

In 2021, you will be looking forward to...

MONDAIS

Fly AI

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Supporting
European
Aviation



NETWORK
MANAGER



Demystifying and Accelerating AI in Aviation/Air Traffic Management

- 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



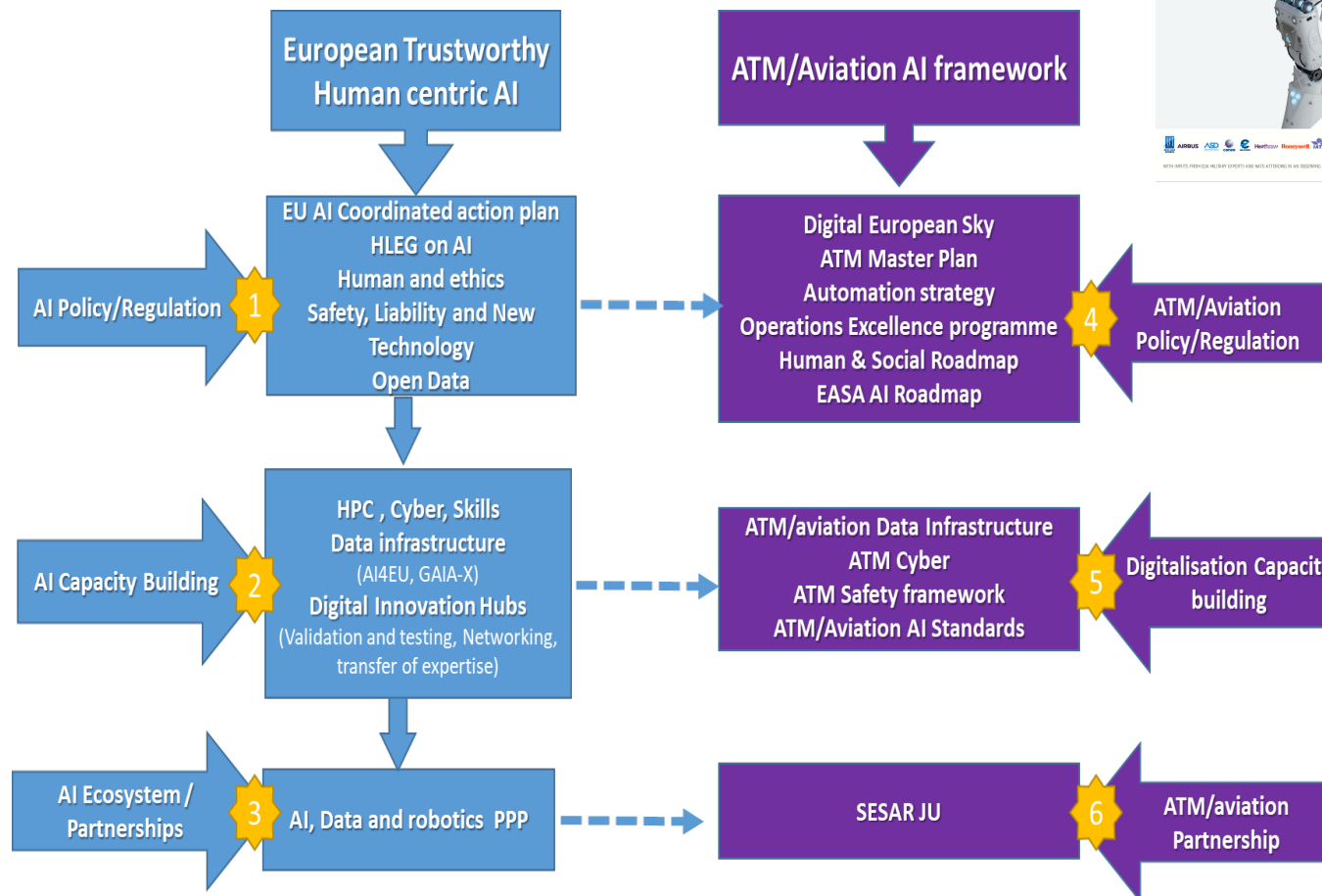
European Aviation AI High Level Group



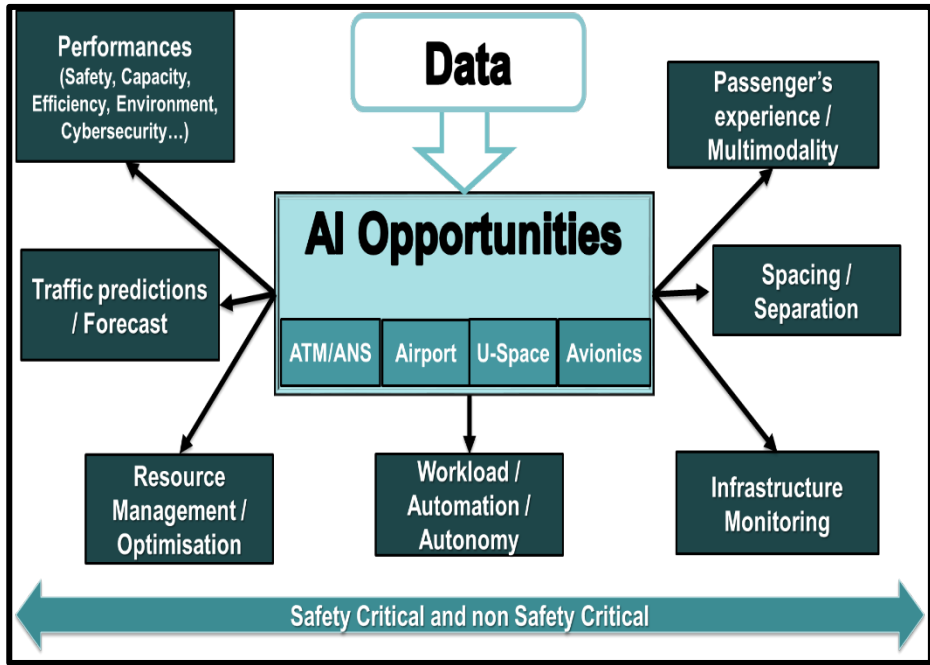
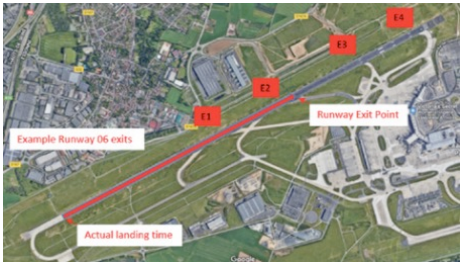
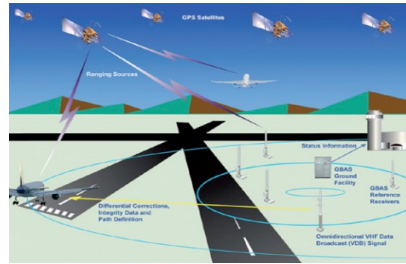
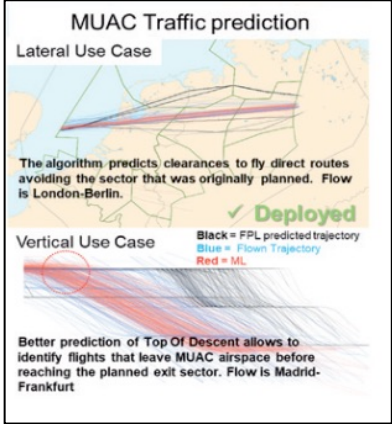
WITH INPUTS FROM EDA MILITARY EXPERTS AND NATO ATTENDING IN AN OBSERVING CAPACITY



