



[www.fcas-forum.eu](http://www.fcas-forum.eu)

# The Responsible Use of AI in FCAS

An Initial Assessment

April 2021

# What about an Ethical Artificial Intelligence?

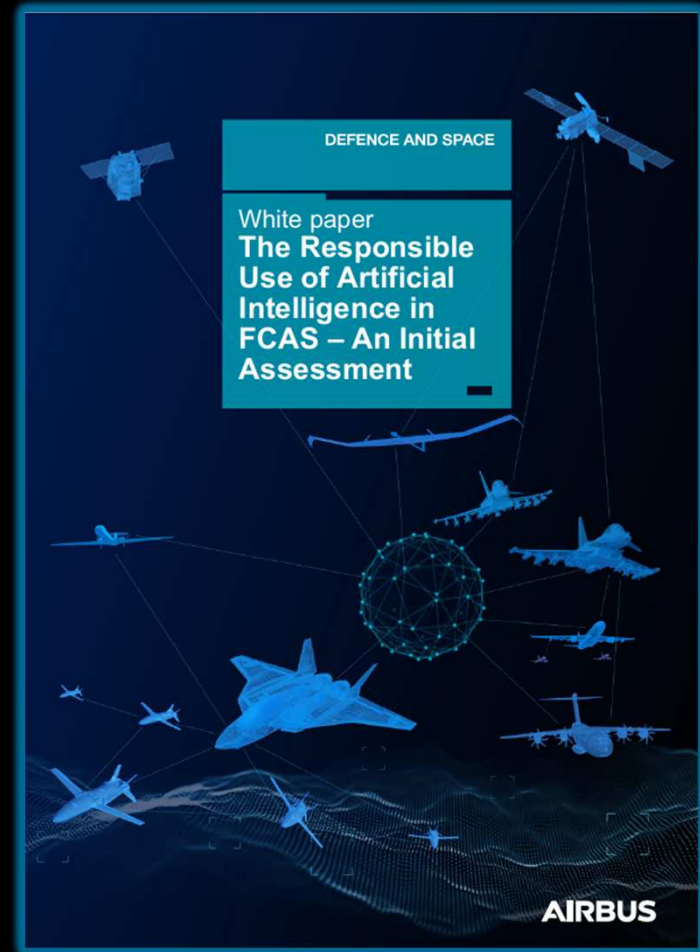


## Airbus White Paper

### *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](http://www.fcas-forum.eu)



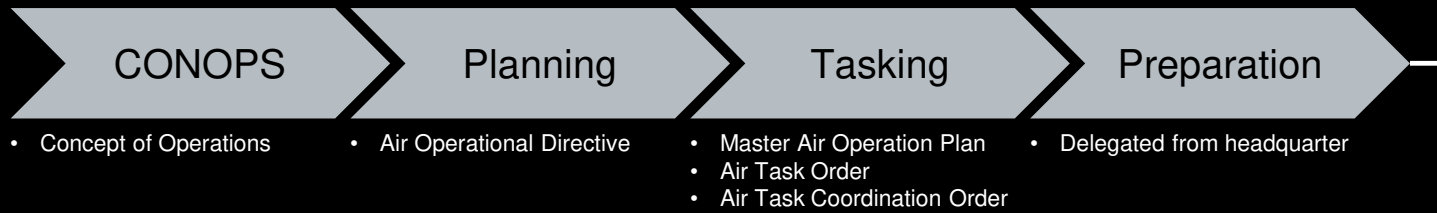
## FCAS Operational AI Use Cases ...

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

# Command & Control Phases

AI as Enabler for Operational Capabilities & Performance

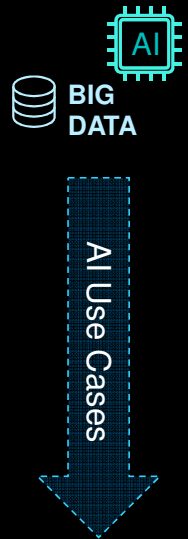
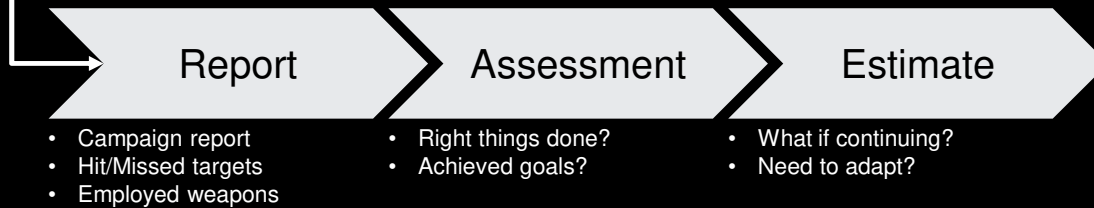
Non Real-Time  
(Pre-Mission)



