of this knowledge to broaden the supply chain could include integrating AI R&D into existing capability evolution programmes, to accelerate their introduction, and leverage the existing defence partners to both develop capabilities, and provide access points for newcomers.
- 4.2. Whilst 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 the existing industries and strengths the UK has, and lead in these areas. The UK Government, in partnership with industry, could therefore identify key areas to focus on regarding AI development, and encourage companies to focus on these sectors.
- 4.3. UK Government could also consider the benefits of pooling funding into longer term, higher value contracts across sectors. This would provide a more stable programme of funded work, which would hugely benefit SMEs, and potentially attract more into the defence AI space. It would also break down some of the barriers for entry into the defence AI industry, by smoothing out the difficulty SMEs face with slow and effort-intensive MOD procurement processes.

5. 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?

- 5.1. To secure the UK's advantage in Defence AI, UK Government should take a multi-faceted approach to grow the UK's defence AI capability. One key

dimension of this campaign must be a long-term strategy to secure the workforce of the future, and attracting more people into working in defence AI. More immediately, action is needed to incentivise companies to focus on AI R&D for defence applications, and for a UK-wide AI Industrial Strategy, which encompasses international collaboration.

- 5.2. Greater incentivisation is needed in the immediate development of AI applications for defence requirements. This can be through a variety of methods, but the key is to drive coherence across all parts of the defence enterprise. The development of the Defence Artificial Intelligence Centre (DAIC) is welcome, but it needs to be paired with greater co-ordination on defence AI across the whole ecosystem. This could be through bodies such as the Dstl AI research Centre for Defence, or the creation of funded competitions and challenges through bodies such as the Defence and Security Accelerator (DASA).
- 5.3. Simultaneously, an approach should be taken to improve the knowledge of AI usage development and deployment opportunities among the MOD and the military, to develop the expertise needed to both procure and capitalise on the opportunities that AI can offer. For the UK to continually exploit innovative concepts, and maintain competitive advantage, the Government must invest in continually improving the literacy of officials and procurers of emerging technologies. Secondments between UK Government and industry, and leveraging the “Zig-Zag” career path options promoted in the Defence Command Paper 2023 are both options that should be explored as ways of continually improving the knowledge of AI, and of MOD priorities, amongst UK Government and industry. This must also be paired with wider awareness amongst the public and the military of the use case for AI in defence, and the advantages and importance of investing in defence AI R&D work.
- 5.4. Industry and Government also need to work together to ensure that the UK has the right skills in the workforce to meet the opportunities AI will bring in the future. This should be a cross-government campaign to address the STEM pipeline in schools, to attract more people into the defence sector, and to provide opportunities for upskilling and re-training mid-career to meet these needs. Government should work to make being a part of the defence sector an attractive career route for school leavers, apprentices, and graduates, potentially learning from and replicating successful initiatives such as the CyberFirst Girls Scheme for defence AI.

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

- 6.1. As mentioned in (3.2), the current MOD procurement model needs to be improved so that innovation can be continuously developed and deployed across the MOD. AI needs to be valued in the context of bid evaluation and scoring mechanisms to ensure its pull through into contracts, and that its development is prioritised. Options to encourage non-defence AI companies to bid for defence related contracts should also be explored by MOD, to bring more companies into the defence space, and broaden the supply chain. This will also require a strengthening of the knowledge held within MOD commercial and procurement teams on AI technologies, as well as a cultural change within commercial departments, and increased knowledge of the opportunities of AI among FLC's.
- 6.2. To enable AI to be truly embedded into defence supply chains robust regulatory frameworks must be developed. This will ensure AI is used responsibly in defence, and therefore help to secure the support from across Government and the wider public for the investment needed in AI. These frameworks should address issues such as accountability, and compliance with international laws and standards. UK Government should work with industry on proposals for national and international regulation to promote capacity in the sector, and to enable exports through common rules and standards.
- 6.3. The value of exporting and trade more widely for sustaining the UK's domestic industrial base and broadening supply chains must also be recognised by the MOD. Consideration in procurement should be given to exportability, as a method of opening new opportunities and markets, and embedding UK companies into defence supply chains.

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

- 7.1. AUKUS represents a generational opportunity for the UK's defence AI industry to become a global leader, and to collaborate with our partners to develop the next generation of technologies. The global environment is experiencing significant geopolitical change, and countries are facing increasing instability and threats to their security, at a time when technological innovation is evolving ever-more rapidly. The UK must take advantage of strategic partnerships such as the AUKUS framework to ensure systems are able to evolve rapidly and remain safe. Without international collaboration, the UK risks becoming a client of other countries.
- 7.2. To achieve the aims of AUKUS Pillar II, there needs to be a cross-departmental focus and drive from Government to achieve faster adoption and integration of technological solutions in the defence and security sectors, and to create opportunities for collaboration with partners in this sphere.

- 7.3. A close strategic partnership between UK Government and industry is essential for achieving this, to facilitate the flow of knowledge, and to move at pace. Collaboration will be needed to develop the standards and processes necessary to allow for speedy adoption of technologies by multiple countries, and for collaborative research and development between countries to improve and create new technologies. When procuring, the MOD should consider using Intellectual Property terms that will enable export opportunities, and promote the UK's potential to lead in this area. The UK should also seek to understand international best practice for how procurement can support and incentivise technological innovation and development, and work with AUKUS partners to implement this across the partnership.

18th January 2024