Strategic Deployment Objectives (SDOs)

July 2024

EUROPEAN PARTNERSHIP

Co-funded by the European Union

FINAL STRATEGIC DEPLOYMENT OBJECTIVES

SDO 1

ALERTS FOR REDUCTION OF COLLISION RISKS ON TAXIWAYS & RUNWAYS

SDO 2

OPTIMISING AIRPORT AND TMA ENVIRONMENTAL FOOTPRINT

SDO 3

DYNAMIC AIRSPACE CONFIGURATION

SDO 4

INCREASED AUTOMATION SUPPORT

SDO 5

TRANSFORMATION TO TRAJECTORY-BASED OPERATIONS (TBO)

SDO 6

VIRTUALISATION OF OPERATIONS

SDO 7

TRANSITION TOWARDS HIGH PERFORMANCE OF AIR-GROUND CONNECTIVITY (MULTILINK)

SDO 8

SERVICE-ORIENTED DELIVERY MODEL (DATA-DRIVEN AND CLOUD-BASED)

SDO 9

CNS OPTIMISATION, MODERNISATION AND RESILIENCE

SDO 10

ENABLE INNOVATIVE AIR MOBILITY (IAM) & DRONE OPERATIONS

SDO 1 – Alerts for reduction of collision risks on taxiways and runways

Action #	Deployment Actions*	SESAR Solution(s)/ Elements	NM CONOPS 2029	Within current regulatory framework (preliminary)	Start of Investment in RP4 timeframe	STAKEHOLDERS									OPERATING ENVIRONMENT			
						ANSP	AU	AO	NM	MIL	UUSP	CISP	VERTIPORT Operator	Drone/UAS Operator	AIRPORT	TMA	EN-ROUTE	NETWORK
1.1	**Adapt airport ground safety nets** to extend conflicting ATC clearances (CATC) to the entire Aerodrome Movement Area, to enlarge the set of Conformance monitoring (CMAC) alerting functions and to provide integrated occupancy/ conflict status of a runway.	PJ.02-W2-21.1		H		●									●			

KEY

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ATP
Airport and TMA performance

iN
ATM interconnected network

sesar JOINT UNDERTAKING

SDO 2 – Optimising airport and TMA environmental footprint

Action #	Deployment Actions*	SESAR Solution(s)/ Elements	NM CONOPS 2029	Within current regulatory framework (preliminary)	Start of Investment in RP4 timeframe	STAKEHOLDERS: ANSP	AU	AO	NM	MIL	UUSP	CISP	VERTIPORT Operator	Drone/UAS Operator	OPERATING ENVIRONMENT: AIRPORT	TMA	EN-ROUTE	NETWORK
2.1	Implement **collaborative management of regional airports and their integration with Network Manager (NM)** by sharing departure planning information (also shared between NM and airspace users).	PJ.04-W2-28.1 PJ.04-W2-28.2 PJ.09-03-02	■ ■ ■	S	✓	●	●	●	●	● AU					●	●	●	●
2.2	Implement solutions **for better integrate large / very large airports and the network** via enhanced AOPs- NOP tactical, pre-tactical and strategic planning and AOP to AOP collaborative planning process.	FastNET SOL#1 FastNET SOL#2	■ ■	TBC		●	●	●	●						●			●
2.3	Implement **environmental performance management at airports** and solutions to reduce the airport impact on emissions (single engine taxiing, engine-off taxiing though use of sustainable taxiing vehicles).	PJ.04-W2-29.3	■	TBC		●	●	●							●			
2.4	Implement capabilities to better **manage arrival constraints between different E-AMAN units** in cross- border environments and to better integrate the out-of-area inbound flights.	PJ.25-01 PJ.25-02	■ ■	✓	✓	●	●								●	●	●	●

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SDO 2 – Optimising airport and TMA environmental footprint