Real-time

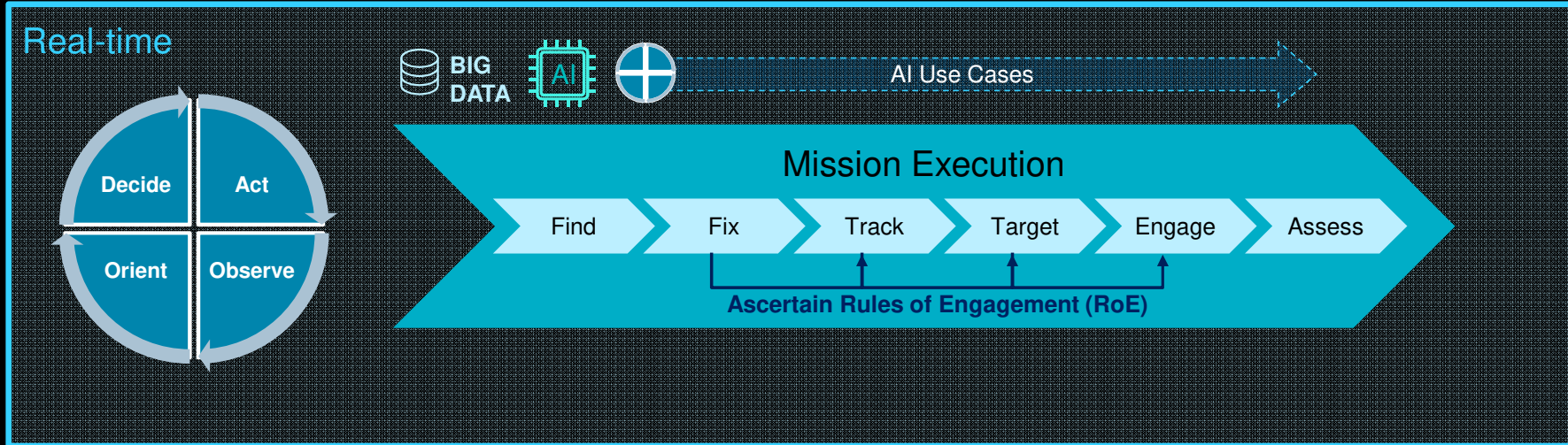


Non Real-Time  
(Post-Mission)



