

SESAR 3 JU CONSOLIDATED ANNUAL ACTIVITY REPORT 2024

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This consolidated annual activity report (CAAR), established in accordance with Article 26 of Council Regulation (EU) 2021/2085 of 19 November 2021 as last amended by Council Regulation 2023/1782 of 25 July 2023 establishing the Joint Undertakings under Horizon Europe and with Article 23 of the Financial Rules of the SESAR 3 JU, provides comprehensive information on the implementation of the Joint Undertaking's work programme, budget, staff policy plan, management and internal control systems in 2024.

The SESAR JU Governing Board approved this consolidated annual activity report on 23 June 2025.

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FACTSHEET

Name of the JU	Single European Sky ATM Research 3 Joint Undertaking (SESAR 3 JU)
Objectives	The mission of the SESAR 3 JU is to accelerate, through research and innovation, the delivery of an inclusive, resilient and sustainable Digital European Sky. The general objectives of the SESAR 3 JU are defined in Articles 4, 5 and 142(1) of the Single Basic Act (SBA). The specific objectives of the SESAR 3 JU are defined in Article 142(2) of the SBA. The tasks of the SESAR 3 JU are defined in Article 143 of the SBA.
Legal basis	Article 187 of the Treaty on the Functioning of the European Union and Council Regulation (EU) 2021/2085 of 19 November 2021 establishing the joint undertakings under Horizon Europe and repealing Regulations (EC) No 219/2007, (EU) No 557/2014, (EU) No 558/2014, (EU) No 559/2014, (EU) No 560/2014, (EU) No 561/2014 and (EU) No 642/2014
Executive Director	Andreas Boschen
Governing Board	The SESAR 3 JU Governing Board is responsible for the strategic orientation and the operations of the JU, and supervises the implementation of its activities. Chaired by the European Commission (Directorate-General for Mobility and Transport), it is composed of 57 founding members in addition to permanent observers from strategic partners .
Other bodies	Bodies of the SESAR 3 JU: - States' Representatives Group - Scientific Committee Advisory body to the Executive Director: - SESAR 3 JU Programme Committee
Staff numbers	37 temporary agents, 1 contract agent, 2 seconded national experts
Total budget (2024)⁽¹⁾	Commitment appropriations : EUR 108 194 232 Payment appropriations : EUR 106 048 396
Budget implementation/ execution	Commitment appropriations (% of the committed amount/budget) Total consumption: EUR 45 092 526 (42 %) Title 1 – EUR 6 275 903 (95 %) Title 2 – EUR 3 159 548 (93 %) Title 3 – not applicable (n/a) ⁽²⁾ Title 4 – EUR 35 657 074 (39 %) Title 5 – no consumption (0 %) Payment appropriations (% of the paid amount/budget) Total consumption: EUR 37 775 307 (36 %) Title 1 – EUR 6 192 941 (92 %) Title 2 – EUR 2 528 469 (45 %) Title 3 – EUR 2 860 418 ⁽³⁾ (100 %) Title 4 – EUR 26 193 479 (83 %) Title 5 – no consumption (0 %)

⁽¹⁾ Total budget includes operational budget (used for funding selected projects) and administrative (used for funding Programme Office activities)

⁽²⁾ No commitment appropriations included in the 2024 budget, due to the closure of the SESAR 2020 programme.

⁽³⁾ A total of EUR 2 860 418 was paid under title 3 – SESAR2020 for five projects that could not be settled by the end of 2023 due to a technical issue. An amount of EUR 1 939 788 was included in the 2024 budget with its first amendment, while the remaining EUR 920 630 payment appropriations were funded from internal assigned revenue.

Grants/tenders/prizes	68 Horizon Europe grants signed (ER1, ER2 and IR1) for a total value of EUR 228.7 million in EU contribution and a total cost of EUR 399.2 million. 1 Horizon Europe grant co-funded with the EU-Rail JU with an EU contribution of EUR 5 million (including EUR 3 million of SESAR 3 JU contribution) and a total cost of EUR 6.9 million. 9 Digital Sky Demonstrators grants co-funded under the Connecting Europe Facility for a total value of EUR 117.8 million in EU contribution and a total cost of EUR 243.2 million. 68 contracts signed for a total maximum value of EUR 736 782. 2 prizes awarded for a total value of EUR 15 000. Total value: EUR 232.45 million (excluding DSD grants)
Strategic research and innovation agenda	Strategic research and innovation agenda for the Digital European Sky
Call implementation	Number of calls for proposals launched in 2024: 0 Number of proposals submitted: N/A Number of eligible proposals: N/A Number of proposals granted in 2024: 18 under the ER2 call launched in 2023. Number of global projects in portfolio as of the end of 2024: 68 Horizon Europe projects (ER1, ER2 and IR1), 1 Horizon Europe co-funded project with the EU-Rail JU, and 9 Connecting Europe Facility projects.
Participation, including small and medium-sized enterprises (SMEs)	Total number of beneficiaries of Horizon Europe funded projects: 809 (293 unique participants) of which: 15.3 % were SMEs, which received 12.9 % of the EU funding; 57.1 % were private for-profit/large companies, which received 68.9 % of the EU funding; 4.3 % were non-associated, non-EU members' entities; 43 % of unique participants were newcomer entities. Total number of beneficiaries of projects funded by the Connecting Europe Facility: 158 (126 unique participants).

FOREWORD



It is with pride and renewed commitment that I present this consolidated annual activity report for 2024 – a pivotal year for the SESAR 3 JU, marked by a fresh momentum in the delivery of the Digital European Sky (DES).

At the heart of the SESAR 3 JU's mission is the strategic coordination of ATM modernisation across Europe. In this regard, the adoption by our Governing Board of the 2025 edition of the *European ATM Master Plan* marked a defining moment. Developed and agreed upon by the whole ATM sector, the European Commission and Member States, the Master Plan charts a clear course for modernising Europe's ATM system by 2045. The Master Plan provides a common roadmap and priorities to address the sector's most pressing challenges: growing capacity constraints, the integration of new airspace users, an evolving security environment and the urgent need to decarbonise aviation. It also responds to the shifting geopolitical context, placing greater emphasis on competitiveness, sovereignty, security and resilience.

With the Digital European Sky programme now fully underway, our efforts focused on accelerating the ramp-up of the innovation pipeline. This meant advancing the implementation of the 58 ongoing projects and launching 18 new ones under the second exploratory research call (ER2), alongside a joint project with the EU-Rail JU and a new Digital

Sky Demonstrator. At the same time, we laid the foundations for the upcoming third exploratory research call (ER3) and second industrial research call (IR2), ensuring they are closely aligned with the strategic priorities set out in the newly adopted *European ATM Master Plan*.

This year, we also expanded our partnership with the addition of NATS and Lilium, strengthening our geographical and operational coverage. Our members and more than 360 project participants represent the full aviation value chain, demonstrating the scale of commitment to the SESAR 3 JU's goal of bringing digital and sustainable solutions to market faster, and ensuring that research and innovation translate into tangible improvements in the performance and resilience of the European ATM system.

Today, modernising ATM is no longer a choice – it is a necessity. The disruptions of summer 2024 were a stark and costly reminder of capacity limits. Without urgent and coordinated action, the ATM system risks becoming a bottleneck for the entire aviation sector, undermining both economic growth and the transition to climate-neutral air transport. The scale of the challenge is significant, but so is the opportunity. Realising the benefits outlined in the new 2025 Master Plan requires sustained commitment, strategic investment and collective mobilisation across institutional, industrial and national boundaries. Achieving our shared goals also depends on the seamless interaction of all the Single European Sky instruments – research and innovation, standardisation, regulation, performance and deployment. The SESAR 3 JU is an essential piece of this policy framework, and we are committed to ensuring coherence and alignment, and to turning our shared ambition into concrete results.

The year 2024 was not a new beginning, but a pivotal year to reflect, align and act. I would like to express my sincere gratitude to all our partners, stakeholders and team members for their continued dedication. Together, we are shaping a smarter, more sustainable and globally competitive future for European aviation – making Europe the most efficient and environmentally friendly sky to fly in the world.

Andreas Boschen
Executive Director of the SESAR 3 JU



EXECUTIVE SUMMARY

In 2024, the SESAR 3 JU delivered on its strategic objectives and implemented the activities planned for the first year of its 2024–2025 biannual work programme (BAWP). The activities outlined in this report demonstrate the JU's achievements in coordinating and implementing the digital transformation of the ATM sector, its contribution to the European Union's strategic priorities and its commitment of making Europe the most efficient and environmentally friendly sky to fly in the world.

European ATM Master Plan 2025

In December 2024, the Governing Board adopted the 2025 edition of the European ATM Master Plan. Launched in 2023, the update campaign involved extensive coordination, consultation and stakeholder engagement to ensure shared ownership and strategic alignment across the ATM sector. A core component of the Master Plan is the transition to a new service delivery model, replacing the current system with a data-driven, cloud-based, service-oriented architecture for all operational environments. The Master Plan, which includes 12 Development Priorities (DPs) and 10 Strategic Deployment Objectives (SDOs), serves as the EU's roadmap for advancing ATM innovation, defining the vision for 2045 and reinforcing the SESAR 3 JU's role as the key coordinator in delivering the Single European Sky (SES).

Implementation of the Digital European Sky programme

In 2024, 18 projects were selected under the second exploratory research call (ER2), one under the joint call with the EU-Rail JU, and one digital sky demonstrator funded under the Connecting Europe Facility. This brought the Digital European Sky (DES) portfolio to 78 projects, representing a total investment of around EUR 650 million and involving over 360 participants. The SESAR 3 JU managed this portfolio of projects in an efficient and coherent way, ensuring they bring to maturity the ATM technologies needed to enhance the

operational efficiency of the ATM system in accordance with the timing for the roll-out of the European ATM Master Plan. The release 14 resulted in the completion of 70 validation and demonstration activities, involving 20 DES projects and 27 SESAR Solutions. In addition, during 2024, the SESAR 3 JU prepared the calls specifications for the third exploratory research call (ER3) and second industrial research call (IR2) to be launched in 2025, ensuring alignment with the development priorities identified in the European ATM Master Plan. As a result of continuous management portfolio efforts, ensuring that projects deliver their Solutions at the required TRL level, in alignment with the European ATM Master Plan, the development status of Phase C currently stands at 66% and will progress further with the ongoing projects.

Membership expansion

The SESAR 3 JU successfully completed the targeted membership expansion by welcoming NATS and Lilium as associated members. These new members add value to the partnership notably by increasing its geographical coverage to the United Kingdom, associated to Horizon Europe since January 2024, and by adding a representative of the new entrants to ensure that the future ATM meets their needs.

Coordination of the European ATM sector to deliver the Digital European Sky

Throughout 2024, the SESAR 3 JU coordinated activities and enhanced collaboration with relevant stakeholders to maximise its impact. This includes in particular close collaboration with the European Union Aviation Safety Agency (EASA) and the European Organisation for Civil Aviation Equipment (EUROCAE), to identify standardisation needs and facilitate early regulatory input and certification processes, and with the SESAR Deployment Manager, thus accelerating the market uptake and deployment of SESAR Solutions. By establishing and actively contributing

to various coordination groups and task forces, including one on the new service delivery model, the SESAR 3 JU helped align technical, operational and regulatory efforts across stakeholders. The JU also ensured coherence with EU policy by linking the European ATM Master Plan priorities with SES performance planning, ensuring that the SES instruments work hand-in-hand.

Engagement with a wide range of stakeholders, including air navigation service providers (ANSPs), airports, military stakeholders, airspace users, professional staff organisations and the research community (notably through the Scientific Committee) ensured alignment and a harmonised approach on priorities and topics of common interest. Furthermore, the SESAR 3 JU fostered synergies with other EU bodies such as the Clean Aviation JU and the European Union Agency for the Space Programme (EUSPA), while continuously seeking more synergies with relevant ATM initiatives at the national level via its States' Representatives Group. These efforts further consolidated the SESAR 3 JU's leadership as the key coordinator of ATM modernisation in Europe.

Outreach and communication

In 2024, the SESAR 3 JU intensified its engagement with the European and global aviation community through various activities, notably its participation in over 80 events. In particular, the JU showcased its results at Airspace World in Geneva in March, and organised the SESAR Innovation Days in November in Rome, where it showcased groundbreaking ATM and aviation research, celebrating emerging talents with the SESAR Young Scientist Awards. In addition, the SESAR 3 JU published throughout the year in both EU and specialised aviation press and maintained a dynamic online presence to promote its activities and achievements.

International presence

The SESAR 3 JU actively participated in international activities, notably under the International Civil Aviation Organization framework. In close coordination with the European Commission, the SESAR 3 JU continued to secure its position as a global leader in ATM modernisation in support of the International Civil Aviation Organization (ICAO) Global Air Navigation Plan (GANP), promoting SESAR Solutions for global interoperability and harmonisation, and thereby supporting EU industrial leadership and competitiveness. In addition, the SESAR 3 JU strengthened cooperation with Japan, the Republic of Korea, Singapore and the United States, focusing on advancing innovation in ATM, new entrants, trajectory-based operations (TBO), and innovative air mobility.

Efficient organisation

In 2024, progress was made in advancing the SESAR 3 JU's transformation into a more digital and sustainable organisation, with key milestones achieved in the digitalisation action plan, while steps towards greater environmental sustainability remained more limited. The SESAR 3 JU ensured the efficiency and regularity of its operations, complying with Horizon Europe targets for grant management in terms of time to inform, grant and pay. As part of its commitment to simplification, the JU initiated the transition to lump sum funding, which is expected to significantly reduce the administrative burden for both beneficiaries and the JU in the upcoming calls. The error rate remained in line with Horizon 2020 benchmarks, and the JU received a positive discharge from the European Parliament for the 2022 financial year. Overall, the internal control system remained effective in supporting the achievement of objectives, safeguarding assets, ensuring the accuracy and reliability of data, and guaranteeing the legality and regularity of financial transactions.



1 Implementation of the 2024 annual work programme

1.1 Key objectives for 2024, associated risks and corrective measures

In 2024, the SESAR 3 JU successfully implemented the first half of its 2024–2025 biannual work programme (BAWP) and the associated operational objectives. By doing so, it continued to progress towards achieving the objectives set out in its Single Basic Act (SBA) ⁽⁴⁾, and towards the delivery of the Digital European Sky (DES). This section provides a summary of the key achievements and progress made on the operational objectives in 2024, while further details can be found in the dedicated sections

of this document, covering each strategic area of operation along with support for operations, governance, financial management and internal control.

In addition, measurements of key performance indicators (KPIs) for Horizon Europe and specific to the JU are provided in Annexes 3, 4 and 5. Section 1.7 describes the progress against those KPIs.

The SESAR 3 JU ran its annual risk assessment, and the outcome is reported in Section 4.3.2.

Progress and achievement on the 2024 operational objectives

In 2024, a crucial achievement of the SESAR 3 JU was the update of the **European ATM Master Plan (Objective 1)**. Launched in 2023, the update campaign involved extensive consultation with the entire ATM sector, experts, industry leaders, air navigation service providers, regulators and EU institutions to ensure alignment on development and deployment priorities. Adopted in December 2024 by the SESAR 3 JU Governing Board (GB), the Master Plan serves as the EU's roadmap for advancing technological innovation in ATM, defining the vision for 2045 and reinforcing the SESAR 3 JU's role as the key coordinator in delivering the single European sky.

The SESAR 3 JU ensured progress in the **delivery of the first wave of awarded projects (Objective 8)**, in particular through the **first exploratory research call (ER1) and first industrial research call (IR1) project reviews**. The review process

confirmed the alignment of the projects with the objectives, validated their progress and paved the way for the delivery of the solutions at the expected level of maturity. In parallel, the SESAR 3 JU prepared the **launch of the third exploratory research call (ER3) and second industrial research call (IR2) aligned with the priorities defined in the new European ATM Master Plan (Objective 3)**, which have been included in the second amended version of the 2024–2025 BAWP adopted by the GB in December 2024. Subsequently, the calls were published in January 2025.

The JU contributed to **build critical mass of early movers to accelerate the market deployment of Phase C (Objective 4)** by developing and providing the **technical specifications for the Digital Sky Demonstrator 3 (DSD3)** call launched by the European Climate, Infrastructure and Environment Executive Agency (CINEA) in September 2024.

⁽⁴⁾ Council Regulation (EU) 2021/2085 of 19 November 2021 establishing the joint undertakings under Horizon Europe and repealing Regulations (EC) No 219/2007, (EU) No 557/2014, (EU) No 558/2014, (EU) No 559/2014, (EU) No 560/2014, (EU) No 561/2014 and (EU) No 642/2014 (OJ L 427, 30.11.2021, p. 17); as amended by Council Regulation (EU) 2023/1782 of 25 July 2023 amending Regulation (EU) 2021/2085 establishing the joint undertakings under Horizon Europe, as regards the Chips Joint Undertaking (OJ L 229, 18.9.2023, p. 55). The SESAR 3 JU's objectives are set out in Articles 4, 5, 142 and 143.

The topics defined in the call are aligned with the Strategic Deployment Objectives (SDOs) of the European ATM Master Plan.

The SESAR 3 JU successfully completed the **targeted membership expansion (Objective 5)** by welcoming NATS and Lilium as associated members. These new members add value to the partnership notably by increasing its geographical coverage to the United Kingdom (newly associated to Horizon Europe since January 2024), and by adding a representative of the new entrants to ensure the future ATM meets their needs.

In 2024, to **promote and develop synergies in high priority areas linked to its mission (Objective 6)**, the SESAR 3 JU took key steps towards developing a joint **roadmap with the Clean Aviation JU** by identifying areas of synergy and collaboration, particularly on the integration of net-zero aircraft into ATM. These efforts have led to the inclusion of a dedicated development priority in the 2025 European ATM Master Plan and the inclusion of a dedicated topic in the ER3 call.

In addition, the SESAR 3 JU **signed a memorandum of cooperation (MOC) with the European Union Agency for the Space Programme (EUSPA)** aimed at strengthening collaboration on the DES, and advancing aviation safety, sustainability and operational efficiency through space-based technologies and innovation.

Finally, as part of a plan to, by 2025, **develop together with the States' Representatives Group (SRG) a plan to capture synergies with national programmes**, the SESAR 3 JU ran a survey of its Member States to identify activities at the national level that could have synergies with the activities of the DES. Findings of the survey will contribute to the objective which will be finalised in 2025.

The SESAR 3 JU made significant progress towards **securing a positive midterm review (Objective 7)** in 2025 by actively contributing to the Horizon Europe interim evaluation and supporting studies, one of which already delivered highly positive findings on the JU's performance and added value.

In 2024, the SESAR 3 JU contributed to **ensure global interoperability through active engagement with international partners (Objective 9)**. While developing the new edition of the European ATM Master Plan, the SESAR 3 JU began preparatory actions to ensure **alignment with the International Civil Aviation Organization (ICAO) Global Air Navigation Plan (GANP)**, which is scheduled for adoption at the 42nd ICAO Assembly in September 2025. These efforts, including active engagement in several ICAO groups, laid the foundation for strategic alignment between the two documents.

Finally, limited progress has been made towards the overall objective of the **SESAR 3 JU's transformation into a greener and more digital**



workplace (Objective 10). As part of this, the JU has been involved in the EUROCONTROL's activities in view of an eco-management and audit scheme (EMAS), while also exploring greener practices such as sustainable purchasing and staff commuting. The results so far have been very modest, and they will require that EUROCONTROL engages actively in making the Haren site EMAS-compliant. In parallel, the digitalisation action

plan made partial progress in 2024, with key milestones achieved despite resource constraints and varying stakeholder engagement.

The table below outlines the SESAR 3 JU's operational objectives for 2024 and 2025, along with the results achieved in 2024 and references to where further details can be found in this report.

TABLE 1: PROGRESS AND ACHIEVEMENTS AGAINST THE 2024–2025 BAWP OPERATIONAL OBJECTIVES IN 2024

No	Operational Objectives for 2024–2025	Key Performance Indicators	Target for 2024	Target for 2025	Related strategic area of operation (SAO) /Activities	Result in 2024	Detail in Section
1	Update European ATM Master Plan to make Europe the most efficient and environmentally friendly sky to fly in the world	Adoption of the updated European ATM Master Plan	100 %	Not applicable (n/a)	SAO 1: Provide strategic steering to the DES programme	100 %	1.2.1.1
2	Prepare a proposal for the content of a new Common Project (CP) or alternative regulatory measures leveraging the outcome of SESAR 2020 and aligned with the deployment priorities defined in the new European ATM Master Plan	Deliver a proposal for a new Common Project (CP) to DG MOVE	n/a	50 % ⁽⁵⁾	SAO 4: Facilitate an accelerated market uptake of SESAR Solutions	n/a	n/a
3	Launch new wave of ER/IR calls aligned with the priorities defined in the new European ATM Master Plan	Launch a new wave of ER-IR projects aligned with the priorities identified in the European ATM Master Plan	n/a	100 %	SAO 2: Deliver exploratory research SAO 3: Deliver industrial research and validation	n/a	1.2.2.3 1.2.3.2
4	Continue to build a critical mass of early movers to accelerate the market deployment of Phase C	Provide technical specifications in view of the DSD3 call	100 %	n/a		100 %	1.2.4.1
		Provide technical specifications in view of the DSD4 call	n/a	100 %	SAO 4: Facilitate an accelerated market uptake of SESAR Solutions	n/a	n/a
		Consolidate results from the first DSD1a call	n/a	100 %		n/a	n/a
5	Complete targeted membership expansion	Complete the selection process of associated members	100 %	n/a	All	100 %	3.1
6	Promote and develop synergies in high priority areas linked to the mission of the JU	Develop a common roadmap with content and timelines with the Clean Aviation JU	50 %	100 %		50 %	1.2.5.1
		Sign a Memorandum of Cooperation (MoC) with EUSPA	100 %	n/a	SAO 4: Facilitate an accelerated market uptake of SESAR Solutions	100 %	1.2.5.1
		Develop together with the SRG a plan to capture synergies with national programmes	50 %	100 %		50 %	1.2.5.1

⁽⁵⁾ The 50 % target of this objective reflects the fact that the activities will start in 2025 and continue in 2026.

No	Operational Objectives for 2024–2025	Key Performance Indicators	Target for 2024	Target for 2025	Related strategic area of operation (SAO) /Activities	Result in 2024	Detail in Section
7	Secure a positive midterm review outcome	Positive outcome of the midterm review	n/a	100 %	All	n/a	2.5.2
8	Ensure the delivery of the first wave of awarded projects	Ensure ER projects delivery through project reviews and deliver strategic development monitoring report	100 %	100 %	SAO 2: Deliver exploratory research	100 %	1.2.2.1 1.2.2.2
		Ensure IR projects delivery through project reviews and deliver strategic development monitoring report	100 %	100 %	SAO 3: Deliver industrial research and validation	100 %	1.2.3.1
9	Ensure global interoperability through active engagement with international partners, in particular towards the 42nd ICAO Assembly in 2025	Alignment between the GANP and the updated European ATM Master Plan	n/a	100 %	SAO 5: Deliver SESAR outreach (cooperation, synergies and cross-cutting themes and activities)	n/a	1.2.5.3
10	Transformation of our organisation towards a greener and more digital place to work	Implementation rate of the action plan to introduce EMAS in cooperation with EUROCONTROL	30 %	60 % ⁽⁶⁾	All	10 %	2.7.3
		Implementation rate of the action plan to digitalise the organisation	50 %	100 %		50 %	2.7.1

⁽⁶⁾ The 60 % target reflects the fact that this objective will continue in 2026.

1.2 Research and innovation activities and achievements

1.2.1 Strategic area of operation 1: Provision of strategic steering to the Digital European Sky Programme

1.2.1.1 The European ATM Master Plan 2025 edition

In 2024, the SESAR 3 JU successfully concluded the update process of the European ATM Master Plan, last revised in 2020.

The 2025 edition of the European ATM Master Plan is the EU roadmap for the development and deployment of the technological innovations that are the backbone of the single European sky (SES), agreed by the whole ATM sector, the European Commission and the EU Member States. It sets the vision and provides important strategic direction for investments and regulatory decisions. The plan outlines 10 Strategic Deployment Objectives (SDOs) based on the SESAR solutions already delivered or in the pipeline and addresses essential operational changes covering ATM functionalities that need to be rolled out between 2025 and 2035. Focusing on these SDOs and ensuring the timely deployment and operational integration of SESAR solutions is the way to achieve the DES. The European ATM Master Plan also introduces 12 Development Priorities (DPs) that focus on the exploratory and industrial research required to deliver new technological solutions aligned with the performance ambitions of the SES. These solutions will enable European airspace to flexibly accommodate new and different types of air vehicle, all flying climate-efficient trajectories that are dynamically adapted in real time using artificial intelligence (AI)-enabled systems. The DPs cover the prioritised actions needed to develop future ATM functionalities and roll-out Phase D, supporting the long-term vision of where we want the sector to be by 2045.

The update process of the European ATM Master Plan mobilised a significant share of the JU's resources, as it involved extensive coordination, consultation and stakeholder engagement to ensure alignment across the ATM sector. Following the kick off of the Master Plan campaign in 2023, the Master Plan Steering Group – a temporary subgroup of the Programme Committee (PC) established to monitor and steer the process, chaired by the SESAR 3 JU – held four meetings in the first half of 2024 to consolidate and align its members' expectations on development and deployment priorities.



More than 150 experts contributed directly to the campaign through six working groups focusing on key pillars of the Master Plan update (e.g. Sustainability, Artificial Intelligence and Automation, Target Architecture and CNS evolution, Innovation Air Mobility, Civil-Military and (cyber)security, Deployment priorities). In addition, an ad-hoc consultation on proposed Strategic Deployment Objectives (SDOs) was conducted with key investors through the Network Manager and SESAR Deployment Manager (SDM) consultation mechanisms to prioritise key investor deployment priorities. The European Union Aviation Safety Agency (EASA) also performed a regulatory impact assessment of the proposed priorities.

In March, a first draft of the Master Plan was presented at Airspace World in Geneva and was followed by a large stakeholder consultation in mid-April 2024, which included dedicated workshops with the Single Sky Committee and the airport community.

In June, a consolidated version taking into account all the feedback received was distributed to the PC and SRG.

In addition, still in June, the CEOs from the A6 Alliance of air navigation service providers (ANSPs) and general managers from industry manufacturers signed a joint statement on the ‘Transition to a New Service Delivery Model for ATM in Europe’, which is a core component of the updated Master Plan. The new ATM service delivery model aims to decouple service provision from local infrastructure by leveraging data-driven, cloud-based and a service-oriented architecture for all operational environments. This new approach will allow for quicker deployment of new features and improvements while ensuring interoperability in operations, airspace and technology across ANSPs. The SESAR 3 JU is actively coordinating the initiative.

During the formal SESAR 3 JU GB consultation, the European Commission held a dedicated session with the Single Sky Committee, and

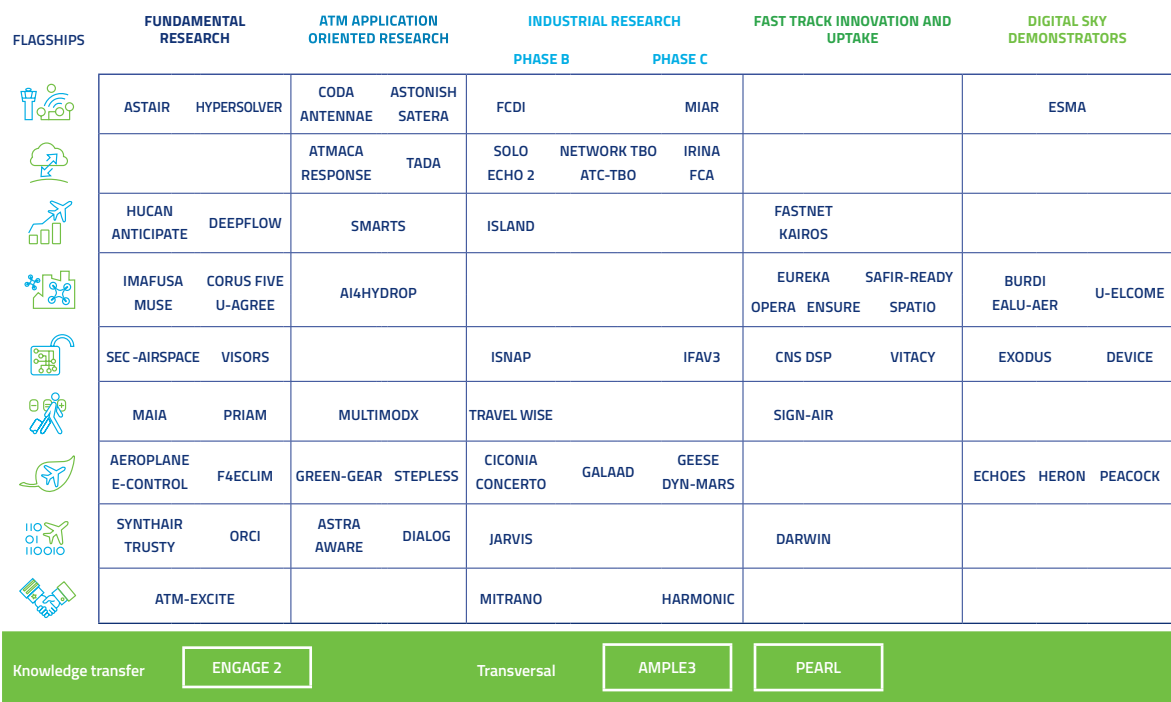
EUROCONTROL with the Civil-Military Stakeholder Committee, the Air Navigation Service Board, the Military Advisory Board and the Provisional Council to prepare their support at the SESAR 3 JU GB level. Finally, the GB adopted the Master Plan at its December meeting.

