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European Union Aviation Safety Agency

EASA AI Days 2026
Lunch break – 12:30 to 13:30

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European Union Aviation Safety Agency

EASA AI Days 2026

Flash Talk : EUROCAE WG-114 / SAE G-34 Joint working group on AI

Tri Thuc Nguyen
EUROCAE

Fateh Kaakai
Thales

Sandrine Serres
Airbus

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EUROCAE WG-114 Flash talk

AI in Aviation - From Innovation to Certification in the Machine Learning Era

EASA AI DAYs – 9 -10 September 2026

Fateh Kaakai (THALES), Sandrine Serres (AIRBUS), Thuc Nguyen Tri (EUROCAE)

Agenda

Thuc

EUROCAE

General Information

ED-324 / ARP6983 – Key Highlights

ED-324 / ARP6983 – Standard Validation & Maturity

EUROCAE WG-114 / G-34, Artificial Intelligence in Aviation

Thuc

- Joint WG-114/G34 Created in 2019
- WG-114/G34 focuses on the establishment of common standards to support the development and certification/approval of aeronautical products based on AI technology objectives:
  - Scope: Airborne & ATM/ANS domains (crewed & uncrewed Aircraft)
- WG-114/G-34 (comprised of 600+ participants)
  - Industries
  - Authorities
  - Universities

EUROCAE WG-114 Deliverables

Document	Title	Date
ER-022	Statement of concerns	Published in 2021
ER-27	Taxonomy in Artificial Intelligence	Published in Dec 2024
ER-043	Assessment of Human Factors concerns for the development of safety related AI-based Systems in Aviation	Q4 2026
ER-050	Use Cases Considerations for ED-324	Q2 2027
ED-324	Development and Assurance Considerations for Aeronautical Systems and Equipment implemented with Machine Learning	Q4 2026
ER-xxx	Supporting Information for ED-324	Q2 2027
ER-xxx	Assessment of Information Security concerns for the development of AI-based Systems in Aviation	Q4 2026

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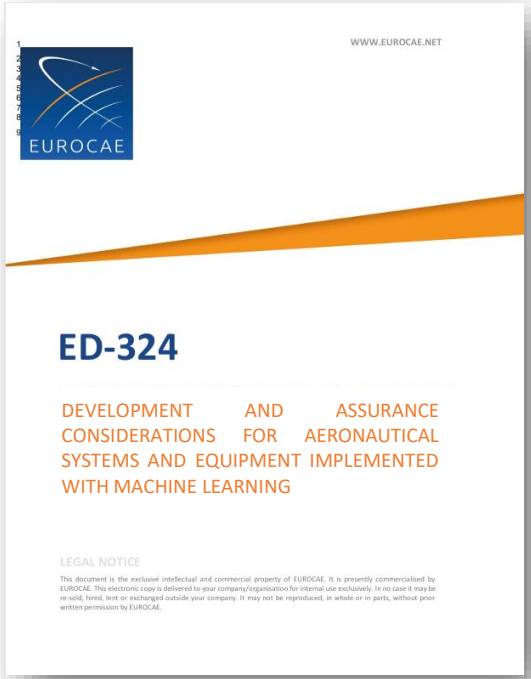
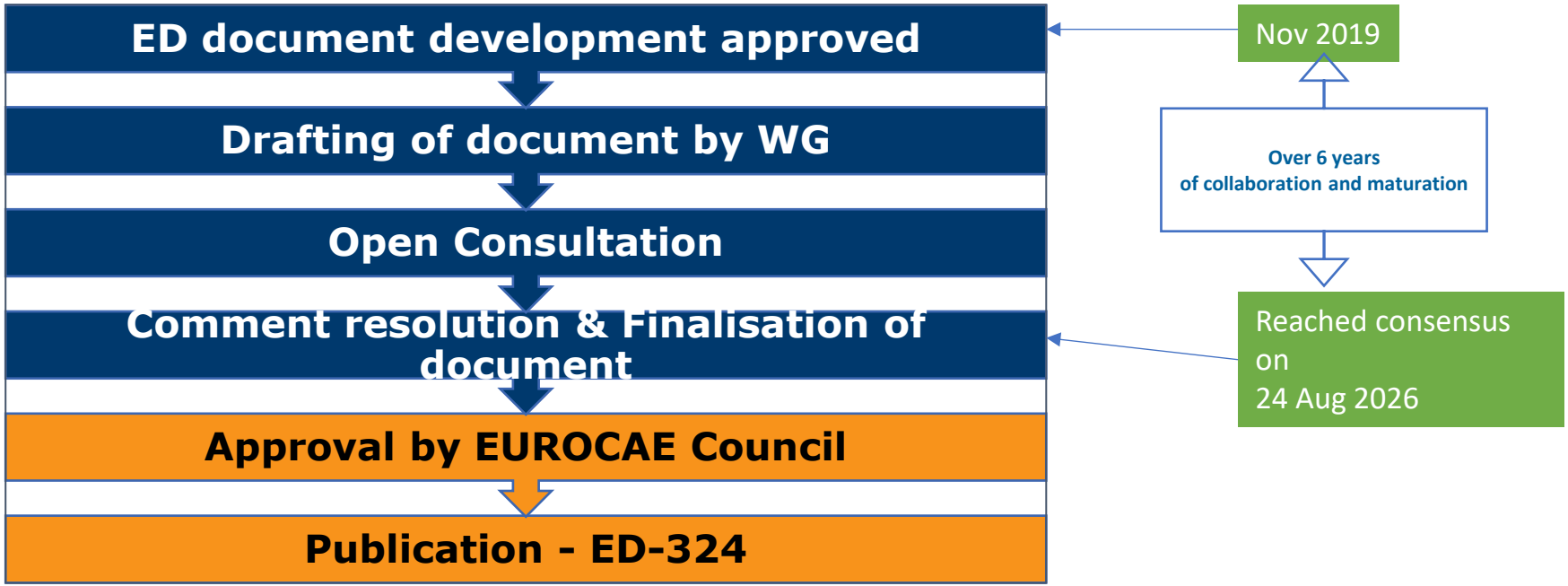
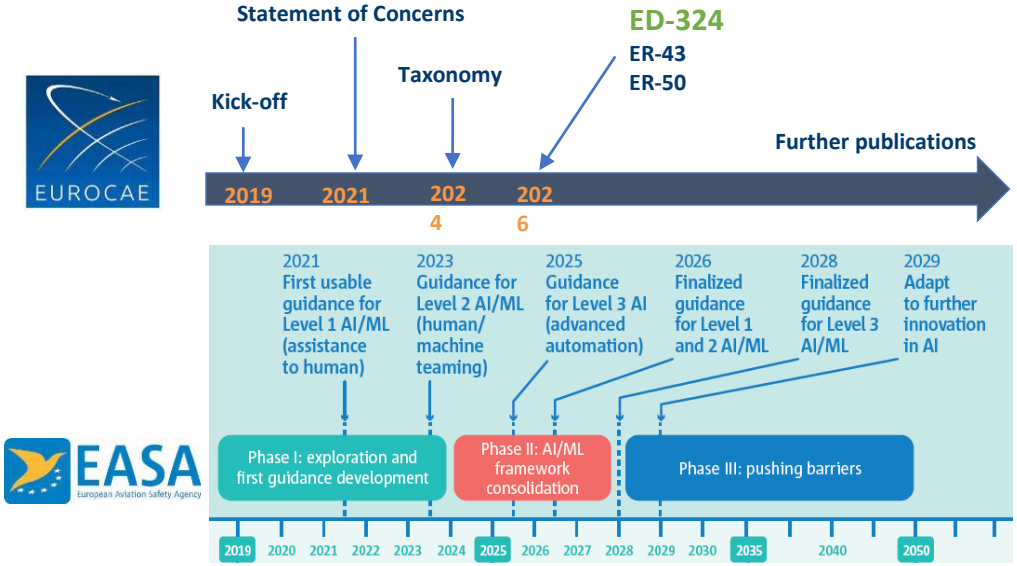


ED-324 Timeline introduction



WG-114 Roadmap vs EASA Roadmap



WG-114/G-34 Deliverables

- Statement of Concerns – ER-22
- Taxonomy – ER-27
- Use Case Consideration – ER-50
- Human Factor Consideration – ER-43
- **Development and Assurance Considerations for Aeronautical Systems and Equipment implemented with Machine Learning - ED-324**

EASA Roadmap

- EASA released the roadmap 2.0
- EASA concept papers level 1 and 2, issue 2

Future deliverables

- EUROCAE: Other AI Technologies – ED-324A (TBD)
- EASA:
  - Concept papers level 1, 2 issue 03
  - Legislation: RMT.0742

WG-114 – AI Video Series in Aviation

Thuc

EUROCAE

Foundations & Standardization Journey

- Introduction to WG-114/G34: its origin, its scope
- Link of the standard with Rulemaking process - EASA and ANAC Perspective
- Methodology to build the standard and structure of the committee
- Importance of standardization in AI for aviation safety and efficiency
- MVP concept & Roadmap of WG-114/G34
- Role of the Editorial Commitee and Outline of ED-324/ARP6983

Technical Deep Dives

- Introduction of the MLDL
- The role of Use Cases in the development of standard
- Time-Based Separation Use Case
- System considerations: Machine Learning Constituent
- Interface between ED-324/ARP6983 and ED-79B/ARP4754B
- Tool Qualification
- The importance of Data Quality
- System considerations: 4 challenges in Machine Leanring
- Traceability between ED-324/ARP6983 and EASA AI Concept Papers

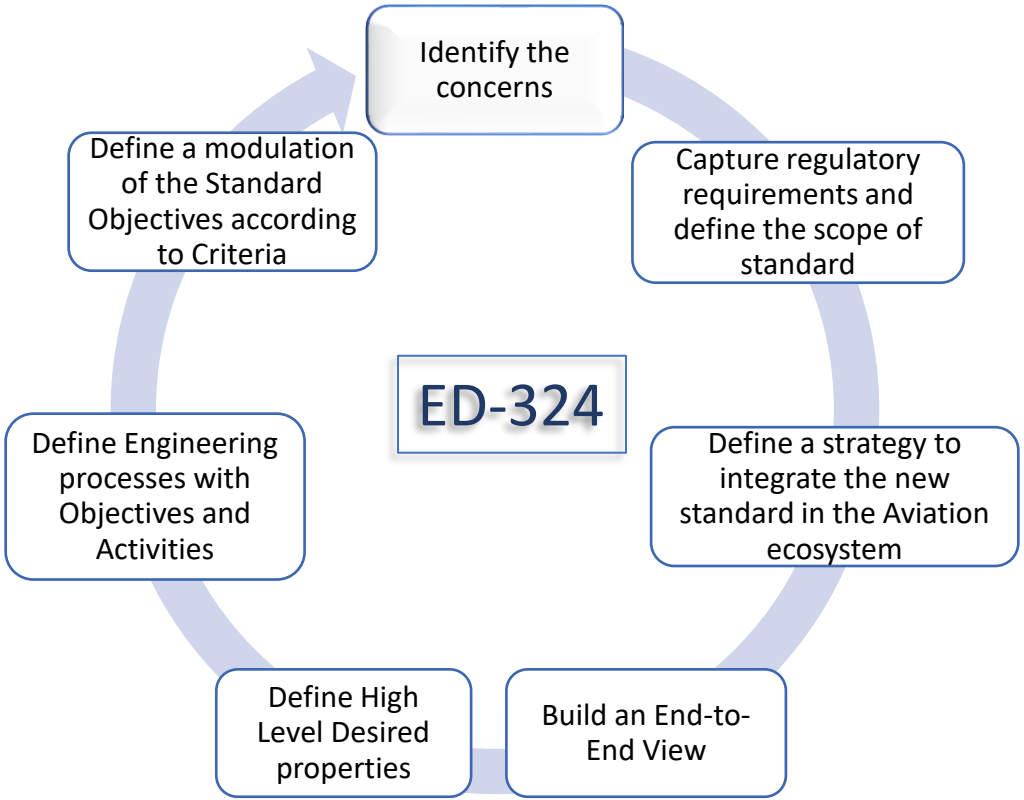
Agenda

General Information

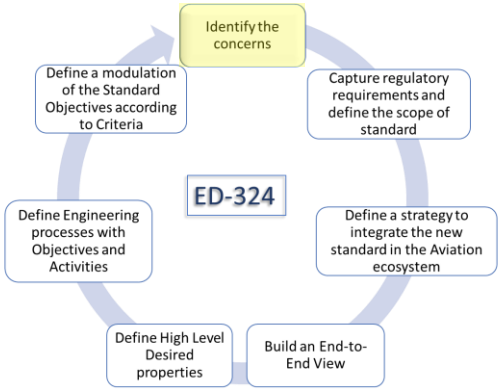
ED-324 / ARP6983 – Key Highlights

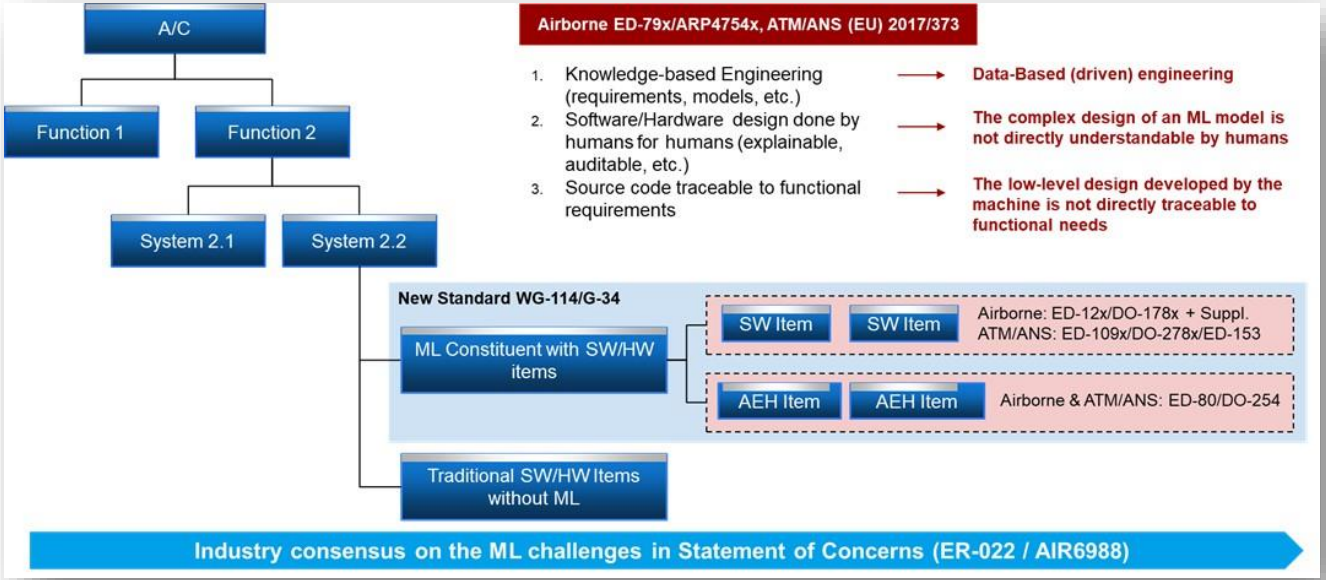
ED-324 / ARP6983 – Standard Validation & Maturity

High level methodology to build the standard

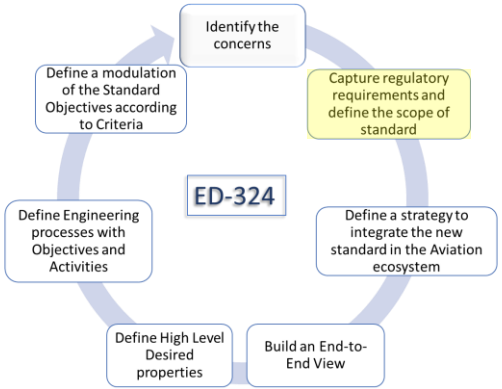


Statement of Concerns – Gap in current Certification Approach



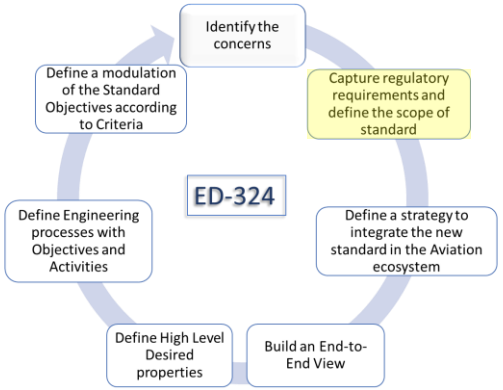


ED-324 / ARP6983 – Scope of the standard (1/2)

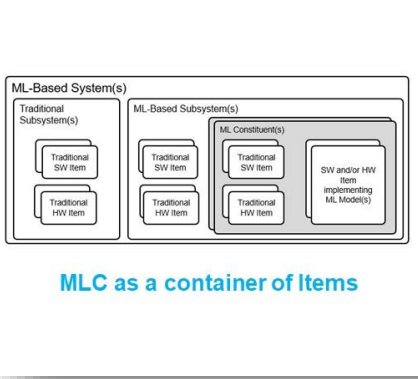


- Development Assurance process
- To support the approval of Aeronautical Systems and Equipment implemented with ML
- Airborne (i.e., crewed and uncrewed aircraft) and Air Traffic Management / Air Navigation System (ATM/ANS) domains
- Issue 1 limited to a **subset of ML technologies**
  - Non-adaptive ML in supervised mode,
  - up to IDAL C / AL 3 / SWAL 2
  - Out of Issue 1 scope: Information security & Human factors considerations
- Broader extension of the scope planned for next releases

ED-324 / ARP6983 – Scope of the standard (2/2)