# Spotlight on Real-time and RoE


OODA-Loop & Targeting Cycle



# Pre-selected Operational AI Use Cases for FCAS


**MPE**

Mission Planning and Execution




**TAA**

Threat Assessment and Aiming Analysis




**DRI**

Detection, Recognition, and Identification




**CSR**

Cyber Security and Resilience




**SA**

Situational Awareness




**OPT**

Operator Training




**GNC**

Guidance, Navigation, and Control



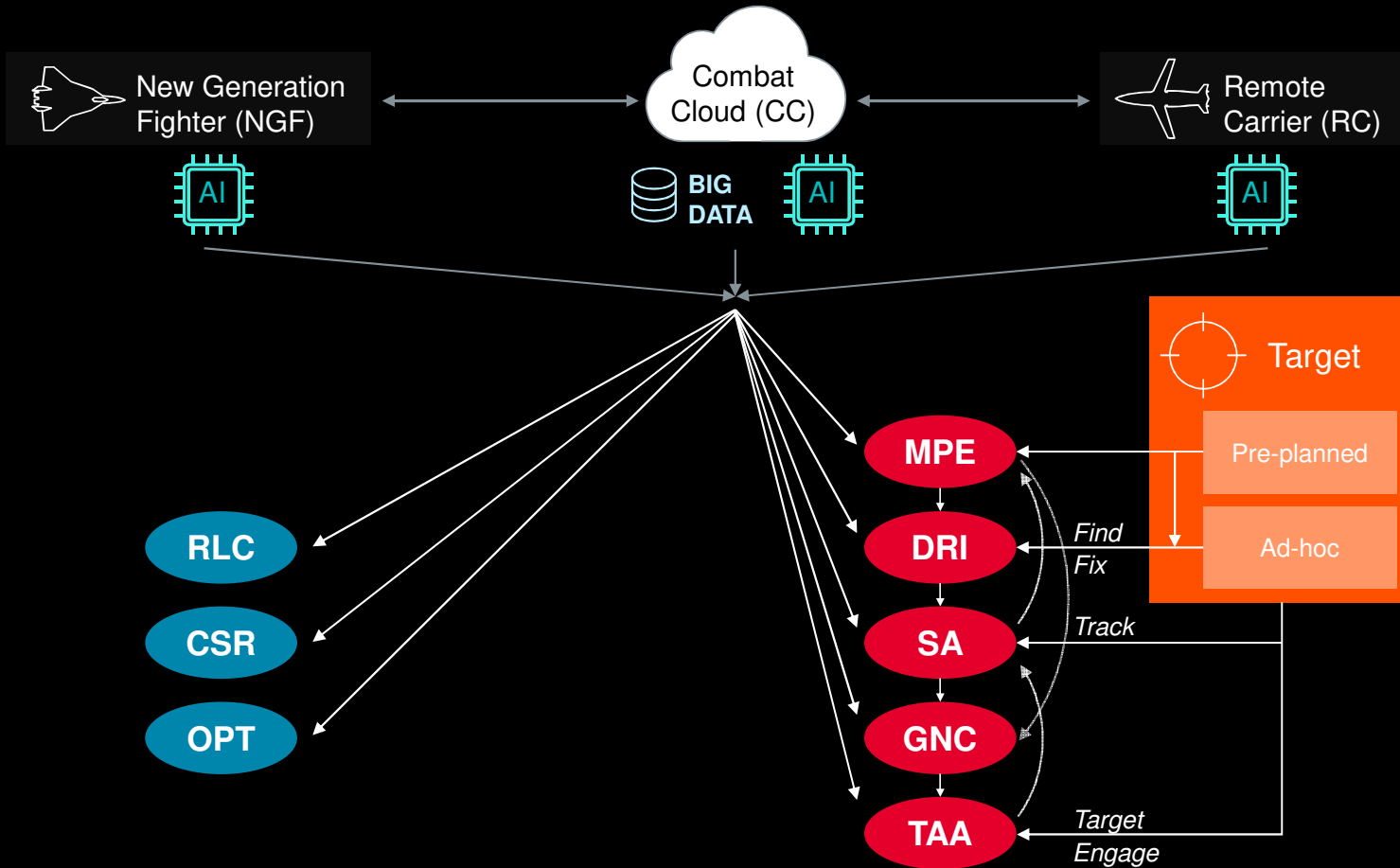
**RLC**

Reduced Life Cycle Cost



And there is room for more...

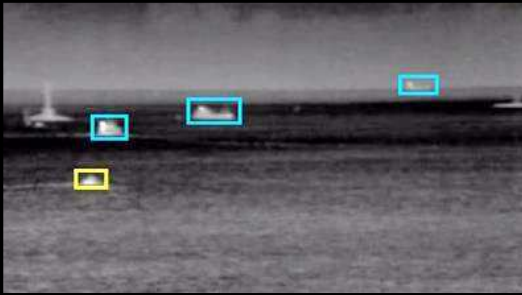
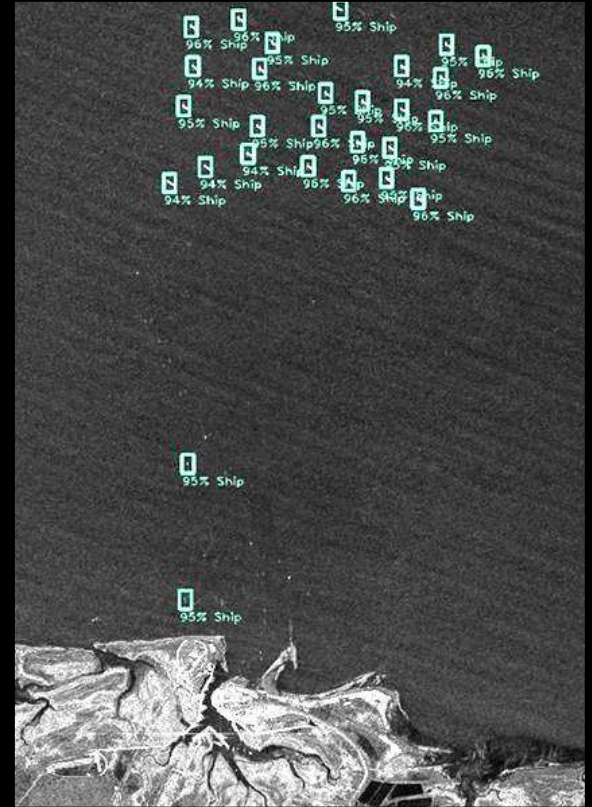
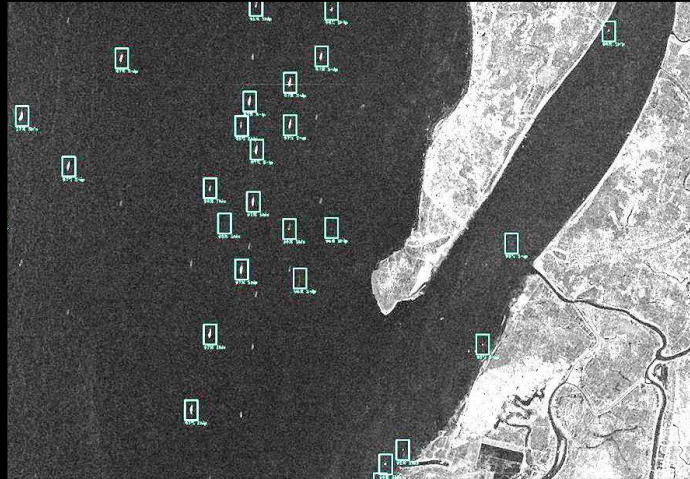
# Use Cases in Targeting Cycle