With this new European ATM Master Plan, the entire ATM sector commits to deliver the vision of what ATM should be by 2045, with the SESAR 3 JU as the main coordinator.

1.2.1.2 Progress and status of the Digital European Sky Programme

The DES programme is currently implemented through a portfolio of projects managed by SESAR 3 JU and addressing the development and deployment of technological solutions aiming at improving the performance of the ATM system. The figure below captures the DES project portfolio as of the end of 2024.

FIGURE 1: DIGITAL EUROPEAN SKY PROGRAMME PROJECTS PORTFOLIO IN 2024



Detailed information on individual SESAR projects currently underway in the DES programme is available on the [SESAR 3 JU Projects Portal](#) ⁽⁷⁾.

⁽⁷⁾ The SESAR 3 JU Projects Portal also includes information about completed projects from the SESAR 2020 programme.

Status of the development activities of the Digital European Sky programme

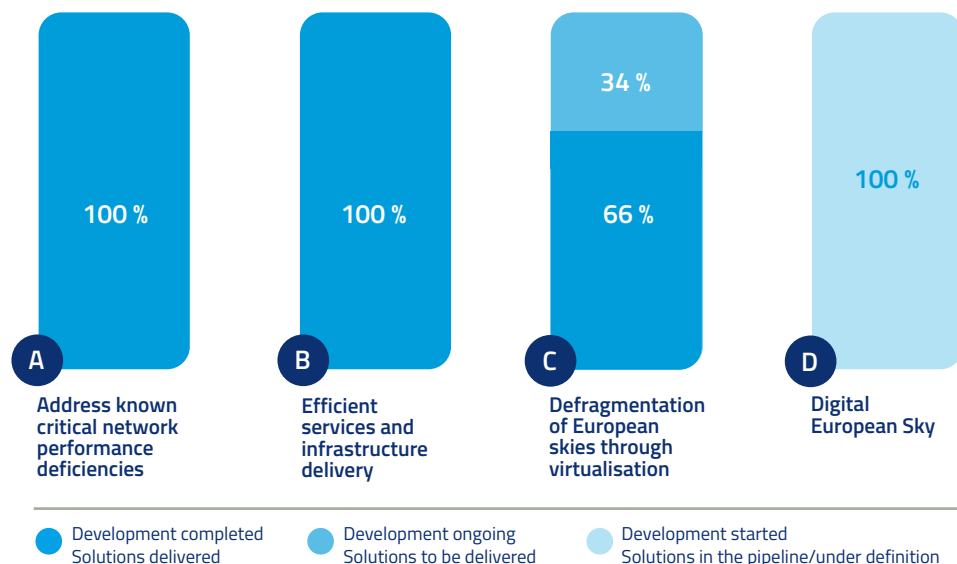
The roll-out of the European ATM Master Plan is divided into four overlapping phases. Phase A addresses known critical network performance deficiencies, Phase B delivers efficient services and infrastructure, Phase C defragments European skies through virtualisation and dynamic airspace configuration, and Phase D achieves the Digital European Sky⁽⁸⁾.

In 2024, in the context of the elaboration of the 2025 edition of the ATM Master Plan, the SESAR 3 JU conducted a gap assessment of Phase C considering the latest development results at the closure of the SESAR 2020 programme and the coverage of the IR1 projects. This gap assessment, which was presented to the SRG and PC, identified the 55 Phase C key R&D SESAR Solutions that did not complete technology readiness level (TRL) 6 at the end of the programme. The gap assessment assessed the criticality of the remaining Solutions and concluded that out of the 26 Solutions not addressed, 8 could be considered as a potential

gap to be secured to de-risk Phase D and achieve the new ATM Master Plan objectives.

At the GB meeting of December 2024, alongside the new ATM Master Plan, the SESAR 3 JU presented the development monitoring report comprising the latest progress and status updates on the implementation of the DES. The development report concluded that significant progress had been made, with Phases A and B of the Master Plan fully completed from a development point of view. In Phase C, 66 % of development activities have been finalised, with the remaining solutions addressed within IR1 projects and scheduled to be delivered by 2026. As for Phase D, the development activities started in 2023. The Solutions are developed and validated according to the development priorities needed to develop future ATM functionalities and secure Phase D deployment by 2045. This good progress demonstrates the high level of commitment, research and development undertaken by all SESAR stakeholders.

FIGURE 2: STATUS OF SESAR DEVELOPMENT ACTIVITIES PER ROLL-OUT PHASES OF THE 2025 EDITION OF THE ATM MASTER PLAN



In relation to the 10 SDOs, the development activities for SDO 1 (Alerts for reduction of collision risks on taxiways and runways), SDO 3 (Dynamic airspace configuration), SDO 4 (Increased automation support) and SDO 9 (CNS optimisation, modernisation and resilience) have been successfully completed. Development activities for

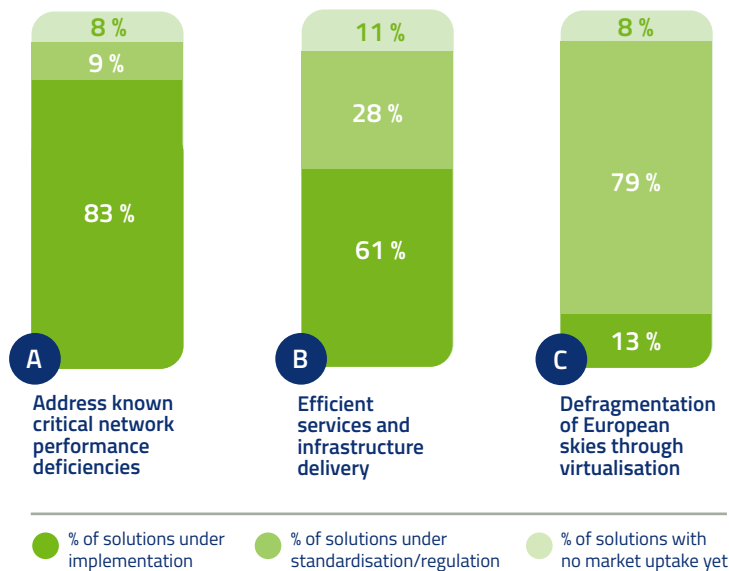
the other SDOs are progressing according to plan, ensuring alignment with the Master Plan's vision. This should encourage accelerated market uptake of Phase C by a critical mass of early movers and help drive the evolution of the supporting regulatory framework.

⁽⁸⁾ The four Phases are detailed in the European ATM Master Plan, p. 29.

Status of the SESAR deployment activities

The status of the deployment in relation to the four Phases of the Master Plan was presented at the GB meeting of December 2024.

FIGURE 3: DEPLOYMENT STATUS OF SESAR SOLUTIONS IN SDOs



Out of the SESAR Solutions available for deployment, for Phase A, 83 % are being rolled out and standardisation work is under way for an additional 9 %. For Phase B, 61 % are being rolled out and standardisation work is under way for an additional 28 %.

For Phase C, despite the promising increase in implementation of SESAR Solutions in SDOs, 79 % of the SDO solutions delivered by R&D are still in the industrialisation phase. This highlights the critical importance of having the necessary standards and regulations available to ensure successful implementation of the Master Plan. Of the SDO solutions delivered by R&D in industrialisation, 13 % are under implementation, enabling steady progress towards full SDO deployment. It is worth noting that 8 % of the SDO solutions delivered by R&D were lacking market uptake for implementation by December 2023. However, given the interest shown by stakeholders to include these solutions in the scope of SDOs during the Master Plan update campaign, market uptake of these solutions is expected to grow in the coming years.

In addition, early signs of market deployment are becoming evident, with eight SESAR solutions supporting the implementation of four SDOs.

1.2.1.3 Activities linked to the transversal projects

Three transversal projects support the SESAR 3 JU in its steering of the DES programme. Their activities contribute to the alignment of individual projects with the Master Plan, including their performance design and assessment, ensuring a more efficient delivery of the SESAR solutions, and also to animate an ATM network of talents.

AMPLE3 and PEARL

Both transversal projects AMPLE3 (Market uptake and Architecture modelling) and PEARL (Performance Estimation, Assessment, Reporting and simulation) support the JU in the steering of projects.

In 2024, their support mainly focused on the European ATM Master Plan update, notably through scope input papers for the working groups, a structured approach for defining the SDOs, performance ambition development and investor stakeholder consultations. In addition, the transversal projects supported the DES programme execution, notably through community-building, project progress assessments, performance evaluation of the SESAR Solutions and supporting the delivery of the deployment monitoring report.

Engage 2

Since the start of its implementation, Engage 2 has made significant progress in fostering collaboration and knowledge exchange within the ATM research community and with the industry. In 2024, by supporting the preparation of the SESAR Innovation Days, and through participation in Airspace World and the European Researchers' Night, Engage 2 has progressively built a dynamic network of stakeholders, students and researchers, offering valuable industry/academia networking and collaboration opportunities (fora, thematic meetings, etc.).

The project led to the identification of four thematic challenges – climate impact analysis and mitigation for ATM-related non-CO₂ emissions, passenger-centric digital airport, disruptive ATM system modernisation and integration of new

entrants – which have been addressed by the Engage 2 PhD students, the Catalyst projects and through dedicated thematic workshops.

In 2024, seven PhDs and seven Catalyst fund projects received SESAR financial support, while four MSc students benefited from mentorship and access to international ATM events.

To attract young talents, as the skills shortage has been identified as a critical issue for ATM, Engage 2 mapped aviation-related undergraduate programmes and key ATM jobs, and restructured its knowledge hub (EngageWiki). Additionally, it developed a matchmaking app to connect students with the industry professional, set to be launched at Airspace World in May 2025.



1.2.2 Strategic area of operation 2: Delivery of exploratory research



1.2.2.1 Status of Digital European Sky Exploratory Research 1 (with reference HORIZON-SESAR-2022-DES-ER-01)

Following their ramp-up in 2023, the 18 ER1 projects have been progressing as planned. After summer 2024, a first technical projects review was conducted. The objective was to evaluate whether the activities completed thus far were aligned with the projects' goals and to identify any necessary corrective measures. This review of the early results was crucial for ensuring the successful delivery of the research outcomes and keeping the projects on track. The outcome of the reviews was positive in terms of quality and research developments, confirming that the progress of the projects was aligned with the SESAR 3 JU's expectations.

In June 2024, the first periodical reporting and payment was launched for all 18 projects and was still ongoing at the end of 2024.

1.2.2.2 Status of Digital European Sky Exploratory Research 2 (with reference HORIZON-SESAR-2023-DES-ER-02)

The second DES exploratory research call (ER2) closed on 15 November 2023. The evaluation of the 93 eligible proposals was concluded in February 2024. A total of 18 proposals were selected for a maximum budget of EUR 26.1 million. These proposals address all flagships covered by the call technical specifications. The SESAR 3 JU GB approved the list of selected proposals on 14 March. Following the grants preparation phase, all grant agreements were successfully signed by summer 2024, allowing all projects to move into execution.

To facilitate their ramp up, the JU organised a programme-level kick-off meeting in September 2024, aimed at fostering a shared understanding of the key processes for the projects during the implementation, such as performance methodologies, communication, maturity assessments and grant management. During autumn, individual project kick-offs meetings were held with contributors and SESAR 3 JU staff to initiate project implementation and start preparing the research activities.

1.2.2.3 Preparations for the Digital European Sky Exploratory Research 3 (with reference HORIZON-SESAR-2025-DES-ER-03)

Aligned with the development priorities defined in the 2025 Master Plan, the technical specifications of the third DES Exploratory research call (ER3) were developed through a consultation process with all SESAR 3 JU members and endorsed by the GB in December 2024. Following this, the call was published in early January 2025, with a call deadline for 16 September 2025.

With a budget of EUR 24 million, the ER3 call focuses on disruptive technologies and

innovative concepts that are in the early stages of development. The primary aim is to explore new ideas, concepts, methods and technologies that will help define future development activities in ATM aligned with the long-term vision of the DES. In the Fundamental Research area, the call mainly addresses ATM impact on climate change, digital flight rules, and quantum sensing and computing applied to ATM.

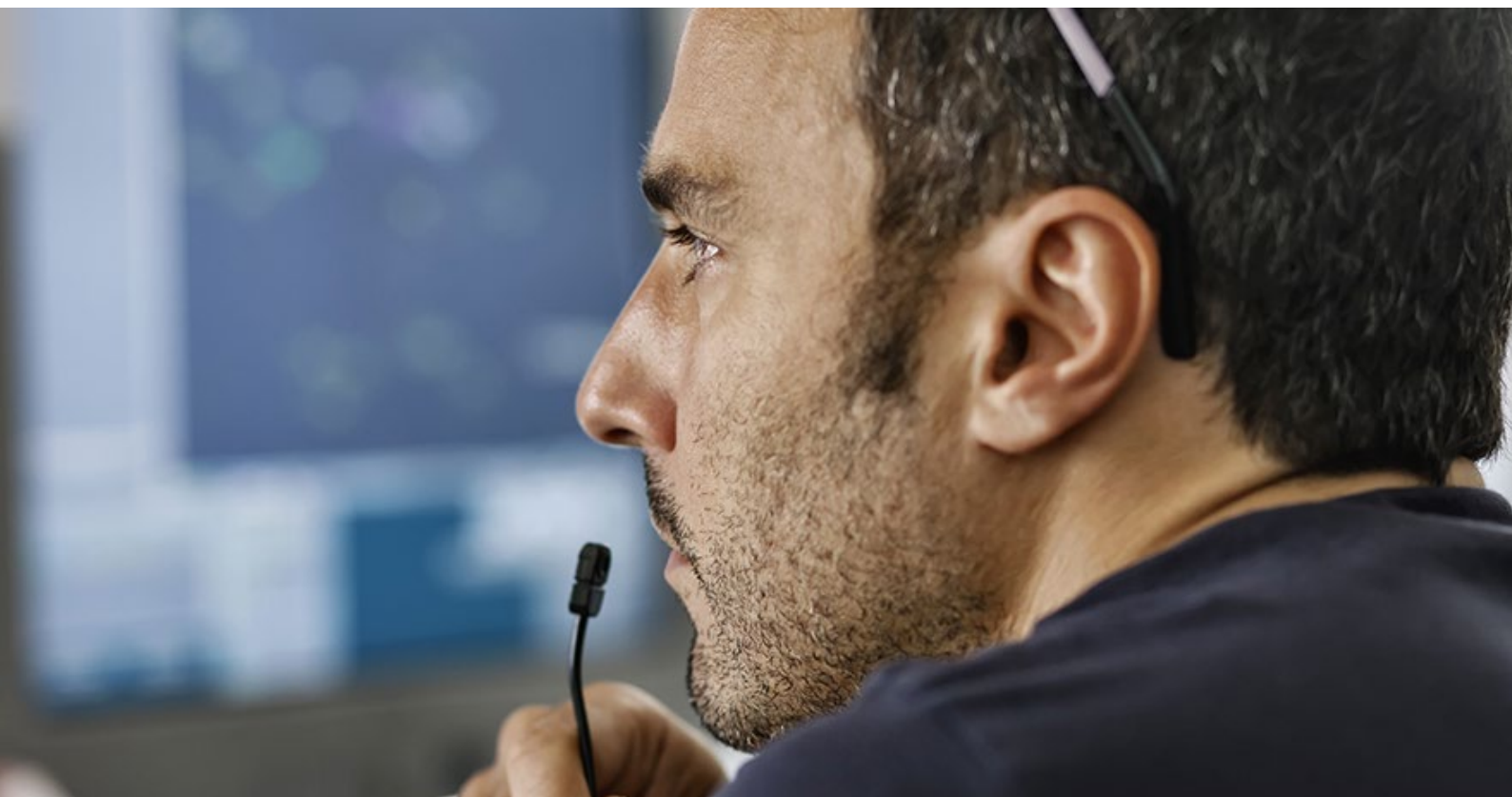
Bridging Fundamental Research and higher maturity industrial research, Applied Research addresses research to help shape the future regulatory framework for the DES and the integration of the next generation aircraft for zero/low emission aviation.

1.2.3 Strategic area of operation 3: Delivery of industrial research and validation

1.2.3.1 Status of Digital European Sky Industrial Research 1 (with reference HORIZON-SESAR-2022-DES-IR-01)

The 32 projects under the first industrial research call (IR1) of the DES programme have been progressing as planned. Technical reviews of projects were conducted during spring 2024 to assess their initial preparedness for the development of the SESAR Solutions. The outcome of the reviews confirmed the alignment of the activities with the projects' goals with, in

certain cases, some corrective measures required. The development of SESAR Solutions proved to be well underway, with the first validation activities already completed. In total, more than 250 validation activities are scheduled, 70 % of which employing methods close to real-time operations, such as flight trials, shadow operations, live trials and real-time simulations. These efforts are essential for refining and verifying the SESAR Solutions in realistic operational environments and ensuring they reach the required TRL/maturity level.



1.2.3.2 Preparations for the Digital European Sky Industrial Research 2 (with reference HORIZON-SESAR-2025-DES-IR-02)

Aligned with the development priorities defined in the 2025 edition of the European ATM Master Plan, the technical specifications of the second DES Industrial Research call (IR2) were developed through a consultation process with all SESAR 3 JU members and endorsed by the GB in December 2024. Following this, the call was published in early January 2025, with a call deadline for 16 September 2025.

With a budget of EUR 230 million, the IR2 call focuses on significantly advancing the six development priorities defined in the 2025 edition of the European ATM Master Plan in relation to Phase D and reflects the need to focus on developing the next-generation platforms.

1.2.3.3 Status of the EU-Rail JU – SESAR Synergy call (HORIZON-ER-JU-2023-FA1-SESAR)

Together with the EU-Rail JU, the SESAR 3 JU issued a synergy call for proposals in autumn 2023 for the development of an ‘integrated air and rail network backbone for a sustainable and energy-efficient multimodal transport system’. With EU funding of EUR 5 million and a total investment of around EUR 7 million, the call is being co-funded within the framework of Horizon Europe. Following the evaluation phase in early 2024, the Travel Wise (transformation of aviation and railway solutions towards integration and synergies) proposal was selected and the grant agreement signed after summer.

Travel Wise aims to support the shift from siloed rail and air traffic management to intermodal traffic orchestration by developing a methodology, roadmap and related technologies that enhance information sharing, collaborative decision-making and passenger experience, with a strong focus on managing transport disruptions and improving airport–rail connectivity.

This first synergy call provides an opportunity to exchange best practices between JUs (e.g. Lump Sum). In particular, the programme management processes used by the SESAR 3 JU were presented to the EU-Rail JU and are now being applied in the management of Travel Wise.

1.2.3.4 SESAR solutions delivery: Release process in 2024

In 2024, release activities have been executed and monitored according to the release 14 plan endorsed by the PC in March 2024. Given that there were no exit maturity gates in 2024, the scope covered validation and demonstration exercises planned to be completed during the release cycle.

The release 14 plan included 74 planned validation and demonstration activities to be completed by 21 DES projects before the end of 2024.

- ▶ 6 exploratory research projects: AI4HyDrop, ASTAIR, Green-GEAR, HUCAN, ImAFUSA and MUSE.
- ▶ 10 industrial research projects: SOLO, FCA, MITRANO, CICONIA, CONCERTO, DYN-MARS, DARWIN, KAIROS, EUREKA and iSNAP.
- ▶ 5 digital sky demonstration Projects: HERON, U-Elcome, BURDIgium therlands, EALU-AER and Echoes.

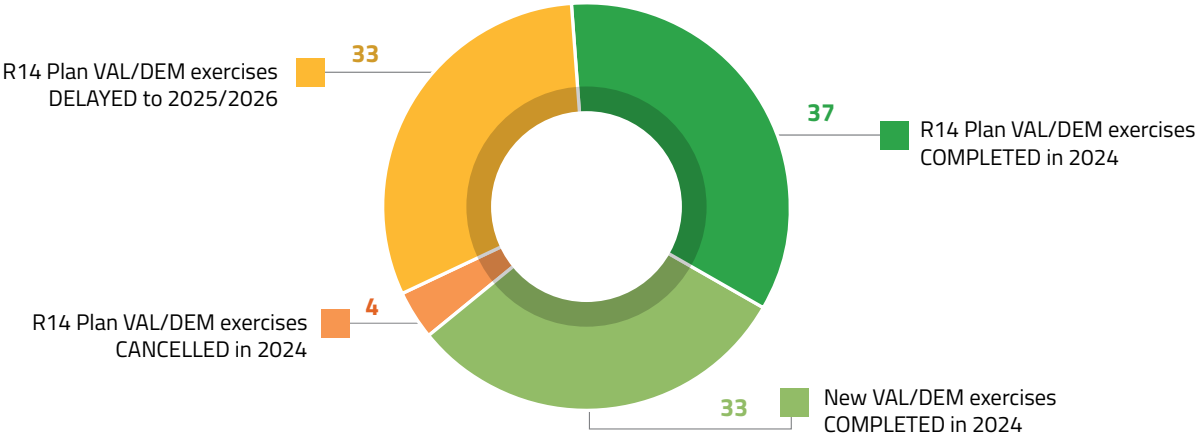
During 2024, the scope of the release has evolved.

- ▶ A significant number of validation and demonstration exercises (33 out of the 74 planned) have re-planned their forecast end date from 2024 to 2025 or 2026.
- ▶ 4 validation/demonstration exercises were cancelled.
- ▶ 33 additional validation/demonstration exercises were added to the release scope and successfully completed before the end of 2024.

As a result, a total of 70 validation/demonstration exercises were successfully completed in 2024, involving 20 DES projects and 27 SESAR Solutions.

- ▶ 8 exploratory research projects: ASTRA, Green-GEAR, ASTAIR, CODA, MAIA, MultiModX, ImAFUSA, and MUSE completed 23 validation exercises.
- ▶ 8 industrial research projects: FCA, SOLO, DARWIN, CONCERTO, MITRANO, EUREKA, OperA, and iSNAP completed 18 validations exercises.
- ▶ 4 digital sky demonstration projects (HERON, U-Elcome, BURDI and EALU-AER) completed 29 demonstration exercises.

FIGURE 4: RELEASE 14 VALIDATION/DEMONSTRATION EXERCISES, EVOLUTION FROM RELEASE 14 PLAN



Some key highlights are:

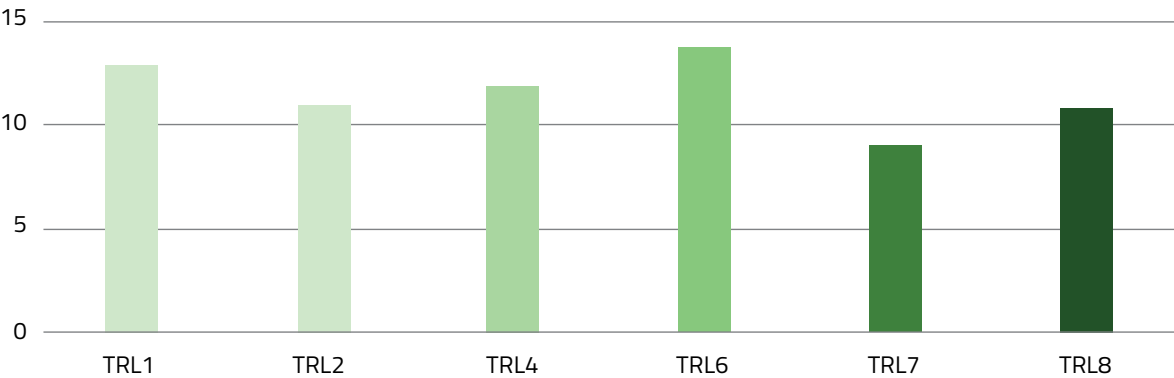
- ▶ More than 45 % of the validation and demonstration exercises were at TRL6 or higher;
- ▶ 37 % of the completed exercises were conducted through live/flight trials, 26 % were based on expert judgment activities and 23 % consisted of real-time and fast-time simulations;

- ▶ The two R&I flagships with the highest number of completed validation and demonstration exercises were 'U-space and urban air mobility' and 'Multimodality and passenger experience'.

During the technical project reviews, 17 SESAR Solutions reported that their current maturity level (TRL) progressed:

- ▶ 10 SESAR Solutions completed TRL4;
- ▶ 7 SESAR Solutions completed TRL2.

FIGURE 5: RELEASE 14 COMPLETED VALIDATION/DEMONSTRATION EXERCISES PER TRL



In the context of the new European ATM Master Plan, release 14 activities have contributed to progress on:

- ▶ Two SDOs: SDO 8 'Service-oriented delivery model (data-driven and cloud-based)' and SDO 10 'Enable innovative air mobility (IAM) and drone operations' (deployment action 10.2); and
- ▶ The following development priorities:

- ▶ IR-3 future en-route and TMA ground platforms,
- ▶ IR-4 future airport platform,
- ▶ IR-5 autonomy and digital assistants for the flight deck,
- ▶ IR-6 U3 U-space advanced services, IAM and vertiports.

1.2.4 Strategic area of operation 4: Facilitate an accelerated market uptake of SESAR Solutions

1.2.4.1 Activities carried out under the Connecting Europe Facility framework

Aiming at increasing the buy-in from the ATM community on the SESAR Solutions delivered by R&I, the DSDs activities encourage the deployment across Europe of a set of SESAR Solutions. DSDs are closely connected to the standardisation and regulatory framework, and provide a platform for a critical mass of early movers to accelerate market uptake, thus fostering the industrialisation process for SESAR Solutions and SDOs, and promoting their deployment in Europe.

Status of the Connecting Europe Facility call DSD1a (CEF-T-2021-SIMOBGEN)

During spring 2024, the five DSD1a projects (U-ELCOME, ECHOES, HERON, ÉALÚ-AER and BURDI) underwent a review by the SESAR 3 JU in coordination with CINEA to monitor progress and take any necessary corrective measures. The outcomes of the reviews confirmed that these projects, which address the U-space and urban air mobility and the aviation green deal flagships, are progressing in accordance with their objectives. Their final results are expected between late 2025 and mid 2026, taking into account the completion of administrative and financial closure activities.

Status of the Connecting Europe Facility call DSD1b (CEF-T-2022-SIMOBGEN)

Throughout 2024, the three DSD1b projects – Exodus, ESMA and DEVICE – prepared their demonstration activities. The SESAR 3 JU assessed their progress, in coordination with CINEA, through project reviews conducted during the fourth quarter (Q4) of 2024. The ESMA project, addressing the connected and automated ATM area flagship, was found to be progressing as planned. However, the two projects addressing

the virtualisation and cyber-secure data sharing reported significant delays, primarily due to the unavailability of air traffic controllers (ATCOs). This unavailability was mainly caused by a high demand of ATCOs during the summer period to manage the real traffic, and by exceptional software development issues. In response, a temporary suspension (requested by the projects and currently under review) would allow postponing the end-date of the projects, rescheduling demonstrations activities outside of peak traffic periods, ensuring adequate ATCO availability and a more robust validation process. It would also allow the delivery of the planned solutions at the required quality and maturity levels.

Status of the Connecting Europe Facility call DSD2 (CEF-T-2023-SIMOBGEN)

Following the definition of the DSD technical specifications by the SESAR 3 JU, CINEA launched a new call under the Connecting Europe Facility (CEF) in September 2023, containing provisions for Digital Sky Demonstrators (DSD2) for greener, more scalable and resilient ATM. The SESAR-related topics of the call 'CEF-T-2023-SIMOBGEN-SESAR-DSDU-WORKS' supported several of the nine flagships outlined in the multiannual work programme. The SESAR 3 JU participated in the evaluation process in March 2024, resulting in the selection of the PEACOCK project, which was awarded a grant and finalised its grant agreements signature, paving the way for its launch in autumn 2024.

PEACOCK focuses on enhancing coordination and connectivity between regional airports and the Network Manager to improve the predictability of departing traffic. This will help reduce unnecessary emissions caused by aircraft holdings and minimise fuel consumption during taxiing by decreasing ground queues. These improvements are expected to lead to more efficient and environmentally sustainable ATM.

Status of the Connecting Europe Facility call DSD3 (CEF-T-2024-SIMOBGEN)

Following the definition of the DSD technical specifications by the SESAR 3 JU, CINEA has launched a new EUR 2.5 billion call under the CEF in September 2024, containing provisions for a series of SESAR 3 JU Digital Sky Demonstrators (DSD3 call) in the areas of automation, virtualisation and support for the aviation green deal.

