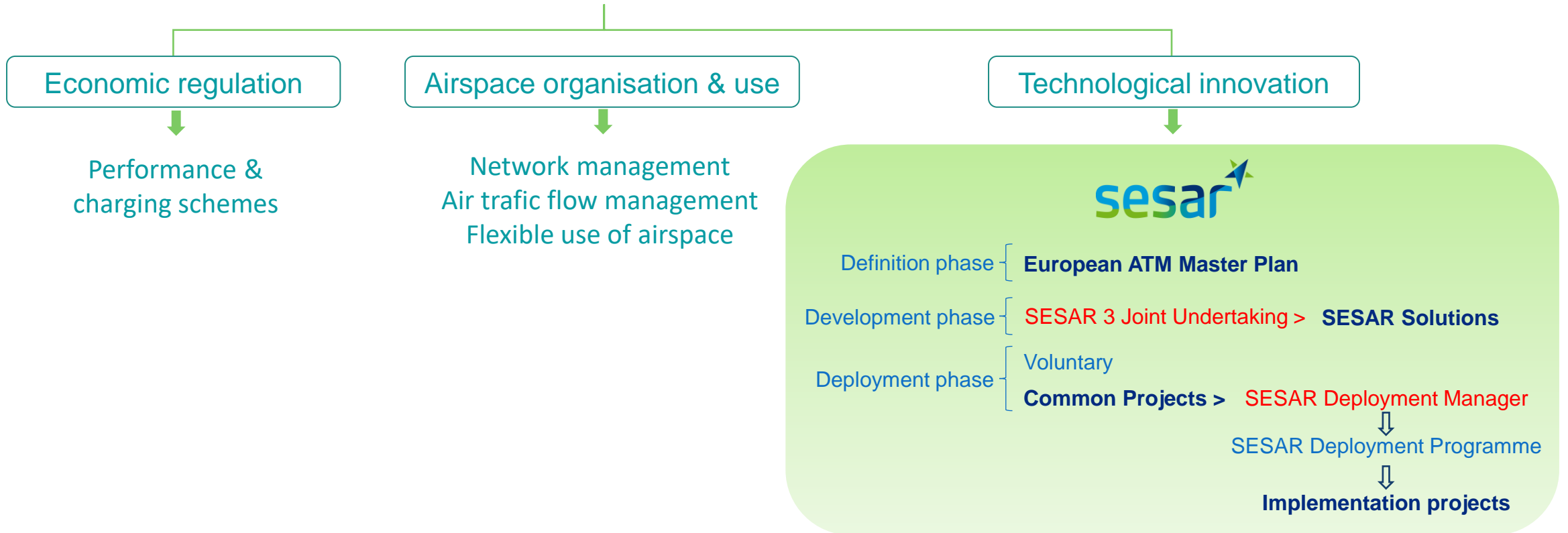


Air Traffic Management modernisation

SESAR and Communications, Navigation, Surveillance ground and airborne infrastructure, routes and procedures