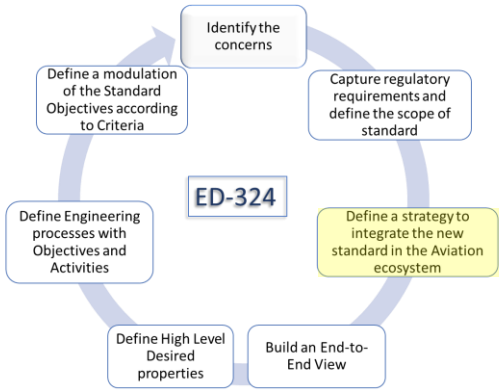
MLC Definition: A defined and bounded set of one or more ML model(s) and the ML data processing required for their execution, implemented in hardware and/or in software, and considered as a single entity for assurance purposes

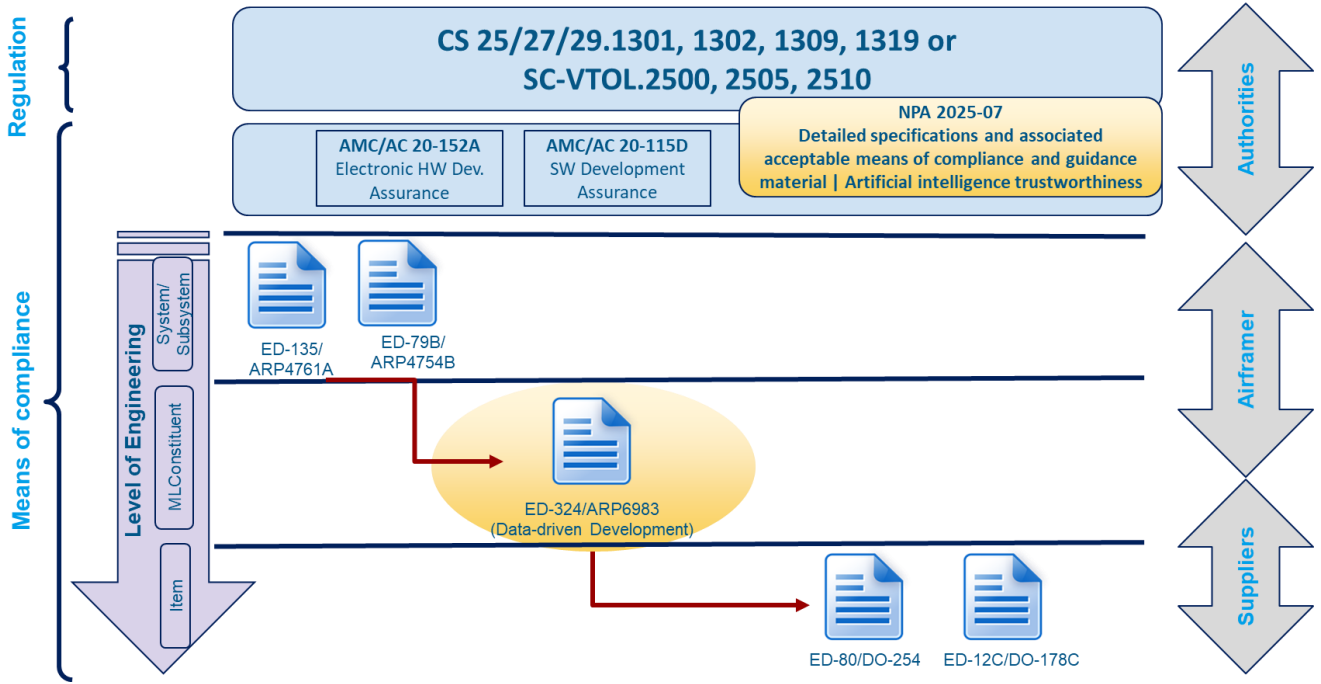


MLC as a container of Items

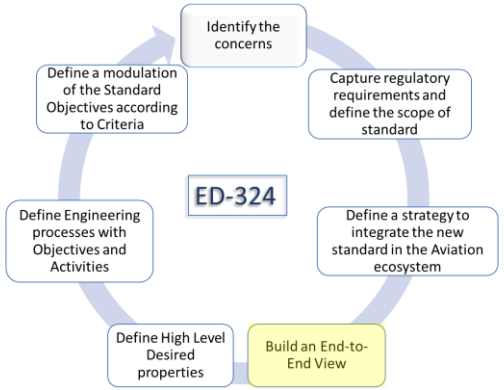
MLC as part of an Item

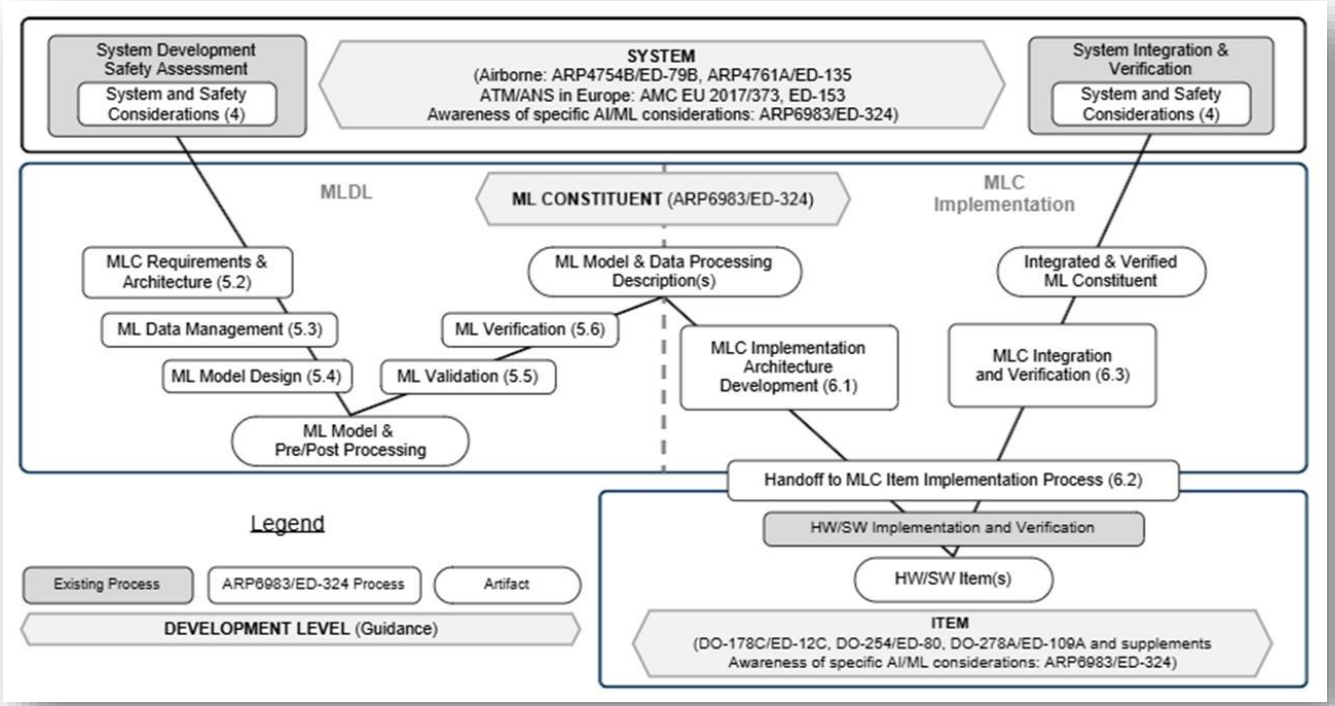
Airborne future regulatory framework





End-to-End "W-Shaped" MLC Development Lifecycle



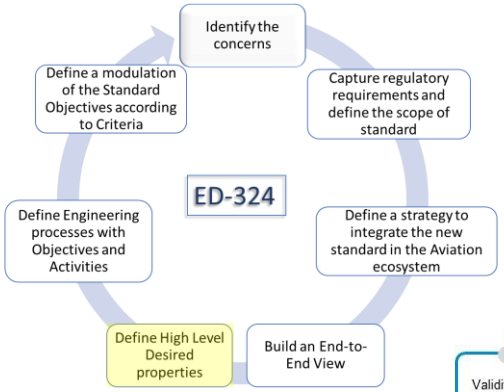


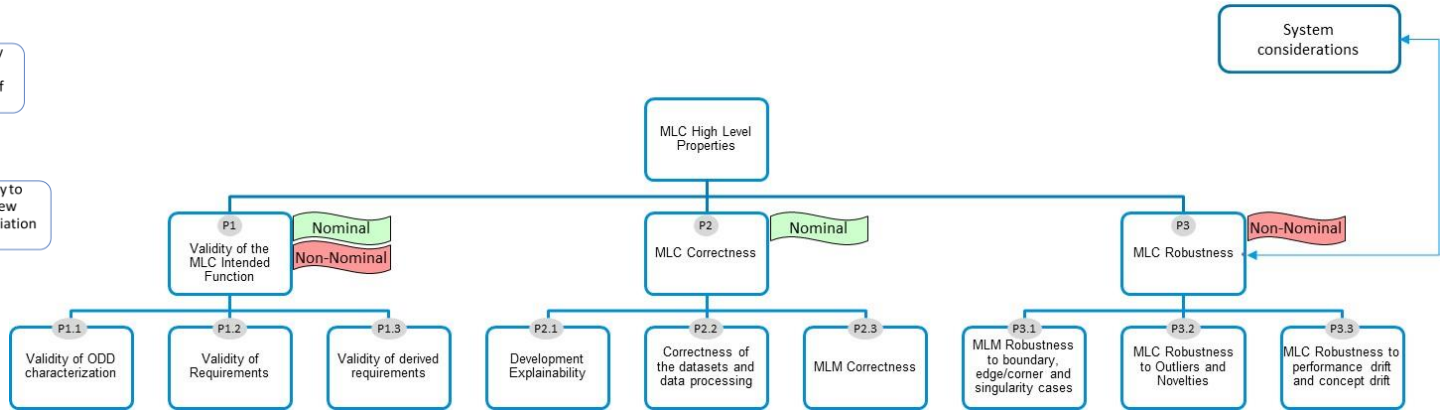
MLDL = Machine Learning Development Lifecycle

High-Level Desired Properties

Reminder of previous definitions

- P1: Correctness and completeness of all reqs at MLC level to comply with system/subsystem reqs under **all nom. and non-nom. cdts within the MLCODD and non-nom. cdts outside the MLCODD**.
- P2: Ability of a **MLC** to maintain its level of performance under **all nominal conditions within the MLCODD**.
- P3: Ability of a **MLC** to maintain its level of performance under **all non-nominal conditions within the MLCODD** (incl. boundary, edge/corner, and singularity cases) and **outside the MLCODD** (incl. outliers and novelty cases).



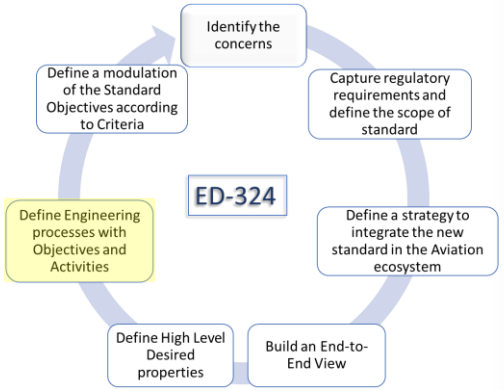


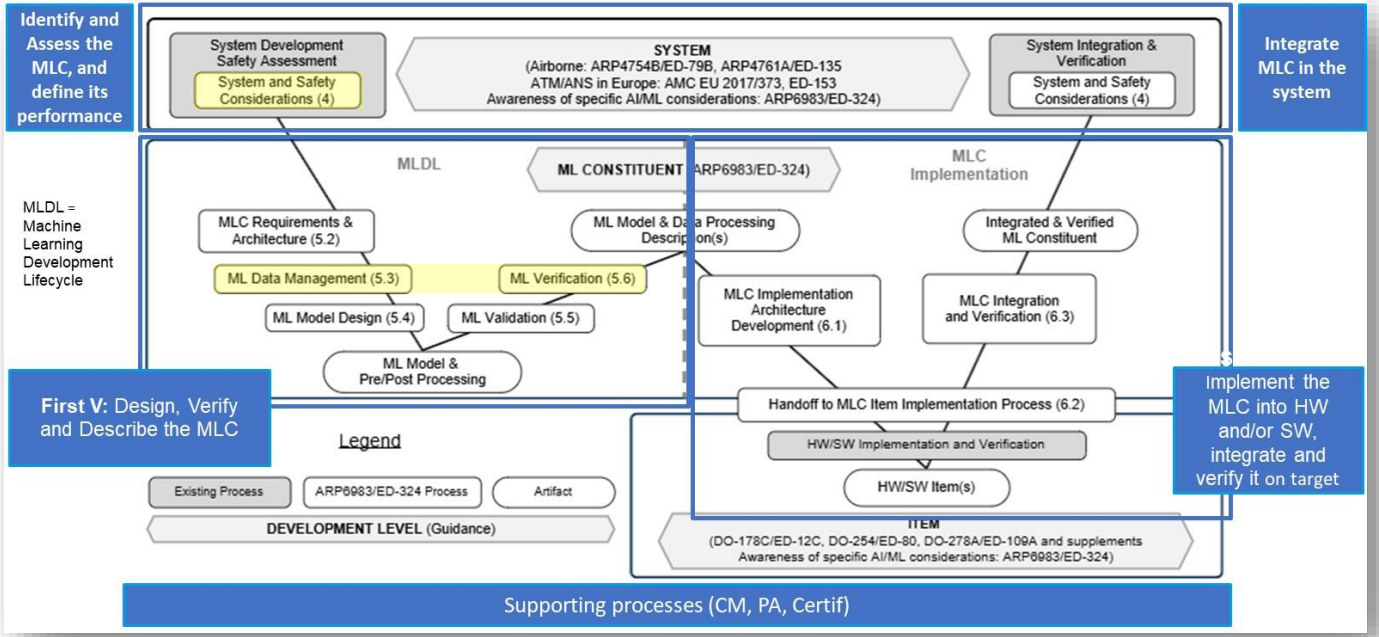
ML Trustworthy properties including

- ML Data properties: completeness, representativeness, fairness, sufficiency, …
- ML Model properties: performance, generalization, stability, robustness, …

MLC Development Process – Overview

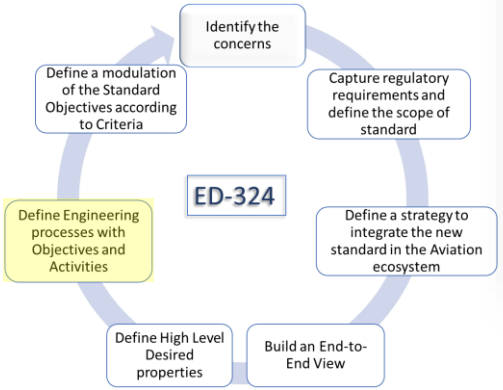
MLC as container of items





MLC Development Process – Overview

MLC as container of items



Examples of objectives in ED-324/ARP6983

Table B1 - System domain and MLC objectives

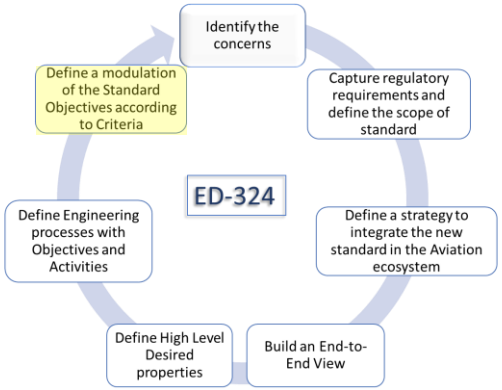
Objective			Activity	Applicability by Assurance Level (IDAL/AL/SWAL)				Output		Control Category by Assurance Level			
No	Description	Ref	Ref	C AL3 SWAL2	N/A AL4 SWAL3	D AL5 SWAL4	E AL6 N/A	Lifecycle Data Item(1)	Ref	C AL3 SWAL2	N/A AL4 SWAL3	D AL5 SWAL4	E AL6 N/A
1	The boundary of the MLC is identified in the context of the applicable system-level development and assurance processes.	4.1.2	4.1 4.1.1 4.1.2 4.2.1.1	Recommended (R) for certification for any MLC associated with a system/item that is subject to compliance with certification regulations.(2)				System requirements; System architecture data; System requirement allocations; Refer to applicable guidelines		①	①	②	②
2	The MLC is assessed using the applicable safety assessment process	4.1	4.1 4.2.1 4.4	R	R	R	R(3)	As per applicable safety guidelines; System-level safety requirements; assurance level assignments, and assumptions		①	①	②	②
3	The Operational Domain is defined to a degree of detail necessary to support MLC development	4.1.1	4.1.1 4.2.1.1	R	R	R	N						
4	System-level performance requirements including the associated metrics, acceptance targets, thresholds and tolerances (including margin) are established	4.4.3	4.1.1	R	R	R	N						

(1) Section 4 data are part of the system level lifecycle data and should follow the existin
(2) For the MLC "as part of an item", the outputs are those of the item development proc
(3) Once the applicable failure conditions/hazard effects are established as having no sa tives in the applicable guidelines are not required for IDAL E / AL6 / No SWAL.
(4) There are common mode risks for an MLC as a single training unit due to systematic learning.