The topics defined with the call are aligned with the 10 SESAR SDOs as defined in the European ATM Master Plan. The demonstrators match the ambitions of several key EU policy initiatives, such as 'The Sustainable and Smart Mobility Strategy' and the 'A Europe fit for the digital age' strategy. They aim to accelerate the implementation of operational measures and technological innovations to improve the fuel efficiency of flights, reduce CO₂ emissions, reduce aircraft noise impact and improve air quality in and around the airports. Furthermore, the demonstrators also support the move to a more flexible, scalable, resilient, safe and secure ATM that can withstand disruptions in the aviation system. The demonstrators, when selected, are expected to be launched in 2025 and to run until 2028.

1.2.4.2 Coordination activities to accelerate the market uptake of SESAR Solutions

In 2024, the SESAR 3 JU ensured the acceleration of the market uptake of SESAR solutions by coordinating activities with all relevant standardisation and regulatory bodies, and by ensuring seamless collaboration between the SES instruments to support the implementation of the Master Plan towards a modernisation of the ATM system.

European Union Aviation Safety Agency



In 2024, the SESAR 3 JU continued its partnership with EASA under a service-level agreement (SLA). The two organisations further strengthened their close collaboration, ensuring early knowledge exchange on new technologies being developed, thereby facilitating the certification and regulation process of resulting products and services, and

ultimately accelerating the market uptake of innovative SESAR Solutions by a large number of voluntary investors.

The SESAR 3 JU contributed actively to the elaboration of the European Plan for Aviation Safety (EPAS) and the European Aviation Environmental Report (EAER), while EASA has been closely involved in the development of the 2025 edition of the European ATM Master Plan. Notably, EASA conducted a regulatory gap assessment of the SESAR solutions listed under the SDOs.

The SESAR 3 JU and EASA have also enhanced coordination at the technical level, in particular in relation to the solutions to be included in the European ATM Master Plan. A pairing of EASA experts with SESAR 3 JU programme managers has been established to facilitate and strengthen this collaboration. The SESAR 3 JU participated in the EASA Task Force for Runway Safety aiming at a multi-disciplinary and multi-stakeholder approach to analyse the current situation and assess the need for further regulatory measures. Additionally, the SESAR 3 JU contributed to the SOA@ATM task force to support EASA in the enabling of open architecture, shared computing resources, network and interfaces for ATM /ANS functional systems and equipment, in particular for those subject to certification, declaration or statement of compliance.

Collaboration with standardisation bodies

In 2024, the SESAR 3 JU continued strengthening its collaboration with European standardisation bodies such as the European Organisation for Civil Aviation Equipment (EUROCAE), notably through the European Air Traffic Management Standards Coordination Group (EASCG), the European Unmanned Aerial System Standards Coordination Group (EUSCG) and the European Cybersecurity Standards Coordination Group (ECSCG), both with group meetings direct attendance and through the Technical Coordination Group (TCG)⁽⁹⁾. This collaboration aims to enhance alignment between the standardisation needs identified during the implementation of the projects developing the SESAR Solutions and the ongoing standardisation activities conducted by the various standards development organisations. Monitoring and securing the timely delivery of the standards required to facilitate the implementation of the SESAR Solutions greatly contributes to accelerating their market uptake.

Specifically for EUROCAE, the SESAR 3 JU, representing the European R&D community, has

⁽⁹⁾ Details on the Technical Coordination Group (TCG) are provided further below in this section).

been present at the level of both the EUROCAE Council and the Technical Advisory Committee, supporting the strategic planning and monitoring of standardisation activities needed to deliver the vision outlined in the European ATM Master Plan, and has also been participating in some key working groups (e.g. WG-105 Unmanned Aircraft Systems, WG-122 Virtual Centre, WG-130 ATM/ANS supporting standards).

New service delivery model task force

A core component of the European ATM Master Plan 2025 is the transition to a new service delivery model, aiming at replacing the current model with a data-driven and cloud-based service-oriented architecture for all operational environments. Following the signature in June 2024 of the joint statement of commitment by key European stakeholders to support this transition, the SESAR 3 JU set up a task force comprising ANSPs and industry representatives. The task force, co-chaired by the SESAR 3 JU, is working to develop a harmonised model for the breakdown of the monolithic ATM systems. This activity aims at de-risking the transition to the new service delivery model, which will enhance flexibility, scalability and resilience, and will accelerate innovation through its service-oriented design, with open and standardised interfaces based on application programming interface technologies, corresponding to the Master Plan SDO 8. Throughout 2024, the task force collected and analysed information from the existing (monolithic) systems and began defining the breakdown.

Technical Coordination Group

The TCG was established in December 2022 by the SESAR 3 JU to boost cooperation with the main entities that contribute at the European level to the SESAR project, including EASA, the European Defence Agency (EDA), EUROCAE, EUROCONTROL (including Network Manager) and the SDM. Specifically, the TCG was tasked to monitor and de-risk the roll-out of the SDOs defined in the 2025 ATM Master Plan and facilitate the accelerated market uptake of SESAR Solutions.

The group met four times in 2024. Among other things, the group played a key role during the Master Plan update campaign by supporting the stakeholders' consultation on the SDOs and in providing recommendations to the SESAR 3 JU on the consultation outcome. The group also drafted and reviewed the SESAR 3 JU strategic deployment monitoring report.

CP1 ATM Functionality (AF) 6 Industrialisation Forum

In 2024, the SESAR 3 JU actively contributed to the CP1 Industrialisation Forum. The forum, chaired by EASA, brought together all relevant industry and operator stakeholders involved in the implementation of ATM functionality (AF) 6 'initial trajectory information sharing' (in compliance with the AF6 industrialisation gate required by the CP1 regulation). AF6 is of particular importance as it is associated with the transition to trajectory-based operations (SDO 6). The forum's activities supported EASA in concluding that the technical maturity and expected benefits of AF6 justified a positive recommendation.

Alignment of the Single European Sky instruments (Master Plan and performance plans)

In 2024, to ensure that the European ATM Master Plan activities align with the EU policy priorities and its supporting regulatory framework, SESAR 3 JU participated in several activities. In cooperation with the Performance Review Body (PRB) and the European Commission's Directorate General for Mobility and Transport (DG MOVE), the SESAR 3 JU contributed to the preparation and approval of guidance material on European ATM Master Plan related investments for the fourth reference period (RP4) of the SES performance and charging scheme. The document provides guidance to help national supervisory authorities (NSAs) develop RP4 performance plans, taking into account the SDOs from the European ATM Master Plan. Prioritising investments in RP4 performance plans by linking them to the SDOs is expected to accelerate the market uptake of SESAR Solutions.

1.2.5 Strategic area of operation 5: Deliver SESAR outreach

1.2.5.1 Synergies

In 2024, the SESAR 3 JU continued to work closely with CINEA, notably on the implementation of the DSDs projects funded under the CEF, as detailed in Section 1.2.4.1. In addition, the project selected through the joint call with the EU-Rail JU provides an opportunity to share best practices in project and grant management while further strengthening collaboration between the two JUs.

In addition, aligning with the 2024–2025 BAWP operational objective 6 to foster synergies in high-priority areas related to its mission, the SESAR 3 JU has carried out dedicated activities with EUSPA and the Clean Aviation JU while also working to develop synergies with national and regional initiatives.

European Union Agency for the Space Programme



The SESAR 3 JU concluded discussions with EUSPA and signed an MOC aimed at strengthening collaboration on the DES programme, and advancing aviation safety, sustainability and operational efficiency through space-based technologies and innovation. Cooperation will include exchanging information and jointly promoting research and innovation activities addressing satellite technologies for aviation. It will also seek out opportunities for complementarity between EU funding programmes and the inclusion of space data in future funding activities related to ATM and aviation. Advancing innovative, space-based solutions and their market uptake, along with new business opportunities, will be key elements, particularly in the areas of precise satellite navigation for commercial aircraft (e.g. performance-based navigation) and drone traffic management (U-space).

Clean Aviation JU



During 2024, the SESAR 3 JU has worked together with the Clean Aviation JU to define potential areas of synergy and collaboration. Three main areas of collaboration were highlighted: the identification of potential challenges due to the introduction of net-zero aircraft on ATM and the definition of measures to better accommodate them, the execution of joint simulations/demonstrations to assess the performance impact of net-zero aircraft in ATM, and the definition of new environmental based metrics/indicators to support further trajectory optimisation.

Following this, a dedicated development priority (for exploratory applied research) has been included in the European ATM Master Plan 2025 (i.e. AR-3 'Integration of the next generation aircraft for zero/low emission aviation'). Aligned with this development priority, the technical specifications of the ER3 call cover a dedicated topic which aims at exploring the ATM aspects of the integration of the next generation aircraft for zero/low-emission aviation as envisaged in the Alliance for Zero-Emission Aviation (AZE) concept of operations (CONOPS) and the Clean Aviation JU programme. These activities represent a first step towards the development of a common roadmap with content and timelines with the Clean Aviation JU as planned to be delivered by the end of 2025.

At the end of 2024, the SESAR 3 JU and the Clean Aviation JU started working on a future Aviation Research and Innovation Strategy (ARIS), to be published in May 2025.

Synergies with national and regional programmes

Article 20 of the SBA provides that the joint undertakings should establish dialogue with Member States, particularly in the content of synergies, 'to ensure the alignment of efforts and activities at national, regional, Union and European level to create more impact.' To this end, a survey of the SRG members was organised in 2024 to identify activities at the national level that could have synergies with the activities of the

SESAR 3 JU. The results were presented by the Vice-chair of the SRG to the GB at the meeting in December 2024.

The survey received 14 responses out of 32 countries surveyed. Among them, five countries reported that they were actively engaged in ATM modernisation, with projects, programmes or initiatives funded at the national or regional level and aligned with SESAR priorities. A further five countries highlighted their participation in SESAR projects or described broader research and innovation frameworks focusing on the environment, digitalisation, connectivity and cybersecurity. Four of the participating countries said there were no related activities taking place nationally.

The findings of this survey indicated that ATM research is primarily conducted at the EU level, under SESAR 3 JU coordination, reaffirming the central role of the JU in driving ATM R&I across Europe.

1.2.5.2 Stakeholder engagement

1.2.5.2.1 Institutional stakeholders

European Defence Agency



Operational air traffic by the military serves various purposes, such as security and defence, sovereignty missions and training, and often requires immediate and unpredictable access to airspace. This unpredictability necessitates flexible ATM to ensure that military operations do not adversely affect the overall flow of air traffic. Therefore, the extensive involvement of the military in SESAR activities is critical.

In close dialogue with the SESAR 3 JU since 2011, the EDA is the main interface between the DES programme on the one hand, and military aviation and ATM on the other, and is responsible for coordinating military views with regards to SESAR.

During 2024, cooperation continued under the MOC between the SESAR 3 JU and the EDA to

enhance coordination during the execution of the DES programme. The joint task force established in 2023 to support the EU action plan on synergies between civil, defence and space industries and ensure complementarity between the work programmes of the SESAR 3 JU and the European Defence Fund continued its work. In 2024, the task force identified specific projects where effective collaboration could fill gaps or prevent duplication, and explored opportunities for dual-use developments.

The SESAR 3 JU and the EDA also continued to harmonise their remotely piloted aircraft system (RPAS) ⁽¹⁰⁾ research programmes to reduce duplication and to promote dual-use solutions. The SESAR 3 JU participated in reviews, discussions and events related to the EDA's RPAS activities, and the EDA reciprocated in the SESAR ER and IR projects. The EDA continues to contribute output from this harmonised work to European joint civil and military solutions, particularly through supporting standardisation. This cooperation supports a harmonised approach to RPAS standardisation and operational integration.

1.2.5.2.2 Industry stakeholders

SESAR Deployment Manager



The new MOC between the SESAR 3 JU and the SDM was approved by the European Commission in early 2024. Through this MOC, the SESAR 3 JU worked to ensure coherence between the strategies and programmes of the two organisations and the necessary connections between SESAR research, development, innovation and validation activities and the deployment of SESAR solutions. Cooperation took place in the framework of various groups and associated activities, including in the context of the Master Plan campaign, the TCG, the AF6 Industrialisation Forum, the CNS Programme Manager covering all aspects of CNS roadmap implementation, and the EASCG, where the SDM is involved in coordination on standards ⁽¹¹⁾. The two organisations also worked together in relation to

⁽¹⁰⁾ A remotely piloted aircraft (RPA) is a specific kind of unmanned aircraft which is remotely operated by a pilot in a control station. Managing RPA traffic is challenging for controllers, since RPA fly significantly slower than conventional jet airliners and experience latency in communicating or loss of communications link with the ground.

⁽¹¹⁾ More information on the TCG, the AF6 Industrialisation Forum and the EASCG is provided in Section 1.2.4.2.



cooperation with the United States (US) Federal Aviation Administration (FAA) under the EU-US MOC ⁽¹²⁾, preparation of communications around SESAR success stories, and joint visits by SESAR 3 JU and SDM management.

Alliance for Zero-Emission Aviation



In 2024, the SESAR 3 JU continued its active participation in AZEA, the alliance aimed at preparing the aviation ecosystem for the entry-into-service of novel electric and hydrogen-powered aircraft, and specifically in its Working Group 5, which addresses the challenge of integrating the new zero-emissions aircraft into the European airspace. After the delivery of the first iteration of the concept of operations (CONOPS) in January 2024, the focus of Working Group 5's activities has been on developing the necessary tools and indicators to allow the assessment of the impact the new aircraft will have on the European network.

Air navigation service providers



The SESAR 3 JU maintained close contact with the Civil Air Navigation Services Organisation (CANSO) during 2024. The SESAR 3 JU participated actively in CANSO's Airspace World event in Geneva in March 2024, through the organisation of a number of SESAR walking tours, participation in theatre sessions and support to CANSO's 'Future Skies: Tomorrow's Voices' initiative to engage young professionals and students. The SESAR 3 JU also contributed to CANSO's 'Complete Air Traffic System' (CATS) initiative, which involves over 60 organisations worldwide. This included participation in a two-day workshop hosted by NASA in the US in January and two meetings of the CATS Global Council, in March and December, culminating in the adoption of the CATS CONOPS for global airspace management at the end of the year.

⁽¹²⁾ More information on the EU-US MOC is provided in Section 1.2.5.3.

Civil airspace users and professional staff organisations

The SESAR 3 JU maintained close relationships during 2024 with the civil airspace users (AUs) and professional staff organisations (PSOs), in particular via the framework contracts under which the SESAR JU procures the involvement of their experts in DES programme activities.

Through these framework contracts, the SESAR 3 JU engaged on the AUs side with the International Air Transport Association (IATA), the European Business Aviation Association (EBAA), the International Council of Aircraft Owner and Pilot Associations (IAOPA) and the European Helicopter Association (EHA), and on the PSOs side with the International Federation of Air Traffic Controllers' Associations (IFATCA), the European Cockpit Association (ECA), the International Federation of Air Traffic Safety Electronics Associations (IFATSEA), the European Transport Workers' Federation (ETF) and the Air Traffic Controllers European Unions Coordination (ATCEUC).

In 2024, efforts focused initially on supporting the European ATM Master Plan update campaign, while the volume of work undertaken by AUs and PSOs in support of the flagships of the DES programme increased during the year. This engagement allowed direct support of key projects during their execution, thus promoting accuracy, practicality and stakeholder buy-in.

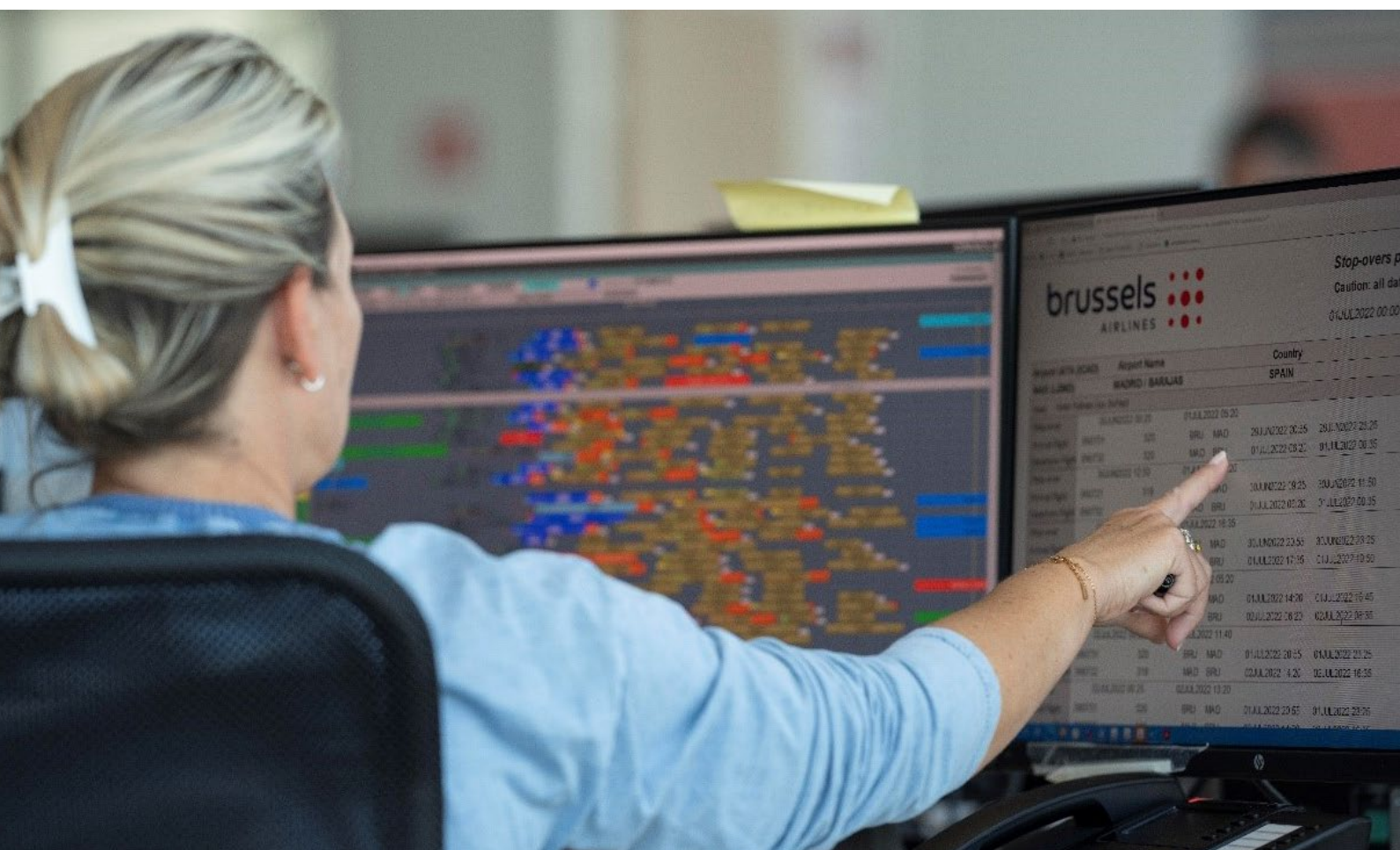


European airports

Recognising the need for further airport integration, the SESAR 3 JU works closely with Airports Council International (ACI) Europe to raise awareness of SESAR activities beyond the airports represented in the JU's membership.

In 2024, this collaboration was further strengthened through the first specific contract implementing the framework contract renewed for 2024–2027. Under this specific contract, ACI Europe supported the SESAR 3 JU in a number of communication activities, including in the production of animations, articles and video interviews to promote SESAR R&I activities to decision-makers and the general public.

The Executive Director of the SESAR 3 JU participated in the ACI Europe Annual Congress and General Assembly in Istanbul in July, where he presented the Digital Transformation Award to Rome Fiumicino Airport, a SESAR member, recognising a European airport that has embraced digitalisation and adopted innovative technologies and procedures to improve safety, capacity, efficiency and sustainability. He also participated in the Airports Innovate event in Rome in November.





SESAR 3 JU programme managers participated in ACI Europe's Environmental Strategy Committee meeting to promote SESAR R&I work, and ACI Europe launched a study requested by SESAR 3 JU on 'Bridging Multimodal Gaps: Solutions for Improving Passenger Experience and Securing On-Time Arrivals'.

New entrants

The SESAR 3 JU's membership includes a number of organisations dedicated to the full range of new entrants, such as drones, air taxis and high-altitude vehicles, along with organisations working on their evolving management systems, such as U-space and higher airspace operations (HAO). The SESAR 3 JU is also actively involved in the Network of U-space Stakeholders, a large and growing forum dedicated to the sharing of information relevant to U-space deployment. The SESAR JU co-chairs this network with the European Commission, EASA, EUROCONTROL and the EDA. The SESAR 3 JU also continues to contribute to this field through participation in the European Commission's Informal Drone Expert Group and the European U-space Standardisation Coordination Group.

The SESAR 3 JU actively participated in international activities related to new entrants, in particular through a wide portfolio of drone and IAM research projects, three of which directly support the deployment of the European Commission's U-space regulations, and the ECHO 2 project, looking at HAO. It also continued to support the International Civil Aviation Organization (ICAO), providing a co-rapporteur to the ICAO's guidance

development working group within the ICAO Advanced Air Mobility (AAM) Study Group.

Research associations

In 2024, the SESAR 3 JU monitored the activities of the Advisory Council for Aviation Research and Innovation in Europe (ACARE) at the level of the General Assembly and the Strategy and Implementation Board. The chair team of ACARE paused all working group activities while they developed a new vision and approach for ACARE.

The SESAR 3 JU also supported the European Aeronautics Science Network through events of shared interest to profile ATM in the wider field of aeronautics, and has continued to coordinate regularly with the Association of Scientific Development of ATM in Europe by providing relevant briefings and presentations at their board meetings.

1.2.5.3 Cooperation with non-EU countries and international organisations

The SESAR 3 JU's strategy for cooperation with non-EU countries and international organisations is pursued within the framework of the EU's sustainable and smart mobility strategy. In close coordination with the European Commission, the SESAR 3 JU aims to secure its position as a global leader in ATM modernisation in support of the ICAO GANP, promoting SESAR Solutions for global interoperability and harmonisation, and thereby supporting EU industrial leadership and competitiveness.

Activities at ICAO level

During 2024, the SESAR 3 JU participated actively in the preparation of European working papers and coordination of European positions for the 14th ICAO Air Navigation Conference that took place in August and September. On the topics of most relevance to the SESAR 3 JU – the update of the GANP, higher airspace operations, trajectory-based operations (TBO) and future air/ground connectivity – the outcomes were in line with Europe's objectives. The SESAR 3 JU also participated during the conference as part of the EU delegation in a number of bilateral meetings, with Brazil, Canada, China, Japan, Singapore and the US.

The SESAR 3 JU also participated in many ICAO groups during the year. The SESAR 3 JU took on the role of co-chair of the ICAO GANP Study Group, which is preparing the 8th edition of the GANP, to be endorsed ultimately at the 42nd session of the ICAO Assembly in 2025. The SESAR 3 JU worked to ensure broad alignment between the update of the GANP and the update of the European ATM Master Plan.



The SESAR 3 JU participated actively in the ICAO's AAM Study Group, which supports ICAO's standardisation of global AAM. This included co-leading the sub-group charged with developing guidance material on uncrewed aircraft systems traffic management /U-space. SESAR 3 JU staff also participated in the first ICAO AAM Symposium in Montreal in September 2024, including with a dedicated stand at the event.

The SESAR 3 JU also participated in the ICAO Air Traffic Management Requirements and Performance Panel to provide inputs on its R&D work related to TBO. The SESAR 3 JU also

participated in the ICAO Symposium on Aviation Non-CO₂ Emissions, at which the work of a number of SESAR 3 JU projects was presented, both during the conference and on a dedicated SESAR JU stand.

Other international activities

The SESAR 3 JU continued to work with the FAA during 2024 under the EU-US MOC on ATM modernisation, civil aviation R&D and global interoperability. The coordination focused on four areas: the integration of new entrants, the development of performance-based technologies, advancing innovation in ATM, and ICAO coordination. Two meetings of the SESAR 3 JU-FAA Coordination Committee were held during the year, in April and November, in conjunction with meetings between the FAA and the SESAR Deployment Manager and EUROCONTROL, to ensure a coordinated approach between all the organisations. This included the establishment of a new comprehensive work plan defining future activities across the various cooperative arrangements.

Bilateral contacts with other key international partners were also maintained during 2024. Regular interactions with the Civil Aviation Authority of Singapore took place under the MOC signed in 2012. The Executive Director of the SESAR 3 JU met with the Director General of the CAA in Singapore in February to discuss our common vision for ATM. Opportunities for closer collaboration with a particular focus on TBO were highlighted, and technical-level discussions have since continued with a view to identifying areas where cooperation on TBO could be mutually beneficial. A SESAR 3 JU delegation also visited Singapore in July for technical-level discussions with the new International Centre for Aviation Innovation, which aims to facilitate the development and adoption of technologies for the aviation sector in the Asia-Pacific region.

Regarding Japan, the SESAR 3 JU participated in the 2024 International Workshop on ATM/CNS in Tokyo in November and met bilaterally with the Japanese authorities to discuss the latest developments, including the update of the European ATM Master Plan. A regular technical-level dialogue has also been established with experts from the Republic of Korea, to exchange on our respective research and innovation activities related to drones and IAM.

1.3 Calls for proposals, grant information and other funded actions (calls for tender, prizes, etc.)

1.3.1 Calls for proposals and grant information

In 2024, the SESAR 3 JU contractually managed 68 grants awarded under the Horizon Europe programme:

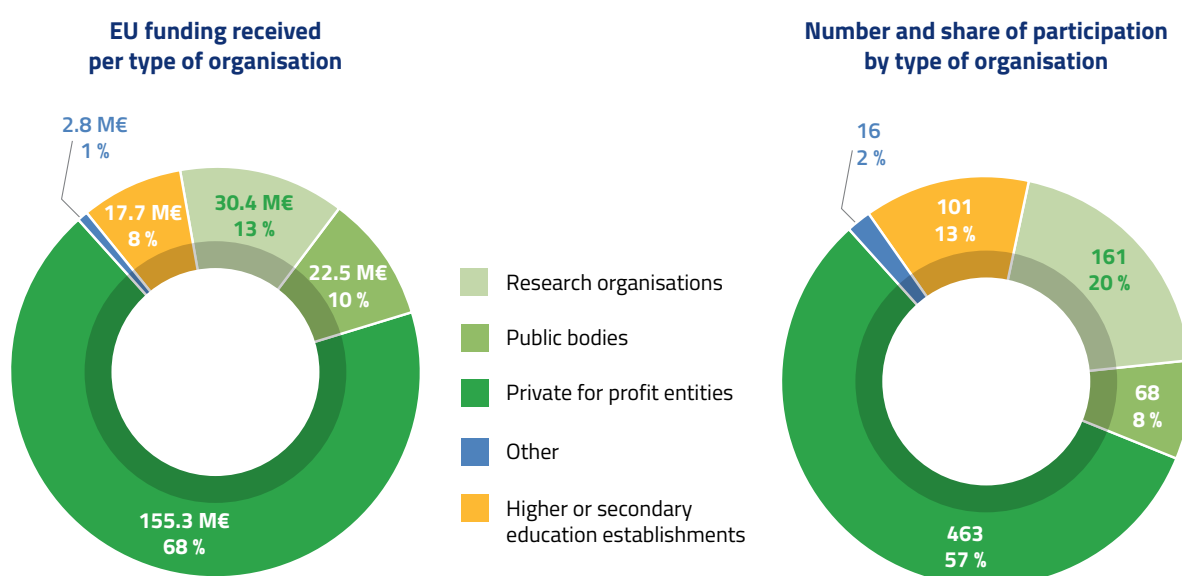
- ▶ 18 grants under the ER1 call for a total cost of EUR 24.7 million, including EUR 22.3 million of EU contribution;
- ▶ 32 grants awarded under the IR1 call for a total cost of EUR 346.8 million, including EUR 180.8 million of EU contribution; and

- ▶ 18 grants awarded under the ER2 call for a total cost of EUR 27.7 million, including EUR 25.6 million of EU contribution.

All these grants were managed in accordance with the Horizon Europe programme rules.

The figures below show the participation and EU funding received by organisations in the grants managed by the SESAR 3 JU in 2024. The participation in the DSDs projects, as well as the synergy project with the EU-Rail JU is not included.

FIGURE 6: FUNDING AND PARTICIPATION PER TYPE OF ORGANISATION



Of the 809 participations, 124 are from SMEs, representing 15.3 % of the total. These SMEs received EUR 29.6 million in EU funding, accounting for 12.9 % of the total funding.

