



PROJECT	EXHIBITION DESCRIPTION
ARTIFICIAL INTELLIGENCE FOR AVIATION	

1.ORCI- Optimised Runway Centreline Interception SESAR Project Video	ORCI is developing a decision support tool (DST) for air traffic controllers. Based on AI models trained on surveillance and communication data, the system provides real-time predictions of aircraft spacing at final approach interception. This anticipatory insight supports air traffic controllers (ATCOs) decision making, increases runway throughput, and reduces workload. The DST is co-designed with, operational experts and validated through human-in-the-loop and fast-time simulations in Barcelona and Lisbon terminal manoeuvring areas. This supports a more consistent distance-based spacing strategy and reduces vectoring-related constraints. ORCI aligns with SESAR’s vision of safe, sustainable, and digitally augmented ATM without replacing human judgment.
2.DARWIN- Digital Assistants for Reducing Workload and Increasing collaboration SESAR Project Video	AI-based automation for cockpit and flight operations are the key enabler for single pilot operations (SPO). The project aims to develop digital assistants to support SPO operations, assuring the same (or higher) level of safety and same (or lower) workload as operations with a full crew today. This SESAR JU project will deliver solutions that enable operational efficiency and route flexibility, taking into account the complexity of the future airspace. The results will support the commercial and operational viability of those new airspace users. The aim is to deliver a system installed in the cockpit and integrating three technological enablers: • Pilot state and task load monitor, able to detect pilot drowsiness, sleep, incapacitation, and their current and predicted task load. • Human-AI collaboration layer, dynamically distributing the cockpit tasks between the pilot and a set of digital assistants while ensuring the pilot always stays in the loop and in charge. • Trustworthy machine reasoning platform, representing an underlying technology providing capabilities for rule-driven, transparent, and explainable decision aiding or decision making across the whole solution.
3.ASTRA- AI-enabled tactical FMP hotspot prediction and resolution SESAR Project Video	Today, air traffic congestion or hotspots are identified using flight plan data and are managed in the pre-tactical stage of the flight. However, on the day of operation, an aircraft's actual trajectory may differ significantly from its flight plan and, as a result, hotspots still occur and these have to be resolved by the ATCOs without sufficient advance notice. With today's tools, tactical hotspots are only identified up to around 20 minutes in advance. The aim of the SESAR JU ASTRA project is to predict and resolve hotspots much earlier than today using an AI-enabled tool. The overall aim is to optimise capacity while enabling aircraft to adhere to more efficient and green trajectories.

AIR-GROUND INTEGRATION AND AUTONOMY

4.RESPONSE- REduced or Single Pilot Operation iNcapacitation Safety Enhancement SESAR Project Video	Under current EU regulations, at least two pilots must be present within the cockpit of commercial flights. But new advances in technologies open up the possibility to certify single pilot operations (SPO), either for certain portions of the journey, such as when cruising, or for the whole flight once the technology is mature. The SESAR JU RESPONSE project is researching pilot cognitive state monitoring and an air-to-ground integration SPO concept of operations. This includes introducing the role of air-to-ground digital assistants to minimise the changes required when transitioning from dual-pilot operations to SPO, including dealing with pilot incapacitation scenarios in the flight deck. This poster will showcase physiological assessment methods to detect pilot incapacitation early on, in order to prevent degradation of human performance.
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5.TADA- Terminal Airspace Digital Assistant SESAR Project Video	TADA is an AI-based solution designed to assist ATCOs with managing and sequencing arrival flights within a terminal airspace. Its primary goal is to provide a 4D Proposed Trajectory (4DPT) for each inbound flight, aligning with the sequencing and time-to-gain/time-to-lose data from the arrival manager. The SESAR JU funded project has currently prototyped a human-machine interface that uses machine learning to generate and display an optimised 4DPT for each flight. This includes the horizontal route, vertical profile, and speed constraints. TADA monitors the flight's actual path against the proposed one, alerting the ATCO to any deviations and suggesting actions to stay on course. This solution is expected to reduce ATCO cognitive workload, improve situational awareness, and enhance aircraft energy management by prioritising fuel-efficient trajectories.
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AVIATION GREEN DEAL

