Supporting European Aviation

EUROCONTROL

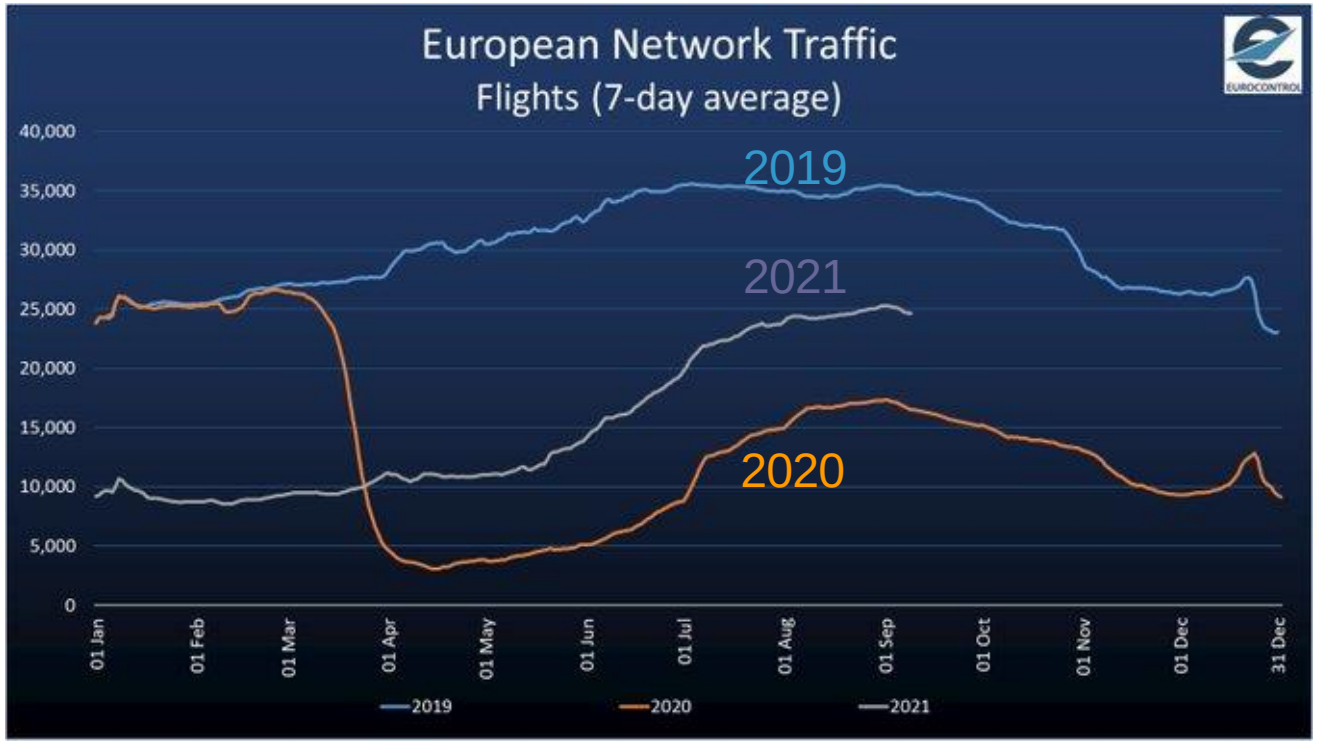
Information Management and Artificial Intelligence