In 2024, the SESAR 3 JU did not publish any call for proposals. However, the SESAR 3 JU concluded the evaluation and award process for the ER2 call

closed in November 2023. Detailed information on the proposal submitted per work area and on the breakdown of applicants per country has already been provided in the SESAR 3 JU Consolidated Annual Activity Report 2023 ⁽¹³⁾. Tables 2 and 3 show the list of awarded projects and the breakdown of types of participating entities by country.

⁽¹³⁾ SESAR 3 JU Consolidated Annual Activity Report 2023, p. 50-52

TABLE 2: LIST OF PROJECTS SELECTED UNDER THE ER2 CALL

Project	EU contribution (EUR)	Total cost (EUR)	Participation
Antennae	1 999 706.00	1 999 706.50	4
Anticipate	977 515.00	1 114 307.50	6
Astonish	1 971 400.00	1 971 400.00	7
Atmaca	1 612 187.50	1 612 187.50	7
ATM-EXCITE	956 607.50	956 607.50	6
AWARE	1 940 625.00	1 940 625.00	9
CORUS five	887 717.00	2 011 319.75	13
DeepFlow	989 637.00	1 431 029.50	6
Dialog	1 974 387.50	1 974 387.50	6
F4EClim	999 938.75	999 938.75	3
ORCI	819 493.75	819 493.75	4
PRIAM	999 625.00	999 625.00	8
Response	1 999 577.00	1 999 577.50	6
Satera	1 761 498.75	1 761 498.75	6
Stepless	1 999 605.50	1 999 605.50	7
TADA	1 769 978.75	1 769 978.75	6
U-AGREE	953 553.75	1 018 053.75	10
Visors	999 526.25	1 310 493.75	9
Total	25 612 580.00	27 689 836.25	123



TABLE 3: BREAKDOWN OF ER2 CALL PARTICIPATION PER COUNTRY AND TYPE OF ENTITY

Country	Country group ^(*)	Higher education	Private companies (including SMEs)	Public bodies	Research organisations	Other	Total participation	EU contribution (EUR)
Spain	MS	8	11 (4)	4	5		28	5 444 550.75
Italy	MS	2	14 (10)		4		20	3 878 040.00
Germany	MS	1	5 (1)		7		13	4 263 379.25
France	MS	4	4 (3)	1	1		10	2 485 765.00
Belgium	MS		1 (1)		5	2	8	356 842.00
Ireland	MS		6				6	2 193 398.75
Netherlands	MS		2		2		4	1 302 459.25
Finland	MS		1 (1)		2		3	959 074.00
Austria	MS	1	2				3	475 950.00
United Kingdom	TC	2	1				3	0.00
Switzerland	TC	2			1		3	0.00
Norway	AC		1 (1)		1		2	707 584.00
Türkiye	AC	1	1				2	683 125.00
Portugal	MS	1	1				2	485 250.00
Sweden	MS			2			2	324 137.00
United States	TC	2	1				3	0.00
Iceland	AC		1				1	637 187.50
Croatia	MS	1					1	285 875.00
Malta	MS	1					1	251 053.75
Romania	MS				1		1	201 210.00
Czechia	MS		1 (1)				1	200 026.25
Ukraine	AC		1				1	172 687.50
Hungary	MS		1 (1)				1	158 875.00
Canada	TC		1				1	96 500.00
Slovakia	MS	1					1	49 610.00
Brazil	TC				1		1	0.00
Singapore	TC	1					1	0.00
Total		28	56 (23)	7	30	2	123	25 612 580.00

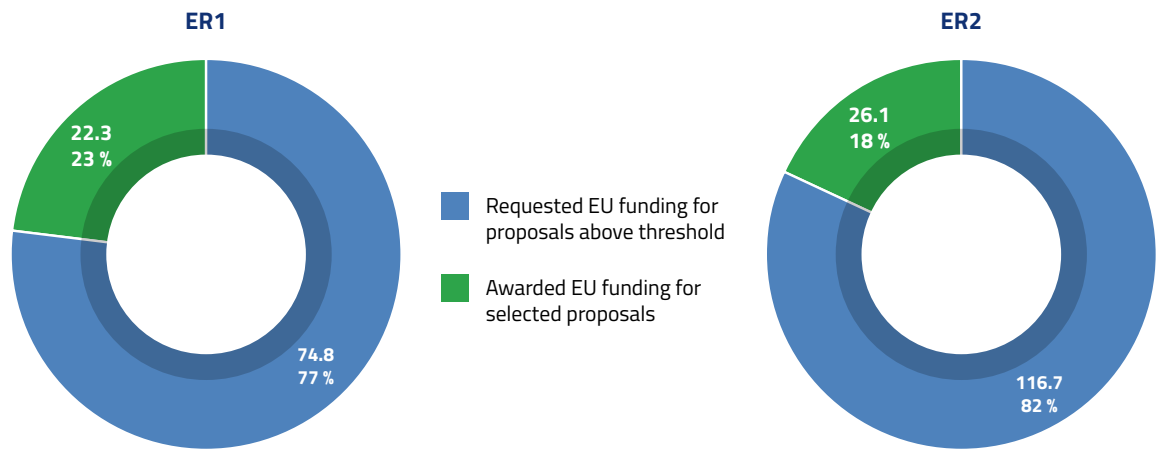
(*) Status of countries on 31st December 2023, the year in which the ER2 call was launched.

NB: MS: Member State; AC: associated country; TC: third country.

With 18 projects selected out of 93 eligible proposals, the success rate for ER2 stands at approximately 19 %. The overall quality of submissions was exceptionally high, with 84 proposals surpassing the evaluation threshold. The strong participation, with 100 proposals submitted, represents an increase of nearly 39 % compared

to the ER1 call, for a similar budget. This outcome underscores the relevance of the proposed topics and their alignment with the sector's research and technological development priorities. It also highlights the sector's increasing investment needs in exploratory research, as shown in the oversubscription rate presented in Figure 7.

FIGURE 7: OVERSUBSCRIPTION OF ER1 AND ER2 CALLS (MILLION EUR AND PERCENTAGE)



In October 2023, the SESAR 3 JU published a joint call with the EU-Rail JU. With the contribution of the SESAR 3 JU, the evaluations took place in 2024 and resulted in the selection of the Travel Wise project. The EU-Rail JU contractually manages the grant. More information on this project is provided in Section 1.2.3.3.

In addition, the SESAR 3 JU contributed its technical expertise during the evaluation phase of the third DSD call (CEF-T-2023-SIMOBGEN) launched under the CEF, for which the evaluation took place in March 2024 and resulted in the selection of the project Peacock. More Information on the DSD2 call is provided in Section 1.2.4.1.

1.3.2 Operational procurement and prize activities

In 2023, SESAR 3 JU established multiple framework contracts to secure the expertise from key civil aviation stakeholders (in particular, AUs, PSOs and airports) which is essential for the effective implementation of the programme. In 2024, these framework contracts were used, fully leveraging the contractual mechanisms established the previous year to sign six specific contracts. This approach allowed the JU to focus efforts on new operational actions, including the

signature of a framework contract with ACI and three direct contracts with recognised experts to evaluate applications for the selection of associated members.

In addition, an amendment to the SESAR 3 JU – EASA Service Level Agreement was signed on 6 June 2024 for an extra amount of EUR 400 000 to support the development of the updated European ATM Master Plan.

TABLE 4: OPERATIONAL PROCUREMENT AND PRIZES FOR 2024

Subject	Type of contract	Contractor	Procurement procedure (if applicable)	Signature date	Amount (EUR)
Provision of support by civil AUs in business aviation operations	Amendment	EBAA	Framework contract	29 April 2024	n/a
Provision of AU expertise to the DES programme	Specific contract	EBAA	Framework contract	26 January 2024	199 475
Provision of airports' expertise for the execution of the DES Programme	Framework contract	ACI Europe	Negotiated procedure	1 February 2024	Maximum (max.) 1 000 000
Provision of airports' expertise for the execution of the DES Programme	Specific contract	ACI Europe	Framework contract	28 June 2024	127 500
Consultancy and support to the SESAR 3 JU related to strategic management and facilitation of market uptake	Specific contract	Egis Avia SAS	Framework contract	15 May 2024	98 560
Provision of support by civil AUs in global and regional airline operations – Lot 1 AUs – IATA	Amendment	IATA España SL	Framework contract	29 April 2024	n/a
Lot 1 AUs – IATA – 2025 activities	Specific contract	IATA España SL	Framework contract	9 December 2024	199 864
Lot 3 Professional Staff Organisation support	Specific contract	International Federation of Air Traffic Safety Electronics Associations	Framework contract	19 December 2024	49 950
Lot 2 AUs – EBAA – 2025 activities	Specific contract	EBAA	Framework contract	9 December 2024	99 737.50
SESAR Young Scientist Award (student category)	Prize	n/a	Contest	9 December 2024	5 000
SESAR Young Scientist Award (PhD category)	Prize	n/a	Contest	9 December 2024	10 000
Max. total for 2024					790 086.50 ^(a)

^(a) A framework contract is implemented through specific contracts. Framework contracts do not result in a charge to the SESAR 3 JU budget; only the specific contracts issued under framework contracts represent a charge to the SESAR 3 JU budget. The total therefore does not include the value of framework contracts.

1.4 Calls for proposals, evaluation procedures and outcomes

The evaluation of proposals stemming from the second ER call for proposals (HORIZON-SESAR-2023-DES-ER-02), which closed in November 2023, was carried out between December 2023 and February 2024, by a panel composed of 34 external experts ⁽¹⁴⁾. Additionally, three independent experts were contracted for ethics screening. The evaluators were briefed on applicable rules, processes, procedures, evaluation criteria, and the scope and objectives of the calls. During the individual evaluation phase, each proposal was independently evaluated against

the award criteria by at least three evaluators. The evaluators prepared, for each proposal, an individual evaluation report, with comments and scores for each criterion. The individual evaluation phase was followed by consensus and panel review meetings where evaluators shared and finalised their comments and scores and agreed on the proposal ranking lists.

All ER2 applicants have been informed about the evaluation results on 15 March 2024.

TABLE 5: EXPERTS FOR THE ER2 CALL, BREAKDOWN PER GENDER, COUNTRY AND ORGANISATION TYPE

Country	Country group (a)	Female experts	Male experts	HES	REC	PUB	PRC	Other	Total Experts
Cyprus	MS	0	2	0	0	1	0	1	2
Germany	MS	0	3	0	0	0	3	0	3
Greece	MS	2	2	3	0	0	1	0	4
Spain	MS	1	3	0	1	2	1	0	4
France	MS	1	1	0	0	1	1	0	2
Croatia	MS	0	1	0	0	0	1	0	1
Italy	MS	2	3	2	1	1	0	1	5
Malta	MS	0	1	1	0	0	0	0	1
Netherlands	MS	0	2	0	0	1	1	0	2
Poland	MS	2	1	1	1	0	0	1	3
Romania	MS	1	0	1	0	0	0	0	1
Sweden	MS	1	0	0	0	0	0	0	1
Slovenia	MS	1	0	0	0	0	1	0	1
Total MS		11	19	8	3	6	9	3	30
Türkiye	AC	2	2	0	0	1	1	2	4
Total AC		2	2	0	0	1	1	2	4
Grand total		13	21	8	3	7	10	5	34
		38.2 %	61.8 %	23.5 %	8.8 %	20.6 %	29.4 %	14.7 %	n/a

NB: MS: Member State; AC: associated country; HES: higher or secondary education establishments; REC: research organisations; PUB: public bodies; PRC: private for-profit entities.

Following the information on the results for the ER2 call, the SESAR 3 JU received one redress case. The case has been reviewed by the SESAR 3 JU redress committee which confirmed that

the evaluation procedure was carried out in accordance with the applicable rules. Therefore, the initial evaluation result stands and no new evaluation was required.

⁽¹⁴⁾ Information on the steps of the call evaluation procedure that took place in 2023 (including the eligibility check and the selection of experts) was reported in the 2023 CAAR.

1.5 Follow-up activities linked to past calls

Information on ER1, ER2, IR1, the joint call with the EU-Rail JU, DSD1a, DSD1b and DSD2 ongoing projects that were active during the reporting period is available in Section 1.2.

1.6 Openness, cooperation, synergies, and cross-cutting themes and activities

Information on the collaboration with other European programmes and partnerships and synergies between the JU's actions and national or regional initiatives and policies is provided in Section 1.2.5, in line with Article 17(2)(p) and Article 26(2)(d) and (f) of the SBA.

1.7 Progress against key impact pathways and the SESAR 3 JU's key performance indicators

1.7.1 Progress against general Horizon Europe key impact pathways indicators

Horizon Europe incorporates an approach to capturing and communicating impacts by means of the key impact pathways (KIPs) ⁽¹⁵⁾. The objective of this approach is to enable policymakers and the wider public to gain regular insights into the effects and benefits of the programme over time in relation to European science, economy and the wider society. The nine KIPs cover areas of scientific, societal and technological/economic impact, and focus on the impact of the Horizon Europe programme as a whole.

A full list of these KIPs can be found in Table A4 in Annex 3. The KIPs are not calculated directly by the

JU, but automatically calculated and reported via the Horizon Dashboard, based on the continuous reporting of the projects. The calculation follows the methodology presented in the [indicator methodology and metadata handbook](#).

Since the Horizon Europe KIPs are automatically generated by the Horizon Dashboard, they only reflect the projects funded under the ER1, ER2 and IR1 calls that are directly contractually managed by the SESAR 3 JU. They do not include results from the DSDs projects, which are funded under the CEF budget, nor the Travel Wise project, which stems from a joint call with the EU-Rail JU and is contractually managed by that JU.

1.7.2 Progress against Horizon Europe key performance indicators common to JUs

Horizon Europe introduces common criteria for all European Partnerships, including the JUs. They are complementary to the KIPs and each JU's specific KPIs. These indicators, which have been designed to capture quantitative and qualitative information and aspects of the functioning of the JUs, can be grouped into four categories: additionality and directionality, transparency and openness, coherence and synergies, and international visibility and positioning.

1.7.2.1 Additionality and directionality

Additionality is fundamental to the EU partnership model, and the SESAR 3 JU's members complement EU funding with investments and activities. Although precise data on the additional investments triggered by the EU contribution to the JU (KPI 2) will only be available following the completion of the first wave of projects, the contribution (both financial and in-kind) from its members (KPI 1) reached a total amount of EUR 272.6 million ⁽¹⁶⁾ since the beginning of the programme. In terms of directionality, the goals of the SESAR 3 JU align directly with the European Green Deal and the 'A Europe fit for the digital

⁽¹⁵⁾ The general Horizon Europe KIPs are available in Annex V of Regulation (EU) 2021/695 establishing Horizon Europe.

⁽¹⁶⁾ The figure for 2024 only is provided in Table 10.

age' strategy, resulting in the entirety of its budget being dedicated to the digital and green transition (KPI 3), which are core objectives of the DES programme.

1.7.2.2 Transparency and openness

In 2024, NATS and Lilium joined the partnership, increasing the number of members to 57 (KPI 6)⁽¹⁷⁾. The ER2 call that was closed at the end of 2023 and awarded in 2024 resulted in the participation in the newly funded projects of 34 newcomers that had not been involved in the SESAR 2020 activities, bringing the total of newcomers to 126 (KPI 7)⁽¹⁸⁾.

1.7.2.3 Coherence and synergies

In terms of synergies with other EU partnerships (KPI 8), the SESAR 3 JU strengthened its collaboration with other JUs, notably through the back-office arrangements for procurement support services, accounting services, human resources and information and communications technology (ICT) services. Of note is the enhanced collaboration with the Clean Aviation JU, through their respective SRGs (in line with Article 68.1 of the SBA) and in the context of the development of the Aviation R&I Strategy. In addition, collaboration with the EU-Rail JU was made possible thanks to the joint project Travel Wise which, beyond the work on the technical aspects, provided opportunities for exchanges on management process.

Over the reporting period, the SESAR 3 JU consistently sought collaborations and synergies with other R&I initiatives at the EU, national, regional and sectoral levels (KPI 9). The most

important one is the collaboration with CINEA on the call for proposals for the DSD3 launched under the CEF, as an integral part of the DES. In 2024, the SESAR 3 JU expanded its network of collaborations with R&I stakeholders in Europe and across the world by renewing its MOC with the SDM and signing another one with EUSPA. Section 1.2.5 provides details on the ad hoc collaborations and various activities with R&I initiatives.

The SESAR 3 JU has been successful in leveraging complementary funding from other EU funds (KPI 10), notably from the CEF and Horizon Europe. This has resulted in an additional EUR 120 million, covering the projects under the DSD1a, DSD1b and DSD2 calls, as well as a share of the project under the joint call with the EU-Rail JU awarded in 2024. This represents the equivalent of an additional 52.4 % of the budget the JU has distributed through its calls under Horizon Europe since the start of the DES programme.

1.7.2.4 International visibility and positioning

The SESAR 3 JU conducts numerous activities aimed at raising awareness and increasing the visibility of its operations and results (KPI 11). This includes organising and participating in several international events, and numerous publications, newsletters, news items and social media activities. More information on these activities can be found in Section 2.1. These awareness-raising activities have been successful in attracting R&I stakeholders from beyond the EU Member States and associated countries to Horizon Europe, as evidenced by the participation of 16 entities in the projects currently active (KPI 4).

1.7.3 Progress against the key performance indicators specific to the SESAR 3 JU

The specific KPIs for the SESAR 3 JU are detailed in Table A7, Annex 5. These metrics evaluate the JU's performance across three main levels: (1) resources (input), processes and activities, (2) outcomes and (3) impacts. This logic chain creates a direct link between the activities of the JU and the achievement of the objectives of the DES programme.

Following the adoption of the 2025 European ATM Master Plan, indicators and related targets capturing the outcomes and impact of the programme have been revised and aligned with the new priorities and timeline for the roll-out of Phases C and D.

In the reporting period, the SESAR 3 JU managed 68 projects (18 ER1, 18 ER2 and 32 IR1). In addition, nine DSD projects were funded under

⁽¹⁷⁾ More details on the membership expansion process and result conducted by the SESAR 3 JU in 2024 are available in Section 3.1

⁽¹⁸⁾ KPI 5, 'Share and type of stakeholders and countries invited/engaged', which tracks participation at the application stage in the SESAR 3 JU call for proposals funded under Horizon Europe, remains empty in 2024. This is because the results of the ER2 call, published in 2023, have already been reported in the 2023 CAAR (Annex 5, Table A9).

the CEF, and a project is funded under the joint call with the EU-Rail JU. The SESAR 3 JU is continuing its collaboration with other EU programmes and initiatives to maximise impact. This includes a fourth DSD call (DSD3) launched under the CEF in 2024, indicating a continuously proactive approach towards synergies to ensure deployment of the solutions developed. The synergy with the CEF has generated additional EU funding of over EUR 1.5 million (for the DSD2), while the Travel Wise project resulting from the joint call with the EU-Rail JU is co-funded by both JUs, bringing an additional EUR 2 million. Moreover, the SESAR 3 JU members' contributions total EUR 272.6 ⁽¹⁹⁾ million.

In terms of outcomes, new SESAR Solutions will be delivered after the completion of the first wave of DES projects. Consequently, KPIs measuring the solutions delivered, and the solutions with supporting standards and regulations are not expected to show any progress before 2025. The delivery of Phase C is near completion, with 66 % of the development already completed, while

initial progress on Phase D will start to materialise with the results of the IR1 projects. Regarding the market deployment of the solutions delivered by R&D in industrialisation supporting Phase C, 13 % are under implementation, demonstrating progress towards full SDO deployment by 2035 as envisaged in the European ATM Master Plan ⁽²⁰⁾.

The impact section of the KPIs is based on the expected performance outcomes of the European ATM Master Plan. It includes a set of metrics designed to capture the overall benefits anticipated from deploying SESAR Solutions as part of the Master Plan's roll-out. The reference year is 2023. Over the coming years, progress driven notably by the delivery and deployment of new solutions will be monitored and reported. For this reason, the Impact section of the KPI table still contains several entries marked as TBC.

The specific KPIs reported in 2024 indicate that performance is aligned with the targets, suggesting a positive trajectory towards achieving the objectives by the DES programme's conclusion.

1.8 Dissemination and information about project results

In 2024, a series of actions were implemented aiming to raise awareness among beneficiaries about the importance of the dissemination and provision of information about the projects' results. The activities implemented were tailored

to the specific situation of the projects, depending on the different projects' implementation stages. Project-specific information is available in the [SESAR 3 JU Projects Portal](#)

⁽¹⁹⁾ Figure cumulative since the beginning of Horizon Europe.

⁽²⁰⁾ More information on the status of the development and deployment of Phases C and D is provided in Section 1.2.1.2.

ENAIRES



2 Support to operations

2.1 Communication activities

2.1.1 Events and conferences

In 2024, the SESAR 3 JU participated in over 80 external events, including several major conferences, and organised the SESAR Innovation Days.

2.1.1.1 CANSO drone exhibition at the European Parliament, 19–23 February 2024, Brussels

SESAR projects supporting urban air mobility and drone traffic management had a chance to showcase their work to members of the European Parliament. Organised by CANSO Europe with the support of Member of the European Parliament Jan-Christoph Oetjen, the exhibition demonstrated the collaborative efforts to ensure the safe and secure integration of drones and electric vertical take-off and landing aircraft into European airspace.

Speaking about the exhibition, **European Parliament Vice-President, Mr Oetjen** said ‘The EU drone eco-system must closely work together to unfold the sector’s full potential. The European drone strategy 2.0 is a good basis, but we need more efforts from the EU Member States in its implementation and harmonised solutions that do not undermine drone operations at borders. Sufficient funding in the future is a priority to ensure scaling-up of the market and development of the technology. A European drone label could create more trust and acceptance amongst users when operating.’



2.1.1.2 Airspace World, 19–21 March 2024, Geneva

Nearly 7 000 delegates attended Airspace World, where the SESAR 3 JU showcased the latest from the DES programme as part of the 'Europe for Aviation' team. The event featured briefings, exhibits and demos highlighting collaboration between European aviation organisations working on the SES. The SESAR 3 JU and the SESAR Deployment Manager also signed an MOC.

Additionally, 10 SESAR Walking Tours, organised in partnership with the SESAR Deployment Manager, attracted 500 participants. The tours provided an opportunity to explore a variety of ATM solutions and enabling technologies across Europe, from innovation to deployment.

2.1.1.3 Transport Research Arena, 15–18 April 2024, Dublin

Information on SESAR Innovation Days and on the Young Scientist Awards is provided in Section 1.2.2.3.

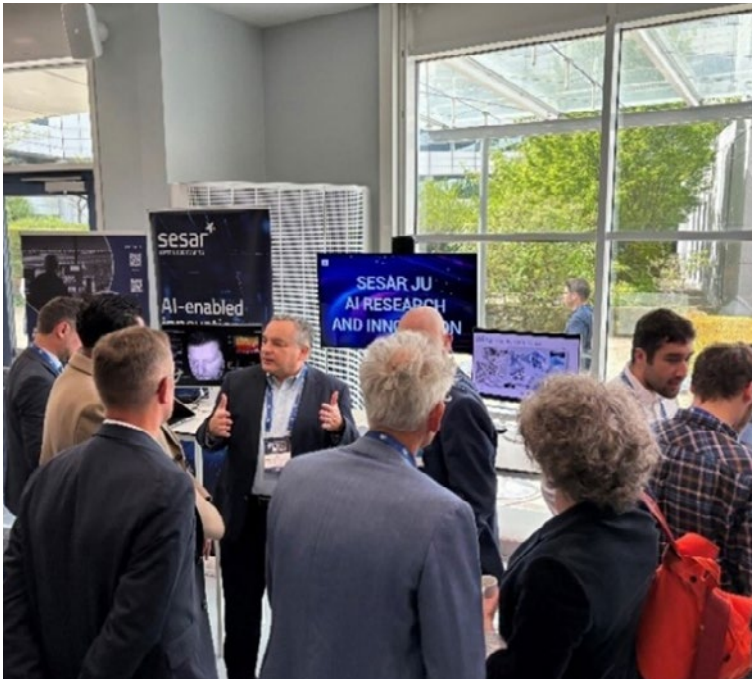
The SESAR 3 JU joined forces with the EU-Rail JU, the Clean Hydrogen JU, and the Clean Aviation JU at the Transport Research Arena in Dublin, showcasing the power of partnership. The event highlighted mobility trends, best practices, and how R&I could reshape transport systems.

On 14 April, the SESAR 3 JU arranged a visit for Magda Kopczyńska, Director-General for Mobility and Transport, to AirNav Ireland (a member of the JU) and its air traffic control tower. She discussed the importance of advancing technical solutions for air traffic safety and climate change mitigation. 'Collaborative efforts are crucial to ensure the aviation sector is future-ready and capable of meeting its critical climate objectives,' she remarked.

The conference featured various sessions on topics such as multimodality, urban air mobility and synergies between funding streams. The SESAR 3 JU also met with its Irish members and showcased projects like the SESAR DSD. The event included an educational session for students, highlighting career opportunities in ATM.

More about the event can be found [here](#).





2.1.1.4 FLY AI Forum, 29–30 April, Brussels

FLY AI partners organised a two-day conference to explore the latest developments and deployments of AI and machine learning in aviation. Hosted by FLY AI partner, EUROCONTROL, the conference included updates from the European Commission on AI regulatory matters, the discussion of practical-use cases of AI benefits to aviation, an exhibition of projects and success stories, and an overview of ongoing research and training activities.

R&I continues in the DES programme with a portfolio of projects, many of which presented their activities during the main conference and exhibition. Some applications in ATM include airport and tower surveillance ([Trusty](#)), certification ([HUCAN](#)), traffic hotspots ([ASTRA](#) and [Harmonic](#)), smart sectorisation ([Smarts](#)), drone operations ([AI4HyDrop](#)) digital assistants ([Jarvis](#) and [Darwin](#)), dynamic reconfiguration of airport resources ([FASTNet](#)), multimodality ([MAIA](#) and [MultiModX](#)), and forecasting ([Kairos](#)), just to name a few.



2.1.1.5 Global Trajectory-Based Operations Symposium, 4–6 June 2024, Brussels

The European Commission, EASA, EUROCONTROL, the SESAR Deployment Manager and the SESAR 3 JU jointly organised the world's first TBO symposium. The aim of the event was to showcase the benefits of TBO and the progress being made in the realisation of the global TBO concept. The event provided a forum for discussion and exchange on all aspects of TBO, including the operational benefits, concept, enablers, and the regulatory and standardisation aspects. The event attracted more than 250 participants, with a further 800 participants following the event online.

2.1.1.6 ICAO Advanced Air Mobility Symposium, 9–12 September 2024, Montreal

The inaugural symposium attracted 1 400 attendees, with a very strong and visible presence from European partners. During a key session, the SESAR 3 JU and its project partners presented progress in Europe on advanced air mobility, discussing the critical interrelationships between airspace design, operating rules and service providers. The SESAR 3 JU underlined the need to be pragmatic, building on existing procedures to accommodate traffic safely and efficiently, while learning from experience and developing the new advanced ecosystem for AAM as demand increases.

During the symposium, the SESAR 3 JU stand attracted plenty of visitors who had an opportunity to meet experts and learn about innovative projects, such as [EALU-AER](#), [OperA](#), [AI4HyDrop](#), [U-ELCOME](#), [Spatio](#), [BURDI](#), [Ensure](#), [CORUS five](#), [U-AGREE](#), [SAFIR-Ready](#), [Eureka](#).

2.1.1.7 ICAO Symposium on Non- CO₂ Aviation Emissions, 16–18 September, Montreal

The three-day event focused on the latest scientific insights into aviation's climate impacts beyond CO₂ emissions and options for addressing them. While the effects of aviation's CO₂ emissions are well understood, uncertainties about the effects of the various non-CO₂ emissions persist. The symposium served to discuss these challenges and explore mitigation strategies.

The SESAR 3 JU welcomed ICAO Secretary General Juan Carlos Salazar to its stand, where he learned about the innovations aimed at making European skies the most efficient and environmentally friendly in the world. The SESAR 3 JU also participated in a panel alongside industry leaders, highlighting ongoing SESAR research focused on innovative operations to reduce non-CO₂ emissions.

At the SESAR 3 JU stand, attendees had the chance to meet experts from several SESAR 3 JU projects addressing non-CO₂ emissions: [AEROPLANE](#), [CICONIA](#), [E-CONTRAIL](#), [CONCERTO](#) and [ECHOES](#).





And the winner is...

Yutong Chen

Strategic and Tactical Conflict Management for
Complementary Air Traffic Scenarios



2.1.1.8 SESAR Innovation Days, 11–15 November 2024, Rome

The 14th edition of the SESAR Innovation Days brought together over 600 researchers, industry experts and policymakers to explore advancements in ATM R&I. Organised by the SESAR 3 JU and hosted by Aeroporti di Roma, ENAV, and Leonardo, the event featured 37 posters, 54 technical papers and sessions on topics including climate-optimised trajectories, IAM and quantum computing.

Discussions focused on making aviation more efficient and environmentally-friendly, integrating new entrants like drones, and the potential impact of quantum technology on ATM. Site visits to

Aeroporti di Roma and ENAV showcased practical innovations in sustainability and digital air traffic control.