6.Green-GEAR- Green operations with Geometric altitude, Advanced separation and Route charging Solutions SESAR Project Video	The SESAR JU Green-GEAR project explores how geometric altimetry, advanced separation minima and climate-sensitive route charging can help reduce aviation's environmental footprint. The project's results show that using geometric altitude in busy terminal areas could improve fuel efficiency by enabling smoother descent paths and reducing transition-layer uncertainties. However, its use in cruise flight remains challenging. Safety assessments suggest that tighter vertical separation in cruise could work with enhanced systems, boosting capacity and fuel efficiency, though wake turbulence risks must be carefully managed. The project also tests “Green Route Charging”, where simulations indicate that a “modulation” of route pricing can reduce CO2, and additional rerouting around climate-sensitive zones can significantly lower non-CO2 environmental impact without unfairly increasing costs.
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7.ECHOES- Extended Communications in vHf Over Enhanced Satellite segment SESAR Project Video	ECHOES showcases how Europe is pioneering satellite-based VHF communications to extend ATM beyond the reach of ground infrastructure. Visitors will discover the work behind the two first SESAR satellite ever launched, explore images from their launch and in orbit, and watch real videos showing how this technology connects seamlessly with commercial aircraft and air traffic controllers. The exhibition will highlight the first-ever successful satellite VHF voice and data transmissions and the benefits they bring: safer, more efficient routes, reduced fuel consumption, and lower emissions. Through its successful demonstrations — including the world's first satellite-based VHF voice and data for ATM — ECHOES has proven that space-based communications can extend coverage over oceanic and remote areas. The results show clear potential for safer, more efficient routes with reduced separations, lower fuel burn, and fewer emissions. The ECHOES project is co-financed by the European Union through CINEA (European Climate, Infrastructure and Environment Executive Agency) as part of the Connecting Europe Facility (CEF) program.
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CAPACITY ON DEMAND AND DYNAMIC AIRSPACE

8.ISLAND- Intelligent suite for local and network demand and capacity balance SESAR Project Video	This poster presents BUFFIT, a decision-support tool developed by INECO and ENAIRE within Solution 1 of the ISLAND project. BUFFIT assists Local Traffic Managers (LTMs) in pre-tactical planning under the ATFCM framework by enriching CHMI data with a complexity indicator focused on challenging traffic flows. This helps LTMs better anticipate the workload perceived by executive controllers, ensuring safe traffic handling. The tool uses real-time B2B data and applies robust statistical analysis considering flight origin, destination, message age, and CDM airport classification, among other factors. BUFFIT leverages data volume, increases automation, enables dynamic airspace, and redefines the role of human operators in a more supportive and data-driven environment. It provides LTMs with enhanced situational awareness, enabling more informed and efficient decisions - particularly regarding dynamic airspace management, such as collapsing or uncollapsing sectors at optimal times.
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9.KAIROS- Unlocking the potential of AI-based Weather forecasts for Operational Benefits SESAR Project Video	Convection (thunderstorms) is one of the main weather hazards affecting aviation, reducing capacity and disrupting operations. The SESAR JU KAIROS research addresses this challenge by developing advanced AI-based nowcasting capabilities for convection. By fusing numerical weather prediction with real-time observations into machine-readable, KAIROS enables direct integration with demand–capacity balancing, trajectory planning, and network management tools to help maintain continuity of service during disruptive weather events. Note: A demonstration of the KAIROS project will be available on 4 December 2025 in the demonstration corner of the SIDs exhibition. Live visualisations and a demonstrator of the KAIROS convection models will showcase improved forecast skill and operational usability for ATM stakeholders.
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CIVIL-MILITARY INTEROPERABILITY AND COORDINATION

10.ATM-EXCITE- Advancing Civil-Military Interoperability and Coordination through Excellence in Science and Technology

[SESAR Project Video](#)

The SESAR JU ATM-EXCITE addresses the challenges of cybersecurity and secure data sharing in ATM. The project develops five research solutions focused on verification of ADS-B data, selective encryption, digital trust attestation, zero-trust architectures, and simulation-based coordination models. By engaging civil and military stakeholders, ATM-EXCITE ensures solutions meet operational, regulatory, and security requirements. These outcomes directly support the European ATM Master Plan, strengthening civil-military interoperability, safeguarding sensitive mission data, and enabling secure, digitalised airspace management and mission trajectory optimisation across Europe. Through simulation-based coordination and integration of stakeholders' needs, ATM-EXCITE enhances mission trajectory management and supports dynamic, flexible airspace use.

