

The Responsible Use of AI in FCAS

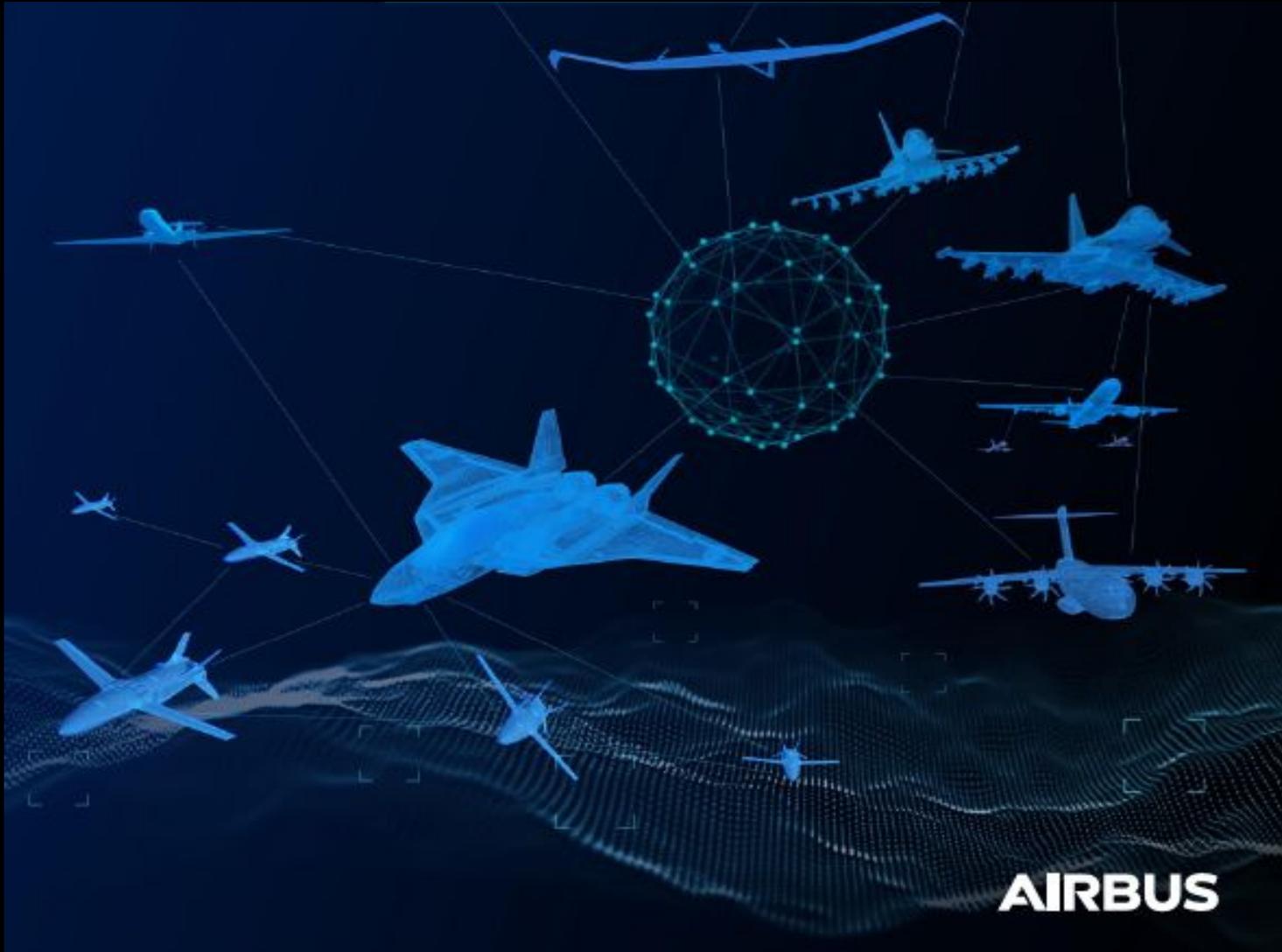
An Initial Assessment of Ethical and legal challenges

PFIA 2021 Défense et IA

June 2021 - Bruno Carron



Future Combat Air System (FCAS)



Dirk Hoke: The Future Combat Air System – or FCAS for short – was initiated by the heads of state of France and Germany.