The event also featured the SESAR Young Scientist Award, recognising groundbreaking contributions from students and early-career researchers.

Yutong Chen from Cranfield University won the PhD category for his research on conflict management in crewed and uncrewed operations, while **Samuel Christian Heilein** from the German Aerospace Center (DLR) won the student category for his work on radar altimetry.

2.1.2 Press

In 2024, the SESAR 3 JU was featured in 14 articles and newsletters, in both EU and specialised trade press, including Politico, Parliament Magazine, Airport International and Skyways. The JU also issued a number of

press releases during the year, promoting the publication of the European ATM Master Plan and participation at the Transport Research Arena, the largest European transport event, which took place from 15–18 April in Dublin.

2.1.3 Publications

The SESAR 3 JU published the following publications throughout the year, which were promoted through online channels and at key events.

Air Traffic Management and the Green Deal

A projects info pack by CORDIS

This projects info pack, a collaboration between CORDIS and the SESAR 3 JU, showcases 10 groundbreaking EU-funded projects that are developing new technologies and procedures in ATM to advance the environmental sustainability of Europe's air transport.

[View publication](#)



European ATM Master Plan Portal

The European ATM Master Plan is more than just a roadmap – it's the blueprint guiding Europe towards a smarter, more sustainable and resilient airspace. Now, with the dedicated ATM Master Plan Portal, you can explore its key priorities, track progress and see how cutting-edge innovations are transforming aviation.

[View publication](#)



SESAR Innovation Pipeline – Air traffic management research and innovation – 2023 highlights

Get the highlights from some of the SESAR 3 JU Research and Development activities, which took place over the course of 2023.

The brochure features updates from each strand of the programme: exploratory research, industrial research, fast track and DSDs.

[View publication](#)



2.1.4 Online communications

2.1.4.1 Website and e-news

In 2024, the SESAR 3 JU developed new content for its website (www.sesarju.eu), including 75 news items about programme-related developments and project results, and a dedicated interface on improving the environmental footprint of ATM. The website saw almost 259 173 unique visitors, with LinkedIn acting as the main platform driving traffic. The monthly e-news was sent to nearly 8000 external contacts (in full compliance with the General Data Protection Regulation). In addition, 43 dedicated event mailshots and press releases were distributed, attracting further traffic to the SESAR 3 JU website.

2.1.4.2 Social media

In 2024, the SESAR 3 JU's social media communication achieved positive results in terms of performance. The SESAR 3 JU published just over 900 posts across its social media channels, generating the most engagement on LinkedIn, which saw the biggest growth rate (+ 16.6 %). LinkedIn also generated important traffic to the SESAR 3 JU website.



The good performance can be explained by a series of scheduled promotion campaigns, which helped increase the visibility of the SESAR 3 JU across the channels on which it is active. These included campaigns to familiarise audiences with the new members of the SESAR 3 JU, its project areas and key events such as the annual conference and SESAR Innovation Days.

In 2024, the SESAR 3 JU published three blogs on behalf of the executive director to increase C-level engagement.

- ▶ **Modernisation of ATM** – published to coincide with the European ATM Master Plan workshop (22–23 April 2024).
- ▶ **Trajectory-based operations** – published to coincide with the Global TBO Symposium (4–6 June 2024).
- ▶ **Advanced air mobility** – published to coincide with the ICAO AAM Symposium (9–12 September 2024).

2.1.4.3 Digital assets

In 2024, the SESAR 3 JU developed a number of videos and animations to promote the programme and encourage projects to develop video material about their work:

- ▶ SESAR solutions animations:
 - ▶ Remote Towers,
 - ▶ Digital Assistant,
- ▶ Digital European Sky project teasers,
- ▶ Airspace World 2024,
- ▶ SESAR Innovation Days 2024.



2.2 Legal and financial framework

The SESAR 3 JU was established on the basis of Article 187 of the Treaty on the Functioning of the European Union, and of the SBA.

The financial rules of the SESAR 3 JU, adopted by its GB under Decision GB(D)01-2021, comply with Commission Delegated Regulation (EU) 2019/887 on the model financial regulation for public–private partnership bodies.

2.2.1 Legal support provided to operations

In 2024, the legal support provided to operations contributed to advancing the SESAR 3 JU's strategic objectives. The work in this area provided improved contractual and regulatory clarity.

As part of SESAR 3 JU's efforts to expand its network, the legal support was instrumental in selecting new associated members. Close coordination with technical and administrative services enabled new associated members to integrate efficiently while complying with institutional requirements. This initiative demonstrated the SESAR 3 JU's ability to attract highly qualified and relevant stakeholders that add value to the partnership.

To further enhance interinstitutional collaboration, legal support played a leading role in the creation of the first-ever synergy topic call agreement between the EU-Rail JU and the SESAR 3 JU. This pioneering agreement enabled the joint selection of projects and management of grant agreements, supporting European transport inter-modality objectives. By formalising this collaboration, this agreement set a precedent for future cooperation and joint initiatives and strengthened the

SESAR 3 JU's strategic synergies with other JUs in the field of grants.

In parallel, the SESAR 3 JU undertook a significant modernisation of its processes for internal approval and validation, and for document signing with external counterparts. The introduction of new information technology (IT) systems – including the European Commission's advanced records system (Ares), MyWorkplace and the public procurement management tool (PPMT) – alongside increased use of the EU Funding and Tenders Portal, marked a strategic shift towards digitalisation. While this modernisation demanded a substantial investment of resources during 2024, it is part of a long-term strategy of the JU to streamline workflows, make procedures more accessible and reduce response times. By digitising and automating key steps, these new systems will contribute to more efficient processes and further support the organisation's overarching objectives.

Finally, SESAR 3 JU swiftly integrated the new Financial Regulation ⁽²¹⁾, supported by prompt legal analysis, ensuring a timely alignment with the updated legal framework.

⁽²¹⁾ Regulation (EU, Euratom) 2024/2509 of the European Parliament and of the Council of 23 September 2024 on the financial rules applicable to the general budget of the Union (recast).

2.2.2 Data protection activities

Since the entry into force of Regulation (EU) 2018/1725 ⁽²²⁾, the SESAR 3 JU's long-term commitment to a privacy practice and culture has been strengthened. During the reporting period, activities related to data protection were carried out in line with the plan outlined in the 2024–2025 BAWP.

The focus of the work in 2024 was on the preparation of the files and negotiations for the authorisation by the European Data Protection Supervisor to the Data Protection Administrative Arrangement (DPAA) concluded with EUROCONTROL in 2022, support to digitalisation of the SESAR 3 JU, and synergies with other JUs.

In June, the European Data Protection Supervisor granted the authorisation to the DPAA, upon the SESAR 3 JU's official request made in April. The authorisation included a recommendation for an amendment which the SESAR 3 JU and EUROCONTROL implemented in December. The authorisation process of the DPAA, which started in 2022, resulted in a modernisation of the data protection framework of EUROCONTROL which involved the adoption of a new regulation in May

and the appointment of a Supervisory Authority. Thanks to this process and authorisation, the SESAR 3 JU is now in a safe and legally compliant position for transferring and managing personal data within the frame of the relationship with EUROCONTROL.

In terms of digitalisation, the DPO provided extensive advice on the deployment and assessment of new technologies and tools (i.e. Ares, SECABC (secure E-mail certificates and address book exchange for European Union institutions bodies and agencies), digital business cards and the use of AI tools).

Finally, the SESAR 3 JU took the responsibility to lead, on behalf of all 10 JUs, the procurement procedure leading to a framework contract for the provision of operational and legal support to data protection activities, signed in September. By driving this procurement procedure, the SESAR 3 JU has provided all JUs with a valuable tool to address the current data protection challenges.

⁽²²⁾ Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC, OJ L 295, 21.11.2018, p. 39.



2.3 Budgetary and financial management

On 14 December 2023, the GB approved the 2024 budget through Decision GB(D)13-2023.

The first amending budget of 2024 ⁽²³⁾ was required to reinscribe EUR 2 373 038.48 of unused payment appropriations from titles 1 and 2 (administrative costs) to cover legal obligations incurred in previous years. An additional reactivation of EUR 139 413.84, in both commitment and payment appropriations, was required under the same titles to address the agency's additional needs. Furthermore, EUR 1 939 787.84 were reactivated under title 3, to cover the last payments related to Horizon 2020 projects. In title 4 (Horizon Europe), EUR 513 067.93 in commitment appropriations and EUR 1 676 942.70 in payment appropriations were reactivated, while EUR 44 811 921 in payment appropriations were transferred to title 5 (unused appropriations not required in current year).

The main objective of the second amending budget ⁽²⁴⁾ was to include EUROCONTROL's 2024 cash contribution of EUR 3 571 428.57 towards the JU's running costs, along with its voluntary additional cash contribution of EUR 1 500 000. As a result, EUROCONTROL's total contribution for 2024 reached EUR 5 071 428.57. These appropriations were transferred to title 5 (unused appropriations not required in the current year), to be reactivated at a later stage in accordance with the $n + 3$ rule ⁽²⁵⁾.

Moreover, this amendment facilitated the reallocation of EUR 500 000 in commitment appropriations within title 4. This adjustment followed the award of the Travel Wise project as part of the synergy topic call agreement 'Integrated Air and Rail Network Backbone for a Sustainable and Energy-efficient Multimodal Transport System' between the EU-Rail JU and the SESAR 3 JU. As a result, the SESAR 3 JU's share has now increased to a maximum of EUR 3 000 000, higher than the originally planned EUR 2 500 000.

⁽²³⁾ Decision GB(D)02-2024.

⁽²⁴⁾ Decision GB(D)11-2024.

⁽²⁵⁾ Article 6(5) of GB(D)01-2021 Financial Rules of the SESAR Joint Undertaking.

TABLE 6: STATEMENT OF REVENUE FOR 2024

Statement of revenue: Heading	Initial 2024 budget		Amended 2024 budget	
	Commitment appropriations (EUR)	Payment appropriations (EUR)	Commitment appropriations (EUR)	Payment appropriations (EUR)
EU contribution excluding EFTA	91 088 542	83 372 971	91 088 542	83 372 971
of which administrative	2 628 062	5 620 031	2 628 062	5 620 031 ⁽²⁶⁾
of which operational	88 460 480	77 752 940	88 460 480	77 752 940
Third countries contribution including EFTA	3 224 534	2 935 742	3 224 534	2 935 742
of which administrative	93 033	183 288	93 033	183 288
of which administrative third countries excluding EFTA	0	0	0	0
of which operational	3 131 501	2 752 454	3 131 501	2 752 454
Industry financial contribution	3 198 945	3 198 945	8 270 374	8 270 374
of which administrative	3 198 945	3 198 945	8 270 374	8 270 374
of which operational	0	0	0	0
Other revenue	0	0	0	0
SUB-TOTAL REVENUES	97 512 021	89 507 658	102 583 450	94 579 087
Reactivation of unused appropriations from administrative expenditure	4 958 300	5 340 127	5 097 714	7 852 579
of which from 2020	3 082 224	1 768 627	3 082 224	1 768 627
of which from 2021				
of which from 2022	1 876 076	3 571 500	2 015 490	6 083 952
Reactivation of unused appropriations from operational expenditure	0	0	513 068	3 616 731
of which from 2020	0	0	0	0
of which from 2021	0	0	0	0
of which from 2022	0	0	513 068	3 616 731
TOTAL	102 470 321	94 847 785	108 194 232	106 048 396

In 2024, a total amount of EUR 86 308 713 of payment appropriations was received from the European Commission to cover the SESAR 3 JU operational obligations in 2024.

This amount is broken down as follows:

- ▶ EUR 3 082 224 (EFTA included) as the final Horizon 2020 programme European Commission contribution to cover running costs;
- ▶ EUR 2 721 095 (EFTA included) for administrative costs under Horizon Europe;

⁽²⁶⁾ A minor typo was noted in the 2023 CAAR, Table 18 – statement of revenue for 2023, EU administrative contribution excluding EFTA: the amount of administrative payment appropriations should read EUR 7 220 618 instead of EUR 7 220 678.

- ▶ EUR 80 505 394 (EFTA included) for operational costs under Horizon Europe.

Additionally, a total of EUR 5 378 711 was received from EUROCONTROL consisting of:

- ▶ EUR 307 283 as the final payment under the Horizon 2020 programme;
- ▶ EUR 5 071 429 for the SESAR 3 JU's running cost under Horizon Europe.

The other members contributed EUR 3 317 736 to the Horizon 2020 running costs, marking their final contribution to this programme. Effective from 2025, these members will begin their contributions to Horizon Europe, in accordance with the membership agreement.

The SESAR 3 JU also recovered exceptional revenues totalling EUR 2 792 645, which included:

- ▶ EUR 1 220 384 recovered from Horizon 2020 projects following audit corrections;
- ▶ EUR 1 539 680 reimbursed from the Mutual Insurance Mechanism (previously 'Guarantee Fund') for pre-financing of Horizon 2020 projects after their final closure;
- ▶ EUR 23 134 recovered from 2023 EASA pre-financing under Horizon Europe;
- ▶ EUR 9 446 reimbursed for minor administrative costs, including supplier reimbursements and salary balances.

TABLE 7: STATEMENT OF EXPENDITURE FOR 2024 – COMMITMENT APPROPRIATIONS

Statement of Expenditure (Commitment appropriations)	Initial 2024 budget (EUR)	Amended 2024 budget with transfers (EUR)	Executed 2024 budget (EUR)	Executed / amended (%)	Carried over to 2025 ⁽²⁷⁾ (EUR)	Available for future use (N + 3 rule) ⁽²⁸⁾ (EUR)
Title 1 – Staff expenditure	6 627 454	6 633 754	6 275 903	95	169 400	357 851
Salaries and allowances	6 175 801	6 175 801	5 851 738	95	71 416	324 063
of which establishment plan posts	5 604 982	5 604 982	5 526 034	99	0	78 948
of which external personnel	570 819	570 819	325 705	57	71 416	245 114
Expenditure relating to staff recruitment	5 000	5 000	0	0	0	5 000
Mission expenses	250 000	250 000	250 000	100	80 182	0
Socio-medical infrastructure (including training)	0	0	0	0	0	0
Training	60 000	60 000	40 000	67	13 141	20 000
External services	116 653	122 953	116 460	95	4 661	6 493
Receptions, events and representation	0	0	0	0	0	0
Other staff-related expenditure	20 000	20 000	17 705	89	0	2 295

⁽²⁷⁾ It is to be noted that the amounts reported in the column 'Carried over to 2025' are remaining open amounts on 31 December 2024, from commitments in 2024 and from previous years.

⁽²⁸⁾ The column 'Available for future use' reports on unused budget on 31 December 2024 that will be available for re-inscription up to 'following three financial years' in accordance with Article 6.5 of the SESAR 3 JU financial rules.

Statement of Expenditure (Commitment appropriations)	Initial 2024 budget (EUR)	Amended 2024 budget with transfers (EUR)	Executed 2024 budget (EUR)	Executed / amended (%)	Carried over to 2025 ⁽²⁷⁾ (EUR)	Available for future use (N + 3 rule) ⁽²⁸⁾ (EUR)
Title 2 – Infrastructure and operating expenditure	3 258 948	3 392 062	3 159 548	93	2 694 668	232 514
Rental of buildings and associated costs	258 181	198 181	194 896	98	77 896	3 286
Information and communications technology and data processing	2 015 620	2 059 020	1 943 242	94	1 824 347	115 778
Movable property and associated costs	10 000	12 000	11 859	99	11 859	141
Current administrative expenditure	444 247	483 847	370 538	77	274 591	113 309
Postage/ telecommunications	0	0	0	0	0	0
Expenditure on formal meetings	30 000	30 000	30 000	100	16 971	0
External communication, information and publishing	500 900	609 014	609 014	100	489 004	0
Title 3 – Operational expenditure on SESAR 2020	0	0	0	0	0	0
Previous years' calls / other funded actions	0	0	0	0	0	0
Title 4 – Operational expenditure on DES and SESAR 3 operations	91 591 981	92 105 049	35 657 074	39	20 996 224	56 447 975
Current year's calls / other funded actions	91 591 981	92 105 049	35 657 074	39	20 996 224	56 447 975
Title 5 – Unused appropriations not required in current year ⁽²⁹⁾	991 938	6 063 366	0	0	0	6 063 366
TOTAL	102 470 321	108 194 232	45 092 526	42	23 860 292	63 101 706

⁽²⁹⁾ Title 5 is intended for gathering unused appropriations from previous years that can be reused in subsequent years (n + 3 rule). Therefore, there is no consumption during the year, in both commitment and payment appropriations.

TABLE 8: STATEMENT OF EXPENDITURE FOR 2024 – PAYMENT APPROPRIATIONS

Statement of expenditure (payment appropriations)	Initial 2024 budget (EUR)	Amended 2024 budget with transfers (EUR)	Executed 2024 budget (EUR)	Executed/ amended (%)	Carried over to 2025 (EUR)	Available for future use (n + 3 rule) (EUR)
Title 1 – Staff expenditure	6 612 454	6 706 782	6 192 941	92	169 400	523 287
Salaries and allowances	6 160 801	6 230 177	5 848 108	94	71 416	382 068
of which establishment plan posts	5 604 982	5 604 982	5 526 034	99	0	78 948
of which external personnel	555 819	625 195	322 075	52	71 416	303 120
Expenditure related to staff recruitment	5 000	5 000	0	0	0	5 000
Mission expenses	250 000	268 652	188 469 ⁽³⁰⁾	68	80 182	89 629
Socio-medical infrastructure (including training)						
Training	60 000	60 000	26 859	45	13 141	33 141
External services	116 653	122 953	111 799	91	4 661	11 154
Receptions, events and representation						
Other staff-related expenditure	20 000	20 000	17 705	89	0	2 295
Title 2 – Infrastructure and operating expenditure	3 258 948	5 677 073	2 528 469	45	2 694 668	3 148 604
Rental of buildings and associated costs	258 181	465 780	309 935	67	77 896	155 845
Information and communications technology and data processing	2 015 620	3 806 190	1 688 290	44	1 824 347	2 117 900
Movable property and associated costs	10 000	15 000	0	0	11 859	15 000
Current administrative expenditure	444 247	545 881	130 981	24	274 591	414 900
Postage/ telecommunications						
Expenditure on formal meetings	30 000	50 558	17 251	34	16 971	33 307

⁽³⁰⁾ Includes assigned revenue amounting to EUR 9 446.

Statement of expenditure (payment appropriations)	Initial 2024 budget (EUR)	Amended 2024 budget with transfers (EUR)	Executed 2024 budget (EUR)	Executed/ amended (%)	Carried over to 2025 (EUR)	Available for future use (n + 3 rule) (EUR)
External communication, information and publishing	500 900	793 665	382 013	48	489 004	411 652
Title 3 – Operational expenditure on SESAR 2020	0	1 939 788	2 860 418 ⁽³¹⁾	100 ⁽³²⁾	0	0
Previous years' calls / other funded initiatives	0	1 939 788	2 860 418	100	0	0
Title 4 – Operational expenditure on DES and SESAR 3 operations	76 557 242	31 745 321	26 193 479	83	20 996 224	5 574 976
Current year's calls / other funded initiatives	76 557 242	31 745 321	26 193 479 ⁽³³⁾	83	20 996 224	5 574 976
Title 5 – Unused appropriations not required in current year	8 419 140	59 979 433	0	0	0	59 979 433
Total	94 847 785	106 048 396	37 775 306	36	23 860 292	69 226 300

In accordance with the latest approved 2024 budget (2nd amendment), the execution rate for commitment appropriations stands at 42 %, while the execution rate for payment appropriations has reached 36 %.

The lower budget execution for commitment appropriations was anticipated, primarily due to operational expenditures under the Horizon Europe programme, which achieved a 39 % commitment rate. Specifically, the commitment appropriations intended for the IR2 call commitment remained voluntarily uncommitted and will be activated in 2025. Additionally, aside from the EUR 25 612 580 awarded for the ER2 call, no other major calls were launched in 2024.

Regarding payment appropriations, the JU anticipated lower payment needs for operational expenditures, resulting in the transfer of EUR 46 488 864 from Title 4 to Title 5 under the 2024 first amending budget. Title 5's purpose is to hold unused appropriations from both previous and current years to ensure they are not lost.

The transfer of appropriation from the EU budget as envisaged in the legislative financial statement, annexed to the SBA, is based on regular annual amounts over a period of 8 years, while the cycle of the activities of the SESAR 3 JU is irregular: the two main calls, IR1 signed in 2023 (EUR 181 million) and IR2 (EUR 230 million) to be signed in 2026 represent 68.5 % of the overall operational budget. A call like IR2 requires that the SESAR 3 JU accumulates appropriation until the grant agreements can be signed and the corresponding pre-financing payment made. This has an impact on the execution rates in the meanwhile.

For title 1 (staff expenditure) and title 2 (administrative expenditure), the implementation rates for commitments are 95 % and 93 %, respectively, while the rates for payment appropriations are 92 % and 45 %. The unspent amounts related to interim staff, missions, training, other staff-related expenditures, human resources (HR) support fees, IT services and building-related service charges, among others, were carried forward to the following year.

⁽³¹⁾ EUR 2 860 418 corresponds to the final total amount paid on Title 3. It relates to the financial settlement of the last five Horizon 2020 projects not finalised by the end of 2023. An amount of EUR 1 939 788 was included in the 2024 budget with its first amendment, while the remaining EUR 920 630 payment appropriations were funded from assigned revenue stemming from already closed projects.

⁽³²⁾ For consistency, this percentage is based solely on the voted budget amount of EUR 1 939 788, excluding the EUR 920 630 of assigned revenue.

⁽³³⁾ Including assigned revenue amounting to EUR 23 134.

The primary reasons for the low implementation rate in title 2 are as follows:

- ▶ the invoice for part of EUROCONTROL services amounting to EUR 913 000, could not be processed in December due to the anticipated closure of the accounting system in preparation for the Commission's new accounting system, SUMMA;
- ▶ the delayed award of the contract for the provision of quality, information and document management services (signed in early December), for which EUR 200 000 was initially budgeted in 2024 and services only started in January 2025;
- ▶ payments related to 2024 that will occur in 2025 (ICT and communications mainly).

Regarding the phasing out of the SESAR 2020 programme, payments for the five remaining projects, which had not been financially finalised

and paid by the end of 2023, were processed in January 2024. The total amount paid under title 3 reached EUR 2 860 418, of which EUR 920 630 was covered by assigned revenue.

Payments made in 2024 under the Horizon Europe programme, totalling EUR 26 193 479, were allocated as follows:

- ▶ EUR 10 245 032 as pre-financing for ER2 call (representing 40 % of the awarded EUR 25 612 580);
- ▶ EUR 1 500 000 as pre-financing for the synergy call with the EU-Rail JU for the Travel Wise project;
- ▶ EUR 5 100 149 for the first interim payment of ER1;
- ▶ EUR 1 793 444 for the first interim payment of IR1;
- ▶ EUR 7 554 854 for other operational activities.

2.4 Financial and in-kind contributions from members other than the European Union

TABLE 9: CONTRIBUTIONS TO HORIZON 2020 FROM MEMBERS OTHER THAN THE EU, 2024

Nature	Amount
Financial contributions reported	EUR 3 623 066
IKOP reported	N/A
IKAA reported	N/A
IKAA reported and certified	N/A
TOTAL all contributions reported	EUR 3 623 066
TOTAL all contributions reported, including certified IKAA	N/A

TABLE 10: CONTRIBUTIONS TO HORIZON EUROPE FROM MEMBERS OTHER THAN THE EU, 2024

Nature	Amount (EUR)
Financial contributions reported	5 071 429
IKOP reported	600 948.27
IKAA EUROCONTROL reported	16 915 314.04
IKAA Other Members reported	95 667 202.27
IKAA EUROCONTROL reported and certified	16 915 314.04
IKAA Other Members reported and certified	25 384 499.89
Total of all contributions reported	118 554 893.15
Total of all contributions reported, including certified IKAA	47 972 190.77

TABLE 11: VALUES OF IKOP – EVOLUTION SINCE 2021

Values of IKOP – evolution (EUR)				
Reference of the project call	Total amount of IKOP committed for the project	Amount of IKOP reported before 2024	Amount of IKOP reported in 2024	Total amount of IKOP certified until 2024
DES-IR-01	151 948 962.64	0	1 587 314.21	0
DES-ER-01	2 451 840.00	0	556 510.82	0
DES-ER-02	2 030 495.00	0	0	0
Total	156 431 297.64	0	2 143 825.03	0

TABLE 12: VALUES OF CERTIFIED IKAA – EVOLUTION SINCE 2021

Values of certified IKAA – evolution (EUR)	
Year	Amount of certified IKAA
2021	N/A
2022	38 602 000
2023	50 313 289
2024	42 299 813.93
TOTAL since 2021	131 215 102.93

2.5 Corporate programming and reporting

2.5.1 Corporate programming

On 14 December 2023, the GB adopted the 2024–2025 BAWP ⁽³⁴⁾. This BAWP was amended twice in 2024.

The first technical amendment was adopted through a written procedure on 30 April to allow for the reinscription of unused appropriations from previous years into the 2024 budget, to make reallocation within title 4 (Horizon Europe operational) necessary to reflect some changes in the needs, and to include minor editorial improvements ⁽³⁵⁾.

The second amendment, adopted on 12 December, was more substantial, as it allowed to accommodate the changes linked to the adoption of the new European ATM Master Plan, as well as the technical specifications for the IR2 and ER3 calls, and to introduce the 2025 budget. In addition, it was the opportunity to include the 2025 IKAA plans, update the procurement plan, corporate risks and the major events, and revise the target and scope of some operational objectives ⁽³⁶⁾.

⁽³⁴⁾ Decision GB(D)13-2023 on the adoption of the bi-annual work programme 2024–2025.

⁽³⁵⁾ Decision GB(D)02-2024 adopting the first amended version of the SESAR 3 JU bi-annual work programme 2024–2025.

⁽³⁶⁾ Decision GB(D)11-2024 adopting the second amended version of the SESAR 3 JU bi-annual work programme 2024–2025.

2.5.2 Corporate reporting

In 2024, the SESAR 3 JU released its 2023 consolidated annual activity report (CAAR), which the GB approved at its meeting on 25 June 2024⁽³⁷⁾. Throughout the reporting period, the SESAR 3 JU regularly monitored and assessed, on a quarterly basis, progress on achieving the 2024 objectives as defined in the 2024–2025 BAWP, to ensure an accurate reporting in the 2024 CAAR. In addition, the SESAR3 JU developed or contributed to the SESAR 2020 Closure Report, the 2024 biennial monitoring report (BMR) and the ongoing midterm review of Horizon Europe.

SESAR 2020 Closure Report

In 2024, the SESAR 3 JU prepared the SESAR 2020 Closure Report⁽³⁸⁾, which was presented at the GB meeting in June. Following feedback and comments from the GB, the final version of the report was published in October 2024. The report provides a comprehensive overview of the results achieved under the SESAR 2020 R&I programme, which spanned from 2015 to 2023. The report concludes that, as an integral part of the EU's sustainable and smart mobility strategy, SESAR 2020 played a key role in advancing ATM technologies and operations and delivering on the ambitions of the SES in accordance with the 2020 ATM Master Plan. SESAR 2020 successfully fostered collaboration across the ATM industry, engaging 454 beneficiaries, including ANSPs, airspace users, airports, the manufacturing sector, professional staff associations and the scientific community. The programme funded 157 projects, leading to the development of 468 prototypes and 836 feasibility activities, along with over 30 000 demonstration flights. By documenting these achievements and insights, the SESAR 2020 Closure Report served as input in the elaboration of the 2025 edition of the European ATM Master Plan and as a valuable reference for guiding the current phase of European ATM modernisation through the DES programme.

Biennial monitoring report (BMR) 2024

In 2024, the SESAR 3 JU continued to provide information for the 2024 BMR on partnerships in Horizon Europe⁽³⁹⁾, supporting the European Commission in developing and finalising the report, to ensure the quality and accuracy of the information provided. Using a set of common and individual indicators, the 2024 BMR, published on 19 September 2024, monitors the progress of all partnerships, including SESAR 3 JU, in relation to EU policy objectives. While the report does not aim to compare partnerships or evaluate their individual performance, it provides an overview of their significant contribution to Horizon Europe as a policy instrument. SESAR 3 JU is particularly positively highlighted in the report as a successful example of international positioning, which was one of the two core cross-cutting themes of the 2024 BMR.

Midterm review of Horizon Europe

The SESAR 3 JU was assessed as part of a study supporting the interim evaluation of Horizon Europe and focusing on activities related to the Green Transition⁽⁴⁰⁾. The result of this assessment, published at the end of August 2024⁽⁴¹⁾, confirmed that SESAR 3 JU effectively aligns with the EU's Green Transition goals by enhancing ATM efficiency, flexibility, and environmental sustainability while serving as the main coordinator of European ATM R&I. It highlights the JU's role in fostering stakeholder collaboration, supporting standardisation efforts and promoting interoperability through open participation, funding coordination and deployable technological solutions in emerging areas like drones and the U-space. These highly positive findings, which recognise the performance and added value of the SESAR 3 JU, mark an important step towards securing a positive midterm review outcome in 2025.

