UAE AVIATION
SAFETY CONFERENCE

AI in Aviation Safety: Balancing Innovation & Oversight

AI is transforming safety oversight : why it matters now. Intersecting AI, Venture Capital & Safety

ATHLETHICS WEALTH ADVISORS

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Agenda

1. The Challenge & Context
2. AI Innovations in Safety
3. VC Landscape & Deals
4. AWA Approach & Case Studies
5. Risks, Limits & Next Steps
6. Collaboration & Governance

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Challenges & Context

- **Explosion of data:** modern jets generate ~0.5 to 5+ TeraBytes per flight[1], overwhelming existing systems and data analysis capabilities

→ **Data is abundant, how to handle it is critical**

- **High hopes, low integration:** mismatch between AI expectation, reality and embedded expertise → **Encapsulation is key**

- **Transparency concerns:** AI can be a Blackbox, and regulators demand explainability → **need for a common language**

AI Innovations in Safety

Predictive Maintenance

Machine learning analyses sensor data to forecast failures and reduce downtime.

Air Traffic & Congestion

AI predicts congestion and guides ATC decisions for smoother operations.

Risk & Flight Path Optimization

AI evaluates historical & real-time data to propose safer, fuel-efficient routes.

Safety Management Systems

AI enhances hazard reporting, predictive risk analysis & compliance automation.

The Missing Piece

Conjunction of in-house encapsulated knowledge with high impact innovation

Pilot Training & Feedback

AI-driven simulators provide personalized coaching to mitigate human error.

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VC Landscape & Innovation

- Growing capital for AI startups → risk intelligence, compliance & autonomy
- Generative AI integration accelerates product differentiation and adoption
- Deals span predictive analytics, flight data, airport management and compliance

AWA’s Approach & Pillars

AWA’s Thesis: *Innovative solutions x industry-specific tweaks = effective AI pilots*

Venture Capital

Fund innovative AI startups solving general **or** aviation-specific pain points to create solutions.

Artificial Intelligence

Move from oversight to foresight through agentic AI, predictive models, data contracts & explainable systems.

Aviation Safety

Embed ethical governance; partner with regulators to certify & scale.

AI is not an end goal; **AI is a strategic tool** to augment aviation safety.
To be effective, AI needs to be embedded in the infrastructure, *not outside*, *not at the center*, but **invisible** to make the industry it is applied to shine.

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Case Study: Governata KSA, 2025

Turning data chaos into clarity

Data and Sources are exploding. Stakeholders demands surges. **Governance** is fragmented. **Governata** is MENA's first focused AI decision-making platform. Adapting to Aviation:

Data Contracts
Unified schemas & ingestion through APIs

Data Lineage & Quality
Time-stamped provenance & drift checks

Model Registry
Approvals, bias & explainability tests

Uniform Labels
Standardized vocab. across airlines & GCAA

Compliance Engine
Policy-as-code & evidence packs

GenAI-Ready Corpus
Curated, de-identified data for AI-pilots

Why it matters

Clean and labelled data is the bedrock of AI, enabling reliable analytics and GenAI copilots. Governata can unify data across operators & regulators, automating compliance and improving safety intelligence.

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Case Study: alphaguard France, 2025

AI that Replicates Human Analysts, and Beyond

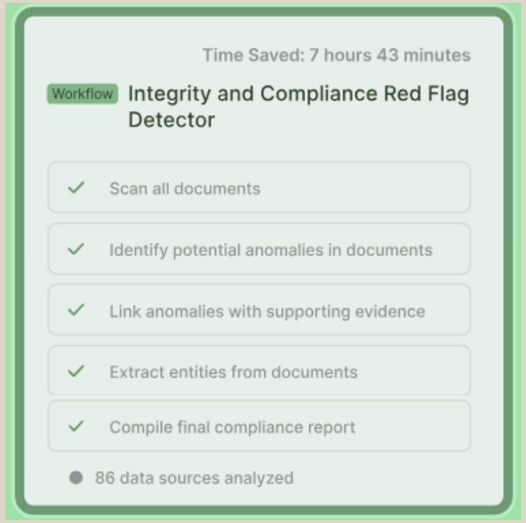
AI agents investigate alerts just like human analysts, **but faster,** scoring each risk clearly and providing grounded, verifiable results so nothing gets missed. Adapting to Aviation:

Regulatory Parsing

Agent reads new GCAA directives, classifies updates, and maps impact areas.

Evidence Graphs

Build audit-ready compliance graphs showing traceable proof & dependencies.



Rule-to-Procedure Map

Links changing regulations to manuals & SOPs, flagging drift or misalignment.

Compliance Copilot

Generates instant, citation-based answers to compliance questions

Why it matters

Alphaguard can automate regulatory monitoring, ensuring operators implement changes quickly and auditors see clear evidence. This frees experts to focus on high-value tasks.

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Limits, Risks & Human Oversight

- **Black-box models:** lack transparency & risk unexplainable decisions
- **Bias & blind spots:** AI learns from historic data, missing novel scenarios if not updated
- **Overreliance & complacency:** human vigilance can erode with automation
- **Ethical & contextual choices:** AI lacks human judgement needed for nuanced decisions

Collaboration & Governance

- **Regulatory sandboxes:**
copilot innovation in controlled environments

- **Data-sharing consortia:**
deidentified pools for global insights

- **Co-developed standards:**
align models, validation & governance early

- **Explainability & transparency:**
demystify models for trust

- **Human oversight & accountability**:
AI advises, humans decide

- **Ethical alignment & security:**
protect data and uphold public interest

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Conclusion & Next Steps

Safe Skies Through Smart Synergy

- AI is reshaping aviation safety: from hindsight to foresight when guided by data, investment and governance

- AWA bridges private capital & public purpose, building clean data and compliance foundations for GenAI copilots

- Join the journey: co-create sandboxes, share data, demand explainability and invest in safety’s second curve

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Thank you

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