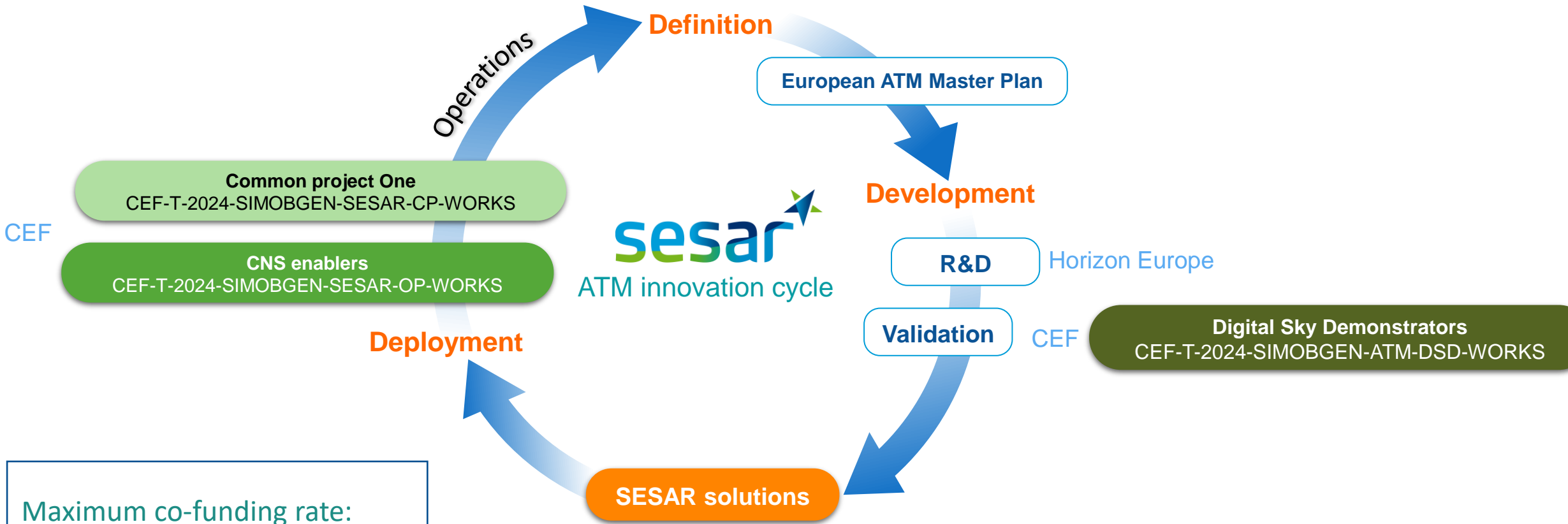
The single European sky





Single European Sky Air Traffic Management Research project

SUSTAINABLE & SMART
MOBILITY STRATEGY
CEF-T-2024-SIMOBGEN



Maximum co-funding rate:
General envelope: 50%

Digital Sky Demonstrators Call 2024

What is a Digital Sky Demonstrator?

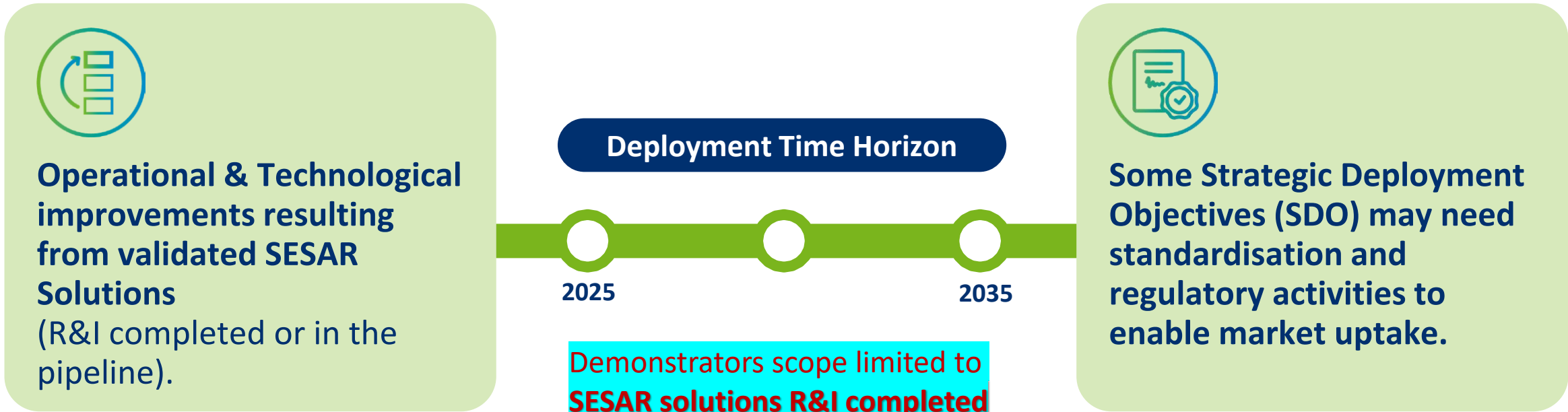
Digital Sky Demonstrators
CEF-T-2024-SIMOBGEN-ATM-DSD-WORKS

- Demonstrate the SESAR Solutions required to deliver the **Digital European Sky**:
 - Involving ground and airborne industry (when required)
 - Executed by operational ATM actors (e.g. air navigation service providers, airports, airlines, Network Manager, etc.)
 - Executed across European airspace
 - Closely connected to standardisation and regulatory activities
- Provide a platform for “early movers”
- Accelerate market uptake
- Target maturity level: TRL 8

Strategic Deployment Objectives (SDO)

Strategic Deployment Objectives (SDO) are prioritised actions to deploy ATM functionalities looking beyond CP1 (pre-requisite)

Digital Sky Demonstrators
CEF-T-2024-SIMOBGEN-ATM-DSD-WORKS



In line with essential operational changes from previous Master Plan, they are **critical for achieving the vision and performance ambitions.**

Strategic Deployment Objectives (SDOs)