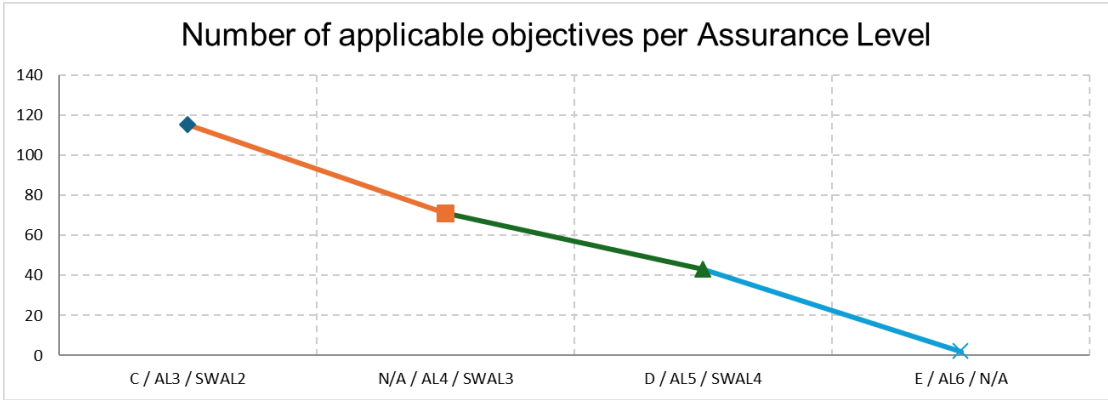
Table C7 - ML Data Management process outputs verification objectives

Objective			Activity	Applicability by Assurance Level (IDAL/AL/SWAL)				Output		Control Category by Assurance Level			
No	Description	Ref	Ref	C AL3 SWAL2	N/A AL4 SWAL3	D AL5 SWAL4	E AL6 N/A	Lifecycle Data Item	Ref	C AL3 SWAL2	N/A AL4 SWAL3	D AL5 SWAL4	E AL6 N/A
1	Identified and selected data sources comply with DQR and (if applicable) DPR.	5.6.1.1.a	5.6.3.2 5.6.3.3 5.6.3.4	R	N	N	N	ML Verification results	7.4.10	②			
2	Collected data complies with DQR and (if applicable) DPR.	5.6.1.1.b	5.6.3.2 5.6.3.3 5.6.3.4	R	N	N	N	ML Verification results	7.4.10	②			
3	Prepared data including their labels complies with DQR and (if applicable) DPR.	5.6.1.1.c	5.6.3.2 5.6.3.3 5.6.3.4	R	N	N	N	ML Verification results	7.4.10	②			
4	Prepared data conform to ML Data Design standards.	5.6.1.1.e	5.6.3.2 5.6.3.3	R	N	N	N	ML Verification results	7.4.10	②			
5	Data processing description complies with MLCR, the MLC logical architecture, DQR, and (if applicable) DPR.	5.6.1.1.f	5.6.3.1	R	R	N	N	ML Verification results	7.4.10	②	②		
6	Data processing description conforms to ML Data Design standards.	5.6.1.1.g	5.6.3.2 5.6.3.3	R	R	N	N	ML Verification results	7.4.10	②	②		
7	Training and validation datasets comply with DQR and (if applicable) DPR	5.6.1.1.h	5.6.3.2 5.6.3.3 5.6.3.4	R	R	N	N	ML Verification results	7.4.10	②	②		
8	Test datasets comply with DQR and (if applicable) DPR	5.6.1.1.i	5.6.3.2 5.6.3.3 5.6.3.4	R	R	R	N	ML Verification results	7.4.10	②	②	②	
9	Training and validation datasets are traceable to DQR and (if applicable) DPR	5.6.1.1.j	5.6.3.1	R	R	N	N	ML Verification results	7.4.10	②	②		
10	Test datasets are traceable to DQR and (if applicable) DPR	5.6.1.1.k	5.6.3.1	R	R	N	N	ML Verification results	7.4.10	②	②		

Proportionality of Objectives by Assurance Level



Assurance level			Number of objectives*
iDAL C	AL3	SWAL2	**115**
N/A	AL4	SWAL3	**71**
iDAL D	AL5	SWAL4	**43**
iDAL E	AL6	N/A	**2**



*Note: The objective count is a snapshot of Draft 8 at a specific point in time and may change as the ARP/ED progresses

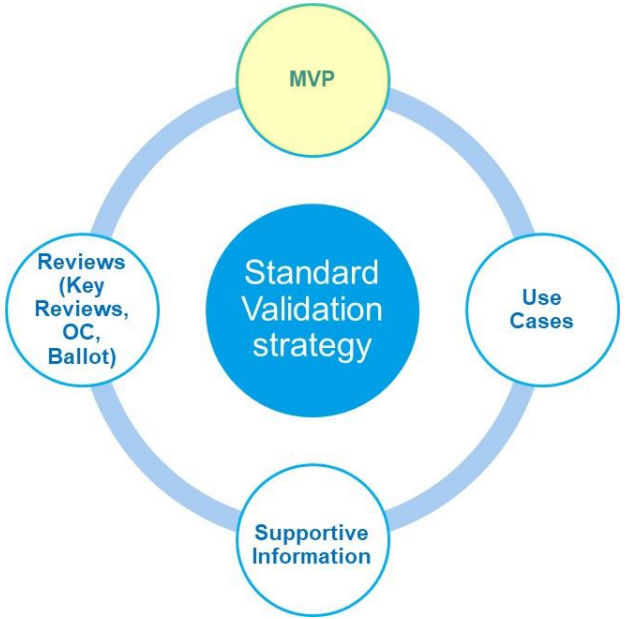
Agenda

General Information

ED-324 / ARP6983 – Key Highlights

ED-324 / ARP6983 – Standard Validation & Maturity

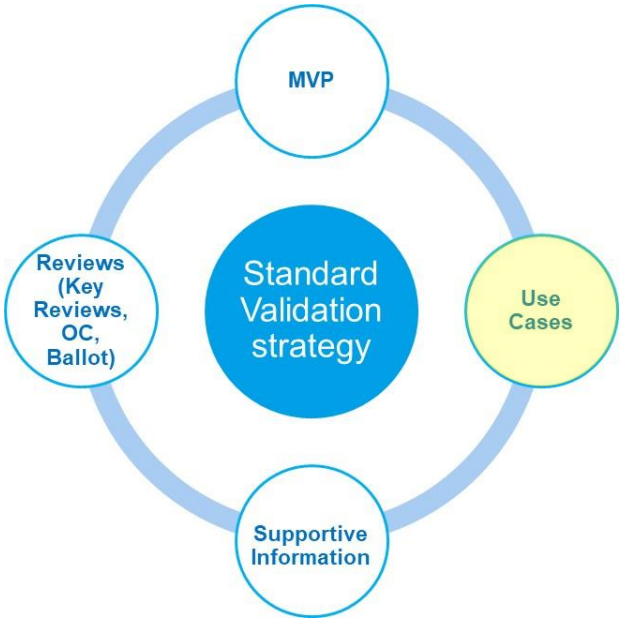
Standard Validation Strategy with Industry needs (1/4)



- Airborne (i.e., crewed and uncrewed aircraft) and Air Traffic Management / Air Navigation System (ATM/ANS) domains
- Issue 1 limited to a subset of ML technologies
  - Non-adaptive ML in supervised mode,
  - up to IDAL C / AL 3 / SWAL 2
  - Out of Issue 1 scope: Information security & Human factors considerations

Viable and Practical by design: a focused scope enables near-term implementation and industry adoption

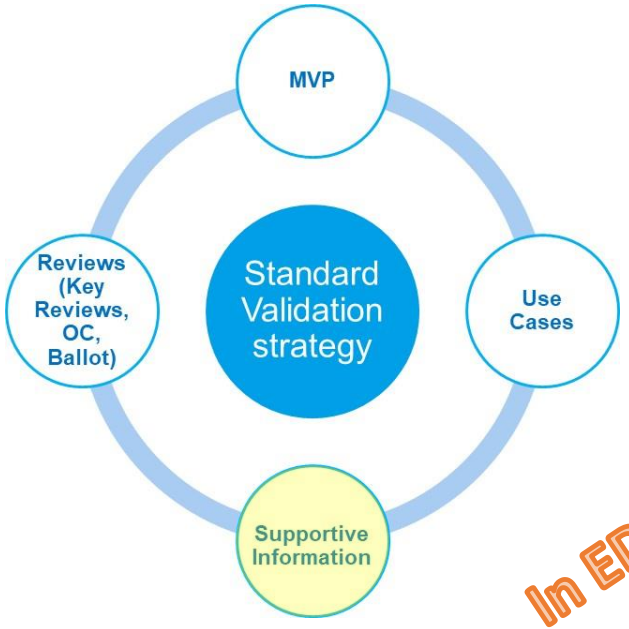
Standard Validation Strategy with Industry needs (2/4)



Use Case	ML technique(s)	ML algorithm Category	MLC IDAL/AL/SWAL
Time-Based Separation	Supervised	Regression	IDAL C
Automated Fuselage Skin Anomalies Inspection	Supervised	CNN	IDAL C
Collision Avoidance Use Case	Reinforcement	NN - Fully Connected	IDAL C
ACAS-XU Use Case	Supervised	Fully connected NN	IDAL C
ML-based Automatic Air-to-Air Refueling Use Case	Supervised	CNN	IDAL C
NASA low-dimensional Use Case for Engine Health Management	Supervised Offline	Shallow NN or Nonlinear Regression	IDAL C
Aircraft Emergency Braking System (AEBS) - Powered by Runway Sign Classifier (RSC)	Supervised	CNN-based object detection DNN	IDAL C, IDAL D
Multi-sensor Ensemble-guided Attention Network for Aerial Vehicle Perception Beyond Visible Spectrum	Supervised	Transformer with attention layers	research only IDAL C
Vision Landing System (VLS) Use Case	Supervised	CNN	IDAL C
Autonomous Integrated Resilient System for Enhanced Navigation in Secure Environments	Supervised	CNN + Fully connected NN	IDAL C

Grounded in representative use cases, the standard has been demonstrated across a broad range of ML techniques and safety-critical applications

Standard Validation Strategy with Industry needs (3/4)



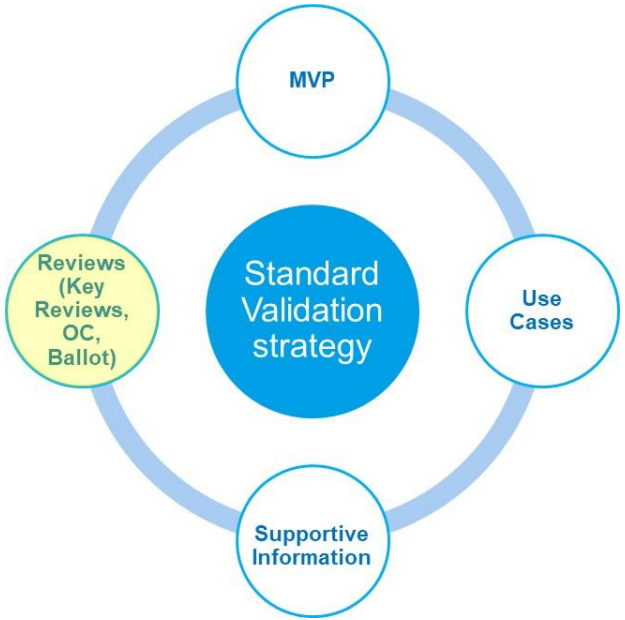
In ED-324/ARP6983 +

1	SECTION 5: ML Development Lifecycle (MLDL)		19	H.1.14	Examples of data cleaning techniques for section 5.3.3.4	37	H.1.32	Examples of formal methods for section 5.6.3.3.2
2	H.1		20	H.1.15	Example of feature engineering techniques for section 5.3.3.4	38	H.1.33	Examples of development explainability analysis methods for section 5.6.3.3.3
3	H.1.1	ML Data Processing	21	H.1.16	Data labelling techniques for section 5.3.3.4	39	H.1.34	Example of scenario-based performance metrics and generic template for section 5.6.3.4.2
4	H.1.2	ML Constituent definition	22	H.1.17	Example of splitting the test dataset before the pre-processing step for section 5.3.3.5	40	H.1.35	Example of ML Model performance metrics for sections 5.2.3.1, 5.4.3.2 and 5.6.3.4.4
5	H.1.3	MLC performance requirements on computational efficiency, latency and scalability	23	H.1.18	Examples of ML Model logical architectures for section 5.4.3.1	41	H.1.36	Example of concentration inequality for ML Model generalization for sections 5.4.3.2 and 5.6.3.3.4
6	H.1.4	Example of singularity for section 5.2.3.2	24	H.1.19	Examples of ML techniques for section 5.4.3.1	42	H.1.37	Examples of analyses to confirm that scenario test cases complete the individual test cases for section 5.6.3.4.2
7	H.1.5	Example of gap between the MLC ODD and the MLM ODDs for section 5.2.3.2	25	H.1.20	Examples for ML Model Building activity for section 5.4.3.3	43	H.1.38	Examples of MLC Robustness testing methods for section 5.6.3.4.6
8	H.1.6	Examples for the activity step "Define the nature of data that need to be collected" for section 5.3.3.2	26	H.1.21	Examples for ML Model Training activity for section 5.4.3.4	44	H.1.39	Example of ODD coverage criteria and associated metrics for section 5.6.3.4.7
9	H.1.7	Examples for the activity step "Define the selection criteria to identify the appropriate data sources" for section 5.3.3.2	27	H.1.22	Examples for ML Model Optimization activity for section 5.4.3.5	45	H.1.40	Examples of ODD coverage stopping criteria and associated metrics for section 5.6.3.4.7
10	H.1.8	Example of data collection plan for section 5.3.3.3.	28	H.1.23	Example of ML Model Description for section 5.4.3.6	46	H.1.41	Example of resolution methods for ODD coverage deficiencies for section 5.6.3.4.7
11	H.1.9	Examp… tagging for section 5.3.3.3	29	H.1.24	Examples of Grid-based Methods for section 5.6.3.4.3	47	H.1.42	Examples of metrics/indicators for the ML Model development explainability analysis for section 5.6.3.4.7
12	H.1	…on data augmentation, synthetic data, …rrogate model case for section 5.3.3.3	30	H.1.25	Examples of Design-of-Experiments (DoE) method for section 5.6.3.4.3	48	H.1.43	Examples of typical stopping criteria for the ML Model development explainability analysis for section 5.6.3.4.7
13	H.1.10.1	Data Augmentation	31	H.1.26	Examples of Random Sampling Methods for section 5.6.3.4.3	49	H.1.44	Examples of common issues revealed by development explainability analysis for section 5.6.3.4.7
14	H.1.10.2	Synthetic Data	32	H.1.27	Examples of Bias-Variance Assessment Methods for sections 5.4.3.2 and 5.6.3.4.3	51	SECTION 6: MLC Implementation	
15	H.1.10.3	Surrogate Model Case						
16	H.1.11	D… Completeness Analy…						
17	H.1.12	E…mple of new data acqu… 5.3.3.3						
18	H.1.13	Examples of common visu… data preparation activity fo…						

Document	Title	Date
ER-050	Use Cases Considerations for ED-324	Q2 2027
ER-xxx	Supporting Information for ED-324	Q2 2027

Concrete examples, methods and supporting material turn the validation principles into actionable engineering practices for industry

Standard Validation Strategy with Industry needs (4/4)



Draft 5 – Key Review (Internal Review) – March 2024
- Internal committee review to prepare for EUROCAE Open Consultation and SAE Ballot
- 1552 Comments (11% "Critical", 37% "Major", 29% "Minor", 24% "Editorial")
- Resolved April 2024 – July 2026

Draft 6 – SAE Ballot 1 – March/April 2025
- First formal committee-wide ballot
- 1476 Comments (1% "Critical", 10% "High", 13% "Medium", 17% "Low", 19% "Editorial")
- Resolved April 2025 – July 2026

Draft 7 – EUROCAE Open Consultation (OC) – August/Sept 2025
- 33 commenters representing 26 companies (1 individual commenter)
- 1156 comments total
- Resolved Sept 2025 – July 2026

Draft 8 – SAE Ballot 2 – August/Sept 2026 (In Progress)

Status	Count	%	BA1	%	KR	%	OC	%	Editorial	%	Technical	%
OPEN	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
IN PROGRESS	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
ACTION	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
DUP ACTION	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
PROPOSED	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
AGREED	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
INCORPORATED	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
NO CHANGE	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
CLOSED	3063	100%	1476	100%	431	100%	1156	100%	552	100%	2511	100%
Including DEFERRED		1%	10	1%	1	0%	9	1%	0	0%	20	1%
TOTAL	3063	100%	1476	100%	431	100%	1156	100%	552	100%	2511	100%

Extensive industry review and consultation have matured the standard, with more than 3,000 comments systematically addressed and closed through successive review cycles

Conclusion

- **AI is becoming strategic imperative for industry**
  - → The rapid pace of AI innovation creates new opportunities, but also new assurance and certification challenges.
- **Safety First – Enabling AI through robust assurance**
  - → ED-324/ARP6983 addresses key development assurance gaps introduced by Machine Learning.
  - → It provides a practical, minimum-sufficient framework to support compliance demonstration for airborne systems and ATM/ANS applications.
- **Growing Regulatory Recognition**
  - → EASA is considering ED-324/ARP6983 as an anticipated AMC to support compliance with the applicable aviation regulatory framework and the EU AI Act.
  - → Other authorities, including ANAC, are also moving toward recognition, while discussions with the FAA and other regulators continue.
- **Building the Foundation for the Next Generation of Aviation AI**
  - → ED-324/ARP6983 establishes a mature and actionable foundation for the first generation of certifiable supervised ML-based aviation systems.
  - → Experience gained from its application will support consolidation and future extensions to broader AI technologies and increasingly advanced applications.

ED-324/ARP6983 turns Trustworthy AI principles into a practical path toward certification and deployment

Acknowledgements

- The content of ED-324 / ARP6983 is the work of many individuals (too many to name) beyond those who presented today and the leadership, SG leads, and editors.

Any questions?