[...]

it will make use of technologies such as artificial intelligence that, despite being cutting edge, also face critical discussion.

[...]

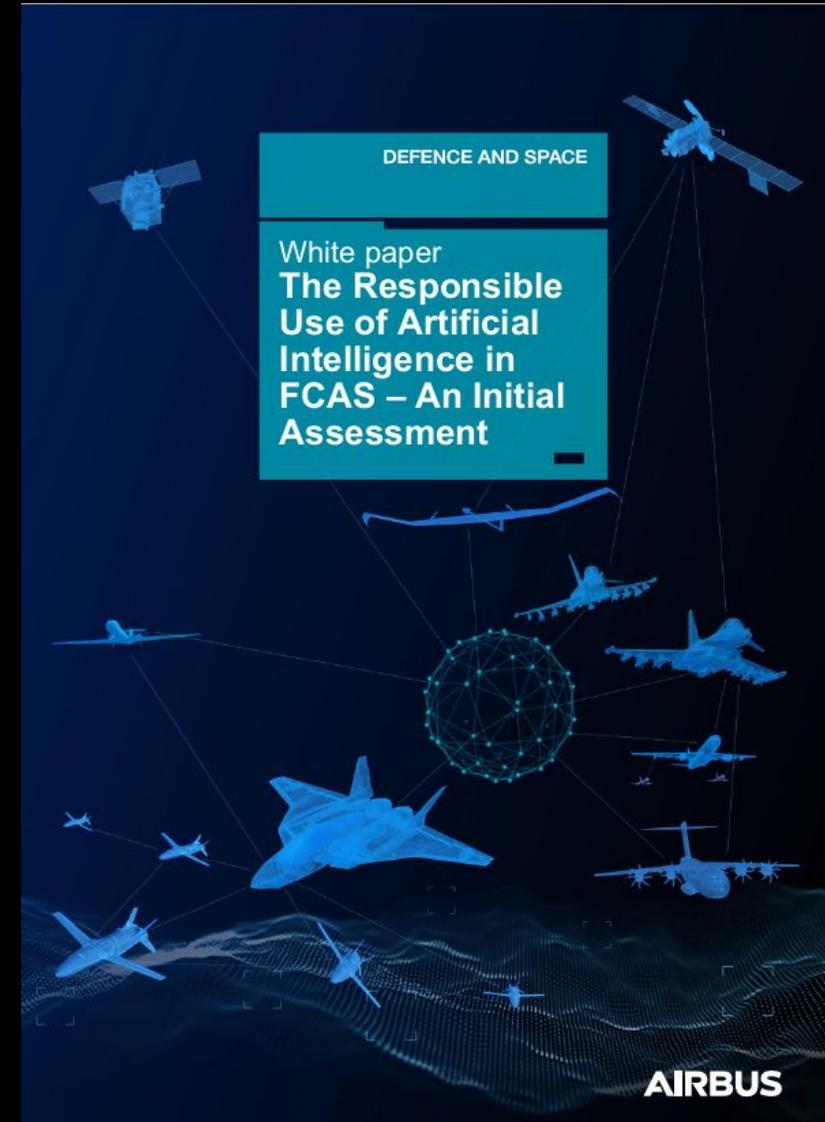
As the industrial partner with chief responsibility for the German part of the project, Airbus attaches great importance to these issues and will of course consider the social, ethical and legal questions involved.

Airbus White Paper

The Responsible Use of Artificial Intelligence in FCAS – An Initial Assessment

- Linked to **FCAS Forum**, the German Multi-Stakeholder forum driven by Airbus and Fraunhofer
- Engineering viewpoint & initial approach
- Identification and definition of a pre-selected set of eight Operational Use Cases for AI in FCAS
- Application of EU AI High Level Experts Group (HLEG) **Assessment List for Trustworthy AI (ALTAI)**

www.fcas-forum.eu



FCAS Operational AI Use Cases ...