11.HARMONIC- Solution 0381 – Target Time Management System

[SESAR Project Video](#)

Air traffic is rapidly increasing, causing network-wide delays due to airport capacity bottlenecks. Congestion is expected to persist, requiring innovative strategies to optimise capacity and reduce delay costs for airspace users, airports, and passengers by improving the allocation of target times of arrival. In order to allow for more flexible assignments of arrival times in case of reduced airport arrival capacity (arrival regulation present), the SESAR JU HARMONIC project develops a Target Time Management System (TTMS). This collaborative optimisation platform enables flight prioritisation based on preferences submitted by airspace users and airports, while ensuring equity over time between airspace users and protecting the privacy of the airspace users' sensitive data.

12.MITRANO- Mission Trajectory in ATC and Network Management Operations

[SESAR Project Video](#)

The SESAR JU MITRANO project introduces the “Mission Trajectory” concept, a new type of military flight plan (IoAT) that enriches conventional data with mission-specific information on where and when operations will take place. Embedding a secure token, civil and military controllers can access mission details, enabling unprecedented levels of coordination and cross-border mission management. This poster aims to present the evolution of the ATM platform LeadInSky to integrate IoAT flight plans through SWIM architecture. The activity includes the introduction of dynamic moving areas (DMA types 1 and 2), enhancing Flight Data Processing and Working Position subsystems, and the development of interfaces for collaborative decision-making among Wing Operations Centers, ATC, and LARA. As leader of the project's Validation Exercise with ROMATSA, Airbus, and Eurocontrol, Leonardo will showcase how Mission Trajectory integration can improve flexible use of airspace.

CONNECTED AND AUTOMATED ATM

13.ASTONISH- Alternate Surveillance Technologies fOr iNnovatIve Solutions

[SESAR Project Video](#)

Surveillance is a critical service for ensuring safety and improving airspace and airport capacity. The SESAR JU ASTONISH project aims to develop new surveillance solutions using innovative technologies, addressing the challenges specific to airborne and ground traffic management. Three critical solutions will be investigated: ground-based systems for enroute and terminal areas surveillance, aircraft-based alternate surveillance (A-SUR) technology, and airport and aircraft-based surveillance sensing systems for ground operations. The goal is to create novel alternate surveillance applications for ATM and airport operations, boosting future CNS resilience and safety while enabling higher levels of automation and connectivity. In doing so, ASTONISH seeks solutions that will significantly contribute to implementing a Minimum Operational Network (MON) and optimising the necessary surveillance infrastructure.

14.SATERA - Space-based composite Ads-b and multilaTeration systEm validation thRough scalable simulAtions

[SESAR Project Video](#)

ADS-B is a surveillance technique that relies on aircraft broadcasting their identity. Space-based ADS-B systems allow aircraft to broadcast their identity and position in oceanic and remote areas where it would be difficult or impossible to install ADS-B ground stations. As a result, space-based ADS-B allows for reduced separation and increased airspace operational efficiency via more direct routing and increased availability of optimal altitudes. But spaced-based ADS-B broadcasts can get distorted and lose their integrity. The SESAR JU SATERA project is developing an integrity estimator for space-based ADS-B systems based on crosschecking positions reported in ADS-B messages with position estimations provided by space-based multilateration (MLAT) systems. The aim is to deliver a prediction tool to compute the theoretical performance of a MLAT system whose receiving stations are onboard of a constellation of low-orbit satellites.

15.ESMA - The European Sky Multilink ATN – Digital Sky Demonstrator

[SESAR Project Video](#)

This poster will showcase efforts of the SESAR JU ESMA project to increase automation in ATM through a multi-link communications infrastructure, combining satellite (SATCOM Datalink) and VHF Data Link (VDL) Mode 2 technologies. The exhibition will present the first project results from both demonstrations: the ATN/OSI Dual Link between IRIS and VDLm2, and the ATN/IPS Multilink. Together, they highlight the Dual Link solution's role in supporting TBO, reducing VDLm2 congestion, and enabling airlines and pioneer ANSPs to embrace next-generation services.

The ESMA project is co-financed by the European Union through CINEA (European Climate, Infrastructure and Environment Executive Agency) as part of the Connecting Europe Facility (CEF) program.