THANK YOU

Fateh KAAKAI – Thales
Sandrine SERRES – Airbus
Thuc NGUYEN TRI – EUROCAE

EASA
European Union Aviation Safety Agency

EASA AI Days 2026

Panel of discussion: Advanced Automation benefits and risks

Moderator: Guillaume Soudain
EASA AI Programme Manager

Juliette Mattioli
Thales

Christophe Guéret
Safran

Amir Navot
Amazon Prime

Pooja Narayan
Airbus DS

Matt Jahn
Boeing

Peter Hecker
TU Braunschweig

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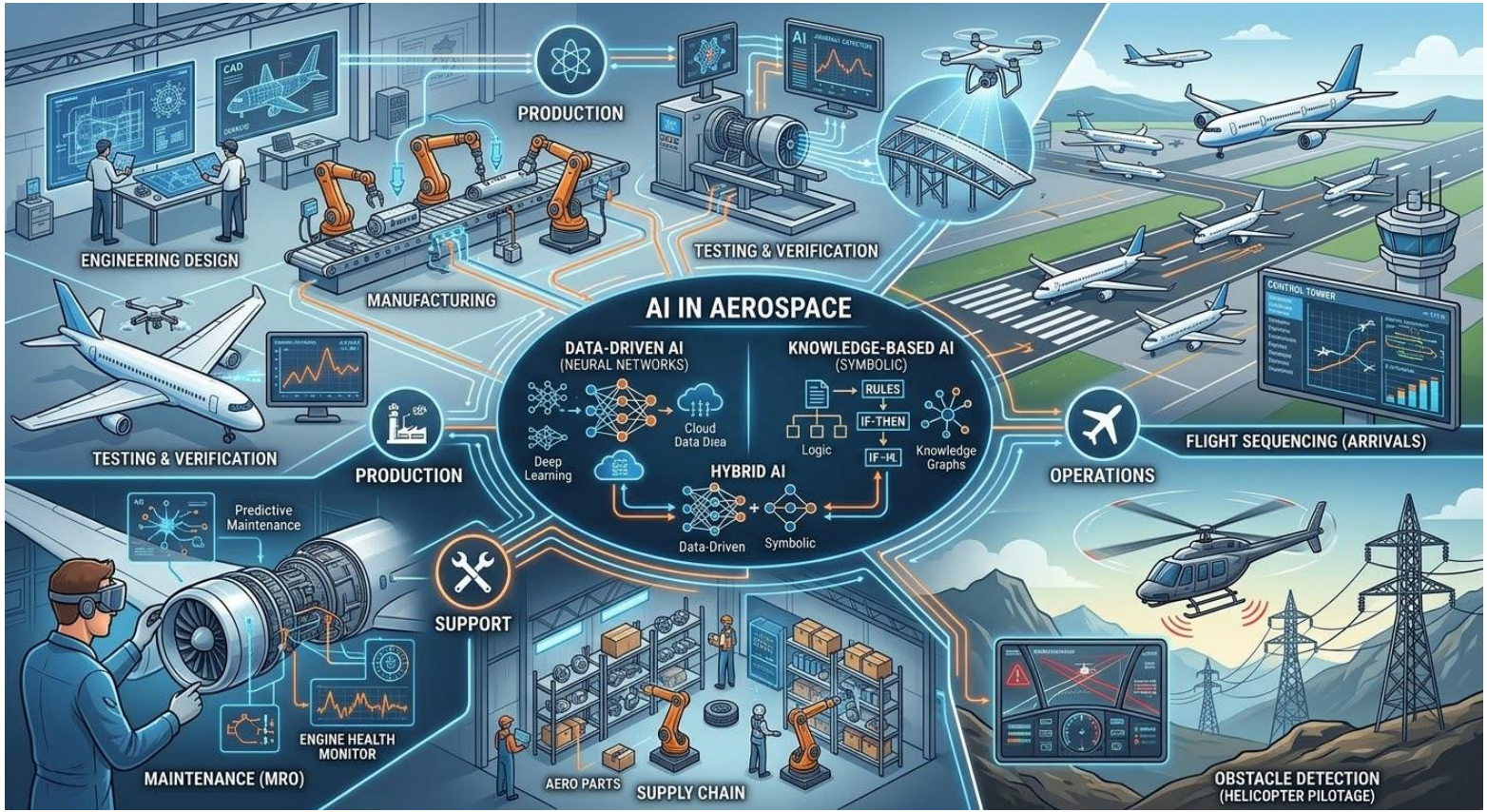
Some AI use-cases with various levels of maturity



Ai Generate

EASA
European Union Aviation Safety Agency

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EASA
European Union Aviation Safety Agency

EASA AI Days 2026

Coffee break – 15:40 to 16:00

www.sli.do
#aidays2026
Passcode: nyg15q

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EASA
European Union Aviation Safety Agency

EASA AI Days 2026

EASA AI Olympics: best use cases awards

Thiziri Belkacem
Airbus Protect

Ines Berlenga
EASA

Axel Werner
EASA

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EASA AI Concept Paper Issue 3
Application and Certifiability
Demonstration

EASA AI Concept Paper Issue 3
Application and Certifiability
Demonstration

Evaluation Committee:

Professor Peter Hecker
Technische Universität Braunschweig,

Professor Frances Brazier
Delft University of Technology

Giovanni Cima
Section Manager R&I/Project Manager for RMT.0742, EASA,

Jean Michel Lejeune
Regulations Officer - Initial Airworthiness, EASA

AI Safety-by-Design

Objective: Applying a structured recipe across the AI lifecycle to ensure certifiability and trustworthy AI integration.

Lifecycle CookBook – From Ideation to Deployment

EASA Issue 3 acts as the operational recipe across all phases guiding ConOps, ODD characterization, dataset management, model training, and continuous in-service monitoring.

W-Shaped Learning Assurance – Step by Step Guidance

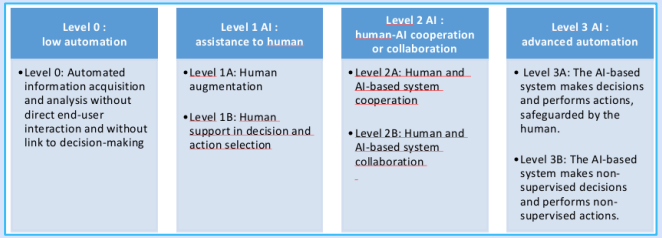
Bridges system safety with a dual V-cycle validating datasets and ML models in the 1st V (Learning Assurance), and verifying hardware/software target implementation in the 2nd V.

Certifiability and Trustworthy by Design – All in One

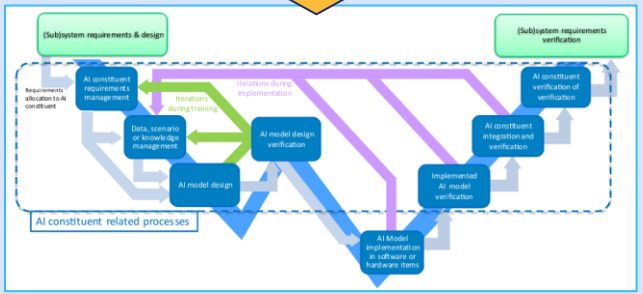
Mitigates probabilistic ML uncertainties and eliminates dark-data risks, providing auditable evidence for airworthiness, human oversight (EU AI Act Art. 14), and regulatory compliance.

Core Takeaway:

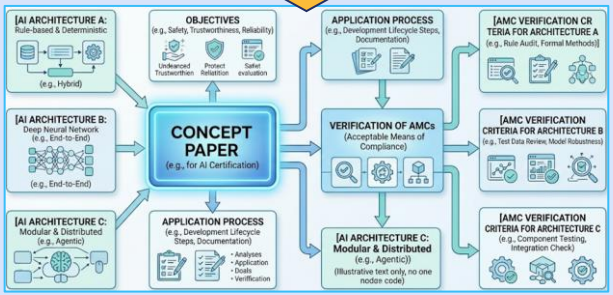
1. **Safety-by-Design** approach transforms AI from an unpredictable black box into a certifiable, human-centric asset.
2. **Structured development process** where certification requirements are part of the end-to-end system life cycle.



(1) AI levels Selection

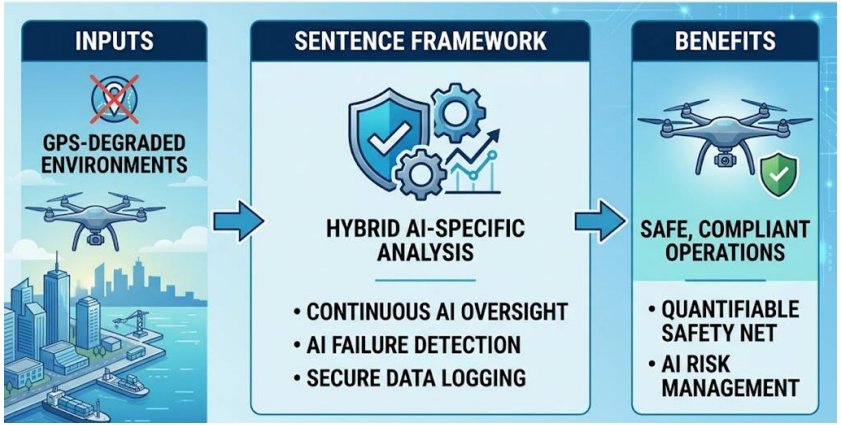


(2) Step-by-step learning assurance and verification



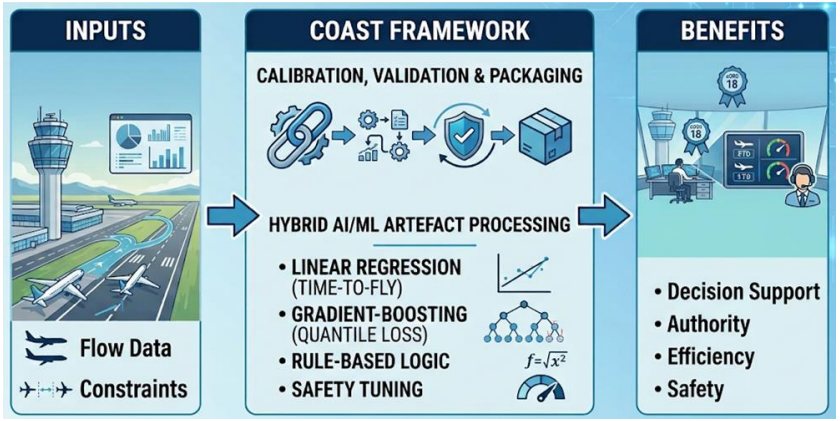
(3) Objectives application and verification of AMCs per AI architecture

SenTenCe



SenTenCe is a runtime monitoring framework and flight data recorder for AI drone navigation. As an independent operational oversight system it operates at **EASA Level 3A** while fulfilling **EU AI Act Article 14 human oversight requirements.** Key functions include real-time plausibility assessments, ODD violation detection, and safety interventions during BVLOS flights. It provides AI-specific failure detection and a net safety benefit.

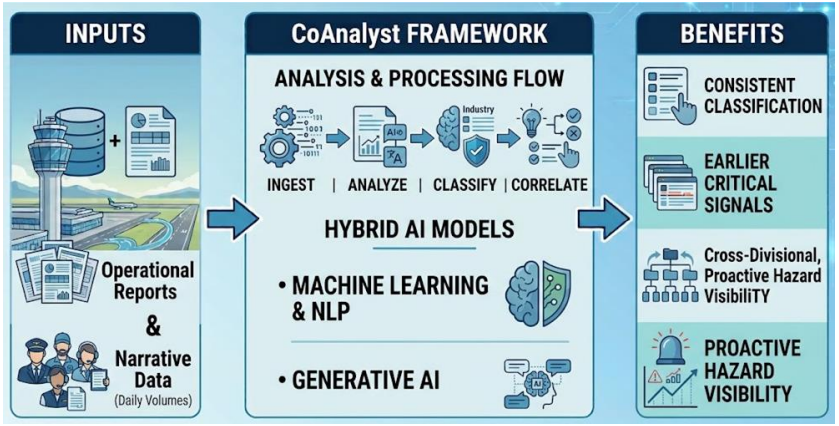
COAST for eORD



An offline toolchain providing **airport-specific hybrid AI/ML** models to supply controllers with **FTD and ITD indicators** for arrival spacing. Operating as an **EASA Level 1B AI** system, leaving full authority to controllers. Safety is assured via explicit error-rate targets, fallback logic, and comprehensive validation.

CoAnalyst

COMPLY365



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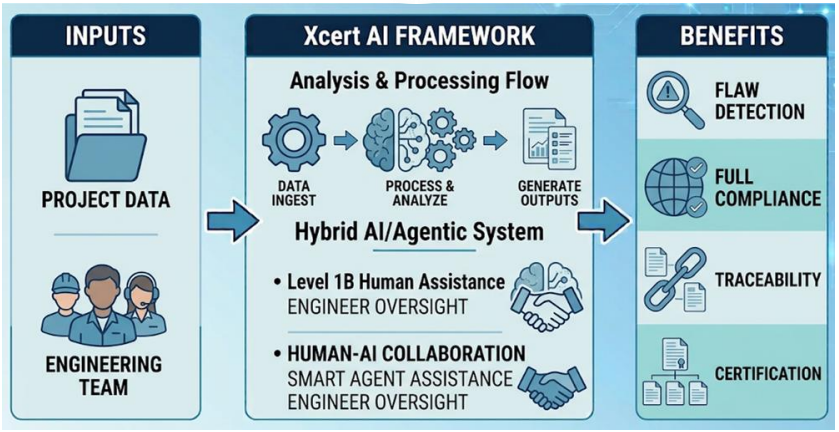
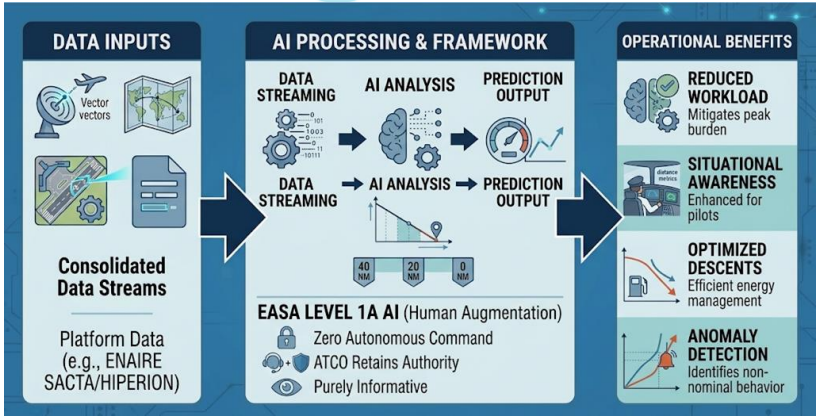
XCert AI



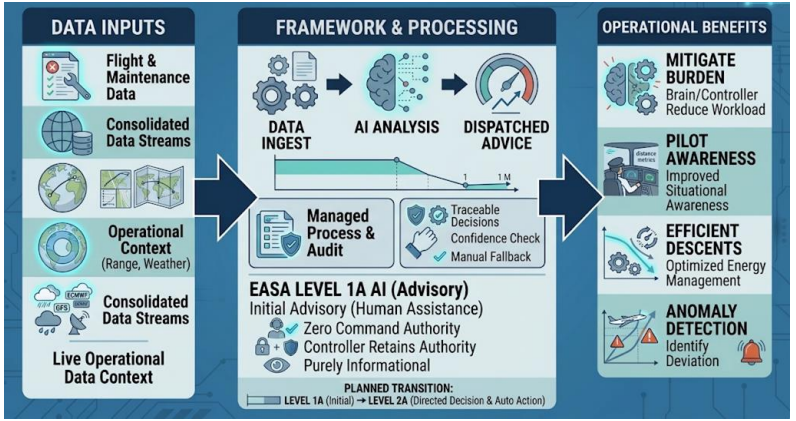
Xcert AI is an **AI-powered assistant** for aerospace **engineering and certification**. It processes project documents to **extract requirements, map evidence, and build certification arguments**. Acting as an **EASA Level 1B/2A system**, it supports human engineers who keep final approval authority, enhancing safety by identifying requirement flaws early and maintaining full traceability.

PISA MaT



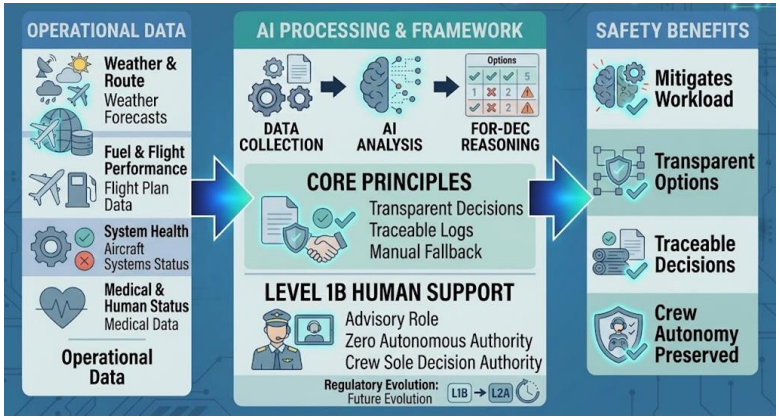
PISA MaT is a **real-time predictive decision-support** tool estimating **remaining track distance to touchdown** for arriving flights. Using ML models on surveillance and flight data, it outputs predictions with confidence indicators for 5 horizons each with an ML model. **As an EASA Level 1A AI system,** it informs controllers without autonomous authority, reducing workload and enhancing situational awareness.

AiMeE.invoke



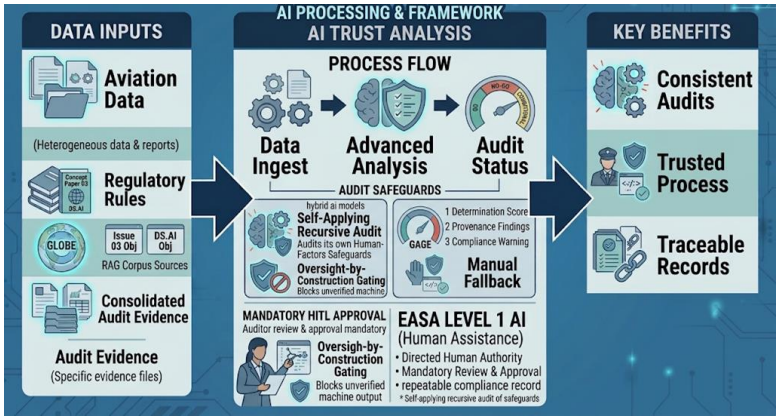
AiMeE.invoke is a **hybrid-AI decision-support** system evaluating aircraft defect reports against live operational context to **output optimal MEL** (Minimum Equipment List) dispatch recommendations. **EASA Level 1B AI system (transitioning to Level 2A)** requiring mandatory HITL approval from a certified AME. Safety is assured via a hybrid architecture bounding LLMs and LKB, automatic fallback for low-confidence inputs, and a fully traceable audit trail.

