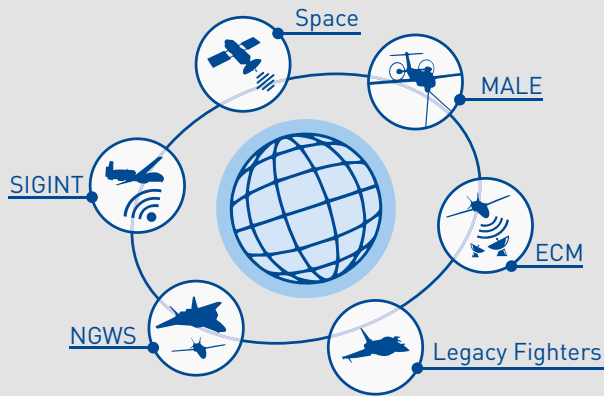


Future Combat Air System (FCAS)



Conceived as a "System of Systems", the growing complexity of the FCAS with various interconnected assets poses demanding challenges for European Air Forces:

- Guarantee high operational effectiveness
- Foster expedient technologies
- Assure interoperability and standardisation
- Ensure affordability

IABG's services support your Ministry of Defence in the decision-making processes throughout the entire lifecycle of a weapon system. Our analytical capabilities in operational, technical, and economical disciplines (incl. air power simulation) provide the required answers to both holistic and detailed questions.

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Defence & Security

Future Combat Air System (FCAS)



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About us

IABG is a private, **manufacturer-independent and product-neutral consultancy** with about 1,000 employees. The division Defence & Security supports the German Armed Forces, NATO and the European Union as well as selected public and private clients with individually tailored services covering

- Concepts and Implementations
- Cross-domain Models and Simulations
- Surveys, Deductions and Recommendations
- Programme Management/Project Support.

Selected References

IABG is part of a large number of past and current projects:

- **Eurofighter** (since the 1980s)
Full life cycle support: Requirements engineering, concept evaluation (avionics, structure, aerodynamics, engine, Life Cycle Cost (LCC) etc.), in-service support
- **EU MALE RPAS** (since 2016)
Mission performance, air traffic integration, INFOSEC, LCC, ISS/ILS and more
- **TORNADO** (since the mid 1970s)
Analysis of operational requirements, mission performance, technical evaluation of industrial concepts
- **TORNADO Successor** (since 2017)
Comparative analysis of potential candidates (technology, risk, cost)
- **Next Generation Weapon System** (since 2017)
Requirements capture process using scenario-based capability analysis, concept evaluation
- **NATO AFSC** (since 2016)
Studies and analyses for national decision support in AFSC pre-concept and concept stage

Our Expertise for FCAS

In the framework of the FCAS programme IABG generates high added value in the following topics:

Operational Topics

- Operational Effectiveness
- Threat Catalogue and Survivability
- Scenarios & Mission Vignettes
- Operational Requirements Management
- Modelling of Doctrine and Tactics
- Mission Planning and Role Assignment
- Data Farming and Statistical Evaluation
- Human Factors Engineering
- Training

Technical/Physical Topics

- Requirements Engineering
- Conceptual System Design
- Flight and Mission Performance
- Threat Analysis and Observability
- Communication and Network (all OSI Layers)
- Sensor Performance (EO/IR, Radar, SIGINT etc.)
- Automatic Target Recognition
- Data Exchange and Fusion
- Effector Performance (ASM, ECM etc.)
- Modelling of physics and new technologies
- Modelling of system logic and processes
- Automation, Decision Making and Machine Learning

Economic and Administrative Topics

- LCC and Affordability
- In-Service Support and Supportability
- Certification & Qualification
- Procurement Process and Time Constraints

Modelling and Simulation

IABG continuously enhances its **expertise in operational analysis**. IABG's experience of more than 50 years in defence & security is fed into an **air power simulation** environment to overcome the complexity of FCAS as a System of Systems.

This tool chain is conceived to

- Support cross-platform trade-off studies
- Identify vulnerable interfaces and critical dependencies between different assets
- Ensure the consistency of requirements throughout all levels of detail, i.e. System of Systems, involved assets and carried payloads

System-of-System Analyses

Trade-Off Studies