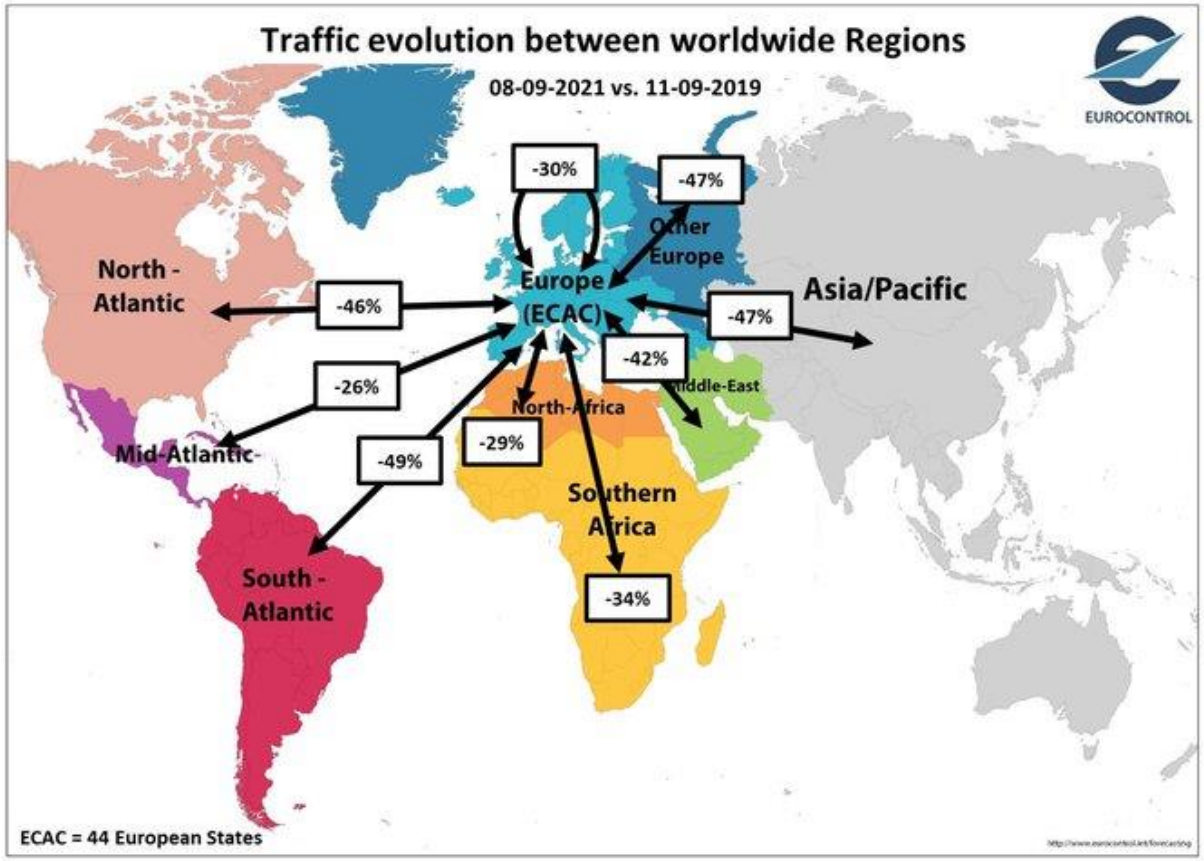
Paul Bosman
Head of Air Traffic Management Infrastructure Division
16 September 2021

