

EDA meeting with Senior Representatives of NDIA's & ASD on 9 April 2019

EDA Introduction at Lunch round-table

Technology is an exponential key driver and potential 'game-changer' at a global scale. Technological advances may help to address challenges but may also introduce new vulnerabilities and cause significant disruptions. The growing role of digitisation, the widespread use of artificial intelligence, and developments in autonomous systems as well as human-machine interfaces drive innovation that will alter the capability landscape.

Artificial Intelligence is widely recognised as a disruptive technology and can be described as "the study of the computations that make it possible to perceive, reason, and act".¹ Long-term capability requirements are projected to include AI support to tasks, such as data and intelligence gathering, automation of big data processing, analysis, validation and prioritisation technologies, and support to decision making. Artificial Intelligence is a prerequisite for the deployment of advanced autonomous systems.

Artificial intelligence

In 2018, all EU Member States and Norway signed a Declaration of cooperation on Artificial Intelligence (AI) to join forces to ensure Europe's competitiveness in the research and deployment of AI, and to deal with social, economic ethical and legal questions. The European Commission published a Communication on Artificial Intelligence for Europe in April 2018. The EC established a European Alliance for AI which acts as a broad multi-stakeholder forum for collecting and exchanging information and advising the EC on drafting AI ethics guidelines. The final AI ethics guidelines and the guidance on the interpretation of the product liability directive are expected to be published by the EC in 2019. The US and China are leading the development of AI. Their companies are attracting the most talented experts, are continuously collecting data, and using the biggest cloud computation infrastructure that may be considered as the principal factors to develop AI services.

As part of our ongoing work in the field of AI we have identified 4 key areas to enhance the related capability:

- Support decision-making tools in command and control;
- Improve intelligence gathering and processing to provide common operational picture and situational awareness;
- Support recurrent activities such as STRATCOM, logistics planning, airspace management, energy management, etc.;
- Develop the desired level of autonomy of unmanned systems.

EDA Work in 2019:

Given that the topic is complex and quite technical, the need for the clarification of what AI is and what may bring to the Defence community is fundamental before launching any other

¹ Winston, Patrick Henry *Artificial Intelligence*, 3rd ed., 1992

activities. In this regard we will develop and deliver before the end of the year the EDA “AI Definition, Taxonomy and Glossary document”, which will include at least:

- A definition of Artificial Intelligence in the defence context.
- A taxonomy describing the Technologies, applications and related areas of work.
- A glossary of terms in order to clarify concepts that are used in these discussions and not always understood in the same way by all the interlocutors.

Also, before the end of this month we will launch an innovation prize related to AI applications for Defence.

Autonomous systems

The EU has a clear and strong position in the debate on lethal autonomous weapons systems: the use of force must abide international law and human rights and lethal force needs to remain under human decision and accountability. This is also reflected in the European Parliament resolution on autonomous weapon systems. The European Commission group on Ethics in Science and New Technologies has published a statement in May 2018 calling for a process towards a common, internationally recognised ethical and legal framework for the design, production, use and governance of artificial intelligence and robotics and autonomous systems (RAS).

Despite various initiatives on the subjects, the EU is lagging behind, with US and China largely dominating the autonomous systems landscapes both in the civilian and defence markets. Russia, Japan, Israel, South Korea, and Australia are also relevant players investing in these areas.

The sub-module “Developing systems with evolving levels of autonomy” identifies three activities to enhance the related capability:

- Autonomous Systems Sensing and Control
- Trusted Autonomy Framework
- Autonomous Systems Operation Integration

For both domains a number of OSRA technology buildings blocks have been developed and currently CAPTECHS’ roadmaps are under development describing what, how and when these technologies will be delivered (both in EDA, and EDF frameworks).