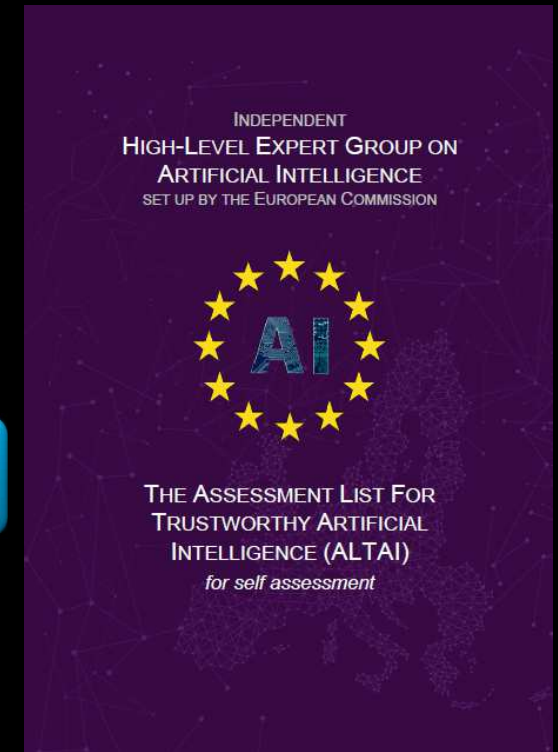
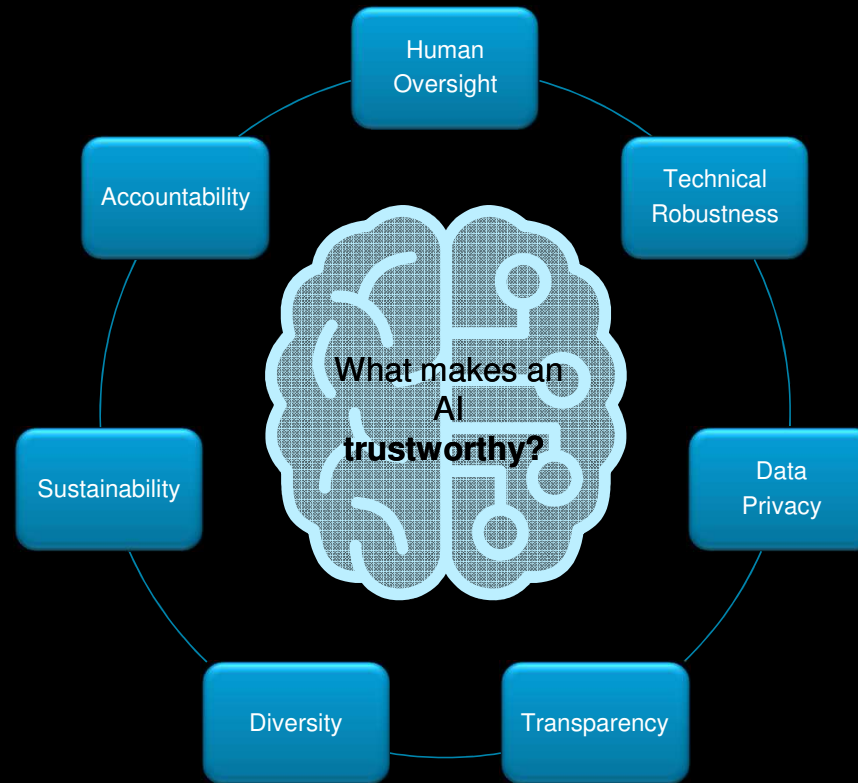