FOUNDING MEMBER SESAR JOINT UNDERTAKING

NETWORK MANAGER

Current traffic levels





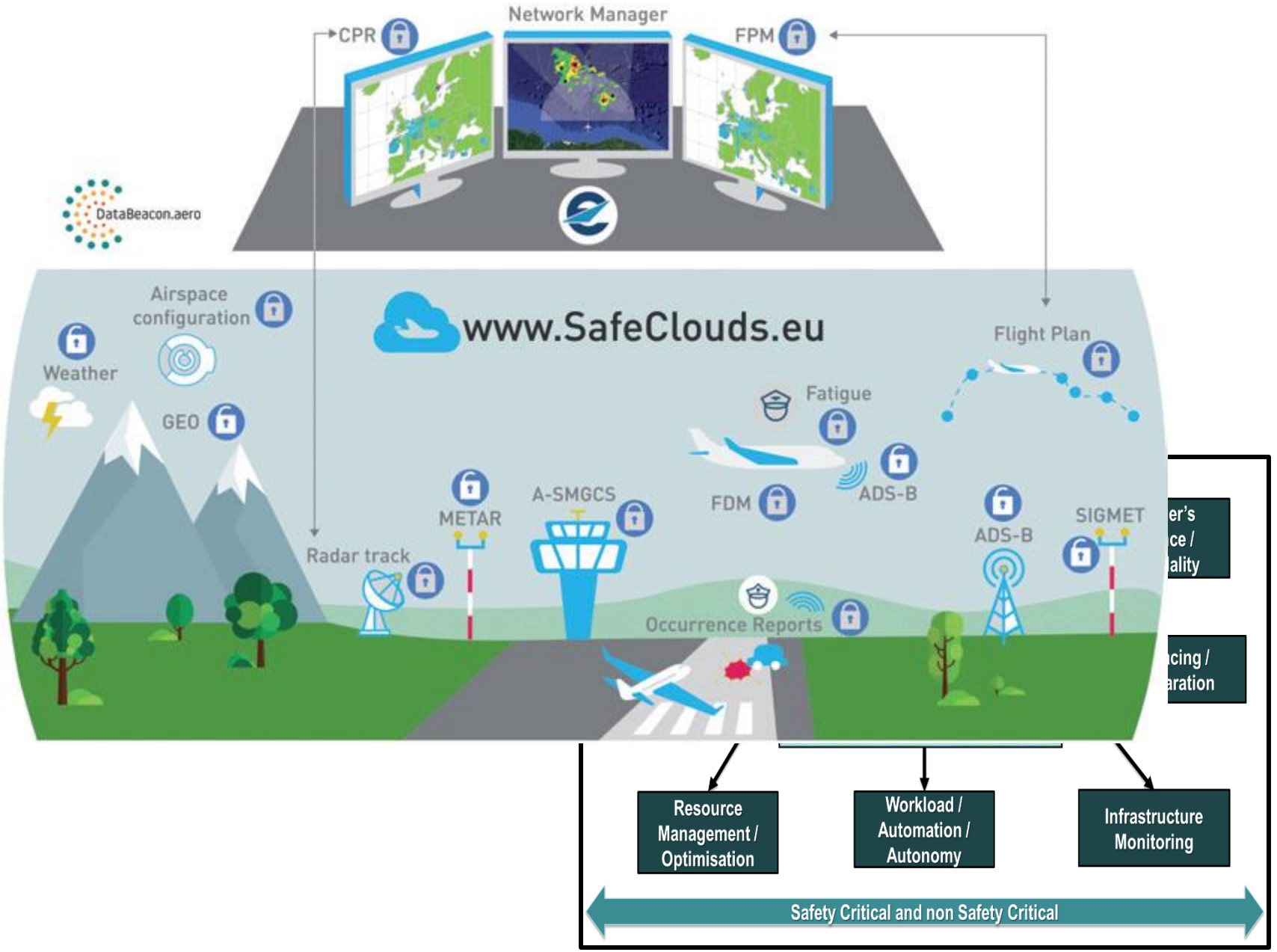
FLY AI
Demystifying & Accelerating AI in Aviation/ATM

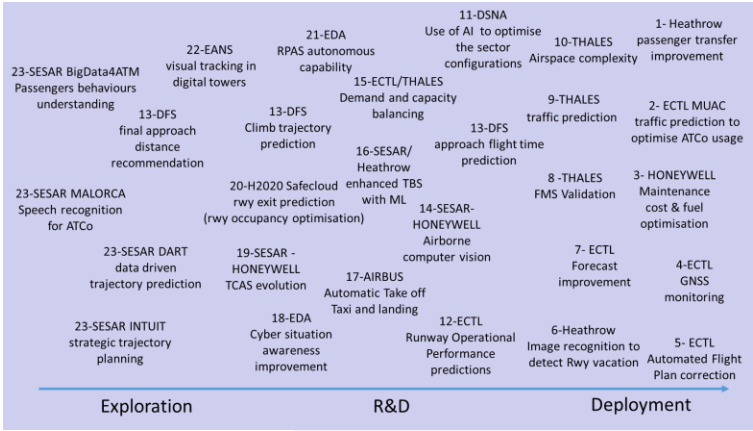
European Aviation AI High Level Group

WITH INPUTS FROM EDA MILITARY EXPERTS AND NATO ATTENDING IN AN OBSERVING CAPACITY

- Scope : Aviation/Air Traffic Management
- Focus : what we can do TODAY
- Demystify AI
- Promote AI based applications and its benefits
- Identify Business Challenges
- Recommendations to accelerate AI uptake