16.The Benefits of a Quantum Approach to Air Traffic Management Project Video	European air traffic delays cost hundreds of millions annually, straining passengers, airlines, and the network. This project demonstrates a pioneering application of hybrid quantum-classical optimisation to Air Traffic Flow Management (ATFM). Using real traffic data from the London FIR, Simulated Annealing and Hybrid Quantum Annealing solvers were tested under baseline, degraded, and closure scenarios. Both reduced delay and sector overload, but the hybrid solver ran 60% faster and scaled more effectively. This is the first empirical study to show how quantum-enhanced methods can deliver near real-time solutions for Europe's most pressing ATFM challenges, signalling a step-change in computational approaches for aviation innovation. By providing scalability and runtime advantages over classical methods, this project offers a pathway to real-time, network-wide decision support, essential for a harmonised, interoperable system.
17.HYPERSTREAM	The HYPERSTREAM project, supported by Engage2 Thematic Challenge 3, will be presented through a poster highlighting its final outcomes. The project combines the Airstream bundling concept (FC2A) with the Hypersolver framework, introducing adaptive corridor generation, mathematical modelling, and proactive traffic management. The exhibition will show how HYPERSTREAM advanced the FC2A by developing structured multi-lane drone corridors and testing them in simulation and experimental settings. Key results include the definition of airstream entry/exit and overtaking rules, the application of an adaptive corridor generation algorithm, and the design of a circular test corridor demonstrated in Toulouse. The poster will also display performance indicators such as traffic complexity, efficiency, and safety improvements. By sharing these findings, HYPERSTREAM illustrates a concrete step towards disruptive ATM modernisation and demonstrates the potential of structured drone traffic flows to support the future Digital European Sky.
18.ASTAIR- Auto-Steer Taxi at Airport SESAR Project Video	The SESAR JU ASTAIR project will present a scientific poster showcasing its AI-driven solution for improving airport taxi operations. The concept introduces conflict-free routing and speed clearances up to 20 minutes in advance, while ensuring seamless integration with airport collaborative decision-making (A-CDM) and advanced surface movement guidance and control systems (A-SMGCS). Validated through workshops, Real Time and Fast Time Simulations, the solution demonstrated potential to enhance predictability, safety, punctuality, and sustainability, while reducing Air Traffic Controllers' workload. Eight use cases, covering both nominal and non-nominal scenarios, were explored, confirming the feasibility of the concept and building trust in human-AI teaming. The solution supports collaborative decision-making, eco-efficient trajectories, and engine-off taxiing, thus contributing to sustainability goals.
19.ANTENNAE- dAta driveN cosT Effective 5G iNtegrated cNs As A sErvice SESAR Project Video	A new generation of small, highly automated aircraft operating at low altitudes is emerging, alongside helicopters and general aviation. The coordination and deconfliction of these aircraft in primarily urban environments require a new CNS infrastructure. The SESAR JU ANTENNAE project aims to develop an integrated CNS-as-a-service model to support both low-altitude piloted and U-space operations. It will leverage technologies such as 5G new radio, modern IP-based software-defined networking, and distributed computing capabilities to propose a flexible and resilient solution. This poster will showcase the project's ambition to shape the future of low-altitude aviation by enabling a safe, connected, and efficient airspace.
20.FCDI- Future Connectivity and Digital Infrastructure SESAR Project Video	The SESAR JU FCDI project has the main objective to specify and develop the future communication technologies to support and manage operational services, for a smarter and a more sustainable aviation. Now entering its third year, the poster aims to showcase key results achieved in the first two years of FCDI project. FCDI enhances the communication infrastructure by improving cost-efficiency, spectrum usage, and cybersecurity maturity, while enabling a hyper-connected ATM environment. The Collaborative Cyber Security Framework for CNS reinforces trust and safety. The Hyper Connected ATM precursor supports the secure use of public communication networks. FCI services and IPS enhancements boost FCI Mobility and Multilink, fostering safer and more interoperable operations. Terrestrial FCI data links and LDACS offer secure, high-throughput connectivity and integrated voice/navigation services - laying the foundation for the next generation of aviation communications.
21.ARCTIC	ARCTIC presents two open-access datasets designed to foster research and innovation in Air Traffic Management. The first (https://zenodo.org/records/15017762) provides daily aircraft interactions over Europe for 854 days (2015–2021), extracted from planned and executed trajectories in the Eurocontrol R&D Data Archive, complemented with contextual information on the state of each European FIR. The second (https://zenodo.org/records/15046397) offers large-scale synthetic yet realistic time series of airport delays for Europe and the US, generated using deep learning and genetic algorithms. Together, these datasets address data scarcity and privacy issues while enabling large-scale studies on air traffic dynamics, delay propagation, and the development of new analytical tools.
22.NETWORK TBO- Network Trajectory Based Operations SESAR Project Video	TBO is a cornerstone of the SESAR vision paving the way for more predictable ATM. TBO is about sharing a common plan for a flight's trajectory; matching that trajectory to the performance needs of the circumstances; and delivering the trajectory via ATC clearances. The SESAR JU Network-TBO project aims to deliver several solutions to enable trajectory-based operations during the planning and execution phases, taking a network view. Specifically, solutions will address flight and flow in a collaborative environment, making use of downlinked data from the aircraft (EPP) and improving both ATC and network processes through synchronisation of network and local trajectories.
MULTIMODALITY AND PASSENGER EXPERIENCE	