SDO 1
ALERT 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

Digital Sky Demonstrators
CEF-T-2024-SIMOBGEN-ATM-DSD-WORKS



SESAR Demonstrators for accelerating market uptake of SESAR solutions

SUSTAINABLE & SMART
MOBILITY STRATEGY

Alerts for reduction of collision risks on taxiways & runways

A-SMGCS based Conflicting ATC clearances (CATC) and Conformance monitoring (CMAC) alerting functions extended to the complete aerodrome area

Optimising airport and TMA environmental footprint

- *Integration of regional airports with the Network Manager*
- *Better managing arrival constraints*
 - *Support to facilitate cross-border management of arrival constraints between ATS units*
 - *Apportionment of delay on the ground for inbound traffic originating from airports affected by the E-AMAN horizon*
 - *Provision of target times of arrivals to traffic departing outside the European Regulation Area*
- *Increasing runway throughput*
 - *Optimised runway delivery on final approach and for departures*
 - *Wake turbulence pairwise separations for arrivals and for departures*
 - *Minimum radar separations on final approach based on required surveillance performance*
 - *Reduced separation based on local runway occupancy time characterisation*



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Dynamic Airspace Configurations

- *Dynamic airspace configurations (DAC)*
- *Mission trajectory (MT) management:*
 - *Integration of dynamic mobile areas of type 1 and type 2 design principles for airspace reservation into both the MT development and DAC processes*
 - *Dynamic coordination between wing operation centre and local DAC actors*
 - *Mission trajectory as shared via improved OAT flight plan (iOAT FPL) in network planning processes.*
 - *Distribution of iOAT FPL to ATC*

Increased automation support

- *New sector team configurations: where a multi section planner is responsible for En-Route / eTMA airspace controlled by up to two executive controllers.*
- *New HMI interaction modes:*
 - *User-profile management systems*
 - *Automatic speech recognition application*
 - *Attention guidance capabilities*



SESAR Demonstrators for accelerating market uptake of SESAR solutions

SUSTAINABLE & SMART
MOBILITY STRATEGY

Transformation to trajectory-based operations (TBO)

- *Enhanced conflict detection and resolution support tools by using aircraft derived data*
- *Dynamic route availability*
- *Users driven prioritisation process*
- *Flight Operations Centre integration into the ATM network*

Virtualisation of operations

- *Delegation of ATS services*
- *Multiple remote tower, multiple remote tower module and supporting surveillance infrastructure*

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

- *Satellite communication (SatCom) class B*
- *Future communications network infrastructure, supporting ATN/IPS multilink capability and the complete mobility between different datalink, meeting civil-military interoperability requirements*



SESAR Demonstrators for accelerating market uptake of SESAR solutions

SUSTAINABLE & SMART
MOBILITY STRATEGY

Service-oriented delivery model (Data driven & Cloud based)

- *Demonstrate the feasibility and benefits of the new core ATC service delivery model (infrastructure and service layers) for operations in all phases of flight, which should enable:*
 - *Open ATM integration patterns enabling participation of third-party system providers.*
 - *Decoupling of service and infrastructure layers through cloud computing (including flight data processing (FDP), human machine interface (HMI) and the relation between FDP and HMI).*
 - *New service agreements governing the delivery of core services (common to all ANSPs in Europe) vs additional services (specific to one ANSP).*

CNS optimisation, modernisation and resilience

- *GBAS GAST-D Ground stations Cat III using signals from the European Satellite Systems (EGNOS and/or Galileo) for additional robustness and for Cat II Reversion Scenarios*
- *An appropriate number of GBAS Cat III landings.*

Enable Innovative Air Mobility (AIM) & Drone Operations

- *IFR RPAS accommodation in airspace classes A to C*
- *Simultaneous non-interfering (SNI) operations for IAM users*

Digital Sky Demonstrators Call 2024

Call specificities

Digital Sky Demonstrators
CEF-T-2024-SIMOBGEN-ATM-DSD-WORKS

- Applicants are free to select certain elements within the areas described before
- Execution framework for technical activities as in the SESAR project handbook (available via the link provided by CINEA)



SESAR 3 JU Website
(including SESAR solutions catalogue)

<https://www.sesarju.eu/>



Other ATM projects

Communication, Navigation & surveillance (CNS)

SUSTAINABLE & SMART MOBILITY STRATEGY

CNS enablers

Performance Based Navigation (PBN regulation)

Activities

- TMA airspace optimisation corresponding to 2030 deadline in PBN regulation: SIDS and STARS to improve capacity, safety, cost efficiency or environment. Benefits to be described in proposals.
- Equipment of aircraft with SBAS/EGNOS avionics
- Avionics able to make operational use of RNP1/RNAV 1 SIDs and STARs.