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2.5	Implement **optimised descent operations using merge to point and advanced approach procedures** (i.e., second runway-aiming point (SRAP), increased second glide slope (ISGS), increased glide slope to a second runway aiming point (IGS-to-SRAP)), which aim at reducing the aviation environmental impact (e.g., noise, fuel consumption, CO2 emissions, etc.) on the neighbouring airport communities.	PJ.02-W2-14.2 PJ.02-W2-14.3 PJ.02-W2-14.5 #11		H		●	●	●		○ AU					●	●	●	
2.6	Implement **new capabilities to increase airport runway capacity both on arrivals and departures** based on Wake Turbulence Separations based on static aircraft characteristics, Required Surveillance Performance (RSP) and Runway Occupancy Time (ROT) characterisation of the leader aircraft.	PJ.02-01-01 PJ.02-01-02 PJ.02-01-04 PJ.02-01-06 PJ.02-03 PJ.02-08-03 PJ.02-W2-14.6a	■	H		●	●	●							●	●		

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dA
Fully dynamic and optimised airspace

SDO 3 – Dynamic airspace configuration

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3.1	Implement higher granularity and dynamicity in **airspace configurations**, adjusted to traffic demand and military needs for airspace reservations, enabling cross-border **coordination between all civil and military actors**.	PJ.09-W2-44	■	H		●	●		●	ANSP AU							●	●
3.2	Implement **mission trajectory and dynamic mobile areas (DMAs) of type 1 and type 2** using the improved Operational Air Traffic Flight Plan (iOAT FPL) into dynamic airspace configuration processes in medium to short-term ATM planning phase supporting military airspace requirements.	PJ.07-03 PJ.07-W2-40	■ ■	H		●	●		●	ANSP AU							●	●

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dA
Fully dynamic and optimised airspace

vS
Virtualisation of service provision

SDO 4 – Increased automation support

Action #	Deployment Actions*	SESAR Solution(s)/ Elements	NM CONOPS 2029	Within current regulatory framework (preliminary)	Start of Investment in RP4 timeframe	STAKEHOLDERS									OPERATING ENVIRONMENT			
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4.1	Implement **sector team configurations** which, in specific airspace configuration, include the **combination of one planning ATCO to two tactical/executive ATCOs in En- Route / eTMA environment**.	PJ.10-01a1	■	✓	✓	●											●	
4.2	Implement **automatic speech recognition (ASR), user profile management system (UPMS) and attention guidance (AG)** to provide higher automation environment to support ATCOs role.	PJ.10-W2-96 AG PJ.10-W2-96 UPMS PJ.10-W2-96 ASR		H		●										●	●	

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iN
ATM interconnected network

TBO
Trajectory-based operations

SDO 5 – Transformation to trajectory-based operations (TBO)

Action #	Deployment Actions*	SESAR Solution(s)/ Elements	NM CONOPS 2029	Within current regulatory framework (preliminary)	Start of Investment in RP4 timeframe	STAKEHOLDERS: ANSP	AU	AO	NM	MIL	UUSP	CISP	VERTIPORT Operator	Drone/UAS Operator	OPERATING ENVIRONMENT: AIRPORT	TMA	EN-ROUTE	NETWORK
5.1	Implement **enhanced conflict detection and resolution (CD&R) support tools by using aircraft derived data** (i.e., extended projected profile (EPP)) supported by the full implementation of ATS B2 and high-resolution wind models.	**PJ.18-W2-53B**	■	✓	✓	●	●									●	●	
5.2	Implement multi-element clearances using **controller pilot data link communications (CPDLC) with lateral and vertical data link clearances** and increased ground automation tools (e.g., CD&R tools) and trajectory prediction supporting the **earlier detection and resolution of potential conflicts**.	**ATC-TBO SOL#4** **ATC-TBO SOL#5**	■ ■	TBC		●	●			ANSP AU						●	●	
5.3	Implement a **dynamic RAD** to allow the dynamic management of restrictions based on traffic evolutions, a better integration of Letters of Agreement (LoAs) between ATC centres and NM and the provision of preliminary flight plans by Airspace Users, ahead of dynamic network constraints publications initiated the day before operations for optimising the environmental performance of the network.	**#201**	■	S	✓	●	●		◐							●	◐	◐
5.4	Implement **airspace user capabilities to provide, through the UDPP, their preferences and priorities** and influence arrival ATFM arrival regulations.	**PJ.07-W2-39** **PJ.07-02**	■ ■	✓	✓		●	●	◐						●			◐

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iN
ATM interconnected network

TBO
Trajectory-based operations

SDO 5 – Transformation to trajectory-based operations (TBO)