23.Travel Wise-

Transformation of Aviation and
Railway solutions towards
Integration and Synergies

[SESAR Project Video](#)

The Travel Wise flagship synergy project between SESAR and Europe's Rail Joint Undertakings with 37 partners, focuses on enhancing the integration of air and rail transport systems.

The poster will outline key findings from the Travel Wise project concerning user needs for integrated aviation-rail-waterborne transport solutions. Combining desk research with targeted user workshops, our study elicited requirements from operational stakeholders (service providers and enablers) across three distinct European scenarios: a city-pair (Amsterdam-Paris), an international hub (Athens), and a regional airport (Bologna). The analysis highlights critical needs for improved operational efficiency, centring on collaborative decision-making, enhanced data sharing protocols, and effective real-time disruption management. These findings provide a foundational framework for the development of the Travel Wise solution, which aims to foster a resilient, efficient, and sustainable multimodal transport ecosystem.

24.PRIAM-

Planning Regional-Scale
Multimodal Operations for
Innovative Air Mobility Services

[SESAR Project Video](#)

The European transport policy aims to connect 90% of travellers within 4 hours by combining high-speed rail and air transport, but this strategy faces challenges outside urban areas. IAM is emerging as a potential solution to enhance connectivity, resilience and environmental performance of regional transport, but uncertainties remain about passenger acceptance, demand effects and reliability.

The SESAR JU PRIAM project addresses this by developing data analytics tools for an evidence-based implementation of regional-scale IAM across Europe. PRIAM aims to understand passenger needs for regional travel, anticipate IAM adoption and use patterns, and plan resilient IAM infrastructure networks that are seamlessly connected with other transport.

Within its first year, PRIAM has collected experts' insights via interviews and workshops to define IAM needs, requirements and build an impact assessment framework. A stated preference survey has also been developed to identify key factors influencing IAM adoption.

25.Airport research from
Queen Mary University
London

This poster presents three research papers from Queen Mary University of London:

1. Towards Intelligent Decision Support and Risk Assessment Transport Systems
2. Routing & Scheduling Movements of Aircraft considering Interdependence and Intermediate Holding
3. Airport Ground Movement Transformer: A Generative Model for Real-Time, Context-Aware Aircraft Routing.

These three projects advance intelligent, digital solutions for airport ground operations by optimising routing, scheduling, risk assessment, and conflict resolution within automated, data-driven frameworks. Using AI and smart algorithms, they enable real-time, context-aware taxi routing and dynamic risk assessment, enhancing efficiency, safety, and resilience. Through smart optimisation and digital coordination, they help reduce delays, fuel burn, and emissions - supporting greener, more efficient ATM.

TRANSVERSAL

26.Engage 2-

The SESAR 3 Knowledge Transfer
Network

[SESAR Project Video](#)

Engage 2, SESAR Knowledge Transfer Network, aims to strengthen links between academic research and European ATM innovation. Building on the success of the original Engage project, Engage 2 supports long-term ATM evolution by promoting applied research, fostering a vibrant research community, and encouraging collaboration across disciplines. The project features a Wiki-based knowledge hub, thematic challenges, internships, workshops, and a pioneering ATM research summer and winter schools. By connecting academia, industry, and policy-makers, Engage 2 ensures that new ideas and talent are integrated into SESAR's innovation pipeline, promoting the development and uptake of digital, sustainable, and scalable ATM solutions. In doing so, it helps accelerate the transformation of European airspace into a more connected, automated, and environmentally efficient system.