# Target Detection, Recognition, and Identification **DRI**



# 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?

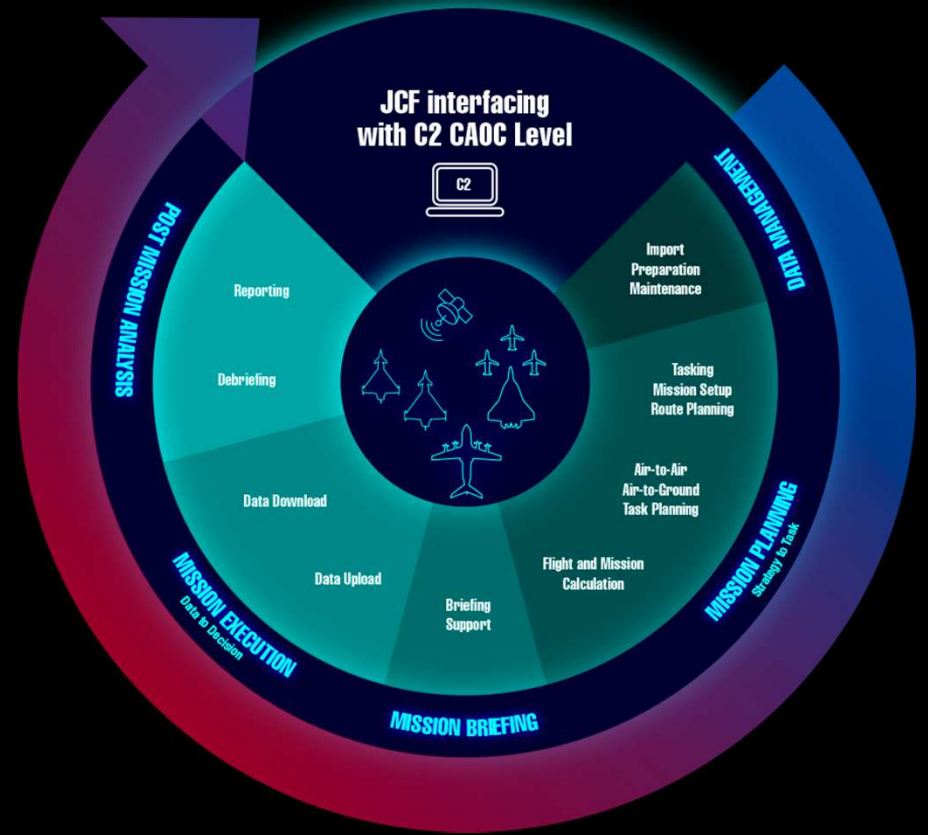
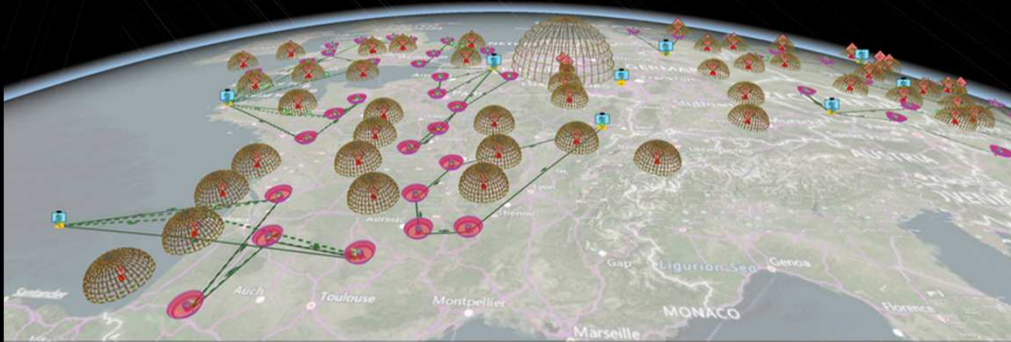
- Extend/refine set of use cases
- Complete ALTAI methodology & investigate extensions for military domain

# Q&A





# Mission Planning and Execution **MPE**





# Situational Awareness SA