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5.5	Implement interaction tools supporting the full integration of the flight operations centre (FOC) into the ATM network process and the flight delay criticality concept, to **better integrate airspace user priorities in flow management decisions**.	**PJ.07-W2-38**	■	✓	✓	●	●		●							●	●	●
5.6	Exploit **new FF-ICE/R1 trajectory services** beyond the CP1 services, (which are just the filing, data request, notification, publication and trial services), to improve the completeness and accuracy of traffic load calculation and advanced network performance capabilities.	**ISLAND SOL#1** **NETWORK-TBO SOL#1**	■ ■	TBC		●	●	●	●	ANSP AU					●	●	●	●
5.7	Implementation of seamless ATC-ATC coordination and sharing with NM of the ATC-ATC exchanges, encompassing more complex coordination dialogues implying negotiation between controllers across ACC boundaries.**	**PJ.18-02b** **NETWORK-TBO SOL#3**	■	S	✓	●			●	ANSP						●	●	●

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** NOTE THE SESAR DEPLOYMENT MANAGER'S ACTION TO BUILD CONSENSUS ON ATC-ATC INTEROPERABILIRY IS ON-GOING.

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SDO 6

dA
Fully dynamic and optimised airspace

vS
Virtualisation of service provision

sesar JOINT UNDERTAKING

SDO 6 – Virtualisation of operations

Action #	Deployment Actions*	SESAR Solution(s)/ Elements	NM CONOPS 2029	Within current regulatory framework (preliminary)	Start of Investment in RP4 timeframe	STAKEHOLDERS									OPERATING ENVIRONMENT			
						ANSP	AU	AO	NM	MIL	UUSP	CISP	VERTIPORT Operator	Drone/UAS Operator	AIRPORT	TMA	EN-ROUTE	NETWORK
6.1	Implement **virtual centre to allow decoupling the ATM data service provider (ADSP) and air traffic service unit (ATSU) through service interfaces supporting new ways of dynamic ATS delegation** (e.g., contingency delegation, night delegation (scheduled), fixed time delegation (scheduled), or "on-demand").	**PJ.10-W2-93** **ISLAND SOL#2** **IFAV3 SOL#1**	■ ■	✓	✓	●				ANSP						●	●	
6.2	Implement multiple remote tower module (MRTM) **flexible and dynamic allocation of different MRTMs accommodated within a Remote Tower Centre (RTC)** that allows the ATCO to maintain situational awareness for 2 or more small airports. It **includes the deployment of low-cost surveillance service for supporting remote tower operations**.	**PJ.05-02** **PJ.05-W2-35** **PJ.14-W2-84b**		S	✓	●		●		ANSP AO					●			

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CNS
CNS infrastructure and services

SDO 7 – Transition towards high performance of air-ground connectivity (multilink)

Action #	Deployment Actions*	SESAR Solution(s)/ Elements	NM CONOPS 2029	Within current regulatory framework (preliminary)	Start of Investment in RP4 timeframe	STAKEHOLDERS									OPERATING ENVIRONMENT			
						ANSP	AU	AO	NM	MIL	UUSP	CISP	VERTIPORT Operator	Drone/UAS Operator	AIRPORT	TMA	EN-ROUTE	NETWORK
7.1	Implement **future air-ground communications network infrastructure, which supports multilink capability** and complete mobility between different datalink.	PJ.14-W2-77		S	✓	●	●			ANSP AU					●	●	●	●
7.2	Implement **SatCom class B**, which makes feasible to provide data and voice communication services using existing satellite technology systems in oceanic, remote, polar, and gradually continental airspace.	#109	■	S	✓	●	●			ANSP						●	●	
7.3	Implement **VDL2 successor** (e.g., **Terrestrial datalink system** L-band-digital aeronautical communication system (LDACS), datalink for ATM and AOC operations over commercial communication systems (Hyper connected ATM), **Satellite communications** for both the continental and remote/oceanic regions.	PJ.14-W2-107 FCDI SOL#4 FCDI SOL#2	■ ■ ■	TBC		●	●	●		AU					●	●	●	●

SDO is linked to the activities of the CNS Programme Manager who will deliver a CNS Evolution Plan detailing how the SDO will be implemented

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iN
ATM interconnected network

dS
Digital AIM and MET services

vS
Virtualisation of service provision

sesar JOINT UNDERTAKING

SDO 8 – Service-oriented delivery model (Data-driven and cloud-based)