FOR-DEC AI



FOR-DEC AI is a **decision-support tool assisting flight crews during complex events and abnormal situations**. Processing various operational inputs it provides explainable options and risk assessments, through a hybrid architecture to **output a unified FOR-DEC reasoning** with respect to HAT principles. As an **EASA Level 1B system**, it offers guidance without taking flight authority, reducing crew workload while maintaining safety and autonomy.

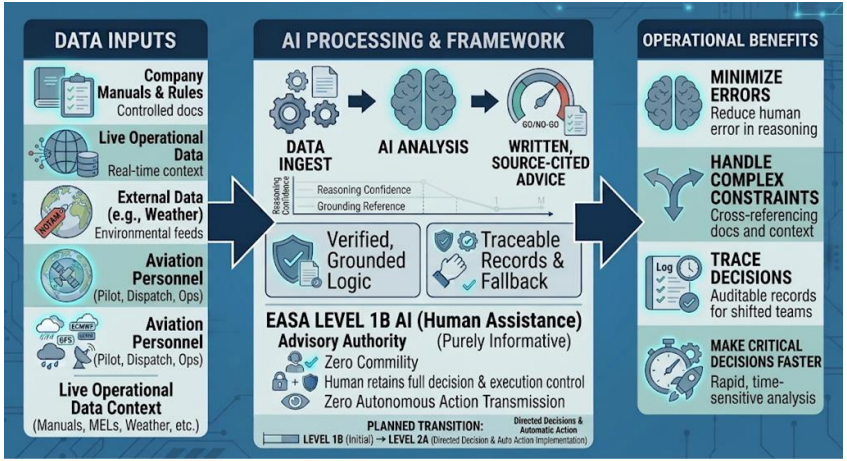
HF-AI Auditor



The **HF-AI Auditor** is an **EASA Level 1 AI decision-support system for auditing aviation AI systems' human-factors trustworthiness** against EASA objectives applicable to one of the 7-AI levels. It uses RAG with a LLM bounded by deterministic logic, to navigate over a version-controlled regulatory corpus. Under human authority it ingests heterogeneous subject system documentation, case files, and regulatory texts as inputs to evaluate candidate systems providing audit determinations and traceable compliance records.

WingMan

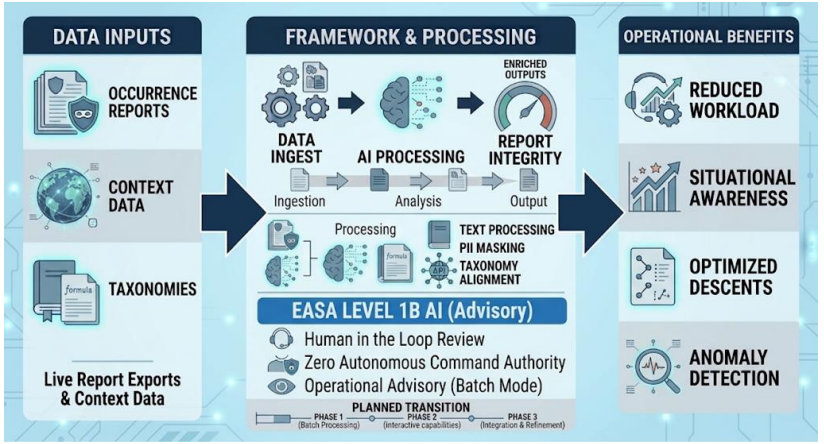
OVERWATCH AI



Wingman by Overwatch AI is an EASA Level 1B decision-support tool for frontline aviation staff. It uses a RAG system with an off-the-shelf non-finetuned LLM to provide source-cited, plain-language answers based on controlled operational data. Acting in an advisory capacity, it ensures safety by mitigating hallucinations, resolving conflicting constraints, and maintaining an auditable record of reasoning while keeping humans in full control.

Occurrence Assistant

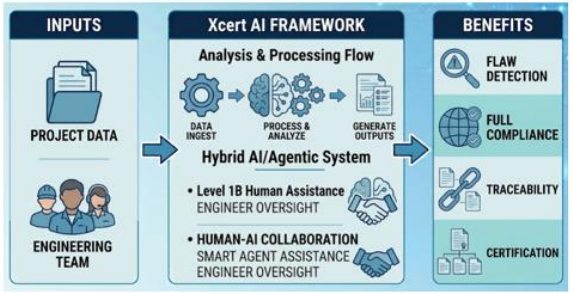
austro CONTROL



The Occurrence Assistant is an **EASA Level 1B decision-support system for aviation authorities.** It optimizes report management by using NLP (sentence-transformer embeddings with a multi-task neural network) and deterministic lookups to enrich, align, and anonymize ECCAIRS 2 data. Operating in an advisory capacity, it leaves full authority to human officers. This tool eliminates triage bottlenecks and enhances safety intelligence, allowing analysts to focus on risk mitigation.

EASA AI Concept Paper Issue 3
Application and Certifiability
Demonstration

XCert AI



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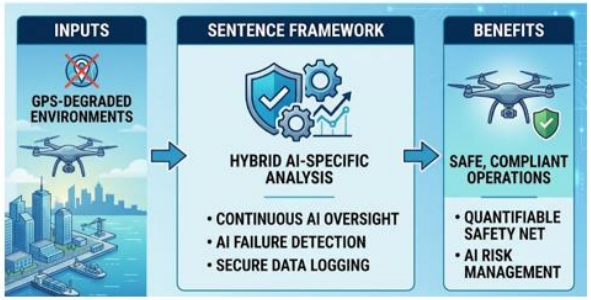

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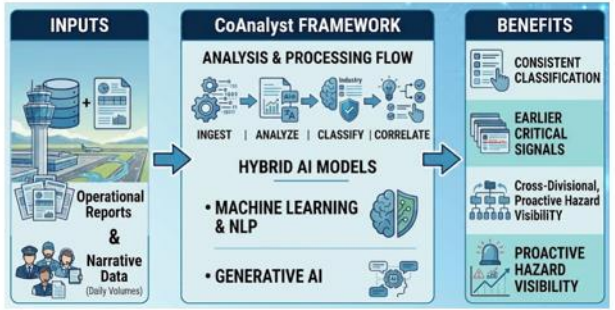
CoAnalyst



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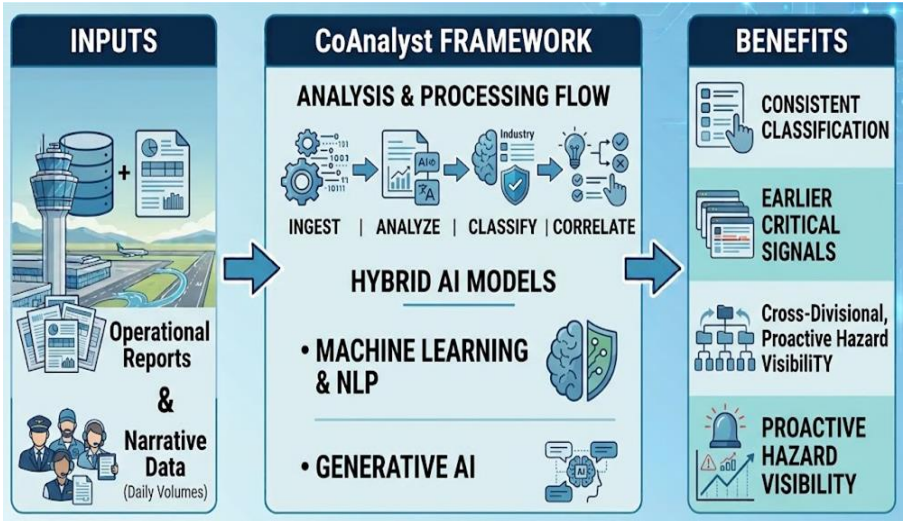
COMPLY365



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THE STATE OF AI

AI sees everything. Organizations still cannot.

It writes, it predicts

It automates, it connects

Understanding is what's missing

VALUE CREATION

2

FORCES, ONE OUTCOME

Automation is more output. Intelligence is better decisions.

Real value needs both working together — not speed alone, not judgment alone.

AUTOMATION IN PRACTICE

What used to take weeks now takes seconds.

Processing safety data

~~Weeks~~ → **Seconds**

Connecting data across sources, spotting trends, root-cause investigation

~~Weeks to months~~ → **Milliseconds**

IN SECONDS, AI CAN

Millions of data points. One coherent picture.

Patterns no analyst could find in a lifetime — answered in seconds, not weeks.

The limitation is no longer computation.
The limitation is comprehension.

Because while AI can see everything, organizations still cannot.

SUMMARY / KEY CHALLENGES

What's been in the way.

01 Data volume & silos

02 Manual processing

03 Taxonomy

04 Division separation

05 Managing hazards

06 Bad user interfaces

THE TRUE VALUE OF AI

It is not automation.
Not speed. Not even prediction.
It is understanding.

SAFETY INTELLIGENCE LAYER

What’s coming next in AI in safety.

WHAT COANALYST ACTUALLY DOES

The AI reads. The analyst decides.

ANONYMISE

CLASSIFY

HUMAN CONFIRMATION

REDACT

SUMMARISE

RETRAIN

WHERE WE ARE / SAFETY FIRST

2026

DEEP INTO REPORTING DATA

Every report read, understood, classified.

CoAnalyst analyzes reports at scale. It understands the event, classifies it against event and hazard taxonomies, and surfaces trends and root causes — live in production with airlines today.

REPORTING SMS COANALYST

A PRACTICAL EXAMPLE / UNSTABILIZED APPROACH

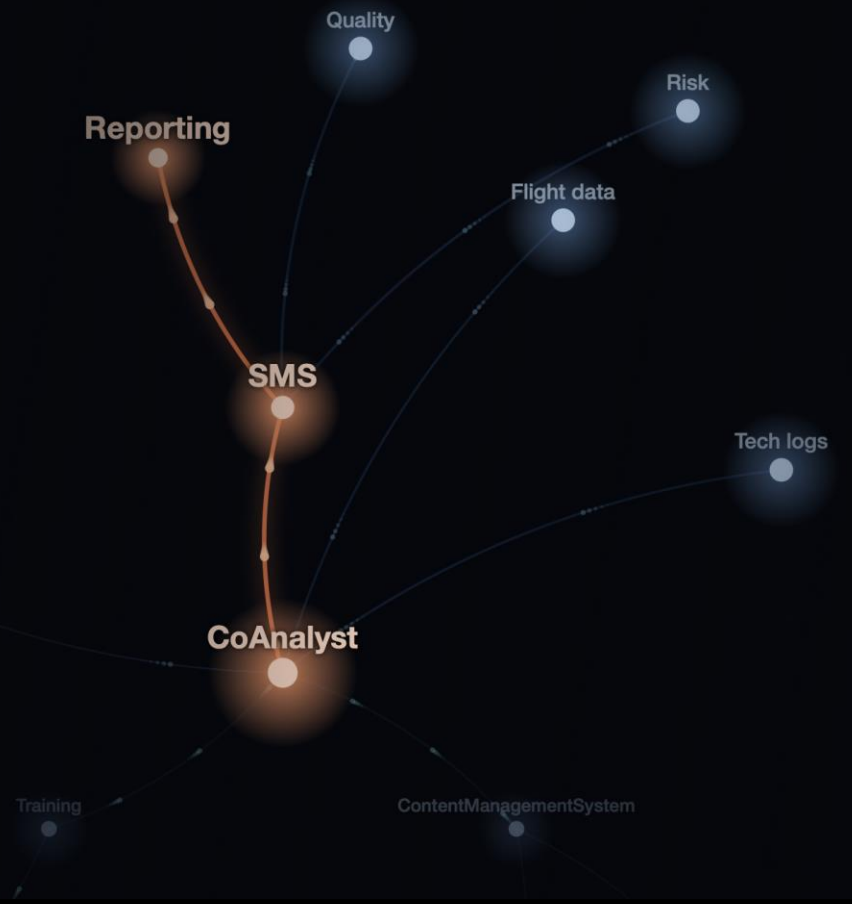
1

EVENT, UNDERSTOOD

An unstabilized approach occurs. Reports come in.

CoAnalyst reads the reports and understands the event. Today, that is where most operations stop. Tomorrow, it is where CoAnalyst starts.

REPORTING SMS COANALYST



THE SAME EVENT / NEW SIGNALS

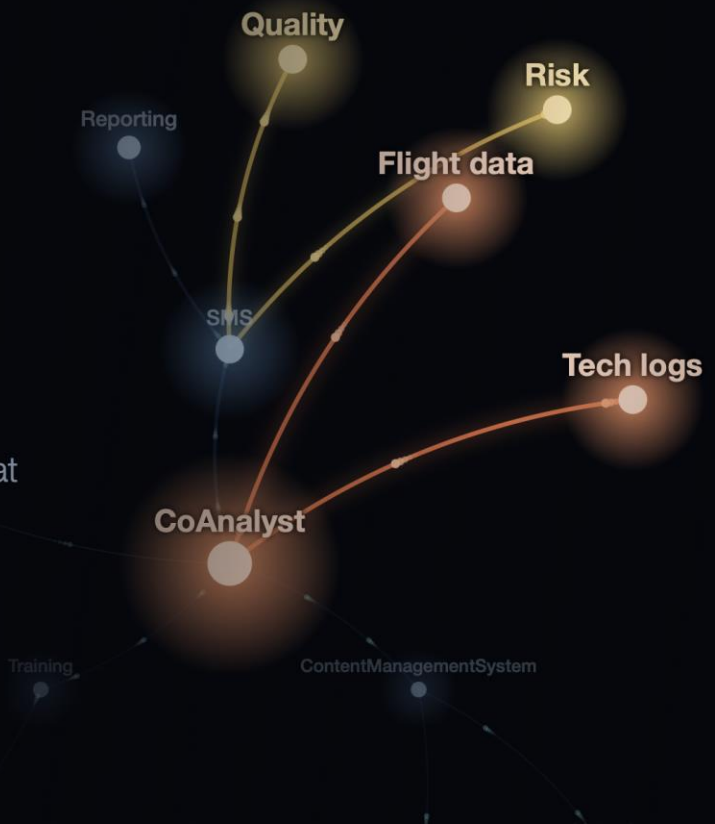
2

NEW SIGNALS, SAME EVENT

What actually happened, and did the aircraft contribute?

Flight data shows what happened in the air, beyond what was written down. Tech logs show whether a technical condition played a part.

FLIGHT DATA | TECH LOGS | COANALYST | QUALITY | RISK



THE ROADMAP / 2027

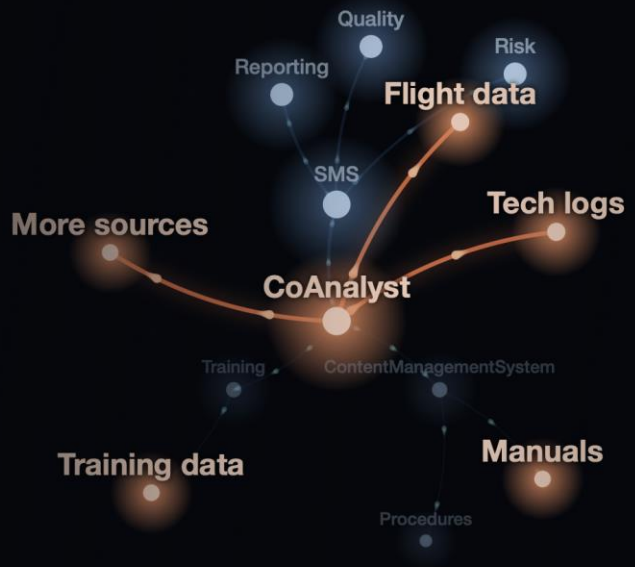
27

AND BEYOND

More sources. Deeper intelligence.

Keep investing in additional data sources, while building dynamic dashboards, cross-divisional processing, and deeper AI Pattern analysis.

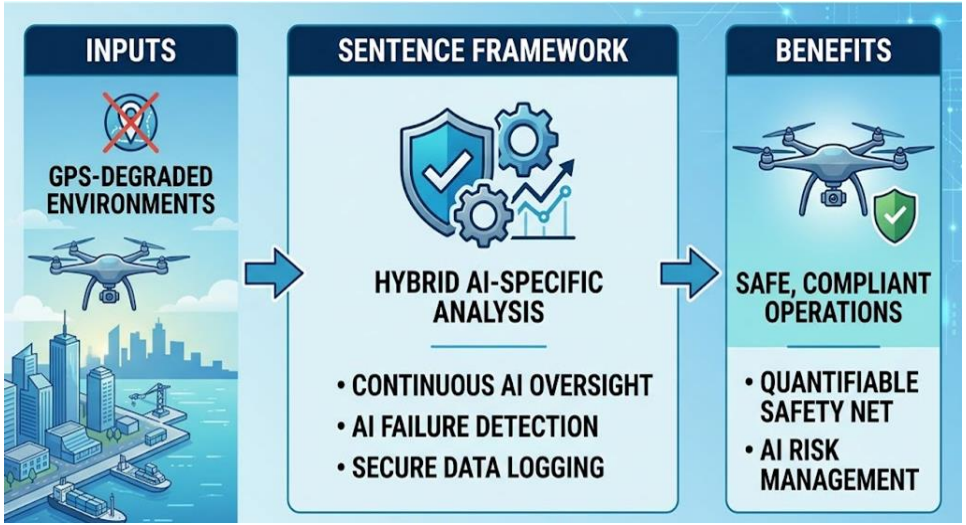
- Add more data sources
- Dynamic dashboards
- Cross-divisional processing
- Deeper AI Pattern analysis



LIVE DEMO

Two minutes.
AI Pattern, live.

SenTenCe



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EASA AI OLYMPICS 2026

Monitoring of AI as the key building block of trustworthy autonomous systems

SWIFT GmbH
Gesellschaft für Messwerterfassungs-Systeme mbH

Christian Kexel & Mark-Felix Schütz

c.kexel@swift-online.de

SWIFT GmbH · Tel. +49 (0) 6162 – 82086
64354 Reinheim (near Darmstadt), Germany

SenTenCe (Sensor – Tensor – Censor)

A real-time operational oversight system for AI-based autonomous drone navigation.