https://www.eurocontrol.int/publication/fly-ai-report





https://www.eurocontrol.int/publication/fly-ai-report

Seven Key Recommendations

Data and AI-infrastructure framework	■ A federated data foundation and AI-infrastructure should be established
Research and Innovation	■ Further exploration of the potential of AI in aviation/ATM should be strengthened in areas of: ■ high impact on aviation/ATM performance and environment ■ human-machine collaboration ■ safety-critical operations ■ safety intelligence tools and cyber threat intelligence services
Validation and Standards	■ Appropriate AI validation methods and tools should be developed as well as standards and guidelines
Deployment	■ The rapid uptake of AI-based solution in operations should be encouraged in the cybersecurity domain and non-safety critical operations ■ European aviation/ATM actors should aim to reduce AI-developments time to market.
Communication and Dissemination	■ Communication on AI should be enhanced ■ Dissemination of AI benefits and lessons learned should be strengthened ■ AI aviation/ATM applications developments and deployments should be regularly scouted
Training and Change Management	■ An AI culture through training/re/upskilling and change management should be developed

Happening already

- SWIM exchanges e.g. NM B2B, MET, …
- Many free trajectory sharing websites
- EU regulations

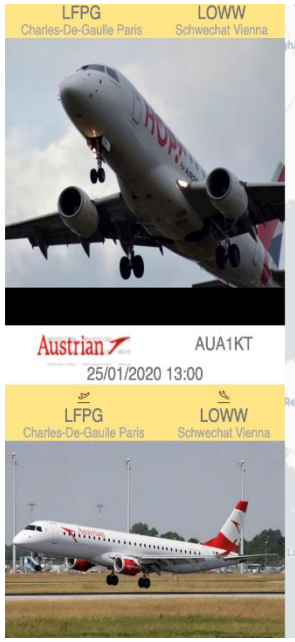
However

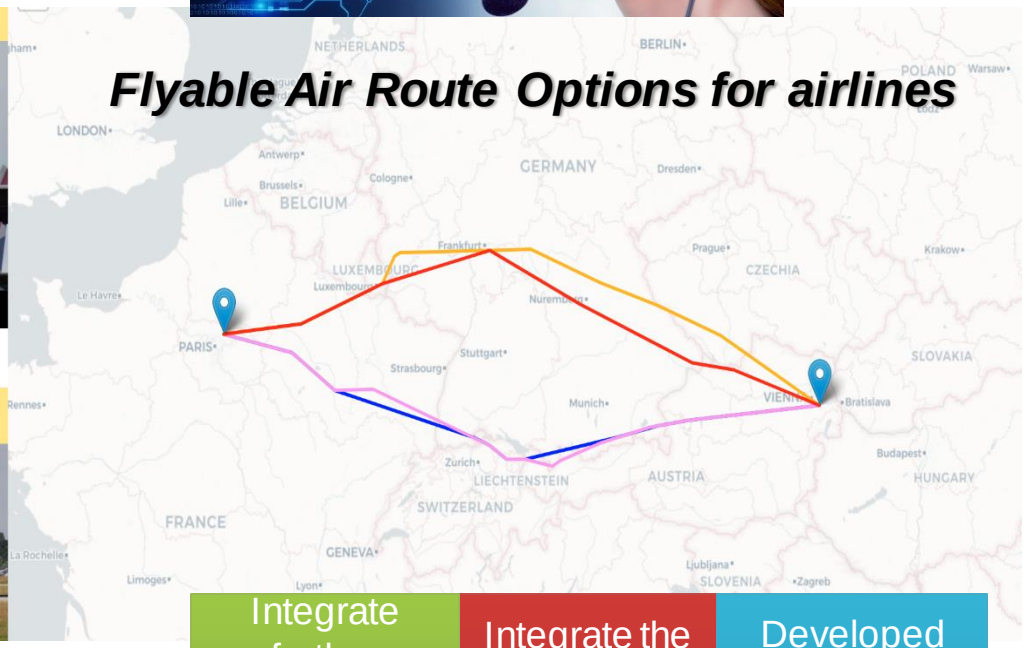
- No one-stop shop
- Large amounts gathering
- Data quality
- Techno vs domain expertise
- Cyber vulnerabilities
- AI techniques
- End-User-centric
- ….