... aim to clarify role of AI in FCAS system functions

Command & Control Phases

Artificial Intelligence as Enabler for Operational Capabilities & Performance

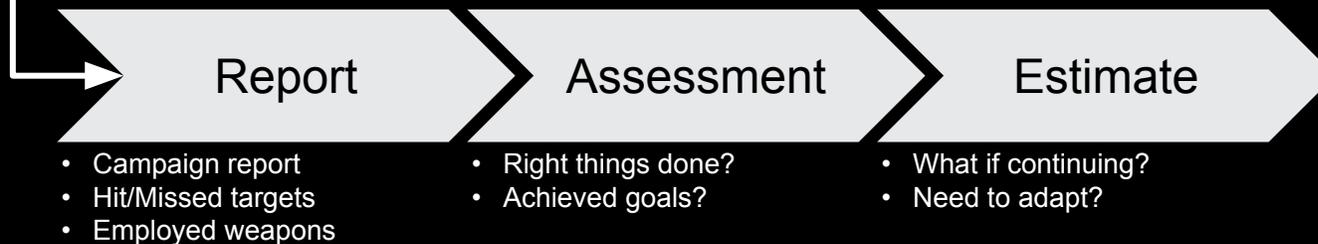
Non Real-Time
(Pre-Mission)



Real-time

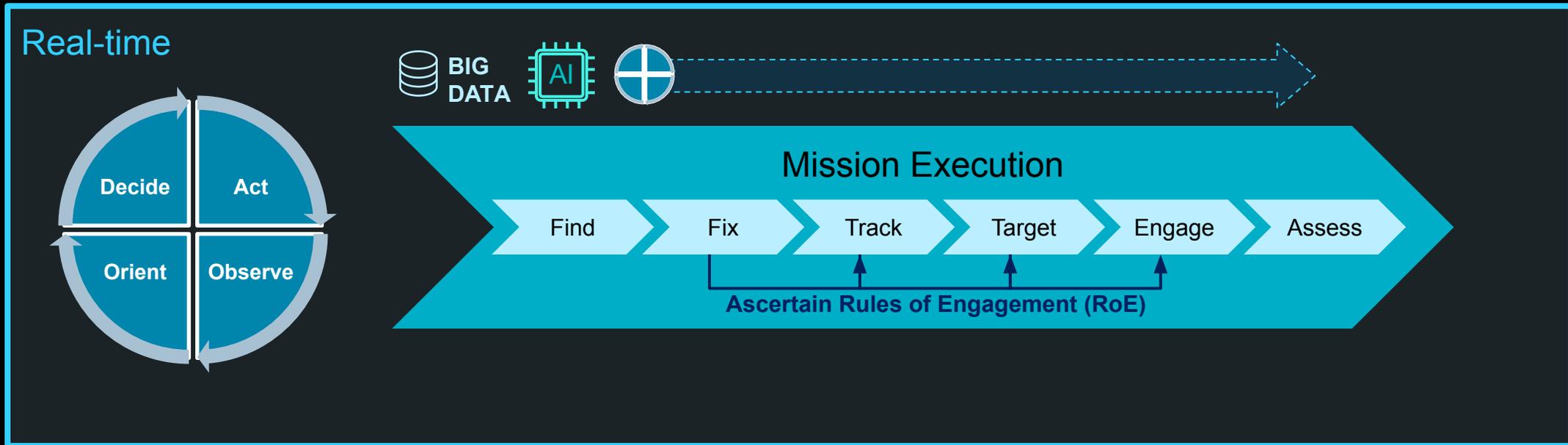


Non Real-Time
(Post-Mission)