TRL 5

Flight-validated in real time during live autonomous BVLOS flights.

ISEKIS

mFUND programme, 08/2023 – 11/2026.
SWIFT · RWTH-IRT · EMQOPTER.

THE GAP

AI assurance stops at take-off.
Operation is where it is needed.

- **AI is becoming the core** of next-generation unmanned systems.
- **Assurance ends with TEVV**, before the first operational flight.
  The EU AI Act requires oversight to continue during operation.
- **ODD assumptions can break** abruptly or drift slowly.
- **A model decides for every input**
  including novel ones far outside its experience, with unwarranted confidence.

Invisible to classical monitors

- **Uninformative images**
  Low texture, over- or under-exposure
- **IMU drift**
  Slow bias growth below classical fault limits
- **Feature-tracking collapse**
  Inlier rate falls, pose degrades silently
- **Output discontinuities**
  Implausible jumps in the control signal

THE SYSTEM

SenTenCe watches the AI while it flies.

INPUTS

Can the inputs be trusted?

- Image exposure — intensity & variance bounds
- Camera latency `< 30 ms`
- IMU variance floor `> 0.005 m/s²`

INTERMEDIATE

Is it processing correctly?

- Feature spread over 4 × 4 image zones
- Inlier rate `> 0.2`

OUTPUTS

Is the output still plausible?

- Visual–IMU residual
- Action plausibility vs. Q-table
- Control smoothness

THE SYSTEM

The operational oversight system, built.

Level 3A, made operable

The monitored visual-inertial AI is Level 3A. SenTenCe is the independent oversight layer that makes it operationally safe.

Net safety benefit

An independent layer detects and contains AI failure modes the constituent cannot self-detect.

Graduated intervention

ALERT → FAILSAFE → HiL HANDOVER

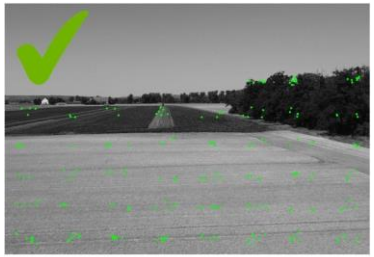
Continued airworthiness

Tamper-resistant recording, timeline replay and drift analysis supply the in-service evidence base.

DEMONSTRATOR

Flown, not simulated. TRL 5 under real SWaP-C constraints.

Multicopter test carrier where highlighted module is the onboard monitoring hardware.



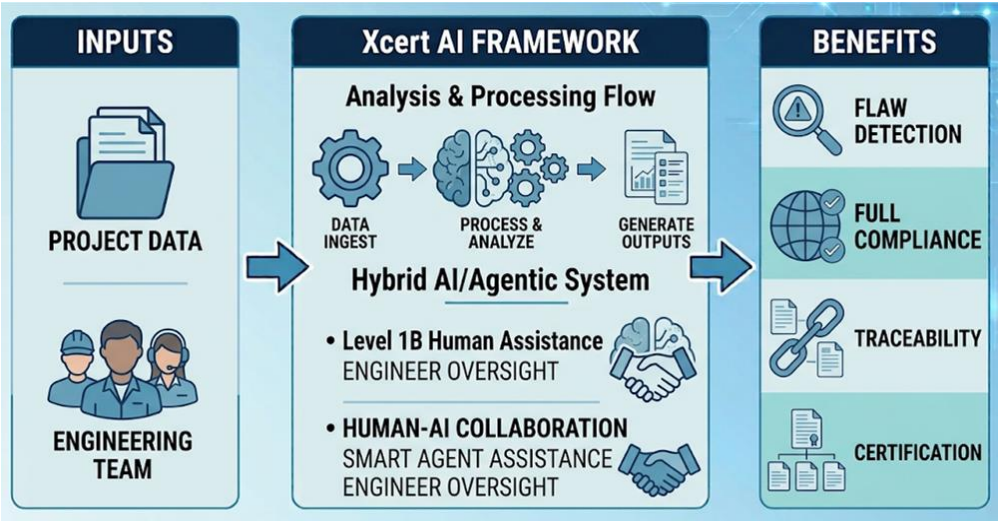
Onboard keypoint scoring: nominal vs. degraded.

- The framework ran **in real time during live flights.**
- **Tested functional hardware prototype**.
- Portfolio of metrics and thresholds.

OUTLOOK

Get in contact...

XCert AI



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Xcert ai

Engineer the Extraordinary.

Aerospace Compliance and Certification, let AI do the hard work

Speaker

Marc-Elian Bégin
Founder & CEO
CEO, CTO, Serial Entrepreneur, Software & AI expert, Ex-CERN staff

Xcert @ EASA AI Days

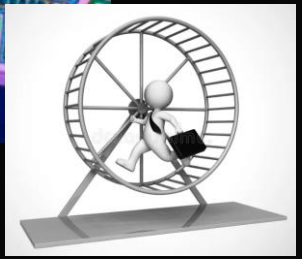
Estelle Leder
Aerospace System Engineer
Ex-Airbus

Dan Kendrick
Head of Regulatory Affairs
Ex-Safran/ Vertical Aero. | Form 4 holder

Legacy approach to Certification

Legacy Certification: highly experienced engineers spending vast amounts of time on repetitive manual tasks

- reviewing thousands of lines of regulations and standards
- extracting and interpreting Certification Requirements
- creating compliance checklists
- cascading and managing requirements
- authoring compliance artifacts
- assessing milestone readiness



Experienced Engineers are in high demand, increasing the importance of using their time in efficiently

The Challenge
Free up thinking time.
Improve Quality.
Enable training and knowledge transfer.

Xcert ai

Years of certification effort, done in hours.

Input
Safety regulations
Industry standards
Your Data
AI Engine

Output
✓ Requirements
✓ Test Plans
✓ Traceability Records
✓ Safety Evidence
✓ Compliance Reports

Software that generates regulator-ready certification documents that take a team of engineers years to produce manually.

This is not simply a requirements tool!

Xcert ai

Case study – European Space Agency

ESA | before Xcert

~5 years of work

16,875 requirements × 30 min each
= 8,437 engineer-hours

All manual

1 engineer, 1 requirement at a time

Brilliant engineers trapped doing paperwork, not engineering

→

ESA | with Xcert

Done in hours

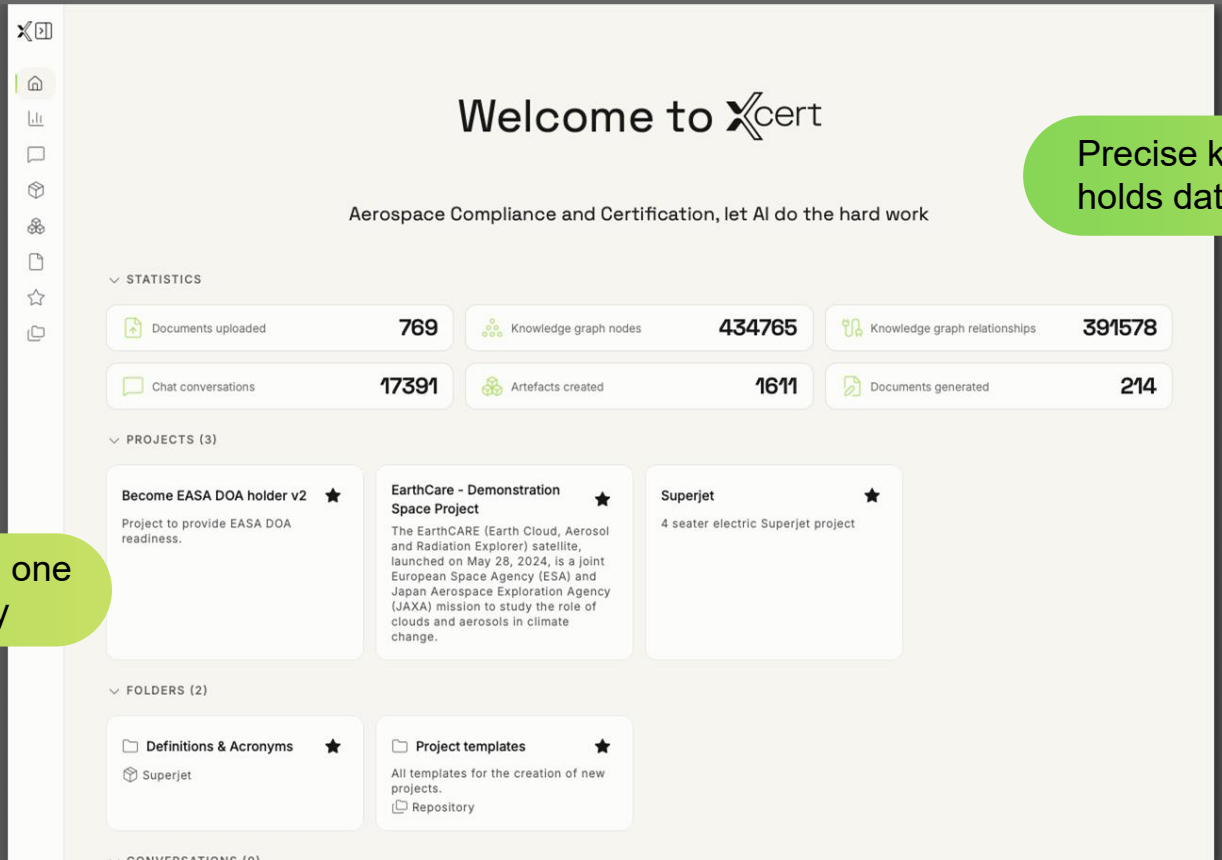
43% effort saved

50% expert-level systems requirements
Based on ESA pilot project, measured by ESA

Unlocking the engineers

"Using Xcert, ESA measured that 50% of the systems requirements reached "expert-level" quality, translating into a 43% reduction in effort for associated systems-engineering tasks." - European Space Agency