https://www.eurocontrol.int/publication/fly-ai-report

At EUROCONTROL
More than 30 new AI-based applications

- AI driven traffic flow management
- AI **explainability**
- Decentralised and secure AI infrastructure
- New AI-enhanced simulation tools
- AI driven capacity planning integrating meteo
- Enhanced predictions e.g. airport curfew
- **CNS monitoring improvements**
- Cyber resilience improvement
- **Enhanced forecasts**
- Runway throughput improvements





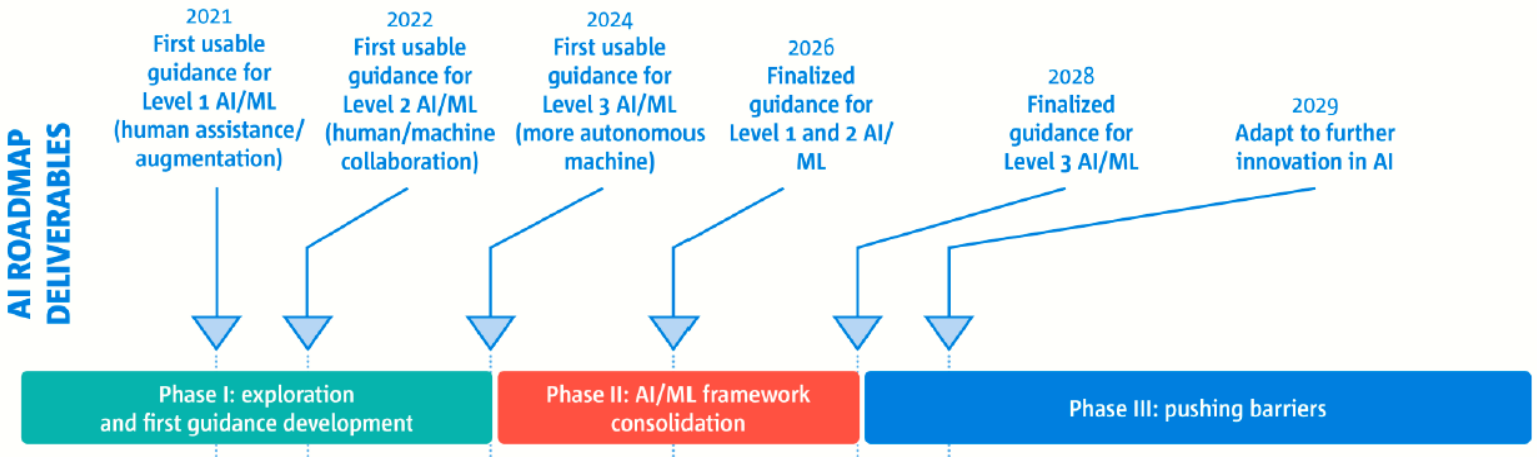
Integrate further Aviation in Network Operation