Based on a wider European foundation



AI is in the Sky



23-SESAR BigData4ATM Passengers behaviours understanding	22-EANS visual tracking in digital towers	21-EDA RPAS autonomous capability	11-DSNA Use of AI to optimise the sector configurations	10-THALES Airspace complexity	1-Heathrow passenger transfer improvement
13-DFS final approach distance recommendation	13-DFS Climb trajectory prediction	15-ECTL/THALES Demand and capacity balancing	9-THALES traffic prediction	2-ECTL MUAC traffic prediction to optimise ATCo usage	
23-SESAR MALORCA Speech recognition for ATCo	20-H2020 Safecloud rwy exit prediction (rwy occupancy optimisation)	16-SESAR/Heathrow enhanced TBS with ML	13-DFS approach flight time prediction	8-THALES FMS Validation	3-HONEYWELL Maintenance cost & fuel optimisation
23-SESAR DART data driven trajectory prediction	19-SESAR - HONEYWELL TCAS evolution	14-SESAR-HONEYWELL Airborne computer vision	7-ECTL Forecast improvement	4-ECTL GNSS monitoring	
23-SESAR INTUIT strategic trajectory planning	18-EDA Cyber situation awareness improvement	17-AIRBUS Automatic Take off Taxi and landing	12-ECTL Runway Operational Performance predictions	6-Heathrow Image recognition to detect Rwy vacation	5-ECTL Automated Flight Plan correction
Exploration		R&D		Deployment	

Seven Key Recommendations

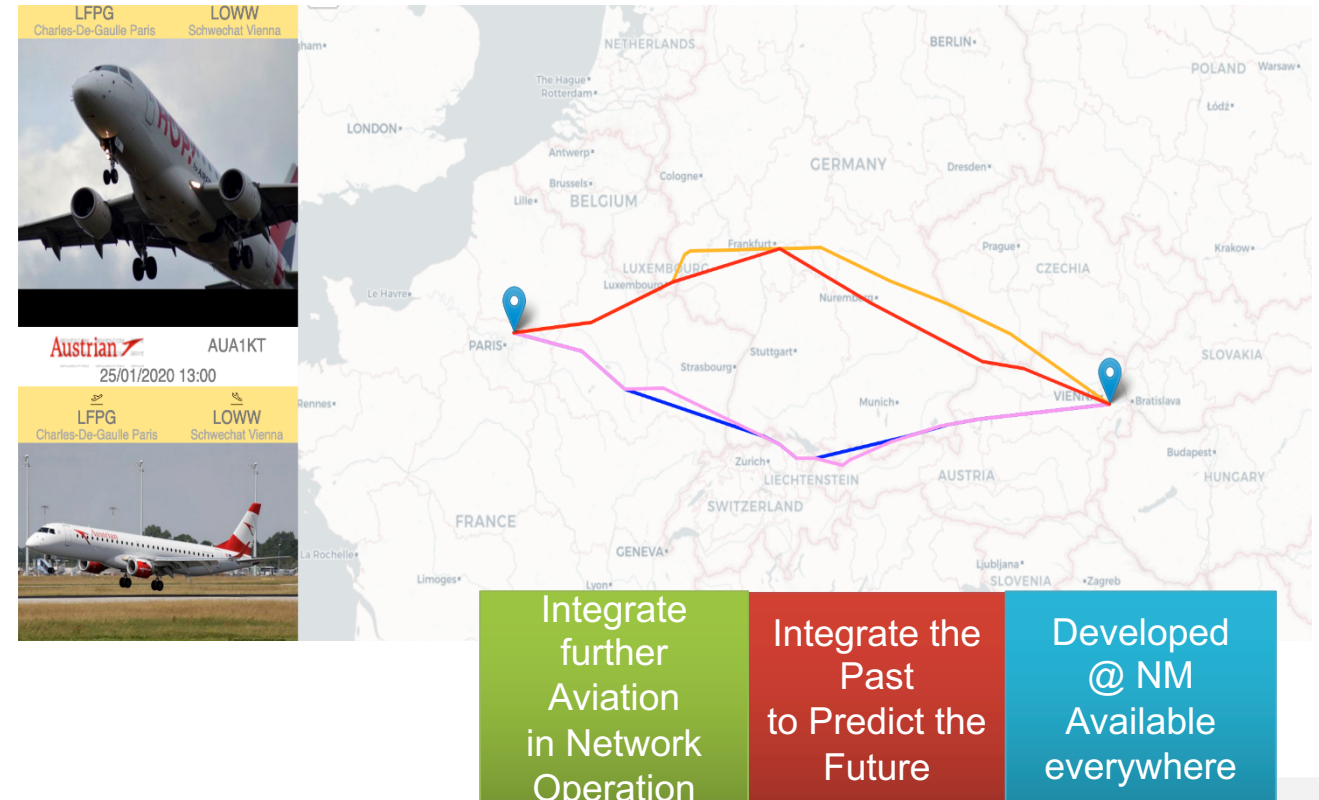
Data and AI-infrastructure framework	<ul style="list-style-type: none">■ A federated data foundation and AI-infrastructure should be established
Research and Innovation	<ul style="list-style-type: none">■ Further exploration of the potential of AI in aviation/ATM should be strengthened in areas of:<ul style="list-style-type: none">■ 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	<ul style="list-style-type: none">■ Appropriate AI validation methods and tools should be developed as well as standards and guidelines
Deployment	<ul style="list-style-type: none">■ 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	<ul style="list-style-type: none">■ 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	<ul style="list-style-type: none">■ An AI culture through training/re/upskilling and change management should be developed
Partnership	<ul style="list-style-type: none">■ The aviation/ATM community should build-up an inclusive AI aviation/ATM partnership