Xcert Dashboard

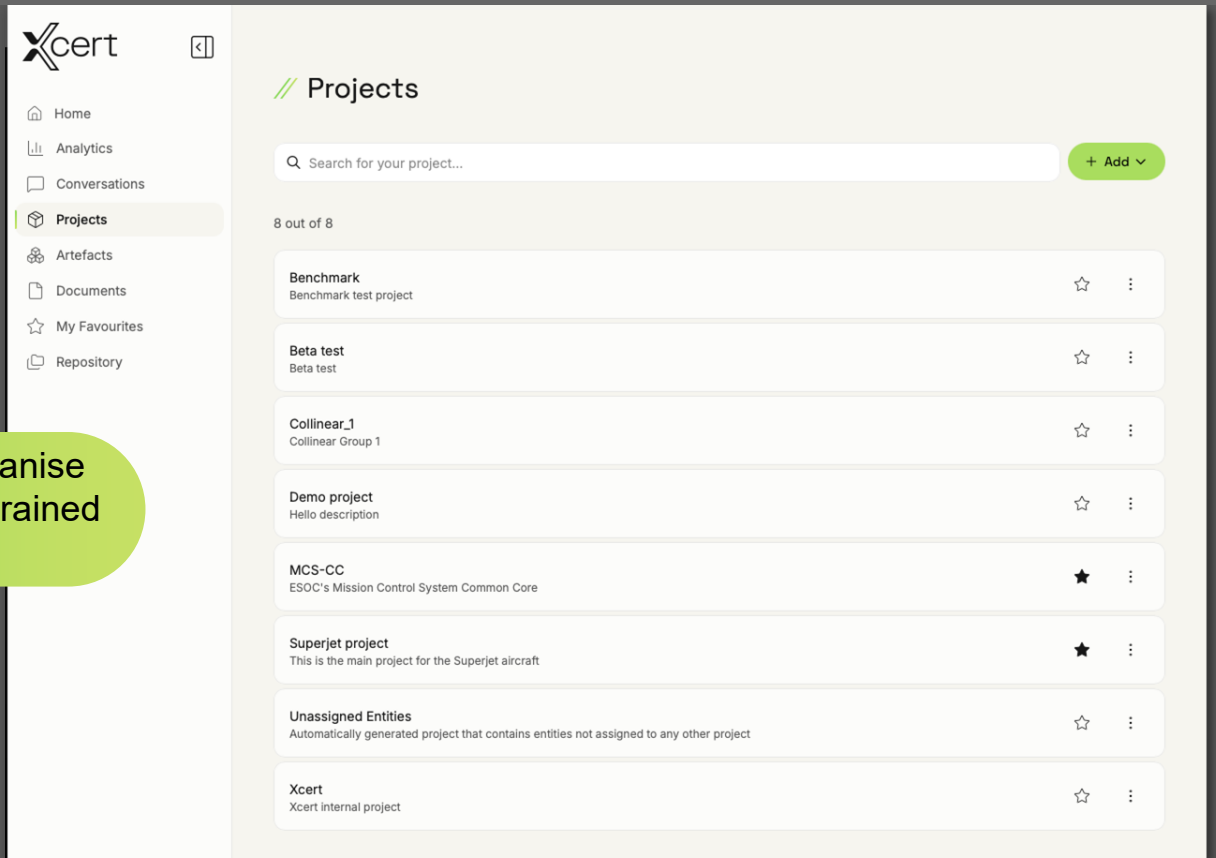


Precise knowledge graph holds data optimized for AI

All the information in one place to start the day

Xcert ai

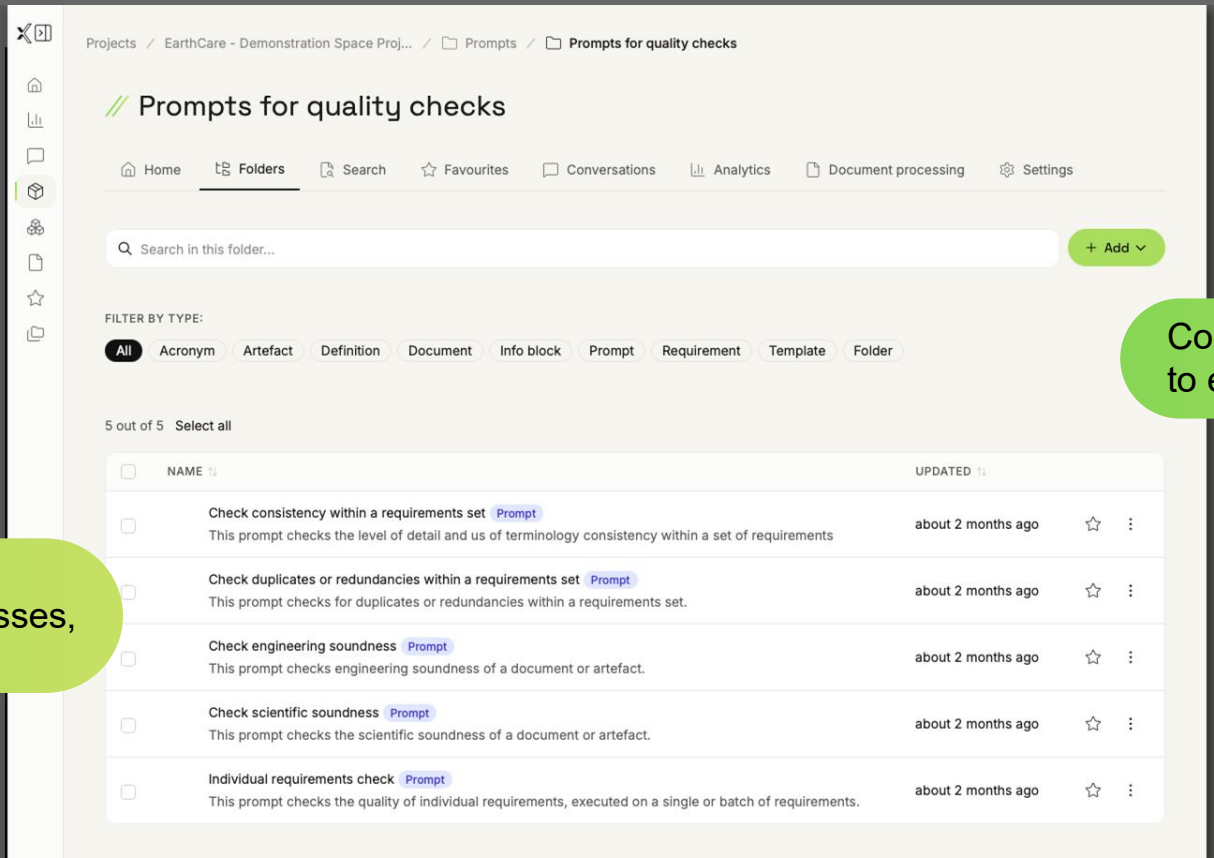
Xcert Projects



Projects lets you organise your work with fine grained authorization

Xcert ai

Xcert Actions library

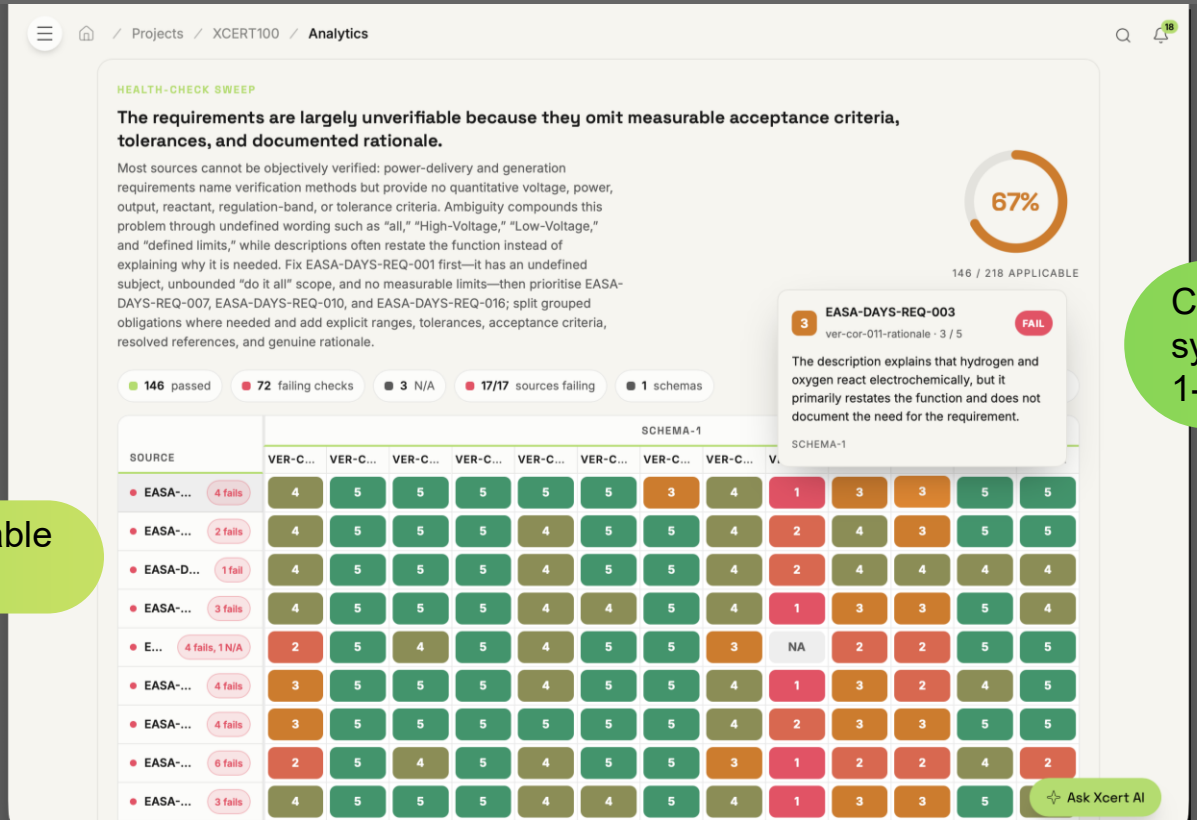


Complex action simple to execute by any user

Predefined actions, following your processes, validated by experts

Xcert ai

Actionable complex analysis

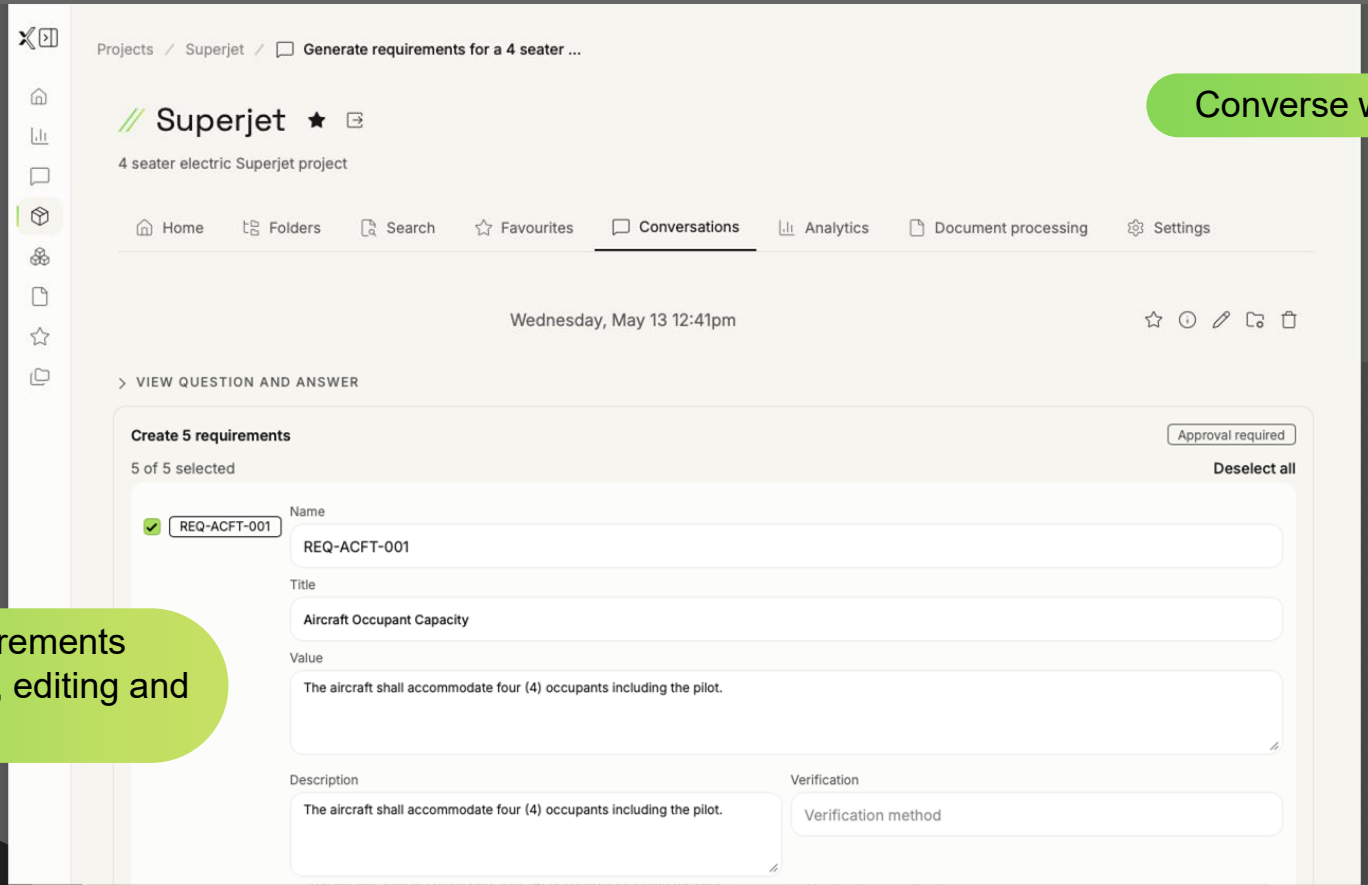


Failed check actionable by human or via AI

Complex and systematic checks 1-click away

Generation with confirmation

Converse with your data



Generate requirements with full control, editing and confirmation

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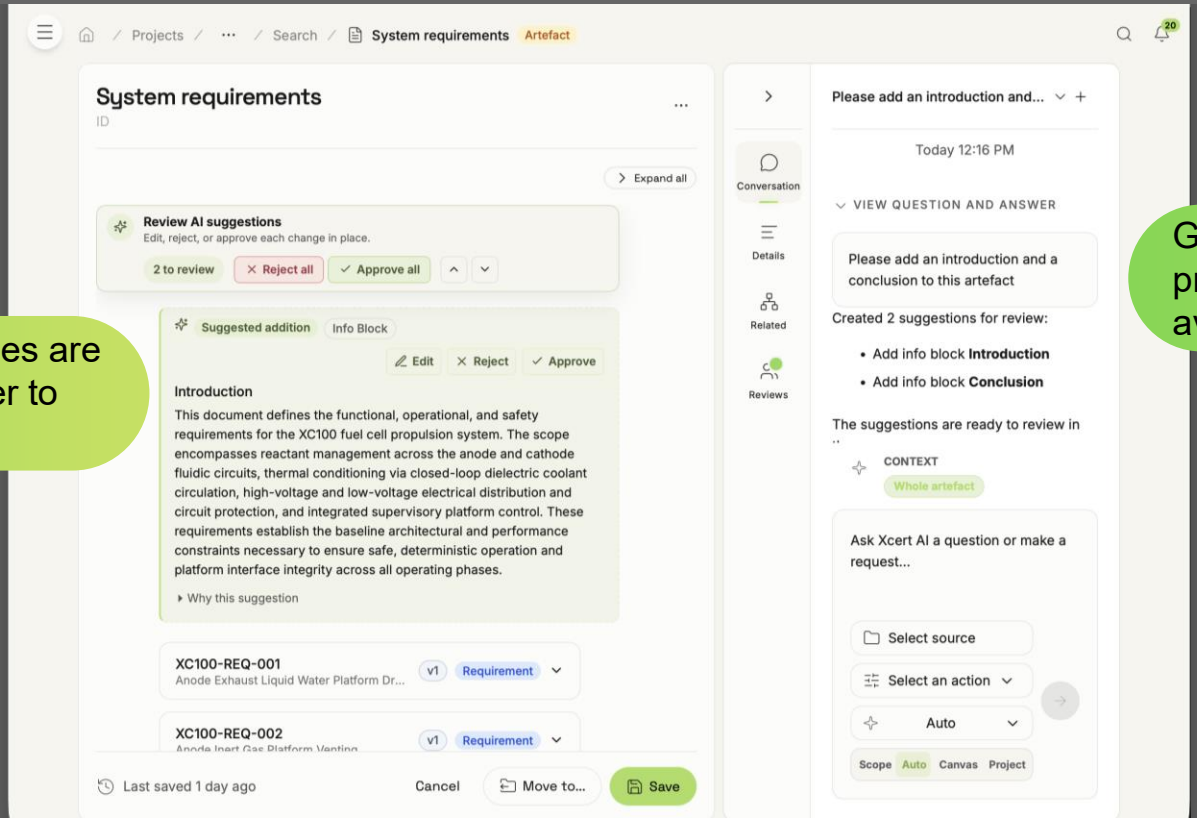
Xcert AI assistance for editing

All suggested changes are proposed for the user to review



Guided instructions or predefined actions available

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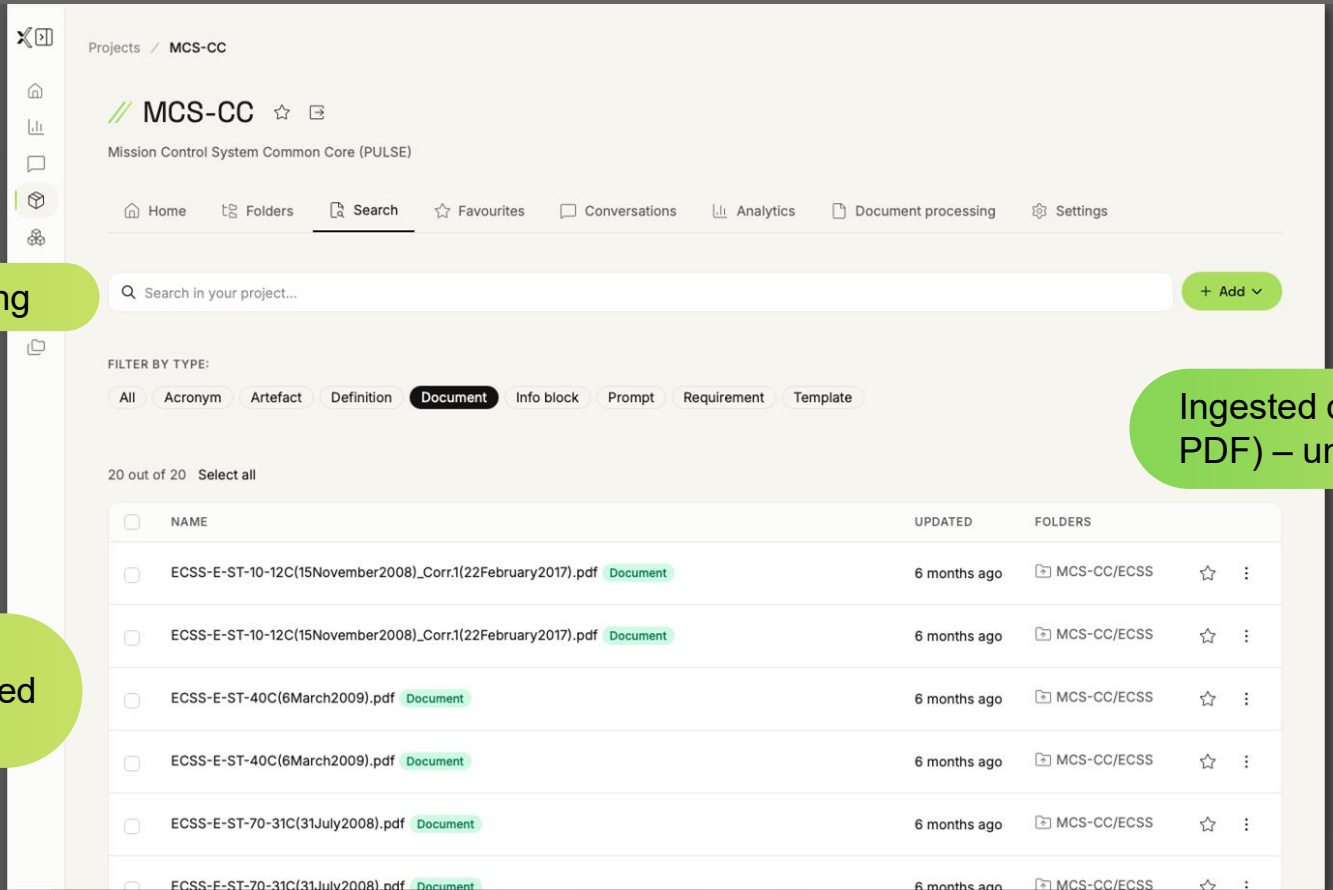
Xcert Documents

Search with filtering

All standards processed, checked and available

Ingested documents (e.g. PDF) – unstructured data



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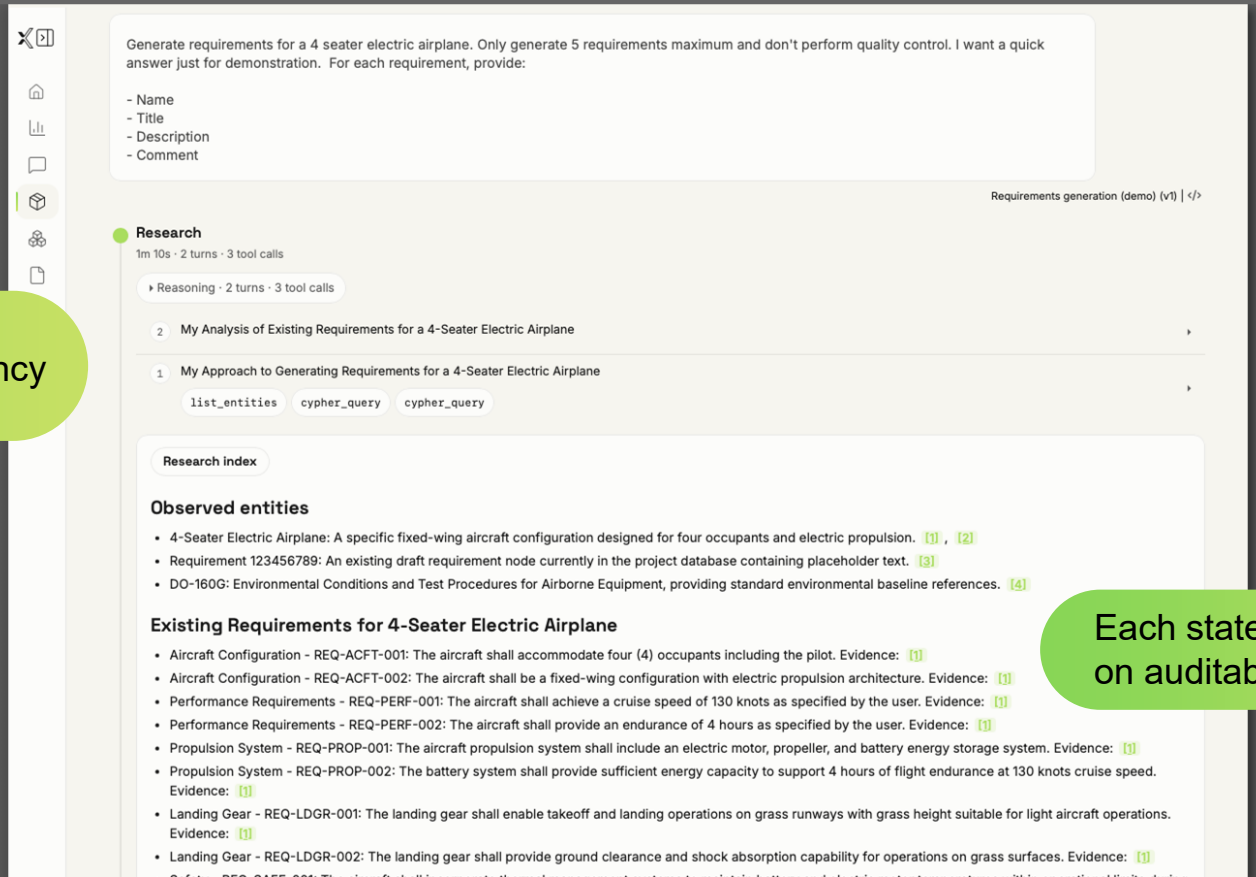
Hallucination free artefact generation

Detailed reasoning provides transparency on results



Each statement is grounded on auditable source(s)

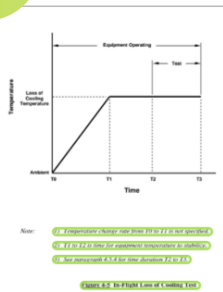
Hallucination free artefact generation

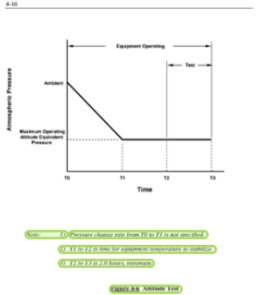
Document excerpt **DO-160G.pdf** — page 37, 38, 39, 40, 41

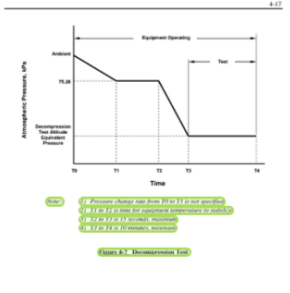
SOURCE TEXT

Environmental Conditions and Test Procedures for Airborne Equipment 4.0 Temperature and Altitude 4.6 Altitude, Decompression and Overpressure Tests 4.6.3 Overpressure Test