⁽³⁷⁾ Decision GB(D)05–2024 approving the consolidated annual activity report for the year 2023.

⁽³⁸⁾ Single European Sky ATM Research 3 Joint Undertaking, SESAR 2020 Closure Report, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2829/298861>.

⁽³⁹⁾ European Commission: Directorate-General for Research and Innovation, Performance of European Partnerships – Biennial monitoring report 2024 on partnerships in Horizon Europe, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/991766>.

⁽⁴⁰⁾ European Commission: Directorate-General for Research and Innovation, AIT, Fraunhofer ISI, Kerlen Evaluation, Science Matrix et al., Horizon Europe and the Green Transition: Interim evaluation support study – Final report ('Phase 2' study), Dinges, M. and Coatanroch, G. (eds), Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/67934>.

⁽⁴¹⁾ European Commission: Directorate-General for Research and Innovation, Austrian Institute of Technology and Brodnik, C., Partnership Evaluation Report: Single European Sky ATM Research 3 Joint Undertaking (SESAR 3 JU) – Horizon Europe and the green transition interim evaluation support study, Publications Office of the European Union, 2024, <https://data.europa.eu/doi/10.2777/7895247>.

2.6 Administrative procurement and contracts

Compared with 2023, the scope of procurement has expanded in 2024 through the successful implementation of the 2024 procurement plan and a clear focus on generating synergies with other JUs which bring added value.

As a result, SESAR 3 JU was actively involved in leading two interinstitutional calls for tenders with several JUs under the BOA procurement procedure. While Articles 13 and 158 of the SBA do not require the SESAR 3 JU to take part in such schemes, these proactive efforts helped strengthen ties with other JUs, ensure regulatory compliance and contribute to optimising the use of all JUs' financial and human resources. This success shows the SESAR 3 JU's significant expertise in public procurement and strengthens its reputation as a reliable and forward-thinking partner.

In this context, the SESAR 3 JU was formally mandated by nine of its peer JUs to sign and manage the resulting framework contracts from the interinstitutional call for tenders on 'operational and legal support to data protection activities.' This call brought all JUs together for the first time, involved the widest range of participating JUs to date and led to the signature of five framework contracts on behalf of these JUs.

In addition, the SESAR 3 JU was mandated by three peer JUs to lead the interinstitutional call for tenders on the 'provision of event organisation support services' for a record maximum budget of EUR 10 580 000.

TABLE 13: ADMINISTRATIVE PROCUREMENT AND CONTRACTS IN 2024

Subject	Type of contract	Contractor / participating entities	Procurement procedure (if applicable)	Signature date	Amount (EUR)
Provision of temporary agency workers services	Memorandum of understanding (MOU)	DG Human Resources and Security, Unit B.3 – European Commission	Interinstitutional procedure	23 January 2024	n/a
Provision of strategy, editorial, media, press and publications	Service contract	EU-Turn SPRL	Framework contract	7 February 2024	49 280
Speaker at the Resource Unit Away-Day	Purchase order	Greenhouse Group	Very low value procedure	16 February 2024	3 806
Legal and operational support to data protection activities	MOU	CAJU, CBE JU, Chips JU, Clean Hydrogen JU, EDCTP 3 JU, EU-Rail JU, EuroHPC JU, IHI JU, SNS JU	Interinstitutional procedure (BOA procurement)	21 February 2024	n/a
Purchase order for the catering services of Boutique 32 for the Master Plan workshop, 22–23 April 2024	Purchase order	Boutique 32	Very low value procedure	8 April 2024	13 076
Statutory audit services	Specific contract	Baker Tilly	Framework contract	14 August 2024	46 516
Legal and operational support to data protection activities (Lot 1)	Framework contract	Trilateral Research Ltd.	Interinstitutional open procedure (BOA procurement)	6 September 2024	(Max. 2 226 600)

Subject	Type of contract	Contractor / participating entities	Procurement procedure (if applicable)	Signature date	Amount (EUR)
Legal and operational support to data protection activities (Lot 1)	Framework contract	Deloitte Consulting and Advisory BV/ SRL	Interinstitutional open procedure (BOA procurement)	6 September 2024	(Max. 2 226 600)
Legal and operational support to data protection activities (Lot 1)	Framework contract	Privanot ASBL	Interinstitutional open procedure (BOA procurement)	6 September 2024	(Max. 2 226 600)
Legal and operational support to data protection activities (Lot 2)	Framework contract	Lydian	Interinstitutional open procedure (BOA procurement)	6 September 2024	(Max. 924 100)
Legal and operational support to data protection activities (Lot 2)	Framework contract	Deloitte Legal	Interinstitutional open procedure (BOA procurement)	6 September 2024	(Max. 924 100)
Infrastructure and logistics support	Service order	EUROCONTROL	Administrative agreement	16 September 2024	766.14
Activities 2024	Specific contract	European Service Network SA	Framework contract	20 September 2024	10 000
Catering services for the Global TBO Symposium, 4–6 June 2024	Purchase order	Les frères Debekker	Very low value procedure	4 April 2024	9 736
Coordination of the initiatives related to the mitigation of the Ivanti Connect Secure 0-day vulnerability and testing of the servers cluster post rebuild on 9 and 10 February 2024	Purchase order	M.G. Management Consulting SRL	Very low value procedure	5 March 2024	562.50
Request related to four activities (graphical design support, stakeholder intelligence gathering, media outreach and training)	Specific contract	EU-Turn SPRL	Framework contract	7 February 2024	49 280
Graphical design support and production, editorial support, social media outreach, subscription renewals, and communication monitoring and analysis	Specific contract	EU-Turn SPRL	Framework contract	13 June 2024	32 395
Preparation of SESAR 3 JU's compliance with Regulation 2023/2841	Specific contract	Deloitte Consulting and Advisory BV/ SRL	Framework contract	14 August 2024	60 000
Provision of Microsoft licenses	Service order	EUROCONTROL	Administrative agreement	16 May 2024	94 000

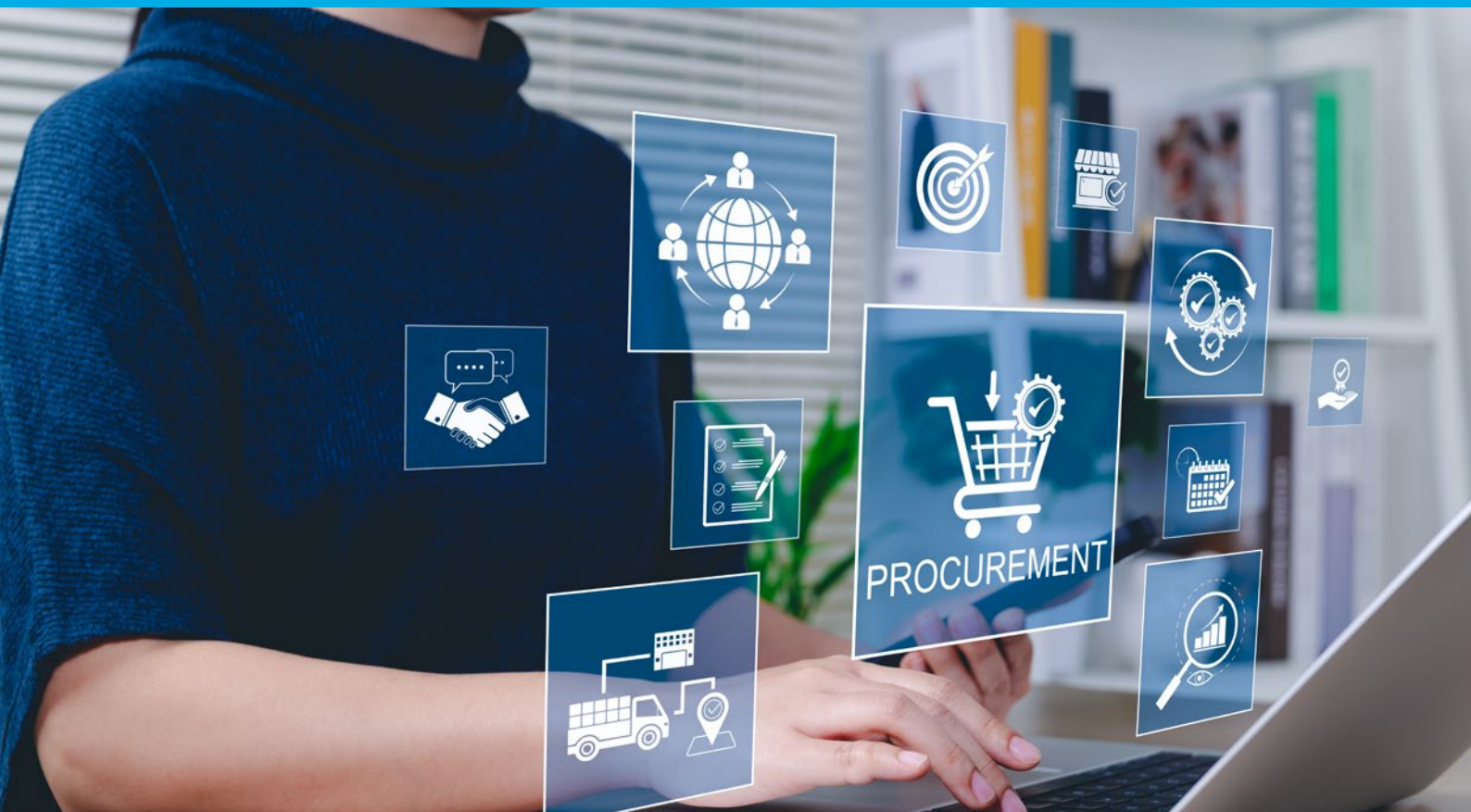
Subject	Type of contract	Contractor / participating entities	Procurement procedure (if applicable)	Signature date	Amount (EUR)
Provision of service delivery management services	Service order	EUROCONTROL	Administrative agreement	16 May 2024	88 200
Provision of ICT services, maintenance contracts and associated devices (RUN)	Service order	EUROCONTROL	Administrative agreement	16 May 2024	986 000
Request for translation: coordinated common reply to the European Court of Auditors (ECA)'s 2023 annual report Chapters 1 and 2	SLA	ECA	Interinstitutional procedure	16 July 2024	2 001
Request for translation: SESAR 3 JU's reply to the ECA's 2023 annual report	SLA	ECA	Interinstitutional procedure	16 July 2024	1 000.50
Transformation of the 'Teams Space' into a closed office with two desks, with no separation	Service order	EUROCONTROL	Administrative agreement	18 April 2024	9 875.60
Hermes-Ares-NomCom (HAN) project	Specific contract	PwC – Sopra Steria consortium	Framework contract	18 July 2024	15 961.80
Renewal licenses for digital signature	Order form	Insight Technology Solutions Belgium	Framework contract	19 June 2024	917.07
Provision of animation for the 2024 edition of the <i>European ATM Master Plan</i>	Specific contract	European Service Network SA	Framework contract	19 July 2024	32 697.50
Graphical design support and production support	Specific contract	EU-Turn SPRL	Framework contract	19 July 2024	85 500
Catering services for the Global TBO Symposium, 4–6 June 2024	Purchase order	Les frères Debekker	Very low value procedure	21 May 2024	4 507.50
Away day of the SESAR 3 JU on 27 June 2024 in Maastricht	Purchase order	Rederij Stiphout	Very low value procedure	22 May 2024	2 993
Provision of equipment for conference rooms (Osprey)	Service order	EUROCONTROL	Administrative agreement	23 April 2024	7 731.00
Provision of website services	Specific contract	European Service Network SA	Framework contract	26 March 2024	124 795
Amendment 5 – SLA provision of IT services	Amendment	DG Digital Services	SLA	26 July 2024	22 000
Event Support to SESAR 3 JU events	Specific contract	TMAB Business Events	Framework contract	26 July 2024	175 980.54

Subject	Type of contract	Contractor / participating entities	Procurement procedure (if applicable)	Signature date	Amount (EUR)
Support for SIDs 2024 and Events strategy 2025	Specific contract	TMAB Business Events	Framework contract	27 June 2024	125 322.75
ICT support	Service order	EUROCONTROL	Administrative agreement	28 August 2024	120 000
Provision of services	SLA	SG for HAN services	Interinstitutional procedure	27 June 2024	23 000
Provision of event organisation services	MOU	EDCTP 3 JU, Chips JU, SNS JU	Interinstitutional procedure (BOA procurement)	9 October 2024	n/a
Strategy, editorial, media, press and publications; services and subscriptions for magazines 1 January to 31 December 2025	Specific contract	EU-Turn SPRL	Framework contract	17 October 2024	35 310
Technology and Strategy Unit team building / away day, 21 November 2024	Purchase order	Le Louise Hotel Brussels – MGallery Collection	Very low value procedure	21 October 2024	1 653.84
Quality and security requirements related to the connection to the TESTA (trans European services for telematics between administrations) EuroDomain network set up under the digital Europe programme	MOU	European Commission (DG Digital Services)	Interinstitutional procedure	16 October 2024	n/a
Plants' maintenance	Purchase order	Any Green BVA	Very low value procedure	27 December 2024	13 860
Event support to SESAR 3 JU events	Amendment	TMAB Business Events	Specific contract	19 December 2024	n/a
BOA JUs ICT	SLA	Clean Hydrogen JU	Interinstitutional procedure	18 December 2024	n/a
Exceptional ICT support	Purchase order	MG Management Consulting SRL	Very low value procedure	11 December 2024	675
Provision of information and quality management services	Service contract	MG Management Consulting SRL	Open procedure	16 December 2024	624 000
Provision of ongoing services Eurodomain TESTA-ng III Ext. from 18 December 2024 to 31 December 2025	Specific contract	Deutsche Telekom Business Solutions GmbH	Framework contract	10 December 2024	33 643.48
Provision of equipment for conference rooms (Osprey)	Service order	EUROCONTROL	Administrative agreement	12 December 2024	3 361.50

Subject	Type of contract	Contractor / participating entities	Procurement procedure (if applicable)	Signature date	Amount (EUR)
Provision of ICT services, maintenance contracts and associated devices – Extension to 28 February 2025 and increase of budget for the extra time	Amendment	EUROCONTROL	Service order	9 December 2024	165 000
Provision of service delivery management services – extension to 28 February 2025 and increase of budget for the extra time	Amendment	EUROCONTROL	Service order	9 December 2024	18 000
Provision of Microsoft licenses – extension to 28 February 2025 and increase of budget for the extra time	Amendment	EUROCONTROL	Service order	9 December 2024	15 700
Development of a digital tool for participation in events (e.g. 2025 SESAR JU annual conference and others)	Specific contract	20STM	Framework contract	3 December 2024	59 742
Enterprise licensing terms agreed under the Enterprise Licensing Agreement (Adobe contract number 01120061) made effective on 26 November 2024	Purchase order	Bechtle NV	Interinstitutional procedure	25 November 2024	11 882.53
The SESAR 3 JU's dinner on 12 December 2024	Purchase order	Artemia SA	Very low value procedure	28 November 2024	9 200
Front- and back-office reception services	Amendment	Receptel	Framework contract	15 November 2024	n/a
Front- and back-office reception services	Specific contract	Receptel	Framework contract	22 November 2024	76 500
Event support to SESAR3 JU events	Amendment	TMAB Business Events	Specific contract	7 November 2024	n/a
List of candidates for external remunerated legal experts	MOU	Clean Aviation JU	Interinstitutional procedure (BOA procurement)	28 October 2024	n/a
Amendment 7: Appendix data protection – HR transformation	Amendment	DG Human Resources and Security – European Commission	SLA	2 April 2024	n/a
Amendment 8: Secure Email – PKI certificates	Amendment	DG Human Resources and Security – European Commission	SLA	12 April 2024	5 000

Subject	Type of contract	Contractor / participating entities	Procurement procedure (if applicable)	Signature date	Amount (EUR)
Amendment 9: HR transformation	Amendment	DG Human Resources and Security – European Commission	SLA	13 August 2024	6 900
SLA on the use of HAN	SLA	Secretariat-General – European Commission	Interinstitutional procedure	21 June 2024	9 550
HR back-office arrangement	SLA	between JUs	Interinstitutional procedure	3 April 2024	n/a
Amendment on confidential counsellors	MOU	between JUs	Interinstitutional procedure	17 July 2024	n/a
Max. total for 2024					4 053 127 ^(a)

^(a) A framework contract is implemented through specific contracts. Framework contracts do not result in a charge to the SESAR 3 JU budget; only the specific contracts issued under framework contracts represent a charge to the SESAR 3 JU budget. The total therefore does not include the value of framework contracts.



2.7 Information technology and logistics

2.7.1 Information and communications technology management

The SESAR 3 JU relied on two main providers of operational ICT services in 2024: EUROCONTROL, which delivered most of the services under a signed agreement, and the European Commission, with the JU using framework contracts established by DG Digital Services and managing them directly for some ICT services.

Among the major ICT developments in 2024, the following can be highlighted.

The first ICT strategy for the SESAR 3 JU was adopted, providing a clear medium- and long-term digital vision for the organisation.

Several projects were initiated to transform the JU into a more digital and cyber-secure organisation. Notable achievements include significant progress in the domain of cybersecurity (Microsoft Defender for Endpoints, Cloudflare, replacement of Vasco tokens with Microsoft multi-factor authentication, preparatory work to ensure compliance with the cybersecurity regulation (40F)), upgrading the audiovisual equipment for the meeting rooms, and ensuring better synergies with EUROCONTROL (access to EUROCONTROL dedicated intranet news for SESAR 3 JU and onboarding of Patch My PC). A major upgrade for email management was

launched, with the Exchange Online migration set to be completed in Q1 2025. Still, the implementation of the action plan to digitalise the organisation was considered only partially achieved, reflecting the ambitious nature of the 2024 target in relation to the available human and financial resources. Furthermore, progress was influenced by the level of engagement from key stakeholders, including EUROCONTROL. Nevertheless, 2024 marked a highly successful year for the SESAR 3 JU digital transformation, with several key milestones reached.

The SESAR 3 JU also leveraged synergies from the use of the European Commission's ICT systems and services. The ICT systems supplied by the Commission are related in particular to:

The SESAR 3 JU also leveraged synergies from the use of the European Commission's ICT systems and services. The ICT systems supplied by the Commission are related in particular to:

- ▶ financial management and accounting (Accrual Based Accounting (ABAC), but also Speedwell and Bluebell);
- ▶ human resources management (Sysper);

- ▶ the management of Horizon Europe calls for proposals and grants (SYGMA-Compass);
- ▶ procurement (PPMT);
- ▶ mission management (MIPS+)
- ▶ record management (Hermes-ARES-NomCom, onboarding completed in September 2024).
- ▶ corporate communication (SECABC and EU-Sign, implemented in 2024)

The JU also contracted an external service provider of ICT coordination services to act as the focal point for users and to integrate all services into one coherent system. The service started in 2023. In 2024, this provider managed cost claims for the SESAR 3 JU from EUROCONTROL and the European Commission, ensuring compliance with budget planning and maintaining sound financial management principles.

2.7.2 Cybersecurity

Due to the publication of a new regulation ⁽⁴²⁾ applicable to all EU bodies on the laying down of measures for a common level of cybersecurity, the SESAR 3 JU began preparation activities for its entry into force in January 2025. This regulation provides for additional management accountability for many of the measures already being implemented by SESAR 3 JU ICT services described in Section 2.7.1, but within a formal framework.

A dialogue was established with CERT-EU, which was in addition to ongoing collaboration with EATM-CERT, with the intention of benefiting from some services being offered. Specifically, the SESAR 3 JU began to prepare for the onboarding of a tenant/cloud monitoring service which will be completed in 2025.

A new service request for a Security Operations Centre (SOC) operated jointly with EUROCONTROL

was developed. The SOC is essential to review the many security logs and reports by Microsoft Defender and other cybersecurity related implementations to identify possible cyber threats, and is expected to go live in Q1 2025.

Using a framework contract awarded to Deloitte, the SESAR 3 JU requested a review of the existing ICT infrastructure to identify cybersecurity risks, existing maturity and recommendations for action, along with reviewing the existing risk management and internal control documentation to propose amendments needed for compliance with Regulation 2023/2841 by 8 April 2025. The requested deliverables were accepted by the SESAR 3 JU in December 2024 and will support efforts to comply with the regulation throughout 2025.

2.7.3 Facilities management

In 2024, the SESAR 3 JU has committed to begin its transformation towards a 'greener place to work'. Progress on this front largely depends on the achievement of EUROCONTROL's plan to introduce the Eco-Management and Audit Scheme (EMAS) ⁽⁴³⁾. Their new Corporate Social Responsibility Group met twice in March and May 2024. The SESAR 3 JU has been associated to the steering group. The results so far have been very modest, and they will require that EUROCONTROL engages actively in making the Haren site EMAS compliant. In the meantime, the SESAR 3 JU has been exploring other ways of making the organisation greener, through its purchase policy, mission practices and staff commuting.

During 2024, the main changes to the facilities included the creation of a new office space and the establishment of the first aid and first response teams. In the second half of the year, the SESAR 3 JU conducted a comprehensive internal review to assess compliance with its physical security policy, specifically focusing on the period since the organisation had moved to its new premises in Haren. The findings from this review served as the basis for updating the policy, which was developed in close collaboration with EUROCONTROL and the European Commission. The new physical security policy was adopted and shared in December 2024.

⁽⁴²⁾ Regulation (EU, Euratom) 2023/2841 of the European Parliament and of the Council of 13 December 2023 laying down measures for a high common level of cybersecurity at the institutions, bodies, offices and agencies of the Union.

⁽⁴³⁾ https://green-business.ec.europa.eu/eco-management-and-audit-scheme-emas_en.

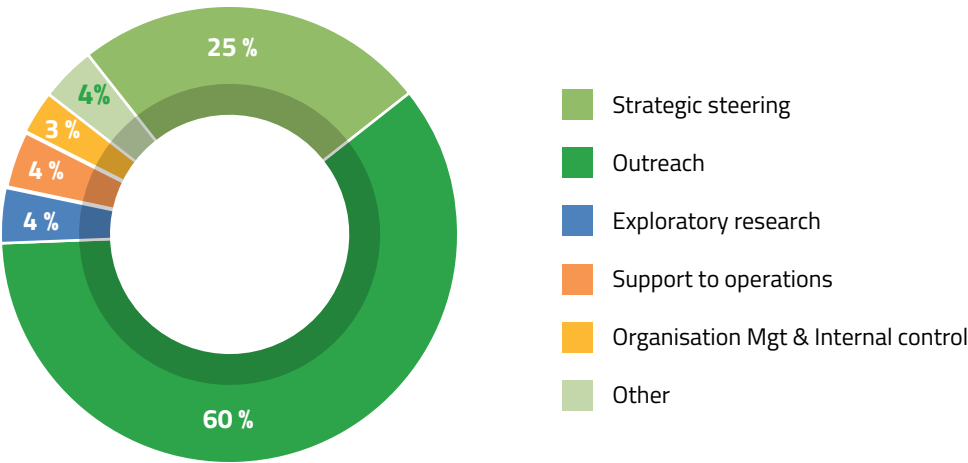
2.7.4 Travel coordination

In 2024, SESAR 3 JU staff conducted a total of 133 missions (from 124 in 2023). This does not include the missions related to the activities managed by the Programme Management Unit under the SESAR 3 JU EUROCONTROL agreement. In total, 80 (60 %) of these missions

were related to SESAR 3 JU outreach, while 33 (25 %) where focused on strategic steering.

The figure below illustrates the distribution of missions across different activity areas.

FIGURE 8: MISSIONS BY AREA OF ACTIVITIES, 2024





2.8 Human resources

2.8.1 Human resources management

The SESAR 3 JU's approved 2024 staff establishment plan includes 37 temporary agents (TAs), one contract agent and two seconded national experts. The authorised staff establishment plan and its implementation are presented in Annex 2. The effective allocation of staff remained a priority for the SESAR 3 JU during 2024.

In 2024, efforts focused on the professional and career development of the SESAR 3 JU staff, in addition to ensuring that allocated human resources were used in the most optimal, cost efficient and effective way. The SESAR 3 JU conducted its appraisal exercise in accordance with the implementing rules. The reclassification exercise that was conducted resulted in seven TAs being reclassified.

In 2024, the SESAR 3 JU recruited a grant management assistant, two grant managers, and the head of call coordination and grant management sector through external selection processes.

The staff vacancy rate at the end of 2024 stood at 5 % ⁽⁴⁴⁾, with one TA position and one seconded national expert position unfilled out of a total of 40 positions. This rate will eventually decrease to 0 %, as both positions are frozen and will be removed from the staff establishment plan to implement the Commission's reduction requests (multiannual financial framework review and SBA review).

Regarding gender and geographical balance, the SESAR 3 JU remained committed to ensuring that its overall balance remains stable. At the end of 2024, 50 % of the 38 active staff were female and 50 % were male, with 12 nationalities represented (Figure 9)

⁽⁴⁴⁾ It should be noted that, as the SESAR 3 JU staff establishment plan has only 40 positions, each staff departure increases the relevant vacancy rate by 2.5 percentage points

FIGURE 9: STAFF ACTIVE ON 31 DECEMBER 2024 – STATISTICS

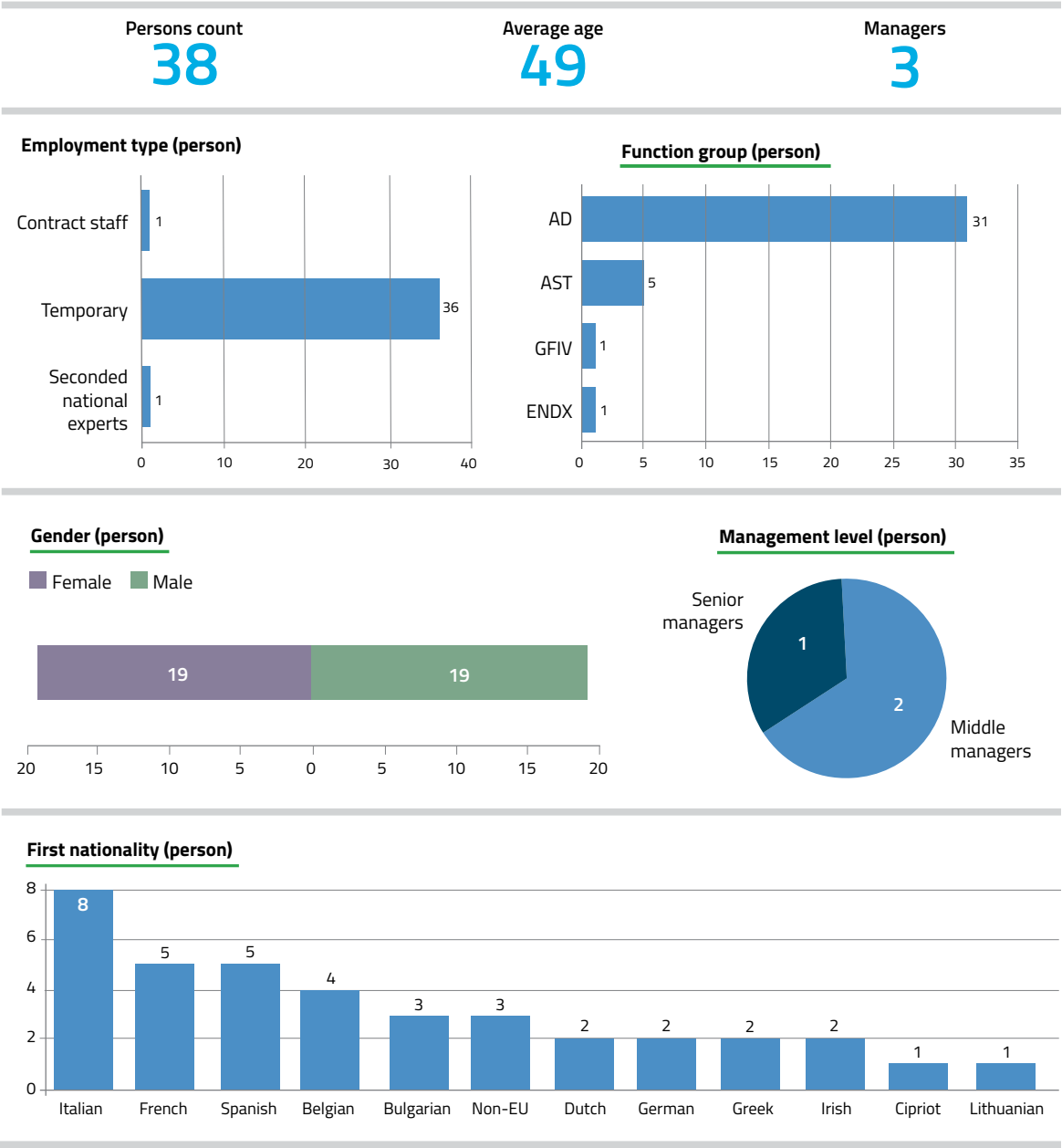


TABLE 14: STAFF IMPLEMENTING RULES (SIR) IMPLEMENTED IN 2024

Title of the SIR	Reference and date of the GB decision
Adoption by analogy of Commission Decision C(2024) 1038 final of 21 February 2024, amending Decision C(2011) 1278 of 3 March 2011 on the general implementing provisions for Articles 11 and 12 of Annex VIII to the Staff Regulations on the transfer of pension rights	GB(D)09-2024 of 25 June 2024
Request for the Commission agreement for derogation from staff regulation implementing rules	GB(D)08-2024 of 25 June 2024
Decision on working time and hybrid working	GB(D)07-2024 of 25 June 2024

2.9 Efficiency gains and synergies

Since January 2023, the SESAR 3 JU has been using Speedwell, a workflow tool for administrative payments and commitments used by all executive agencies. The use of this tool streamlined the workflow and improved the monitoring of payment deadlines, reducing the rate of late payments from 19.2 % in 2022 to 2.3 % in 2024.