Spotlight on Real-time and RoE

OODA-Loop & Targeting Cycle



Pre-selected Operational AI Use Cases for FCAS

Mission Planning and Execution

MPE



Detection, Recognition, and Identification

DRI



Situational Awareness

SA



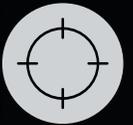
Guidance, Navigation, and Control

GNC



Threat Assessment and Aiming Analysis

TAA



Cyber Security and Resilience

CSR



Operator Training

OPT



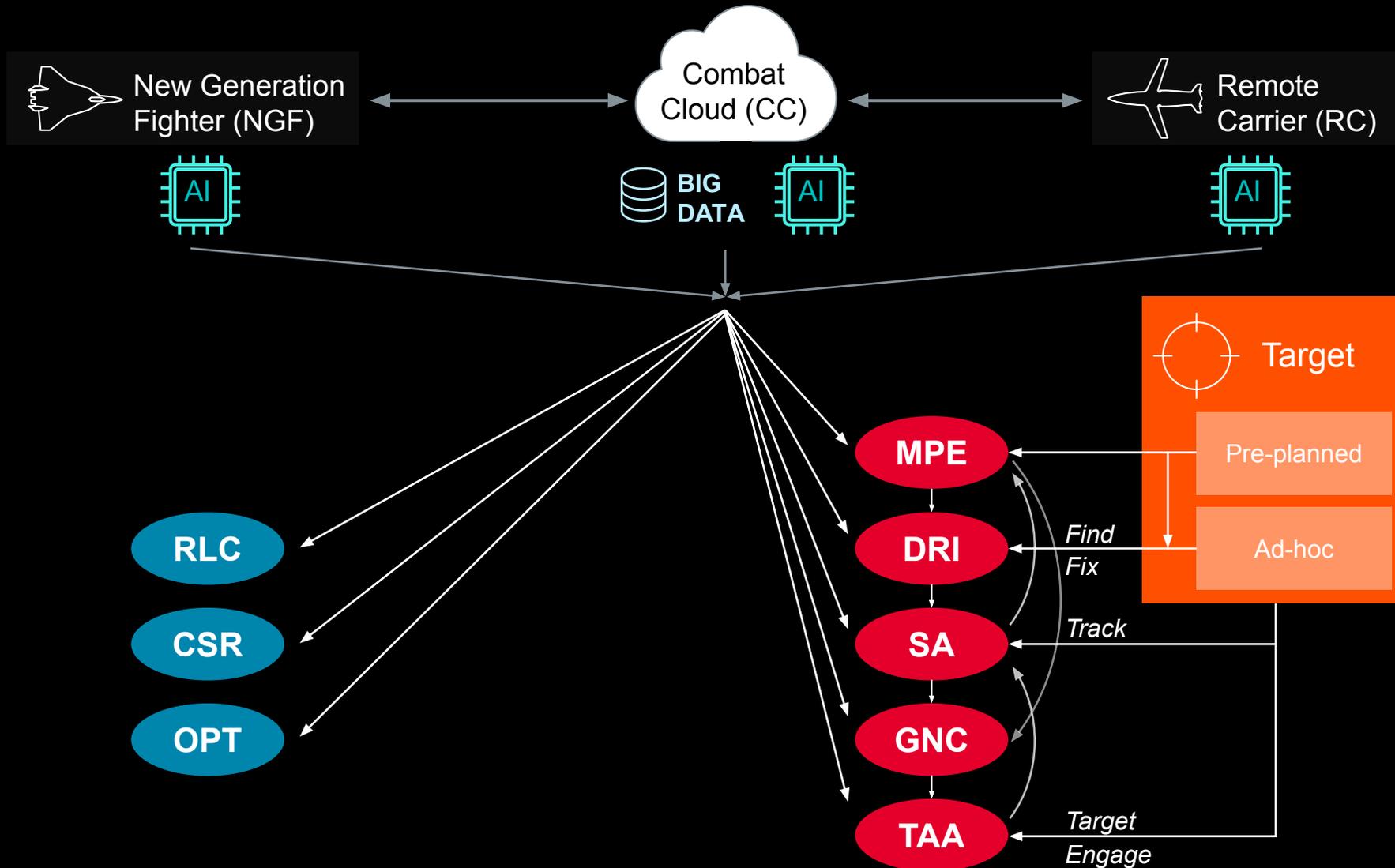
Reduced Life Cycle Cost

RLC



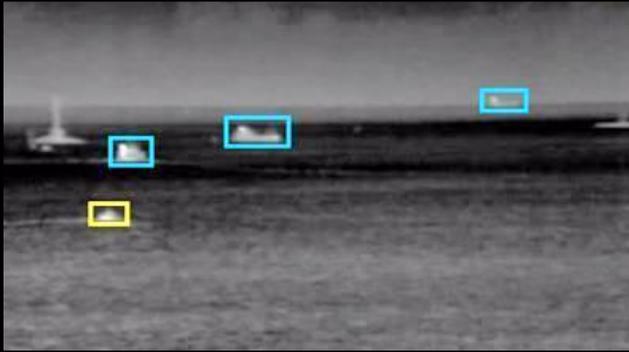
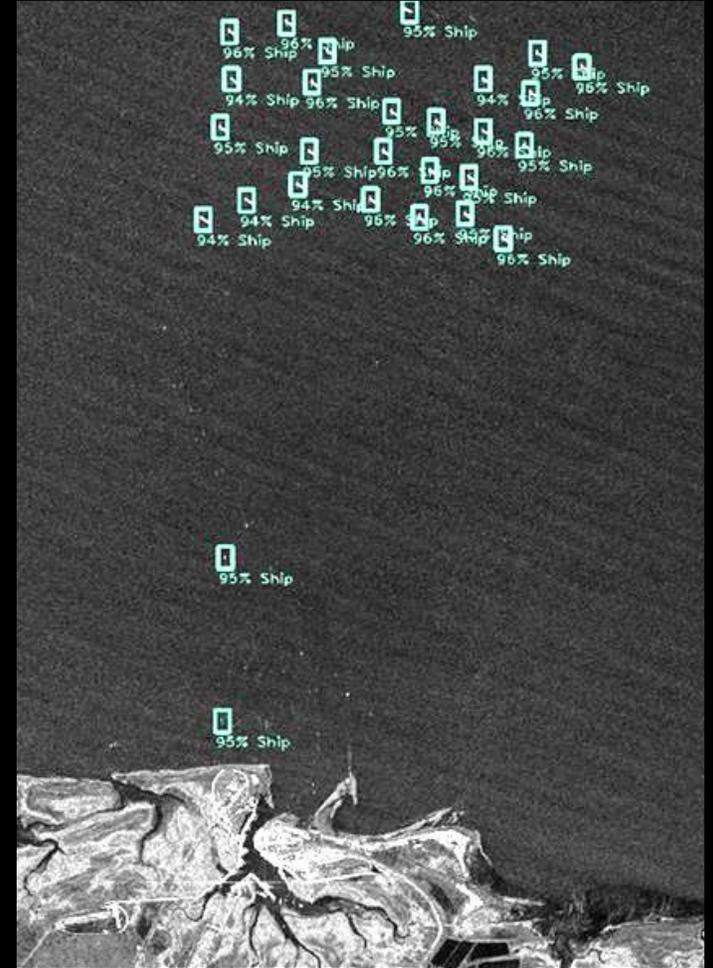
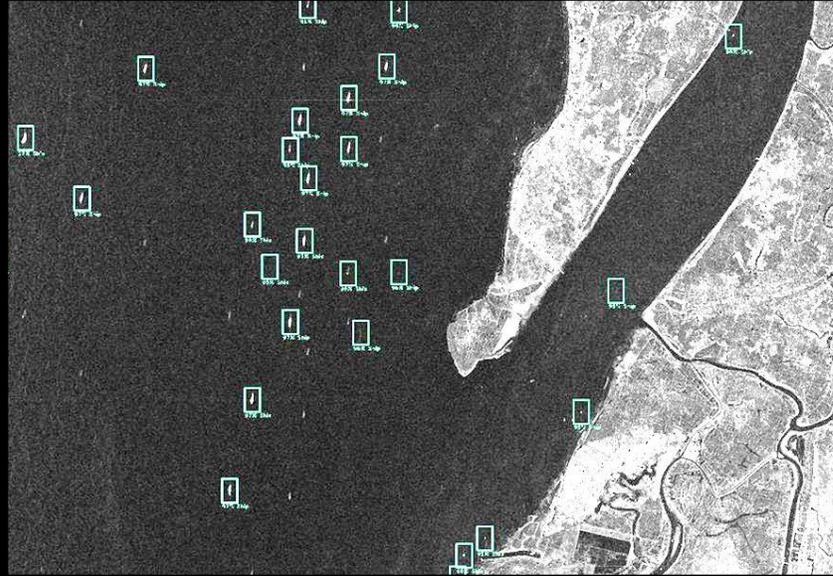
And there is room for more...