Integrate the Past to Predict the Future

Developed @ NM Available everywhere

Collaborating with EASA
AI integration in NM systems

EASA AI Roadmap timeframe and milestones



Level 1

Climb & descent

4D trajectory prediction

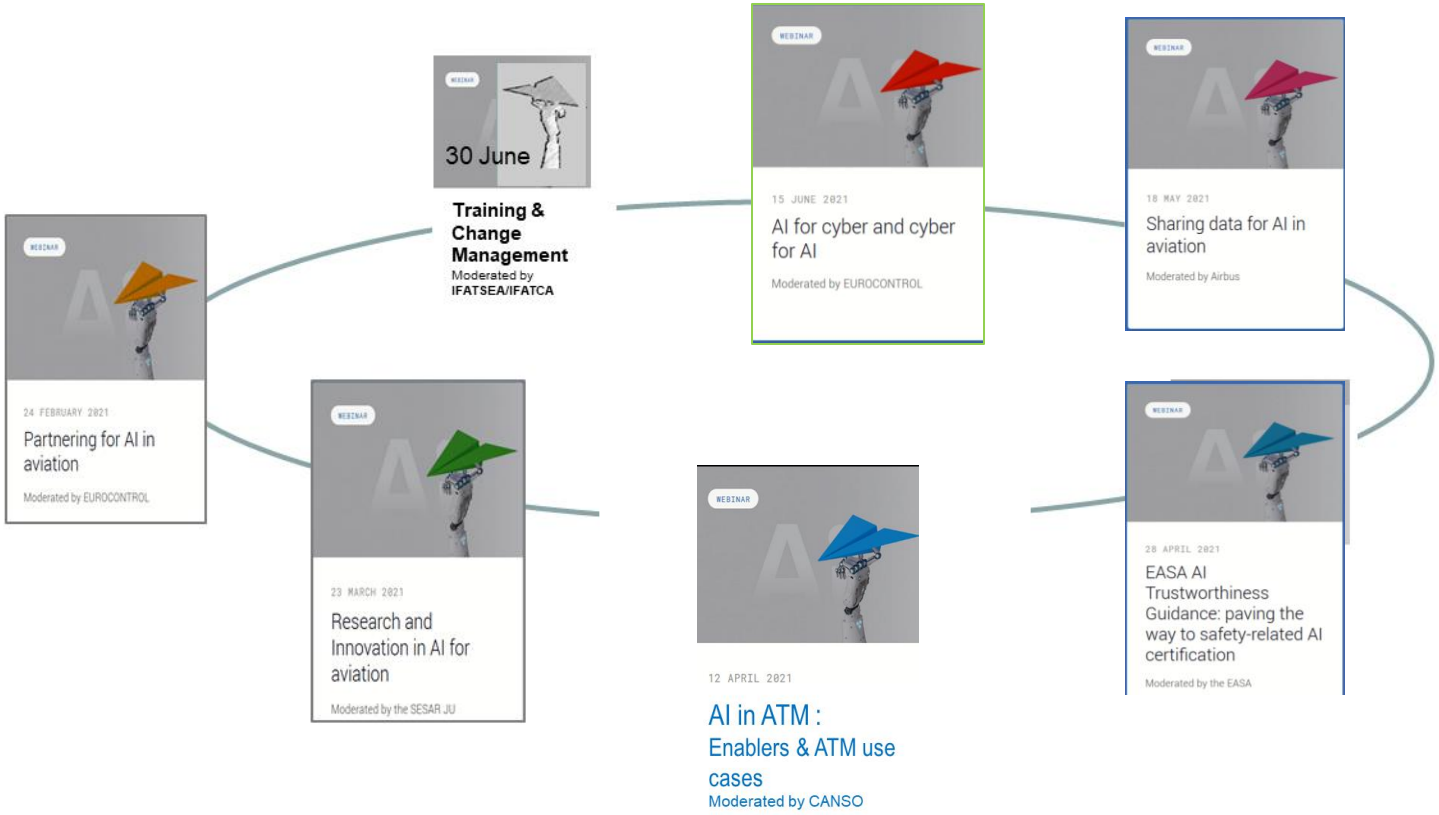
Pre-Tactical Forecasting

Level 2

NOTAM Decoding

Time Based Separation for airports

7 FLY AI webinars – February – June 2021



Thousands of participants

For recordings, links to white paper and guidance, use cases visit our websites :

https://www.eurocontrol.int/fly-ai
&
www.eurocontrol.int/artificial-intelligence

The best prophet of the future is the past

Unlock your data

Thanks for your attention !

https://www.eurocontrol.int/publication/fly-ai-report

paul.bosman@eurocontrol.int