Action #	Deployment Actions*	SESAR Solution(s)/ Elements	NM CONOPS 2029	Within current regulatory framework (preliminary)	Start of Investment in RP4 timeframe	STAKEHOLDERS									OPERATING ENVIRONMENT			
						ANSP	AU	AO	NM	MIL	UUSP	CISP	VERTIPORT Operator	Drone/UAS Operator	AIRPORT	TMA	EN-ROUTE	NETWORK
8.1	Implement new service-oriented delivery model (data-driven and cloud-based) covering all phases of flight and enabling: • Open ATM patterns enabling integration of components provided by various system providers to facilitate multivendor solutions using open platforms and interfaces. • Decoupling of service and infrastructure layers through cloud computing (including the various system components). • A cloud-native architecture of components with standardised and open interfaces that can be deployed on commodity cloud technologies.	PJ.14-W2-101 PJ.18-04a PJ.16-03 PJ.10-W2-93A ISNAP SOL#2 VITACY SOL#1 VITACY SOL#2 VITACY SOL#3	■ ■ ■ ■ ■ ■ ■	H		●			●	ANSP					●	●	●	●

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SDO 9 – CNS optimisation, modernisation and resilience

Action #	Deployment Actions*	SESAR Solution(s)/ Elements	NM CONOPS 2029	Within current regulatory framework (preliminary)	Start of Investment in RP4 timeframe	STAKEHOLDERS									OPERATING ENVIRONMENT			
						ANSP	AU	AO	NM	MIL	UUSP	CISP	VERTIPORT Operator	Drone/UAS Operator	AIRPORT	TMA	EN-ROUTE	NETWORK
9.1	Implement **GBAS to support Cat II/III precision** approach, landing, and departure procedures in all-weather operations conditions.	#55 PJ.14-W2-79a	■	H		●	●	●							●	●		
9.2	Implement a secured surveillance functionality enabling detection and when possible, mitigation of security threats that could affect the surveillance chain.	PJ.14-W2-84c		H		●									●	●	●	
9.3	Implement minimum operational network (MON).	N/A		✓	✓	●			●	ANSP						●	●	●
9.4	Rationalise ILS and Implement efficiency measures / methods for a more cost-effective maintenance of ILS, providing link between ICAO Doc. 8071 and national CNS provision.	N/A			✓	●			●							●		●
9.5	Optimise surveillance leveraging terrestrial and space-based information.	N/A			✓	●			●							●	●	●

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CNS
CNS infrastructure and services

U-s
U-space services

M3
Multimodal mobility and integration of all airspace users

sesar JOINT UNDERTAKING

SDO 10 – Enable innovative air mobility (IAM) and drone operations

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10.1	Implementation of system support and procedures for the integration of **IFR RPAS and IAM in airspaces A to C are required to have Detect and Avoid (DAA) systems that perform at least as well as TCAS II** (Traffic alert and Collision Avoidance System) **and See and Avoid**.	**PJ.13-W2-115** **IRINA SOL#1**	■	(H)		●	●			ANSP AU				●		●	●	
10.2	Implementation of **foundational (U1) and initial (U2) U-space services** as defined by the Regulatory Framework for the U-Space (Commission IR 2021/664).	**U1 Services** **U2 Services**		✓	✓						●	●		●	VERY LOW-LEVEL AIRSPACE (VLL)			
10.3	Implementation of a **common ATM-U-space interface and Dynamic airspace reconfiguration service** to help ATC actors in charge of airspace reconfigurations to increase safety keeping crewed and uncrewed aircraft segregated within the designated U-space airspace.	**ENSURE SOL#1** **ENSURE SOL#2**		(TBC)		●	●	●		ANSP AU AO	●	●		●	●	●	●	
10.4	Implementation of **simultaneous non-interfering (SNI) operations** (e.g., parallel, or convergent Point-in-Space (PinS) procedures*)* **and capabilities** (i.e., GNSS and the RNP navigation specification) allows **IAM users** (e.g., rotorcraft, VTOL capable aircraft, etc.) to operate to and from airports and TMAs without conflicting other traffic or requiring runway slots.	**PJ.01-06** **PJ.02-05**		(H)		●	●	●					●	●	**	●		

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** AIRPORT OPERATING ENVIRONMENT INCLUDES WHEN APPLICABLE VERTIPORT

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