Use Cases in Targeting Cycle

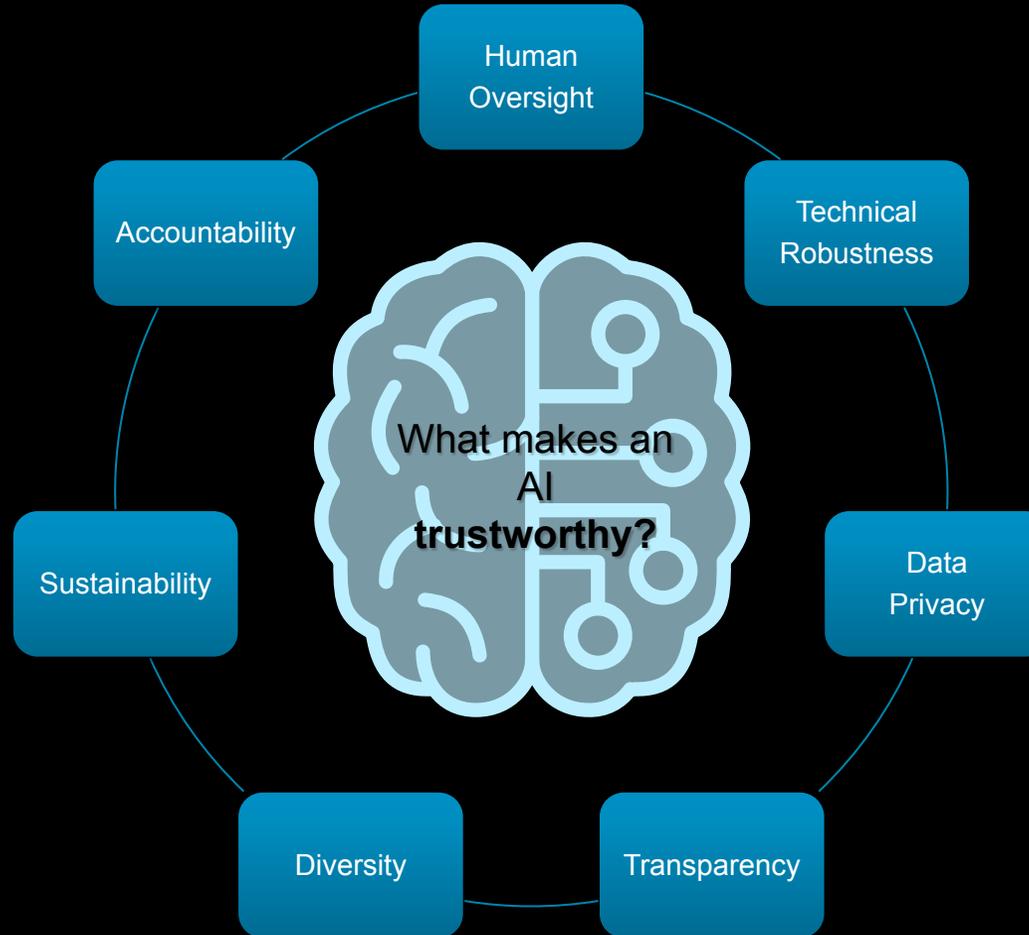




Target Detection, Recognition, and Identification **DRI**



European High Level Expert Group (HLEG) on AI Guidelines and Assessment List (ALTAI)



7 chapters: 131 questions impacting the organisation, design, operation, end-users

Do you continuously survey the users if they **understand the decision(s)** of the AI system?

Did you establish mechanisms to inform users about the purpose, criteria and **limitations of the decision(s)** generated by the AI system?

Did you consider establishing an **AI ethics review board** or a similar mechanism to discuss the overall accountability and ethics practices, including potential unclear grey areas?



Did you put in place measures to continuously **assess the quality** of the output(s) of the AI system?

Did you ensure that the AI system can be **audited** by independent third parties?

Summary

Achievements

- An initial set of Operational AI Use Cases has been defined for FCAS
- ALTAI was partially applied → It proved to provide valuable guidance

What is coming next?

- Extend/refine set of use cases
- Complete ALTAI methodology & investigate extensions for military domain

Q&A