- 1. Temperature change rate from T0 to T1 is not specified.
- 2. T1 to T2 is time for equipment temperature to stabilize.
- 3. See paragraph 4.5.4 for time duration T2 to T3. Figure 4-5 In-Flight Loss of Cooling Test
- Note: 1)
- Pressure change rate from T0 to T1 is not specified.
- 2. T1 to T2 is time for equipment temperature to stabilize.
- 3. T2 to T3 is 2.0 hours, minimum. Figure 4-6 Altitude Test Note:
- 1. Pressure change rate from T0 to T1 is not specified
- 2. T1 to T2 is time for equipment temperature to stabilize
- 3. T2 to T3 is 15 seconds, maximum







Exact source grounds all answers to verified facts

Visualise and inspect each source to its origine

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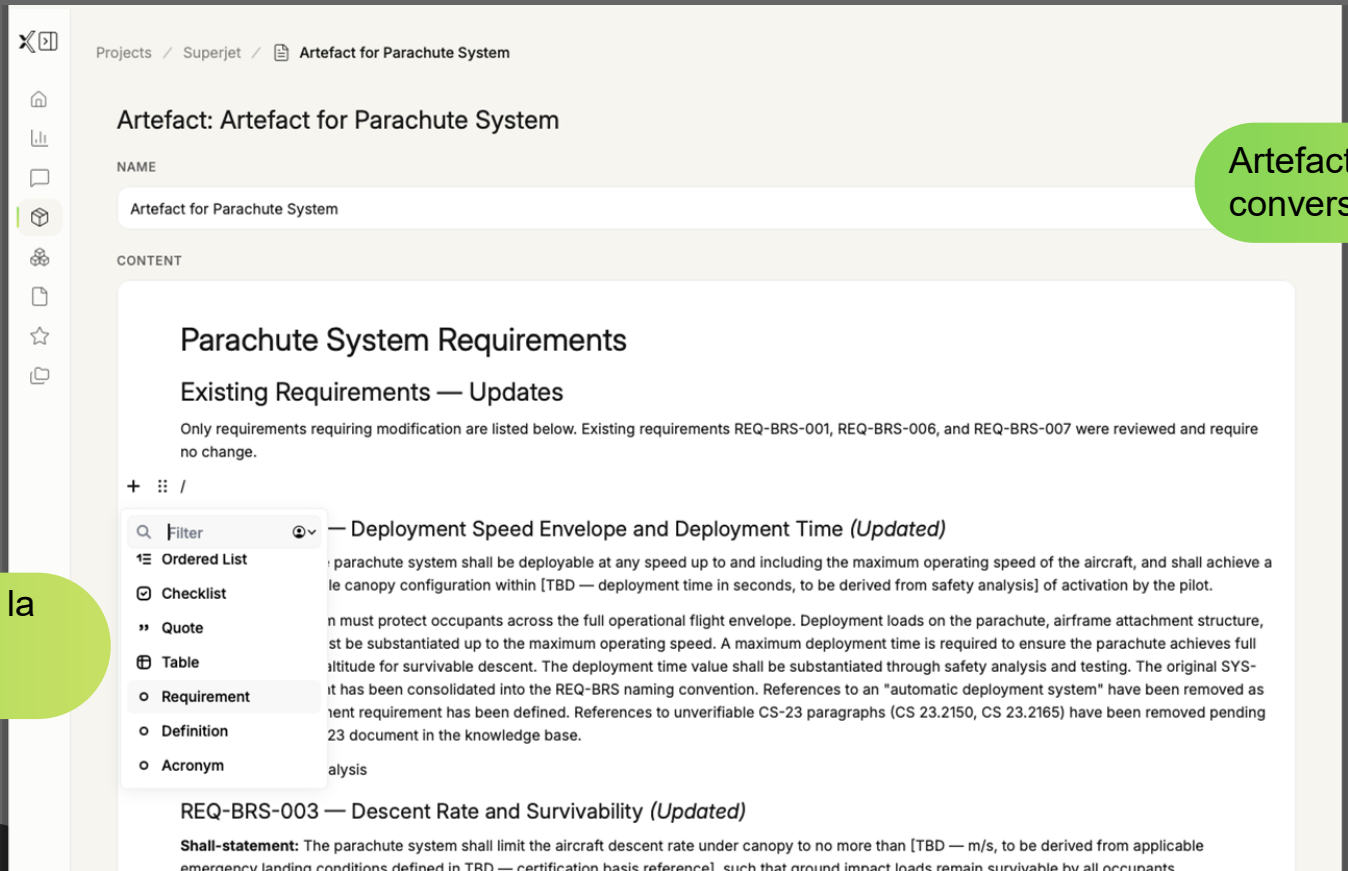
Xcert Artefact smart editing

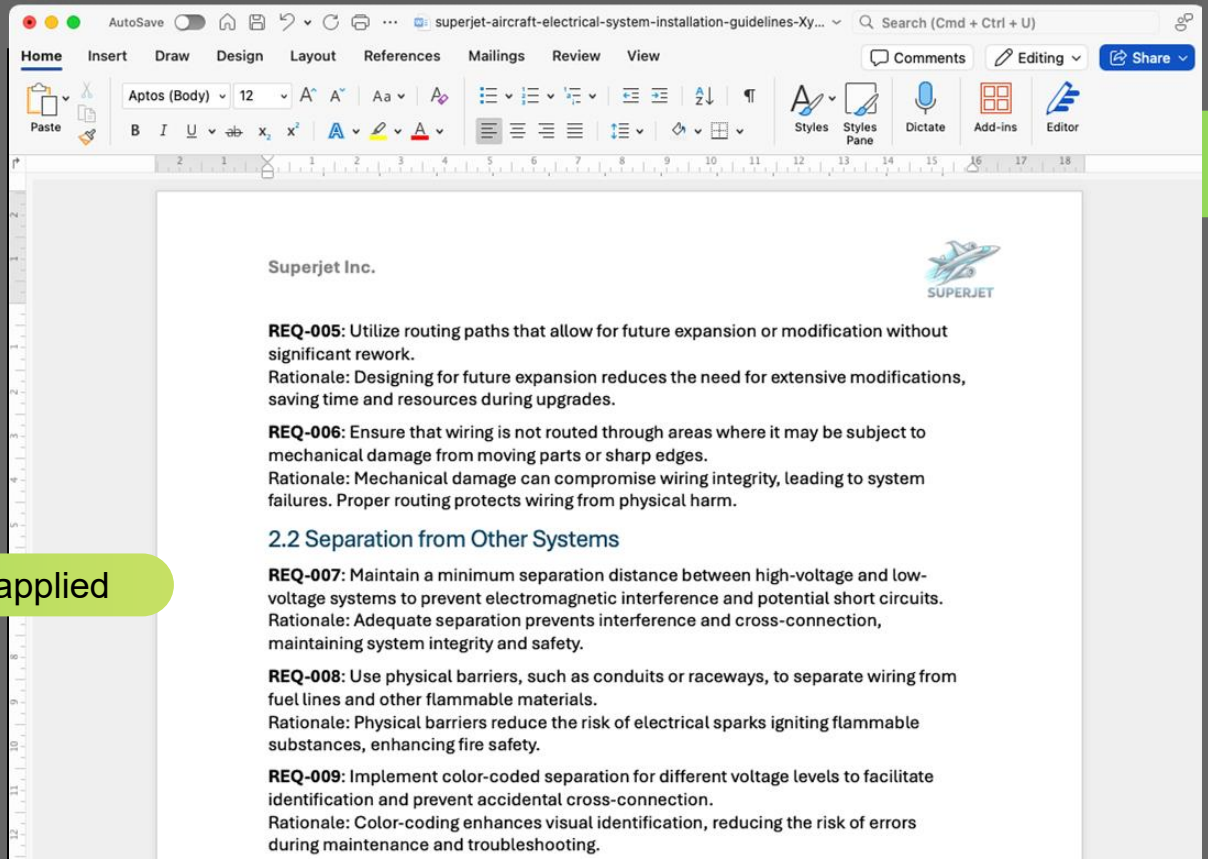


Artefacts created from conversation or manually

Smart editing à la *Notion* with AI assistance

Xcert ai

Artefact export via template



Corporate template applied

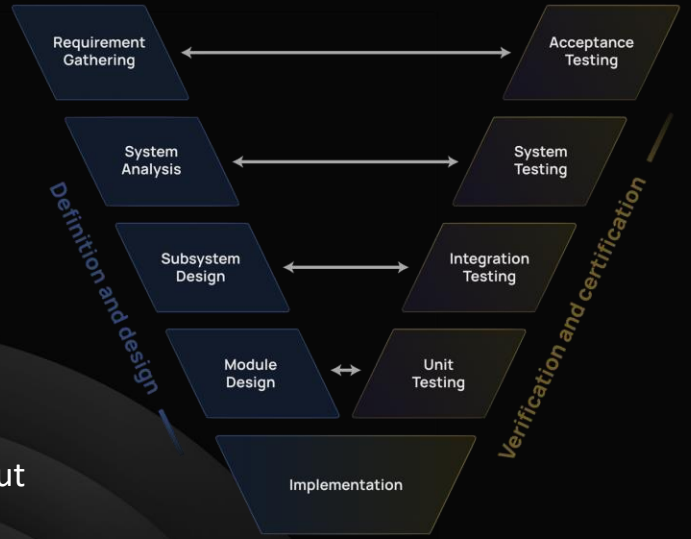
Export to Microsoft Word and PDF

Xcert ai

Your trustworthy AI assistant

Xcert ’s top 3 benefits:

1. Early detection of ambiguous, incomplete, unverifiable or inconsistent requirements before they propagate into design and verification
2. Improved coverage of safety and compliance analyses through systematic reading of large document sets
3. More consistent certification evidence by linking every recommendation to authoritative sources, enabling bounded and managed uncertainty rather than opaque generative output



Bounded by regulatory and company process

Configuration control built-in

Sovereignty of your data

Audit and traceability evidence archived

Xcert ai

Who can use Xcert – Your AI Assistant for Certification

Aerospace SMEs & Startups

Accelerate from concept to flight readiness. Faster approval means faster time-to-market and earlier revenue.

- Safety document drafting
- Regulation mapping
- Compliance documentation

System Integrators

Manage the full safety lifecycle from top-level rules to test plans and proof. Reduce risk and programme complexity.

- Top-down safety analysis
- Traceability records
- Test plan generation

Authorities & Regulators

Streamline project reviews, assessments and approval workflows. Reduce duplication and human error at scale.

- Project review management
- Approval workflows
- Audit-ready documentation

Deployed in minutes · No AI training on your data · Any LLM · Cloud or on-premise

Xcert ai

Xcert vs Generic AI

Xcert has been constructed for trustworthiness

Antidote to LLM hallucinations for aerospace

Verifiable, citation-grounded outputs with zero tolerance for fabrication — the only AI in aerospace platform engineers can actually trust for certification.

18+ months to re-architect

Our agentic layer is LLM-agnostic — competitors locked to one provider must rewrite core infrastructure to match.

No alternative exists

We built the only AI accuracy benchmark for aerospace certification. Without it, no customer will trust unvalidated AI.

70 years of founder expertise encoded

Decades of certification experience embedded as curated workflows on aerospace-specific data.

Xcert ai

Xcert vs Generic AI and legacy programs

Xcert is the only platform built end-to-end for aerospace certification.

Capability	Legacy Software	Generic AI	Doc Mgmt	Xcert
Regulator-ready AI outputs	✗	✗	✗	✓
Safety standards library (FAA, EASA, ECSS, …)	✓ partial	✗	✗	✓
Full IP protection, your data stays private	✓	✗	✓	✓
Multi-step workflow automation	✗	✗ basic	✗	✓
Audit-ready, traceable outputs	✓ partial	✗	✗	✓

Xcert ai

Xcertnow, and the future

Xcert has demonstrated its ability to free up Engineers and accelerate real world certification projects

Our journey continues, to bring higher levels of automation, increased functionality and efficiency for our customers while adhering to the emerging regulatory guidance.

Near Term goals

- Continue to improve civil aircraft certification support
- Enhance reviews and change management
- Improve expert-level generation

Future functional goals

- Additional certification task support (e.g. program management)
- DOA Management. Independent Monitoring Functions. Management of standards
- Process Repair and Production Concession
- SMS metrics and oversight
- Automated impact assessment

Xcert team

- 15 staff
- 3 disciplines: Software, AI and Certification / System engineering
- Based in Geneva, Switzerland

Xcert ai

THANK YOU

Xcert ai

Engineer the Extraordinary.

For more information please contact: Marc-Elian Bégin, CEO & Co-founder, meb@xcert.ai

Xcert AI SA: incorporated C Corp company in Geneva, Switzerland

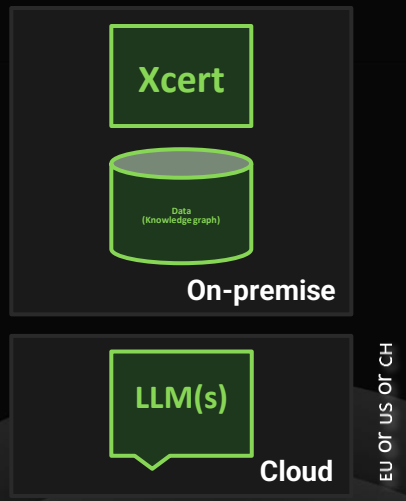
Xcert: data security

Local infrastructure

Advantages:
- ✅ Complete isolation
- ✅ All data stored locally
- ✅ Conversations do not go on wide area network
- ✅ Guarantee no data used for training

Infrastructure requirements:
- ⚙️ Need to allocate local resources, including GPUs

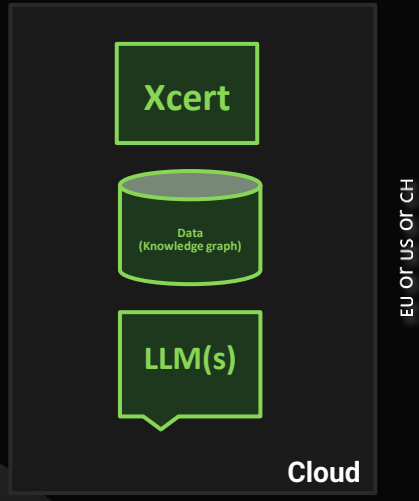
Mixed



Advantages:
- ✅ All data stored locally
- ✅ No need to deploy GPUs

Confidentiality matters:
- ⚠️ Conversations with LLMs over the network
- ⚠️ Trust LLM providers that user data not used (training)

Cloud

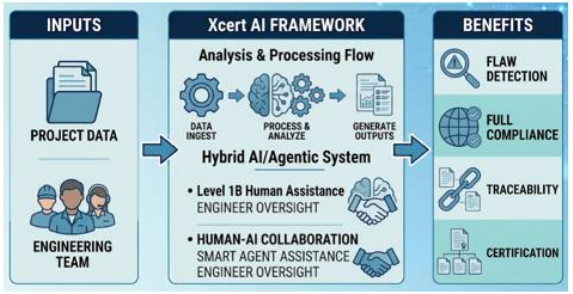


Advantages:
- ✅ Simple deployment (<1 day)
- ✅ No need to deploy GPUs

Confidentiality matters:
- ⚠️ Data stored in the cloud (need securing)
- ⚠️ Conversations with LLMs over the network
- ⚠️ Trust LLM providers that user data not used (training)

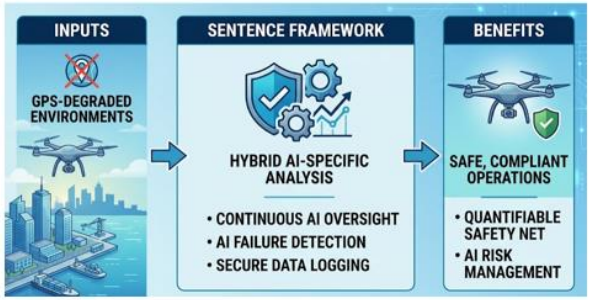
Xcert ai

XCert AI



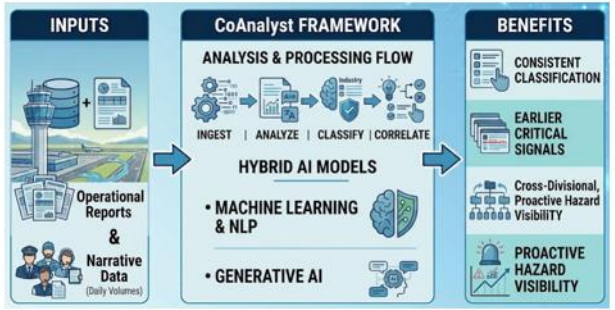
Xcert AI is an **AI-powered assistant** for aerospace **engineering and certification**. It processes project documents to **extract requirements, map evidence, and build certification arguments**. Acting as an **EASA Level 1B/2A system**, it supports human engineers who keep final approval authority, enhancing safety by identifying requirement flaws early and maintaining full traceability.

SenTenCe



SenTenCe is a runtime monitoring framework and flight data recorder for AI drone navigation. As an independent operational oversight system it operates at **EASA Level 3A** while fulfilling **EU AI Act Article 14 human oversight requirements.** Key functions include real-time plausibility assessments, ODD violation detection, and safety interventions during BVLOS flights. It provides AI-specific failure detection and a net safety benefit.

CoAnalyst



CoAnalyst is an **AI safety data intelligence companion** for aviation SMS. It uses **hybrid ML/LLMs** to classify (with DeBERTa) and summarize (with CLAUDE genAI) **safety reports as an advisory tool**. It operates as a **Level 1B AI** for human augmentation, tested and validated performances and efficiency with different airlines.

EASA
European Union Aviation Safety Agency

EASA AI Days 2026
Conference wrap-up and next steps

Guillaume Soudain
EASA AI Programme Manager

Your safety is our mission.

An Agency of the European Union

EASA
European Union Aviation Safety Agency

EASA AI Days 2026
Conference closure

Francesco Gaetani
EASA Flight Standards Director

Your safety is our mission.

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EASA
European Union Aviation Safety Agency
EASA AI Days 2026
Thank you all for your participation.
Have a safe trip back!
See you at the EASA AI Days 2027!
Your safety is our mission.
An Agency of the European Union