Since September 2023, the SESAR 3 JU has adopted Bluebell, a tool used by some executive agencies to collect operational needs in the preparation of the budget and of the procurement plan. Bluebell also enables operational units to monitor their budget execution and to compare it with their forecast on a monthly basis, drawing data directly from ABAC. Since October 2024, the tool is also used for the preparation of the carry-over and the cut-off exercise.

Since July 2023, the SESAR 3 JU has been using MIPS+, the European Commission corporate tool for the management of mission orders and mission cost statements. With its integration to ABAC for the creation of payment requests, the use of MIPS+ has greatly improved efficiency in the processing of the files for the travellers, the local mission officer and the finance team, especially given that missions represent 45 % of administrative payments.

In September 2024, the SESAR 3 JU introduced Ares, the common information system used by all the Commission's services, the cabinets, the European External Action Service, the EU delegations, the executive agencies and other institutions for registering and filing the official documents of the Commission in the same electronic common repository. It follows the e-Domec rules for document management. On top of registration and filing, Ares offers multiple functionalities, such as the creation of workflows, e-signatories, full-text searches and security management. Ares is also interfaced with the NomCom application (filing plan of the Commission and all DGs), which facilitates the filing operations of digital resources. In addition, the AresLook feature in Outlook allows direct email registration and filing in Ares. This new tool has a positive impact on all administrative activities, in particular procurement activities. Following a necessary transition and adaptation period, the tool is expected to bring substantial efficiency, security and transparency gains to the organisation, and strengthen connection with the other EU institutions.

With the adoption of Ares, other European Commission corporate tools became accessible. Since September 2024, the SESAR 3 JU has increased its use of PPMT, the European Commission's corporate tool for the management of public procurements. There again, efficiency gains are expected, once the organisation gets acquainted with the new ways of working.

Back-office arrangements

BOA accounting

In 2023, the BOA became fully operational for the first time. Accounting officer services are provided by three JUs: the Clean Aviation JU, the SESAR 3 JU and the EU-Rail JU. Each accounting officer delivers services to one or more JUs and is responsible for the accounts they sign off, with the EU-Rail JU serving as the lead JU for accounting services, providing support and coordination.

Due to the long-term leave of the SESAR 3 JU Accounting Officer, the BOA activated its deputising system, ensuring the smooth continuation of services. For 2024, the Clean Aviation JU Accounting Officer provides services and signs off on the accounts for five JUs: the Clean Aviation JU, the Smart Networks Services JU, the CBE JU, the Clean Hydrogen JU and the SESAR 3 JU.

BOA procurement

All the JUs performing the roles of the leading contracting authorities in 2024 (SESAR 3 JU, Clean Aviation JU, EU-Rail JU, Chips JU, Clean Hydrogen JU, EuroHPC JU, CBE JU) dedicated a significant amount of effort and working time and of their own resources to provide the services for the benefit of the participating JUs.

Preparing and launching an interinstitutional call for tender brings an additional level of complexity linked to communication exchanges, coordination, proper understanding of the individual needs of participating institutions, the integration of received inputs, and finally increased responsibility due to a higher volume of purchased services. In addition, the preparation and management of an interinstitutional procurement procedure including the evaluation of tenders and the award of a contract is a long-term project taking, on average, from 7 to 12 months and requiring the full dedication of resources committed by a leading contracting authority to the tender.

Considering that, due to a multi-tasking portfolio of the legal profile, none of the JUs can assign at least one full-time equivalent (FTE) for the provision of services under the BOA procurement, other core business activities of the leading contracting authorities are negatively impacted by the diminished availability of their legal resources.

Finally, the investment of efforts and resources does not end with the award and signature of a framework service contract but has a number of financial and contractual implications requiring regular follow-up and support for the participating JUs benefiting from the procurement procedure executed by the leading contracting authority.

BOA human resources

In 2024, under the BOA HR, which was signed in April, the JUs have continuously maximised their synergies and implemented several actions in three main HR areas: selection and recruitment, the HR legal framework and HR digitalisation. In particular, through bi-monthly meetings, the JUs have continued to promote best practices, ensure consistent HR support services, and achieve efficiencies and economies of scale.

In line with the HR BOA action plan for 2024 and taking into account SESAR 3 JU specificities, the JUs have:

- ▶ launched a series of workshops to align and harmonise selection and recruitment procedures among the JUs;
- ▶ strengthened their cooperation by:
 - ▶ organising an HR officers away day to share best practices and enhance collaboration,
 - ▶ sharing reserve lists to shorten recruitment timelines,
 - ▶ providing expertise and resources, enabling staff members to serve as panel members in selection procedures at other JUs,

- ▶ supporting new JUs during their onboarding/ start-up phase by providing guidance, advice and templates,
- ▶ centralising the organisation of training courses of general interest for all JUs (e.g. anti-fraud awareness),
- ▶ contributing to the development of a common JU HR legal framework by sharing executive director and GB decisions on various HR regulatory topics,
- ▶ launching a new call for expressions of interest for JU confidential counsellors and supporting the communication campaign on their role within the JUs.

As interinstitutional partners, the JUs have also attended meetings organised by the European Commission on the HR transformation program, which aims to establish a new HR IT platform.

BOA ICT

In 2024, the preparation of the BOA ICT was concluded and entered into force on 16 January 2025.

The BOA ICT provides ICT services to participating parties covering planning, execution and coordination. Its objective is to enhance synergies across the JUs, reduce the administrative burden, improve procurement efficiency and service quality.

The SESAR 3 JU is an opt-in party to this agreement. Due to its specific constraints and ICT service delivery set-up and location, it has signed the BOA ICT SLA, aligning with its principles to foster synergies and benefit from knowledge sharing on common ICT activities, including European Commission services, security and governance. The SESAR 3 JU may also participate in coordination efforts and receive common services on request.

LH	575	VANCOUVER
TP	492	MUMBAI
LH	756	MUENCHEN
LH	110	OTTAWA
AC	839	TOKIO NARITA
LH	710	BERLIN-TEGEL
AB	6564	HAMBURG
LH	014	PARIS-CH-DE GA
LH	1036	ALMATY-ASTANA
LH	646	LONDON-HEATH
LH	908	DELHI
LH	760	PARIS-CH-DE
AF	1619	DETROIT
LH	442	HOUSTON
CO	047	MADRID
JK	126	STUTTGART
LH	130	ZUERICH
LH	1192	HONGKONG
CX	288	TORONTO
LH	470	SAN FRAN
UA	901	DENVER
	446	DEVK JAV

3 Governance

3.1 Major developments

In December 2023, the SESAR 3 JU published an open call for expressions of interest with a view to selecting associated members with the potential to contribute to the achievement of its objectives⁽⁴⁵⁾. Applications were assessed with the assistance of independent experts, in accordance with the procedure and criteria set in the call. As a result of

this assessment, the executive director proposed to select NATS Ltd and Lilium GmbH as associated members. The proposal was approved by the GB on 16 May 2024⁽⁴⁶⁾ and the representatives of these two organisations were formally welcomed at the GB meeting in June 2024.

3.2 Governing Board

The SESAR 3 JU GB met on three occasions in 2024 and adopted 13 decisions, either in meetings (10) or by written procedures (3).

To ensure informed decisions and strategic steering of the partnership, the GB has been regularly updated by the representative of the European Commission on the latest policy development relevant for the JU, and by the representative of EUROCONTROL on the traffic situation and the network.

In addition, reports have been provided by the SRG and Scientific Committee (SC) Chairs on their activities, and the SESAR 3 JU reported regularly on the implementation of the DES programme. This included information on the calls for proposals, preparation of grant agreements and management of projects, along with events and outreach activities.

The GB members continued to be associated to the European ATM Master Plan update campaign and were consulted during summer 2024 on the final draft document, which was adopted at the GB meeting of December 2024.

Other decisions adopted by the GB concerned the ER2 list of projects selected for funding, along with administrative and planning and reporting matters.

In 2023, in compliance with its legal obligations⁽⁴⁷⁾, the SESAR 3 JU elaborated a phasing-out plan which was adopted by the GB in December of that year⁽⁴⁸⁾. In 2024, the GB continued discussions on the SESAR 3 JU's future and concluded that the phasing-out plan did not require an update.

3.3 Executive Director

Since 1 July 2022, the Executive Director of the SESAR 3 JU has been Mr Andreas Boschen. He is the legal representative and the chief executive

for the day-to-day management of the JU, in accordance with the decisions of the GB and in line with Articles 19 and 152 of the SBA.

⁽⁴⁵⁾ Based on Articles 6, 7 and 144 of the SBA.

⁽⁴⁶⁾ Decision GB(D)03-2024 on the selection of associated members of the SESAR 3 JU.

⁽⁴⁷⁾ Article 17.2(a1) and Article 19.4(v) of the SBA, along with Article 10.2(c) and Annex III.4(b) to Regulation (EU) 2021/695 establishing Horizon Europe.

⁽⁴⁸⁾ Decision GB(D)16-2023 on approving the SESAR 3 Joint Undertaking phase out plan from Horizon Europe funding.



3.4 States' Representatives Group

The SRG met twice in 2024.

The SRG was regularly informed about the status of the Master plan update campaign and consulted during the adoption process ⁽⁴⁹⁾. During its second meeting, the SRG expressed a positive opinion on the second amended version of the 2024–2025 BAWP, and welcomed the Chair of the SESAR 3 JU Scientific Committee who provided an overview of their activities.

In accordance with Article 20(9) of the SBA, and as envisaged as part of the SESAR 3 JU objective to promote and develop synergies in

high priorities areas linked to the mission of the JU, the SRG was consulted via a survey and asked to identify the programmes and initiatives at the national level that could have synergies with the activities of the JU. Results were presented to the GB during the December meeting ⁽⁵⁰⁾.

Still in December, SRG representatives took part in an info session on synergies between European and national/regional R&I programmes in the aviation sector. The session, jointly organised by the Clean Aviation JU and the SESAR 3 JU, aimed to further strengthen collaboration.

3.5 Scientific Committee

The SC met four times in 2024 and welcomed a new member on 1 January. The SC was consulted on and provided advice for both the 2023 CAAR and the second amended version of the 2024–2025 BAWP. Additionally, some members were involved in the selection of the 2024 Young Scientist Awards.

The SC was associated to the European ATM Master Plan update campaign with two of its members participating in the Plan steering group to provide the scientific community's perspective.

In 2024, the SC drafted a paper on the future of ATM research beyond 2028, identifying the priorities to address current challenges. The paper emphasised the need for coordinated ATM research at the European level, spanning from low to high TRL development, industrialisation and deployment, to ensure an efficient and well-coordinated innovation pipeline. The conclusions of this paper were presented to the GB in December.

Finally, the SC advanced the work of two task forces: one dedicated to the issue of open data in ATM research and the other focusing on performance.

⁽⁴⁹⁾ The SRG opinion was expressed through EUROCONTROL and/or the European Commission internal consultation processes on the ATM Master Plan. Member States provided 13 comments, which did not contain any showstoppers and were being considered to prepare the final version.

⁽⁵⁰⁾ More detailed information on the survey and its results is presented in Section 1.2.5.1 on synergies.



3.6 Programme Committee

In 2024, three meetings addressed the following main areas.

- ▶ **European ATM Master Plan update.** The Programme Committee was regularly updated on the progress of the Master Plan update. Special emphasis was placed on deployment priorities, reflecting the outcomes of SESAR 2020, and development priorities, which will shape future calls for proposals. Through consultations, Programme Committee members were actively involved in reviewing and providing input on draft versions of the document, which was submitted to the GB in mid November.
- ▶ **ER3 and IR2 calls specifications.** As part of the consultation process outlined in Section 6 of the multiannual work programme, Programme Committee members contributed to the technical specifications of the ER3 and IR2. Ensuring alignment with the development priorities identified in the updated European ATM Master Plan was a key focus. Members' input was thoroughly discussed and incorporated into the final version of the call specifications, which were included in the second amended version of the 2024–2025 BAWP.
- ▶ **Monitoring of release 14 and the DES programme.** The Programme Committee oversaw the monitoring of release 14 and presented regular reports on the matter, leading to the outcomes detailed in Section 1.2.3.4. Additionally, the committee was kept informed about the progress of the DES programme, including updates on the status of the ER1, ER2, IR1, DSD1a and DSD1b projects, and on the launch in execution of the DSD2 project.
- ▶ **Lump sum implementation.** The Programme Committee was briefed on the application of lump sum funding, which is based on the quality of work delivered rather than actual costs incurred. This approach eliminates the need for actual cost reporting and financial ex post audits, significantly reducing the administrative burden. Discussions with members led to the identification of key principles to be adopted in future projects, providing clarity on the process that future consortia and the SESAR 3 JU will follow in alignment with the lump sum financial framework.
- ▶ **IKAA.** The Programme Committee participated in the annual IKAA exercise. The 2023 IKAA reporting exercise was successfully carried out, with the final figures annexed to the 2023 CAAR. Regarding the 2024 plans, members had the opportunity to update the figures submitted in 2023. Additionally, they were invited to contribute to the 2025 IKAA planning exercise, which was finalised at the end of November.

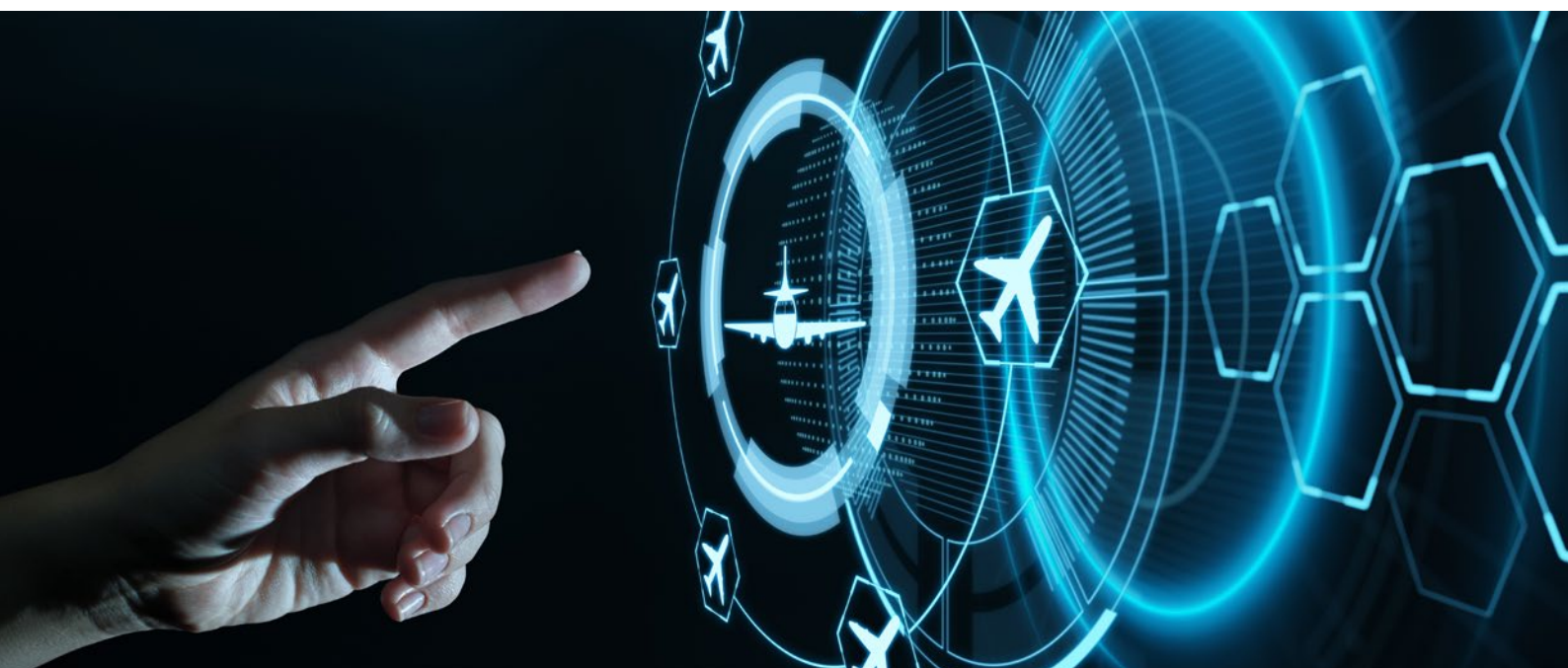


4 Financial management and internal control

4.1 Control results

The SESAR 3 JU applies, *mutatis mutandis*, the components, principles and characteristics set forth in the European Commission's internal control framework. Internal control systems and procedures are applicable at all levels of the management and are designed to provide reasonable assurance of achieving the following objectives:

- ▶ effectiveness, efficiency and economy of operations,
- ▶ reliability of reporting,
- ▶ safeguarding of assets and information,
- ▶ prevention, detection, correction and follow-up of fraud and irregularities.



4.1.1 Effectiveness of controls

4.1.1.1 *Ex ante* controls on operational expenditure

For Horizon Europe and the last transactions for Horizon 2020, standard *ex ante* risk-based checks were performed as standard practice. These checks are documented in the risk management module of SYGMA and encompass factors such as Early Detection and Exclusion System status, Horizon Europe and Horizon 2020 participation

count, SME status, establishment year, reinforced monitoring and *ex post* audit findings. Among these, the Early Detection and Exclusion System status, reinforced monitoring and *ex post* audit results are the most pertinent to the SESAR 3 JU.

Regarding Horizon Europe, in the light of the significant changes introduced in the Commission's control strategy for Horizon Europe, which prevents JUs from establishing their own specific representative samples and

calculating their specific representative and residual error rates, the JUs are drafting a common implementation approach, which will include the following elements:

- ▶ enhanced risk-based *ex ante* controls,
- ▶ risk-based *ex post* audits,
- ▶ feedback loop between the different building blocks of the internal control system (this means that risks spotted at the grant agreement preparation, amendment or reporting and payment stage should be taken into account in all grant management cycles, and in particular when selecting cost claims for *ex post* audits; the results of the *ex post* audits should inform and refine future *ex ante* controls).

In parallel, the SESAR 3 JU has put in place a new risk-based approach for assessing risks at the project level. In 2024, the SESAR 3 JU launched its first initial risk assessment at the project level during the grant agreement preparation phase and before the signing of the first Horizon Europe grant agreements in 2024 with due consideration to risks stemming from SMEs or newcomers.





4.1.1.2 Ex post control of operational expenditure and error rates identified

The R&I family operates a common audit strategy intended to contribute to the legality and regularity of expenditure on a multiannual basis, including the detection and correction of non-systemic and systemic errors.

For Horizon 2020 and Horizon Europe, the Common Audit Service (CAS) of the Common Implementation Centre carries out all the financial audits ⁽⁵¹⁾, including those concerning grants managed by the executive agencies and the JUs. This is a major step towards ensuring efficiency gains, a harmonised approach, legal certainty, equality of treatment of beneficiaries and the lightest audit burden on beneficiaries.

The main indicators on legality and regularity of EU framework programmes for research and innovation are the cumulative representative detected error rate and the cumulative residual error rate.

The targets as set out in the materiality criteria ⁽⁵²⁾ are respectively:

- ▶ for Horizon 2020, to ensure that the cumulative detected error rate remains within a range of 2–5 %, aiming to be as close as possible to 2 %;
- ▶ for Horizon Europe, to ensure that cumulative detected and residual error rates do not exceed 2 % ⁽⁵³⁾.

4.1.1.2.1 Results of the Horizon 2020 ex post audits

The error rates based on the audit work for the Horizon 2020 framework programme for research and innovation on 31 December 2024 are as follows.

- ▶ Cumulative representative detected error rate for the framework programme: 3.55 % ⁽⁵⁴⁾.
- ▶ Cumulative residual error rate for the framework programme: 1.79 % ⁽⁵⁵⁾.

The relatively high level of errors in Horizon 2020 grants is linked to the applicable funding model, which is based on the reimbursement of eligible actual costs. Most of the errors relate to incorrect claims for personnel costs that are mainly due to beneficiaries' lack of thorough understanding of the inherently complex rules. Newcomers and SMEs are more prone to errors than more experienced / larger beneficiaries.

⁽⁵¹⁾ Except audits for Article 185 bodies.

⁽⁵²⁾ DG Research and Innovation's assurance building, indicators and materiality criteria are outlined in Annex 5 to their annual activity report; audit coverage is outlined in Annex 7.

⁽⁵³⁾ No representative error rate for Horizon Europe is available in 2022, 2023 and 2024 as the ex post audit campaign for the programme was launched in the second half of 2024.

⁽⁵⁴⁾ Based on the 765 representative results out of the 944 expected in the six common representative samples.

⁽⁵⁵⁾ It should be noted that in 2021 most of Horizon 2020 grants managed by DG Research and Innovation were delegated to executive agencies. Hence, this figure is based only on the initiatives that remained with the DG.

Since R&I framework programmes are multiannual, the error rates, and the residual error rate in particular, should be considered within a time perspective. Specifically, the implementation of the audit results over time will tend to lower the cumulative residual error rate, thus increasing the difference with the representative detected error rate.

These error rates are calculated on the basis of the audit results available when drafting the annual activity report. They should be treated with caution as they may change depending on the availability of additional data from audit results. The yearly fluctuation of the detected error rate in Horizon 2020 exhibits no identifiable correlation with the maturity of the programme.

There is evidence that the simplifications introduced under Horizon 2020, along with the ever-increasing experience, help in reducing the number of errors made by the beneficiaries, especially when compared to the seventh framework programme, where the error rate was higher and varied from close to 5 % to around 5.5 % over time. Notwithstanding these efforts, beneficiaries still make errors.

4.1.1.2.2 Horizon Europe framework programme

The year 2024 was the fourth year of implementation of the Horizon Europe framework programme. No representative error rate for Horizon Europe is available in 2024 as the *ex post* audit campaign for the programme was launched in the second half of 2024, once a meaningful number of payments was available for audit.

In 2024, the CAS sampled one SESAR 3 JU beneficiary under the Horizon Europe framework programme, for the common representative sample. As the audit was launched in 2024, the results are expected in 2025.

4.1.1.2.3 Results of the SESAR-specific *ex post* audits

Even though the common representative sample is the appropriate indicator of the legality and regularity of the transactions for the entire R&I family, the SESAR 3 JU calculates specific results based on audits of its own population and its own expenditure in relation to SESAR 2020.

For the 2024 targets, the last snapshot of the population of the SESAR 2020 activities was taken on 25 July 2023. The audit of the cost claims received and paid by this cut-off date (a total of EUR 125 million) resulted in a sample of 12

participations with a total value of EUR 2 429 602 by 12 beneficiaries and an audit coverage of 7% (in relation to the cleaned entries amounting to EUR 36 564 912).

By 31 December 2024, the CAS finalised eight reports, covering eight participations. Out of those, five participations resulted in zero or positive adjustments in favour of the beneficiary, while three participations resulted in negative adjustments. Regarding the results of the remaining four open audits, the audit reports are in the pre-final stage and the adjustments are considered fixed and stable, hence, they are taken into account. The negative adjustments with a total value of EUR 256 358 caused a detected error rate of 5.16%, with a systematic error rate of 4.30% and a residual error rate of 4.89%.

The relatively high error rate is caused by the high audit adjustment (42%) of one beneficiary, a university that had never been audited before.

In the light of the multiannual nature of the SESAR 2020 programme, the cumulative error rate of the previous years gives the global and representative view of the error in relation to the entire population of the SESAR 3 JU. For this calculation, the following two factors are taken into account:

- ▶ the method is based on the assumption that representative errors are corrected and recovered, so the costs claimed by a beneficiary for the period subsequent to an audit are assumed to be free from error and material misstatements; and
- ▶ the residual error is assumed to affect all the non-audited cost claims of audited beneficiaries. The cumulative residual error rate for the entire SESAR 2020 programme (2016–2024) is calculated at 0.74%.

This significantly low error rate for the SESAR 2020 programme, well below the materiality threshold, is a trend that shows a continuous improvement since SESAR 1 and is mainly the result of three factors:

- ▶ SESAR top beneficiaries have been participating continuously in the SESAR partnership since Seventh Framework Programme;
- ▶ they have been subject to multiple *ex ante* and *ex post* controls, gaining experience and developing their internal systems accordingly; and
- ▶ SESAR services (finance, *ex post* audit, grant management and legal) are dedicating significant efforts to explaining programme provisions and clarifying complex issues.

There was no sample selection for 2025 targets, as the last SESAR 3 JU Horizon 2020 payments were executed in 2023, with payments for only two projects taking place in 2024, amounting to EUR 1 812 457.

Consequently, 2024 is the last year of reporting on ex post results of Horizon 2020 for the SESAR 3 JU.

The SESAR 3 JU has in place an effective mechanism to correct errors through recoveries and financial corrections. Table 15 presents the number of audit results processed since the beginning of Horizon 2020. In terms of audit result implementation, the SESAR 3 JU processed 99 % of the received audit results in a timely manner (i.e. within six months).

TABLE 15: CUMULATIVE NUMBER OF IMPLEMENTED AUDIT RESULTS, 2017–2024

SESAR 3 JU	Audit results processed	Percentage of audit results processed	Audit results pending	Percentage of audit results pending	Total
Audits	138	99	2	1	140
Extensions	152	100	0	0	152
Total	290	99	2	1	292

TABLE 16: TIME TO IMPLEMENT CLOSED AUDIT RESULTS IN THE 2024 FINANCIAL YEAR

SESAR 3 JU	Zero to six months	Percentage of total number (zero to six months)	> six months	Percentage of total number (> six months)	Total
Closed projects	24	100	0	0	24
Negative adjustments with recovery	5	100	0	0	5
Negative adjustments without recovery	1	100	0	0	1
Positive or zero adjustment	18	100	0	0	18
Ongoing projects	0	0	0	0	0
Negative adjustments	0	0	0	0	0
Positive or zero adjustment	0	0	0	0	0
Total	0	0	0	0	0

During the reporting year, recoveries and financial corrections following the results of ex post controls amounted to EUR 86 574 whereas the executed corrective capacity amounted to EUR 73 142, representing 3 % of the relevant expenditure.

The relevant expenditure of the SESAR 3 JU, its estimated overall risk at payment, the estimated future corrections and the risk at closure are provided in Table 17.

TABLE 17: ESTIMATED RISK AT PAYMENT AND RISK AT CLOSURE (EUR)

Programme	Relevant expenditure	Estimated risk (error rate) at payment	Estimated future corrections	Estimated risk (error rate) at closure
Horizon 2020	2 860 417	112 986 (3.95 %)	13 432 (0.47 %)	99 554 (3.48 %)



The estimated overall risk at payment amounts to EUR 112 986, representing 3.95 % of the JU's total relevant SESAR 2020 expenditure for 2024. This is the authorising officer's best conservative estimate of the amount of relevant SESAR 2020 expenditure not in conformity with the contractual and regulatory provisions applicable at the time the payment was made. This expenditure will no longer be subject to ex post controls, as it is significantly low.

The conservatively estimated future corrections for 2024 expenditure related to SESAR 2020 represent EUR 13 432. The difference between those two amounts results in an estimated overall risk at closure of EUR 99 554, representing 3.48 % of the JU's total relevant SESAR 2020 expenditure for 2024.

The exposure is below the European Commission's de minimis threshold for financial annual activity report reservations of EUR 5 million; therefore, no reservation is considered necessary.

4.1.1.3 Legality and regularity of the financial transactions

The SESAR 3 JU uses a manual of financial circuits related to budget implementation. The manual establishes the financial circuits within the JU, which allow the correct implementation of the budget for the revenue through recovery orders and forecasts of revenue, and for the expenditure from the budgetary commitment until the

payment of the expenditure to the decommitment and possible recovery orders.