U-SPACE AND URBAN AIR MOBILITY

27.OperA-

Operate Anywhere

[SESAR Project Video](#)

The OperA project will enable safe and efficient operations in all types of airspace (controlled, uncontrolled and U-space) and conditions by validating 3 different complex IAM - piloted air taxi and unmanned cargo - operations in real-life ATM conditions including contingency and non-nominal situations. It will stimulate the uptake of new sustainable Innovative Air Mobility services by addressing Air/Ground integration and the critical transition steps from piloted towards automated flights for 5 key autonomy-enabling technologies at TRL7 (Technology readiness levels). In addition, it will ensure environmental sustainability compared to the next best transport alternative, and enhance it, by optimising flight routing for minimum noise footprint and aircraft energy utilisation.

Ultimately, it will seek to accelerate the deployment of Innovative Air Mobility (IAM) by addressing necessary standardisation, regulation and roadmaps, in synchronisation with the ongoing certification of the three participating European IAM vehicles and ensure social acceptance by targeted communication and dissemination activities.

28.CResCO-

Cyber Resilience for Complex AAM
Operations

The exhibition is framed within the CResCO Project, supervised by Professor Riccardo Patriarca at Sapienza University. While CResCO aims to develop frameworks and digital twins to model and enhance resilience in Advanced Air Mobility (AAM), the exhibition focuses on the results of the paper "How cyber-resilient is AAM? A systematic meta-review" which represents one of the first research steps of the CResCO project.

The analysis yielded several key findings: (i) A fragmented research landscape, (ii) an unbalanced attention across resilience functions, (iii) mitigation strategies concentrated on technical solutions and (iv) the implications for AAM cyber-resilience. The exhibition will present these results through a visual mapping of threats, resilience functions, and mitigation strategies, providing participants with a structured picture of the current state of the art, highlighting both strengths and blind spots.