Reduction of 10% of funding if no decommissioning. Deployment of ground navigation infrastructure and costs for decommissioning are not eligible for funding

GNSS interferences

Activities

Mitigation measures against GNSS jamming and spoofing in line with the EASA Safety Information Bulletin

- contingency plans, update operational procedures and training
- Interference monitoring and detection of interference sources
- Avionics updates to improve resilience/robustness



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ADS-B

Activities

- Operational use of ADS-B data. Decommissioning the existing surveillance infrastructure, including the cross-border infrastructure, to improve cost and spectrum efficiency

AND

- Equipping aircraft that are exempted from the regulation (e.g. military or general aviation) to enable decommissioning radars that are maintained to provide service to non-ADS-B equipped aircraft

Deployment of radars and WAM, and costs for decommissioning are not eligible for funding

Surveillance security

Security improvements to detect, report and, when possible, mitigate security threats



Other ATM projects

Communication, Navigation & surveillance (CNS)

SUSTAINABLE & SMART
MOBILITY STRATEGY

CNS enablers

Datalink Services

Activities

- Upgrades in aircraft equipped with avionics compliant with the regulation to resolve identified interoperability issues.
- Avionics or ground systems upgrades to optimise/reduce the use VDL-2 link (offloading AOC traffic)



Other ATM projects

Communication, Navigation & surveillance (CNS)

SUSTAINABLE & SMART
MOBILITY STRATEGY

CNS enablers

U-space: U1 and U2 services

Activities

Projects to accelerate market uptake and implementation of :

- Foundational U1 service (e.g. e-registration, e-identification and geofencing) and
- Initial U2 service (e.g. flight planning, flight approval, tracking, and interfacing with conventional air traffic control.)

to support safe operation of UAS in the designated U-space airspaces with new stakeholders (e.g., common information service provider (CISP), U-space service provider (USSP), vertiport, drone/UAS operators, etc.)



Common project one

Commission Implementing Regulation (EU) 2021/116

CP1 includes 6 ATM functionalities & 20 Sub-functionalities

defining 'What', 'Where', 'When' & 'Who'

- AF1** Extended AMAN and Integrated AMA/DMAN in the high-density TMA
- AF2** Airport Integration and Throughput
- AF3** Flexible Airspace Management and Free Route Airspace
- AF4** Network Collaborative Management
- AF5** System Wide Information Management (SWIM)
- AF6** Initial Trajectory Information Sharing

SUSTAINABLE & SMART MOBILITY STRATEGY CEF-T-2024-SIMOBGEN

Common projects
CEF-T-2024-SIMOBGEN-SESAR-CP-WORKS

The SESAR Deployment Programme

defines 'How' to deploy



25 'Families'
local implementation activities

**Supporting
material**



Common project one

Commission Implementing Regulation (EU) 2021/116

Common projects
CEF-T-2024-SIMOBGEN-SESAR-CP-WORKS

Call topics

AF1 Sub-AF AMAN/DMAN integration

AF2 Sub-AF airport operations plan limited to the Extended Airport Operations Plan

AF3 ‹‹ Not eligible under this call

AF4 Sub-AF AOP/NOP integration

AF5 Sub-AF Meteorological Information Exchange
Sub-AF Cooperative Network Information Exchange
Sub-AF Flight Information Exchange (Yellow profile)

AF6 Sub-AF Initial air-ground trajectory information sharing
Sub-AF Network Manager trajectory information enhancement
Sub-AF Initial trajectory information sharing ground distribution



Common project one

Commission Implementing Regulation (EU) 2021/116

Call specificities

- All implementation projects aligned with **SESAR Deployment Programme 2022**
- The **SESAR Deployment Manager** = coordinator of all implementation projects:
- **Projects must fully implement the Sub-AFs** and must include: **Milestones** based on a strict timeframe; certification/approval of new infrastructure and functional systems' changes
- Failure to deliver Milestones may entail **financial /administrative penalties**
- **'Last chance for funding'** approach to encourage 'First Movers'
- Set up large cross-border / multi-stakeholder synchronisation projects
- Common project investments must be declared in the MS **'Performance Plans'**

SUSTAINABLE & SMART MOBILITY STRATEGY CEF-T-2024-SIMOBGEN

Common projects
CEF-T-2024-SIMOBGEN-SESAR-CP-WORKS



<https://www.sesardeploymentmanager.eu/>



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