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



Accelerating AI integration in NM systems



NM Use Cases

4D Trajectory Management

- Climb & descent trajectory prediction
- Pre-Tactical Forecasting

- NOTAM Decoding
- TBS for airports

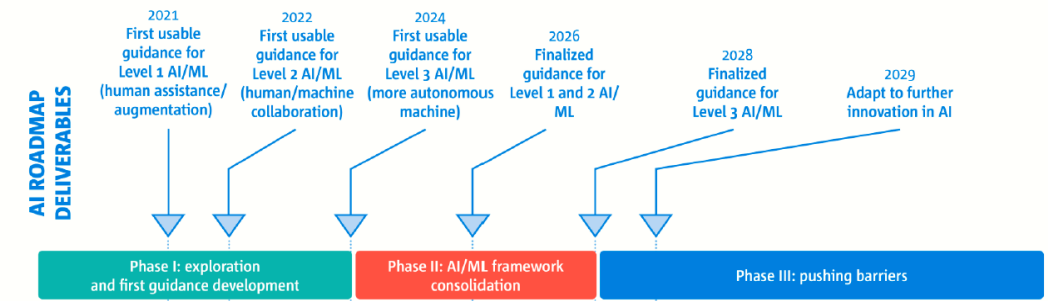


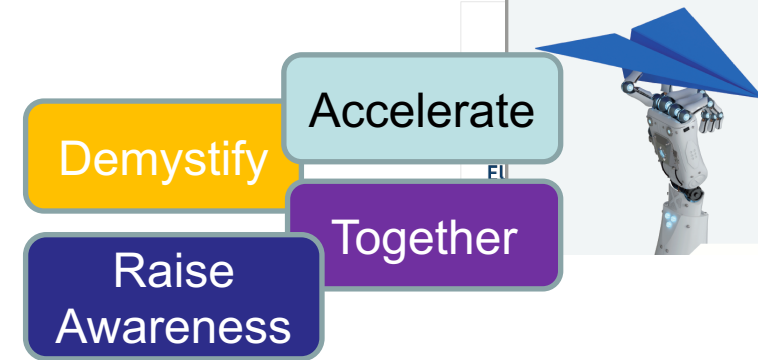
Level 1



Level 2

EASA AI Roadmap timeframe and milestones





Join our AI community of practice for aviation !

What	When	Lead
Partnering for AI in aviation	24/02 - 15h-16h	ECTL
Research and Innovation for AI in aviation	24/03 - 15h-16h	SJU
AI enablers & ATM use cases	12/04 - 14h-16h	CANSO
Safety : EASA AI level 1 Guidance Material	28/04 - 15h-16h	EASA
Sharing data for AI in aviation - Yes we can !	Mid May	TBD
AI for cyber and cyber of AI	15/06 - 15h-16h	ECTL
AI training for aviation/ATM managers	30/06 - 15h-16h	TBD

Thanks for your attention !



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