	By systematically mapping cyber threats in AAM and highlighting gaps in response and recovery strategies, the project lays the foundation for a safer and more resilient integration of drones, eVTOLs, and vertiports into European airspace.
29a.EALU-AER Enhanced Automation for U-Space/ATM integration SESAR Project Video	The SESAR JU EALU-AER project presents three innovative solutions for safe and reliable BVLOS operations that advance U-Space operations and the integration of drones into controlled airspace. • Solution 1 automates essential U-space services (U1 and U2), providing a foundation for future U3 and U4 services and enabling secure operations within controlled Class-C airspace. This system integrates services from a U-space USSP and a CISP. • Solution 2 is the SKYLER© AESA Radar, a surveillance tool that tracks non-cooperative aircraft. It acts as a crucial gap-filler, enhancing situational awareness for all stakeholders and improving the safety of BVLOS operations from a vertiport. • Solution 3 provides robust CNPC radio infrastructure. This equipment ensures a continuous, real-time command-and-control link, essential for documenting compliance, building trust, and ensuring system suitability for safe BVLOS flights. The EALU-AER project is co-financed by the European Union through CINEA (European Climate, Infrastructure and Environment Executive Agency) as part of the Connecting Europe Facility (CEF) program.
29b.Di-PEGASUS Project Video	This poster will showcase the Concept of Operations for the Italian Use Case of Di-PEGASUS, dealing with the delivery of medical supplies with swarms of drones to a network of pharmacies and healthcare facilities in the Apennine mountains of the Emilia-Romagna region. The use case aims to provide essential medical material to towns and villages in a remote mountainous area, not easily accessible by road and increasingly challenged by extreme weather events that make access to life-saving supplies even more precarious. It demonstrates how the different Di-PEGASUS technologies can work in concert to offer an alternative to traditional supply chains and put forward a solution that spans infrastructure, business, regulation, policy making, and advanced technologies.
30.U-AGREE- U-space Air and Ground Risk modEls Enhancement SESAR Project Video	The SESAR JU U-AGREE project aims to develop an integrated risk model linking the operations of unmanned aircraft (UAS) with some negative effects they may have with regard safety, security, privacy and environment poster will be structured in two main sections. • The first section will present the UAS scenarios analysed within the project, highlighting the main categories of risks: mid-air risk, ground risk, environmental risk, security and privacy risk. The aim is to raise awareness of these risks in the UAS operation and to show how the project addresses them through its methodology and interventions. • The second section will provide a more technical perspective, using visual elements to illustrate the stepwise approach of U-AGREE. This includes: characterising the scenario, defining operational modes, proposing targets for barrier effectiveness, computing mitigated F(MAC) with the simulator, applying air and ground risk models, and verifying whether the design goals are achieved. Together, these two parts will offer both a clear overview of the risks involved in UAS operations and a practical insight into the methodological framework developed by U-AGREE.
31.CORUS five Development of the extended U-space Concept of Operations CORUS V5.0	This poster presents the current state of the European U-space Concept of Operations (ConOps) being developed by the SESAR JU project CORUS five. The project addresses open research questions raised in these workshops and collaborates with related “sibling projects” whose experimental results inform the decisions made within CORUS five. Additionally, CORUS five will provide an updated perspective for the future U-space development. The poster also presents the results of a fairness survey conducted among U-space stakeholders. Ensuring fair access to airspace resources is crucial for the acceptability and efficiency of U-space operations. However, stakeholders have varying business models and differing perspectives on what constitutes fairness. The survey identifies these expectations and concerns.
32.ENSURE- ATM-Uspace Interface and Airspace Reconfiguration Service SESAR Project Video	The rapid growth of Unmanned Aerial Systems demands a new paradigm for a safe and efficient integration of new entrants into controlled airspace. The SESAR JU ENSURE project addresses this challenge through Dynamic Airspace Reconfiguration, enabling real-time adaptability of airspace and seamless interoperability between ATM and U-Space. This abstract focuses on the contribution of Leonardo, as main player of the Italian Cluster enhancing the ATC system to process drones' trajectories and integrating them into the overall traffic picture. The new ATC system can interface with the DAR manager, allowing controllers to maintain situational awareness and decision-making authority while delegating certain functions to automated DAR tools. In parallel, Leonardo contributes to the evolution of D-Flight common information service provider and U-space service system, embedding DAR functions to provide real-time data sharing, decision support, and interoperability across European U-Space ecosystems.
33.Virtual Demonstrator	Urban Air Mobility presents several challenges. The most pressing challenges are the sharing of airspaces between services and airspace users – and rapid airspace reconfiguration, in response to changing needs and priorities. This is required to avoid inefficiencies, congestion, and respond to both planned and unexpected demands for airspace. This requires a combination of autonomous operation and human oversight. The exhibit describes a virtual demonstrator of advanced airspaces, with human ai teaming for oversight. It is based on the UTM CITY platform, which has a simulator and a graphical interface and visualiser for preparing and executing real-time simulations. The exhibit also exemplifies connectivity to external systems (e.g. other simulators or drone operators). The exhibit displays missions, and the mission airspace – with possibilities to alter these in real-time. The exhibit exemplifies both challenges in human-ai teaming, and pathways toward solving these challenges.

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34.Exploring and Analysing Vertiport Management Strategies via Simulations

This poster investigates and compares alternative vertiport management approaches. Building on a shared-airspace corridor, it will analyse how different scheduling strategies influence overall system behaviour. Capacity is measured by the achievable traffic flow; how many vehicles can be injected from vertiports without compromising operations, while flexibility considers how rigid or adaptive the management is, including the ability to provide dynamic entry time windows. Efficiency is assessed in terms of throughput and delay, highlighting potential bottlenecks. Safety serves as the overarching spectrum, evaluated through the in-flight separations generated by each approach. By contrasting blocking, slot allocation, and adaptive scheduling, the exhibition demonstrates the trade-offs between conservative safety measures and scalable operations, in order to offer insights for future resilient vertiport services in future U-space.

VIRTUALISATION AND CYBER-SECURE DATA-SHARING

35.Network and Flow Management Research from the University of Austin, Texas

SESAR Project Video

This poster will present two projects from the University of Austin, Texas:

- Project 1 – Decentralised coordination for sector overload mitigation
- Project 2 – Negotiation framework for cross-border FIR coordination

Together, these two projects advance the vision of the Digital European Sky by pioneering decentralised and intelligent coordination mechanisms for ATM. By treating airspace sectors and Flight Information Regions (FIRs) as autonomous, data-driven agents, they demonstrate how local decision-making can enhance system-wide efficiency, fairness, and resilience. Through game-theoretic optimisation and a trading-based negotiation framework (TACo), the projects enable dynamic, transparent coordination that reduces congestion, prevents sector overload, and improves cross-border traffic flow — all without compromising data privacy or scalability. These innovations mark important steps towards a more digital, connected, and cooperative European airspace, aligning with the Digital European Sky’s goals of a safer, greener, and more efficient ATM network.

36.Analysis of TRLs of the UAS Ecosystem Aligned with the EU Drone Strategy 2.0

Project Video

With over two million civilian drones in operation across the EASA region, the development of a robust UAV ecosystem is crucial for future applications. AIRlabs Austria, supported by the Austrian Federal Ministry for Climate Action, is systematically assessing the maturity of various disciplines required for successful civil UAV operations using Technology Readiness Levels (TRL). Data is gathered from 25 consortium partners from industry, research, and end users, as well as key strategic documents such as the EU Drone Strategy 2.0 and national aviation strategies. Technical focus areas include sustainable propulsion systems, autonomous flight control, advanced navigation in GPS-denied areas, communication technologies, AI-based decision-making, and safety systems. Results are visualised in radar charts to identify strengths, weaknesses, and priorities, concluding with a Pareto analysis that highlights three key recommendations for research and development.

37.VITACY
Vrtual center with Triangle Architecture and Cyber-resilience

SESAR Project Video

Europe’s ATM system remains largely fragmented, with country-based systems leading to high costs, limited interoperability, and inefficient resource use. The SESAR VITACY project addresses this by advancing the virtual centre concept, which separates ATM data services (such as flight, radar, and weather data) from physical controller positions.

VITACY introduces a “triangle architecture”, distributing functions like arrival management, time-based separation, and conflict detection across specialised ATM data service providers (ADSPs), supported by new cyber-resilience tools to detect and respond to attacks in real time.

This poster will present key validation results, including:

- Successful trials in Madrid, where Indra demonstrated remote delivery of Arrival Management and Time-Based Separation services within a virtual centre framework.
- Upcoming validation on cyber-resilience, showcasing real-time attack detection and secure virtual ATM operations.
- Together, these advances demonstrate how VITACY is shaping a more flexible, resilient, and secure future for European ATM.

38.SEC-AIRSPACE Cyber Security Risk Assessment in virtualized AIRSPACE scenarios and stakeholders’ awareness of building resilient ATM

SESAR Project Video

The digitalisation and modernisation of ATM will bring many advantages to aviation, but these will come with challenges in managing cyber vulnerabilities. The SESAR JU SEC-AIRSPACE project aims to introduce cyber security components into the state-of-the-art security risk assessment methodologies currently already in use in ATM. The project will also investigate the potential of applying the concept of people analytics to increase cyber security awareness in ATM organisations.

This research holds both immediate and long-term significance. In the short term, the insights gained will enhance existing training programs, making them more interactive, engaging, and effective in improving cybersecurity awareness among ATCOs.

39.Quantum research from the Universidad de La Laguna

Advances in quantum computing threaten traditional cryptography and the security of ATM communications. This research explores quantum-secure solutions to ensure long-term protection of critical systems. It investigates Quantum Key Distribution (QKD) for confidential communication and Quantum Zero-Knowledge Proofs (QZKPs) for secure authentication over quantum channels. By analysing protocol robustness and defining transition strategies toward quantum-safe infrastructures aligned with EuroQCI, the project supports the development of a resilient, future-proof cybersecurity framework for the Digital European Sky.

40.Development and validation in an operational environment of an augmented reality interface for the provision of aerodrome traffic control

[Project Video](#)

Global air traffic growth is affecting controllers' workload and safety demands at airports, creating a need for innovative management solutions. Augmented Reality (AR) can provide essential surveillance information without diverting controllers' attention from live traffic. SESAR-funded [RETINA](#) and [DTT](#) projects validated AR interfaces for aerodrome traffic control by real-time HITL simulations of airport scenarios, showing reduced workload, improved situational awareness, and reaching TRL 4. Building on this, a real-world prototype was realised exploiting ADS-B data. Preliminary tests at the Bologna Airport control tower allowed observation of live traffic and the collection of informal feedback from controllers. Current work keeps developing the technology, refining data integration, tracking and decluttering strategies. The ultimate goal is a validated AR platform that supports controllers in real-world tower operations, enhancing safety, efficiency, and situational awareness.