The level of error is the main indicator for assessing whether financial operations have been implemented in compliance with the applicable regulatory and contractual provisions. In 2024, the reported error rates, annual and cumulative, stayed within the materiality threshold of 2–5 % defined for Horizon 2020.

4.1.1.4 Fraud prevention, detection and correction

The 2023–2026 SESAR 3 JU anti-fraud strategy was adopted by the GB in June 2023 ⁽⁵⁶⁾. An integral aspect of this strategy involves upholding a culture of ethics. In pursuit of this goal, the primary focus of the anti-fraud efforts of the SESAR 3 JU in 2024 centred around awareness raising.

In this context, in addition to the regular dissemination of messages to staff emphasising the importance of integrity and fraud prevention, the SESAR 3 JU organised six anti-fraud awareness raising sessions, which were mandatory for its staff at all levels of the organisation. These sessions were open to staff from all the other JUs, ensuring resource efficiency and a broader impact, and fostering a shared commitment to fraud prevention across multiple entities. This attracted a high level of interest and a total of 236 participants attended across all six sessions, demonstrating strong engagement with the topic.

⁽⁵⁶⁾ Decision GB(D)09-2023 – SESAR 3 Joint Undertaking's anti-fraud strategy 2023–2026, signed on 26 June 2023.

With the anti-fraud strategy, the SESAR 3 JU also intends to prevent and detect external fraud, notably by raising awareness on anti-fraud matters among external stakeholders. To this end, the programme kick-off meeting of the ER2 projects (held in September 2024) included a specific presentation dedicated to ethics and anti-fraud controls and protocols at the SESAR 3 JU.

In parallel, the SESAR 3 JU remained updated on the regulatory framework and new tools

developed by the R&I family by attending the Fraud and Irregularities in Research (FAIR) Committee meetings, and the risk of fraud was considered when assessing risks to the achievement of objectives in the corporate risk workshop.

In accordance with the 2023–2026 SESAR 3 JU anti-fraud strategy, the following indicators report on fraud related activities.

TABLE 18: ANTI-FRAUD RELATED ACTIVITIES IN 2024

Stage of the anti-fraud cycle	Indicator	Value 2024
Prevention and detection	Indicator 1: number of files (suspicions) formally sent to the European Anti-Fraud Office (OLAF) for investigation (regardless of whether these files will be qualified as fraud by OLAF).	1 ⁽⁵⁷⁾
	Indicator 2: number of information sessions, meetings and trainings on anti-fraud issues.	7
Investigation	Indicator 3: time elapsed between receipt by staff or management of first information on alleged internal fraud and transmission to OLAF.	n/a
	Indicator 4: period of time between OLAF requests to receive information and date when information is provided to OLAF.	12 working days
Correction	Indicator 5: time elapsed between receipt of an OLAF report and the decision on recovery or disciplinary sanctions by the SESAR 3 JU.	n/a
	Indicator 6: average period of time between the sending of the reasoned debit note and the recovery, following OLAF report.	n/a
	Indicator 7: amount recovered relative to the amount recommended for recovery by OLAF (percentage).	n/a

4.1.1.4.1 Follow-up of recommendations issued by OLAF

In May 2024, OLAF received information about alleged irregularities of a beneficiary in the implementation of a closed SESAR 2020 project. OLAF has since opened an investigation which is ongoing at the time of the reporting. The SESAR 3 JU is not involved in the investigation itself but has provided information to OLAF upon request.

4.1.1.5 Assets and information, reliability of reporting

Physical assets are recorded in ABAC assets, while information assets are stored primarily in a local information and data management system on SharePoint (for local storage) and otherwise on a contractor-provided platform (for information assets shared with external parties).

In 2024, the SESAR 3 JU completed an inventory exercise, which resulted in a tracking rate of 100 % for IT assets (823 items) and 100 % for furniture assets (178 items). The total acquisition value of all tracked assets amounts to EUR 2 784 459.59. In 2024, 108 assets entered the inventory, and 1 asset was retired (IT asset).

⁽⁵⁷⁾ The SESAR 3 JU provided information on a project at the request of OLAF (see Section 4.1.1.4.1).

4.1.2 Efficiency of controls ('time to')

The three efficiency indicators required by the financial regulation are time to inform, time to grant (both Article 194(2) and time to pay (Article 116(1)). Time to inform represents the time needed to manage the evaluation and selection phase from the call deadline to informing the

participants. Time to grant represents the time between the call deadline and grant signature. Time to pay represents the outcome of the process for the payment of costs claimed by beneficiaries. In 2024, compliance with these indicators was as follows.

TABLE 19: EFFICIENCY OF CONTROLS ('TIME TO') INDICATORS IN 2024

Process	Reference	Result (days)	Target (days)	On time
Time to inform	ER2	121	153	100 %
Time to grant	ER2	230	245	100 %
Time to pay	ER1 + IR1 + Horizon 2020 (2024 only)	61	90	100 %

4.1.3 Economy of controls

In 2024, the cost of ex ante and ex post controls as a percentage of annual expenditure was 1.56 %. The total cost is calculated in terms of FTEs performing the control activities for Horizon 2020 and Horizon Europe grants. It is lower than in 2023 (1.93 %) because of a higher amount of total expenditure this year. Details per sector of control are provided in Table 20.

TABLE 20: COST OF CONTROLS, 2024

Sector	Estimated FTEs allocated to controls	Cost (EUR)
Grant management	2.8	369 990.00
Finance	0.75	154 795.00
Total ex ante controls	3.55	524 785.00
Ex post controls	0.3	63 450.00
Total	3.85	588 235.00

Budget 2024	Payments (EUR)	Percentage of total budget
Administrative expenditure	8 721 409.50	23 %
Operational expenditure	29 053 896.96	77 %
Total	37 775 306.46	100 %

Estimated cost of controls	Costs as a percentage of annual expenditure
Costs of ex ante controls	1.39 %
Costs of ex post controls	0.17 %
Total	1.56 %

4.1.4 Register of exceptions and non-compliance events

The SESAR 3 JU has an exceptions and non-compliance events management process⁽⁵⁸⁾. Maintaining an exceptions and non-compliance events register ensures that all instances of overriding of controls or deviations from established processes and procedures are documented in exception reports, duly approved by the executive director before action is taken and logged centrally.

In 2024, compared to previous years, a significant decrease in the number of entries in the register of exceptions and non-compliance events can be observed, as only one non-compliance event resulting from the signature of a mission order

after the departure on mission of a staff member has benefited from this procedure in accordance with the abovementioned policy and process.

The exceptions and non-compliance events register is available on request and is consulted by the ECA during audits.

4.1.5 Conclusion on the cost-effectiveness of controls

Overall, the controls present in the JU have been effective, leading to the effective accomplishment of goals, safeguarding the assets of the JU, and ensuring the accuracy and reliability of data and the legality and regularity of the financial transactions.

4.2 Audit observations and recommendations



4.2.1 Internal Audit Service

In May 2024, the Internal Audit Service (IAS) of the European Commission initiated an audit on the in-kind contributions validation process (design under Horizon Europe) set up by the SESAR 3 JU. The audit was initially scheduled to start in October 2024, but the IAS decided to report the audit fieldwork in 2025. The audit will be performed in parallel in DG Research and Innovation, the CBE JU, the Clean Aviation JU and the SESAR 3 JU.

In addition, in January 2025, the IAS performed a follow-up audit to assess the progress made

in implementing two recommendations issued in 2023 during an audit on planning, budgeting, monitoring of activities and reporting. Based on the results of this follow-up audit, the IAS concluded that the two recommendations have been adequately and effectively implemented. All recommendations stemming from this audit are now formally closed.

All recommendations stemming from previous audits are now also formally closed.

⁽⁵⁸⁾ Executive Director Decision SJU/ED/762 of 15 November 2021, transferred to the SESAR 3 JU under Executive Director Decision S3JU/ED/0001, dated 30 November 2021.

4.2.2 Internal Audit Capability

In 2024, the Internal Audit Capability (IAC) performed engagements and coordination activities in line with its 2024 annual audit plan ⁽⁵⁹⁾. These activities did not lead to any recommendations.

The work of the IAC focused on consulting engagements, anti-fraud-related activities and the coordination of the work of the IAS, the ECA and other relevant audit bodies. In this context, the IAC provided advice on efficient and effective

management, ethics and delegations of authority, and ABAC user authorisations. The IAC also provided training to 236 staff members from all JUs on how to prevent and detect fraud, and react in cases of fraud. Furthermore, it monitored the implementation of past recommendations, followed-up on the discharge procedure and represented the JU in anti-fraud and audit-related networks.

4.2.3 Audit by the European Court of Auditors

During 2024, the ECA audited the SESAR 3 JU's 2023 accounts. In the final audit report ⁽⁶⁰⁾, the ECA provides an unqualified opinion on the SESAR 3 JU and concludes that the JU's accounts present fairly its financial position, the results of its operations, its cash flows and the changes in net assets for 2023, and that the revenue and payments underlying the accounts for 2023 are legal and regular in all material respects.

Chapter 2 of the report presents an overview of the results for all JUs for the 2023 financial year. In that chapter, the ECA suggests six actions to

be taken by all JUs. In Chapter 3, which is specific to the SESAR 3 JU, the ECA makes observations regarding the implementation of the Horizon 2020 and Horizon Europe programmes, the low implementation of the 2023 administrative payment budget, the management and control systems, the out-of-date business continuity plan and the absence of internal control policy on sensitive functions. The ECA noted that the SESAR 3 JU followed-up on all previous observations, which are now formally closed.

4.2.4 Follow-up of observations from the discharge authorities

4.2.4.1 Discharge for the 2022 and 2023 financial years

In April 2024, the European Parliament granted discharge to the SESAR 3 JU in respect to the implementation of the budget for the 2022 financial year and approved the closure of the 2022 accounts.

In its resolution, the Parliament made observations regarding budgetary and financial management (Horizon 2020 and Horizon Europe calls and partnerships), management and control systems (*ex post* audits, *ex ante* controls for Horizon 2020 grants, reinforced monitoring),

procurement and staff (staff establishment plan, allocation of staff, vacancy rate, gender and geographical balance) and a follow-up of previous years' observations.

In Q3 2024, the SESAR 3 JU formally acknowledged these observations, outlining the measures it intends to adopt to address them. The full discharge report and the reply of the SESAR 3 JU are published on the website of the European Parliament ⁽⁶¹⁾.

The discharge decision in respect to the implementation of the budget for the 2023 financial year is expected in Q2 2025.

⁽⁵⁹⁾ Decision GB(D)17-2023 – IAC annual audit plan 2024.

⁽⁶⁰⁾ <https://www.eca.europa.eu/en/publications/SAR-JUS-2023>.

⁽⁶¹⁾ The text adopted by the European Parliament is available via this link:

https://www.europarl.europa.eu/doceo/document/A-9-2024-0094_EN.html.

The reply of the SESAR 3 JU, entitled 'Follow-up report to the 2022 discharge', is available via this link:

<https://www.europarl.europa.eu/committees/en/cont/discharge-procedure/discharge-2023?tabCode=jus>.

4.3 Assessment of the effectiveness of internal control systems

4.3.1 Continuous monitoring

In view of the annual self-assessment and monitoring of the effectiveness of the control activities required by the internal control framework, the JU developed indicators for all internal control principles and related characteristics. The SESAR 3 JU continuously monitors the indicators and performs an assessment on a yearly basis to identify areas for improvement.

The SESAR 3 JU used these indicators to run the assessment for 2024. The result of the assessment for 2024 is available in Annex 6.

All indicators have been fully implemented, with the exception of four that remain slightly below target and for which implementation is ongoing.

One indicator concerns participation in the corporate ethics training (C1P01-01), which

focused on anti-fraud awareness. While 100% of management and 91% of invited staff members completed the training, this falls just short of the 100% target.

As for the remaining three indicators, they relate to quality management and internal control. In December 2024, SESAR 3 JU took an important step toward addressing these by signing a contract for the provision of Quality, Information and Document Management services. This contract marks the beginning of the implementation process for these areas, with significant progress expected in 2025.

None of these indicators currently represent a level of criticality that would negatively affect the organisation or undermine the declaration of assurance.

4.3.2 Risk assessment and management

Risk management aims to enable an organisation to fulfil its mission and objectives in the most efficient and effective way by ensuring the timely and adequate identification, assessment (analysis and evaluation), management (treatment and escalation, as required), monitoring and controlling of the risks and opportunities.

In 2024, the JU undertook a comprehensive risk assessment as part of the update to the *European ATM Master Plan*. The findings were subsequently incorporated into the corporate risk workshop conducted at the management level in November 2024. As a result, the SESAR 3 JU corporate risk register has been updated to fully align with the new strategic priorities set out in the revised *European ATM Master Plan*.

The risk assessment exercise carried out in 2024 identified potential risks that could be detrimental to achieving the JU's objectives. These risks were included in the risk register, and the most significant one was included in the 2024–2025 BAWP. This risk is linked to the limited resources of the JU, which may be unable to engage as actively as necessary in international activities, in particular at the ICAO level, to ensure the global interoperability that would support the acceptability of SESAR Solutions.

In Q4 2022, the SESAR 3 JU performed its most recent fraud risk assessment. The most significant risks documented in the stand-alone fraud risk register were considered in the corporate risk assessment.

Both the risk register and the fraud risk register are available to auditors on request.

4.3.3 Prevention of conflict of interest

In December 2021, the SESAR 3 JU GB adopted rules on confidentiality and the prevention, avoidance and management of conflicts of interest⁽⁶²⁾. These set out the rules specific to GB members, SC members, SRG members, members of other advisory or working groups,

staff members, other members of the SESAR 3 JU workforce, consultants and external experts. In 2023, the SESAR 3 JU conducted an exercise in which all staff members were asked to disclose any personal interests through a written declaration.

⁽⁶²⁾ Decision GB(D)03-2021 on confidentiality, prevention, avoidance and the management of conflicts of interest.



4.4 Conclusion on assurance

On the basis of the above elements, the management provides reasonable assurance that all necessary internal control procedures are in place to guarantee the legality and regularity of the SESAR 3 JU's activities, in line with the principles of economy, efficiency and effectiveness.

In conclusion, the management provides reasonable assurance that, overall, suitable controls are in place and are working as intended, risks are being appropriately monitored and mitigated, and necessary improvements and reinforcements are being implemented.

Therefore, the Executive Director, in his capacity as authorising officer, has signed the declaration of assurance presented in Section 4.5.3.

4.5 Statement of assurance

4.5.1 Assessment of the 2024 consolidated annual activity report by the Governing Board

The Governing Board assessed the 2024 CAAR at its meeting on 23 June 2025 and highlighted the following features:

The Governing Board

Commends the adoption of the 2025 edition of the European ATM Master Plan, a major milestone which sets a shared strategic vision and common roadmap for the modernisation of Europe's ATM system by 2045;

Recognises the SESAR 3 JU's central role in coordinating the elaboration and update process across all stakeholders, including EU institutions, Member States, and the full aviation community;

Welcomes the collective commitment expressed by the aviation sector to deliver in a timely manner on the development priorities and strategic deployment objectives defined in the Master Plan, and encourages all actors from industry, operational stakeholders, and Member States to uphold this commitment through coordinated action and sustained investment;

Welcomes the continued and effective implementation of the Digital European Sky programme, including the successful execution and monitoring of the first wave of ER1 and IR1 projects, as well as the launch of 19 new projects under the ER2 call and the joint call with the EU-Rail JU;

Welcomes the successful conclusion of the membership expansion process, with the addition of NATS and Lillium to the partnership, strengthening its geographic and operational coverage;

Recognises the JU's reinforced coordination with institutional and international partners, and welcomes its continued visibility and outreach efforts through key events and strategic engagements;

Acknowledges the activities of the States' Representatives Group, notably the survey on national research activities, as a positive step toward seeking synergies and alignment of efforts;

Encourages the SESAR 3 JU to maintain its efforts to ensure that mature SESAR Solutions find their way into operational deployment and make a measurable impact on ATM performance;

Acknowledges the progress made toward preparing future calls (ER3 and IR2) to be launched in 2025, ensuring continuity and strategic alignment with the new Master Plan;

Expresses satisfaction with the effective management of operations, continued compliance with Horizon Europe targets, and the absence of critical audit issues and major risks, confirming the robustness of the JU's internal control environment, quality assurance, and risk management systems;

Invites the SESAR 3 JU to pursue further efforts to advance its digital transformation and environmental sustainability ambitions, building on the achievements of its digitalisation action plan and reinforcing its commitment to EMAS and EU green objectives.

Consequently, based on the information provided, the Governing Board is of the opinion that the CAAR 2024 accurately and adequately reflects the implementation of the 2024 activities from both an operational and administrative point of view, and that the objectives for 2024 as outlined in the 2024-2025 BAWP have been met in compliance with the principles of legality and regularity of operations.

4.5.2 Reservations

No reservations were reported in 2024.

4.5.3 Declaration of assurance

I, the undersigned, Executive Director of the SESAR 3 JU,

In my capacity as authorising officer,

Declare that the information contained in this report gives a true and fair view.

State that I have reasonable assurance that the resources assigned to the activities described in this report have been used for their intended purpose and in accordance with the principles of sound financial management, and that the control procedures put in place give the necessary guarantees concerning the legality and regularity of the underlying transactions.

This reasonable assurance is based on my own judgement and on the information at my disposal, such as the results of the self-assessment, ex post controls, the work of the Internal Audit Capability, the observations of the Internal Audit Service and the lessons learnt from the reports of the Court of Auditors for years prior to the year of this declaration.

Confirm that I am not aware of anything not reported here which could harm the interests of the Joint Undertaking.

Brussels, 23 June 2025

(signed)

Andreas Boschen

Executive Director

SESAR 3 JU

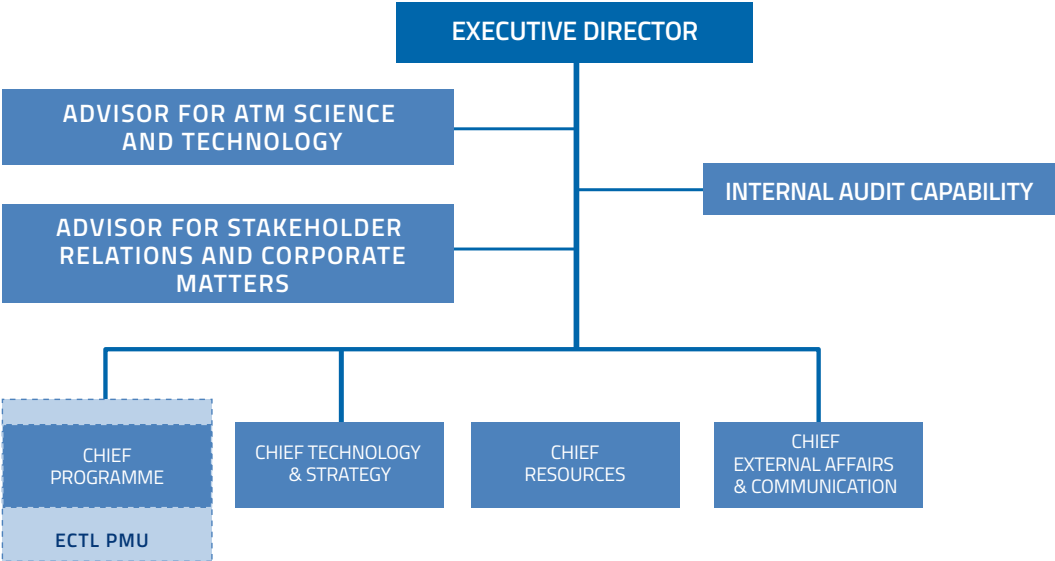


Annexes

1. Organisational chart

Figure A1 shows the organisational structure of the Programme Office as approved by the GB in March 2023 ⁽⁶³⁾ and in force during 2024.

FIGURE A1: ORGANISATIONAL CHART



⁽⁶³⁾ Decision GB(D)04-2023 on the organisational structure of the Programme Office.

2. Staff establishment plan, contract agents, seconded national experts

TABLE A1: STAFF ESTABLISHMENT PLAN, 2024

Function group and grade	Authorised		Actually filled as of 31 December 2024	
	Permanent posts	Temporary posts	Permanent posts	Temporary posts
AD 16	—	—	—	—
AD 15	—	—	—	—
AD 14	—	1	—	1
AD 13	—	2	—	1
AD 12	—	3	—	3
AD 11	—	5	—	2
AD 10	—	2	—	4
AD 9	—	8	—	6
AD 8	—	7	—	5
AD 7	—	3	—	5
AD 6	—	—	—	1
AD 5	—	—	—	3
TOTAL AD		31		31
AST 11	—	—	—	—
AST10	—	—	—	—
AST 9	—	1	—	1
AST 8	—	—	—	—
AST 7	—	1	—	—
AST 6	—	—	—	—
AST 5	—	3	—	2
AST 4	—	1	—	1
AST 3	—	—	—	—
AST 2	—	—	—	1
AST 1	—	—	—	—
TOTAL AST		6		5

AST/SC 6	—	—	—	—
AST/SC 5	—	—	—	—
AST/SC 4	—	—	—	—
AST/SC 3	—	—	—	—
AST/SC 2	—	—	—	—
AST/SC 1	—	—	—	—
TOTAL AST/SC		0		0
TOTAL AD+AST+ AST/SC	0	37	0	36
GRAND TOTAL		37		36

AD, administrator; AST, assistant; SC, secretary.

TABLE A2: CONTRACT AGENTS

Function group	Authorised	Actually filled as of 31 December 2024
Function Group IV	1	1
Function Group III	—	—
Function Group II	—	—
Function Group I	—	—
TOTAL	1	1

TABLE A3: SECONDED NATIONAL EXPERTS

Seconded National Experts	Authorised	Actually filled as of 31 December 2024
	2	1

3. Scoreboard of Horizon Europe common key impact pathway indicators

This Annex is based on Annex V to Regulation 2021/695/EU.

The midterm and long-term KIPs are not included in Table A4 as data is not yet available at this stage of the program.

TABLE A4: SCOREBOARD OF HORIZON EUROPE COMMON KIPs

Key impact pathway	Short-term	Detail per action or globally for 2024 ^(a)
Towards scientific impact		
1. Creating high-quality new knowledge	Publications: Number of peer-reviewed scientific publications resulting from the Programme.	0 peer-reviewed publications
2. Strengthening human capital in R&I	Skills: Number of researchers involved in upskilling (training, mentoring/coaching, mobility and access to R&I infrastructures) activities in projects funded by the Programme.	565 researchers
3. Fostering diffusion of knowledge and open science	Shared knowledge: Share of research outputs (open data/publication/software etc.) resulting from the Programme shared through open knowledge infrastructures.	100 % shared
Towards societal impact		
4. Addressing EU policy priorities and global challenges through R&I	Results: Number and share of results aimed at addressing identified EU policy priorities and global challenges (including SDGs) (multidimensional: for each identified priority).	12 results, 100 %
5. Delivering benefits and impact through R&I missions	R&I mission results: Results in specific R&I missions (multidimensional: for each identified mission).	Not applicable for the JUs
6. Strengthening the uptake of R&I in society	Co-creation: Number and share of projects funded by the Programme where EU citizens and end-users contribute to the co-creation of R&I content.	10 signed grants 15 projects 67 %
Towards technological/economic impact		
7. Generating innovation-based growth	Innovative results: Number of innovative products, processes or methods resulting from the Programme (by type of innovation) and intellectual property rights applications.	6 innovative products 0 intellectual property rights

Key impact pathway	Short-term	Detail per action or globally for 2024 ^(a)
8. Creating more and better jobs	Supported employment: Number of FTE jobs created, and jobs maintained in participating legal entities for the project funded by the Programme (by type of job).	67.71 FTE
9. Leveraging investments in R&I	Co-investment: Amount of public and private investment mobilised with the initial investment from the Programme.	EUR 170 527 172

N/A, not applicable.

^(a) Figures in this column are reporting on the short-term KIPs. They have been extracted and provided by DG Research and Innovation. The calculation follows the methodology presented in the [indicator methodology](#) and [metadata handbook](#).

4. Horizon Europe Partnership common key performance indicators

This Annex is based on Section 5 and Appendix 1 to the Commission experts' report *A robust and harmonised framework for reporting and monitoring European partnerships in Horizon Europe – First interim report*.

TABLE A5: HORIZON EUROPE PARTNERSHIP COMMON INDICATORS

No	Criterion addressed	Proposed common indicators	Baseline	Results for 2024	Target 2027
1	Additionality	Progress towards (financial and in-kind) contributions from partners other than the Union – i.e. committed vs actual ^(a)	0	EUR 272.6 million	EUR 1 billion
2	Additionality/ Synergies	Additional investments triggered by the EU contribution, including qualitative impacts related to additional activities ^(b)	0	–	–
3	Directionality	Overall (public and private, in-kind and cash) investments mobilised towards EU priorities	N/A	100 % on the European Green Deal and the 'A Europe fit for the digital age' strategy	N/A
4	International visibility and positioning	International actors involved ^(c)	N/A	16 unique participants (35 participations) ^(d)	N/A
5	Transparency and openness	Share and type of stakeholders and countries invited/engaged ^(e)	N/A	N/A	N/A
6	Transparency and openness	Number and types of newcomer members of partnerships and their countries of origin (geographical coverage)	55 ^(f)	57	N/A

No	Criterion addressed	Proposed common indicators	Baseline	Results for 2024	Target 2027
7	Transparency and openness	Number and types of newcomer beneficiaries in funded projects (in terms of types and countries of origin) ^(g)	N/A	126 newcomers (details in Table A6)	N/A
8	Coherence and synergies	Number and types of coordinated and joint activities with other European partnerships	N/A	0 Coordinated call for proposals 4 Systematic collaborations 5 Ad hoc collaborations	N/A
9	Coherence and synergies	Number and types of coordinated and joint activities with other R&I initiatives at the EU/national/regional/sectoral level	N/A	1 Coordinated call for proposals 2 MoCs 14 Ad hoc collaborations ⁽⁶⁴⁾ 36 Various activities	N/A
10	Coherence and synergies	Complementary and cumulative funding from other Union funds (Horizon Europe, ERDF, RRF, other cohesion policy funds, CEF, Digital Europe programme, LIFE, etc.) and national funding ^(h)	N/A	52.4 %	N/A
11	International visibility and positioning	Visibility of the partnership in national, European and international policy/industry cycles ⁽ⁱ⁾	N/A	2 International events hosted 81 Events attended 5 Digital assets produced 14 Publications and articles 118 Newsletters/items 900 Social media posts	N/A

N/A, not applicable.

^(a) This KPI measures the amount of IKAA, IKOP and in-cash contributions as per the reporting deadline of 31 May of the reporting year + 1.

^(b) This KPI is measured and reported by the projects in their final reports. Therefore, nothing will be reported on this KPI before the closure of the first ER1 and IR1 projects.

^(c) This KPI measures the entities participating in ongoing SESAR 3 JU projects that are from neither a Member State nor an associated country to Horizon Europe on 31 December 2024.

^(d) This figure presents the current participation in all ongoing projects funded under the ER1, ER2 and IR1 calls.

^(e) This KPI measures the participations in the SESAR 3 JU call for proposals funded under Horizon Europe in the reporting year. As no call was launched in 2024, no figure is reported.

^(f) The baseline is the number of members at the creation of the SESAR 3 JU. The figure provided is not cumulative. It represents the number of JU's members on 31 December 2024.

^(g) For this KPI, newcomers are defined as entities that did not participate in SESAR 2020 projects.

^(h) This indicator is cumulative since the beginning of the SESAR 3 JU.

⁽ⁱ⁾ The activities reported in this KPI are further developed and detailed in Section 2.1.

⁽⁶⁴⁾ The 2023 CAAR included a typological error. The number of ad hoc collaborations should have read 22, and not 1.

TABLE A6: KPI 7 – NUMBERS AND TYPES OF NEWCOMER BENEFICIARIES IN FUNDED PROJECTS (BY TYPES AND COUNTRIES OF ORIGIN) IN 2024 (ER1, ER2 AND IR1)

Country code	Country	Higher education institutions	Private for-profit companies	Public bodies	Research organisations	Other	Total
AT	Austria	1	4				5
BE	Belgium	1	9		1	3	14
CH	Switzerland	2	2		1		5
CZ	Czechia		1		1		2
DE	Germany	1	11		1		13
DK	Denmark		3				3
EE	Estonia		1				1
EL	Greece		4	1			5
ES	Spain		11		2		13
FI	Finland		2				2
FR	France	2	10		2	1	15
IE	Ireland		2				2
IL	Israel		1				1
IS	Iceland		2				2
IT	Italy		13	1	2		16
LT	Lithuania				1		1
NO	Norway		3				3
PL	Poland				1		1
PT	Portugal		1				1
RO	Romania				1		1
SE	Sweden	1	1				2
SI	Slovenia		1				1
SK	Slovakia	1	1				2
TR	Türkiye	1	1				2
UA	Ukraine		1				1
UK	United Kingdom	4	5				9
US	United States		1	1		1	3
Total		14	91	3	13	5	126

5. Scoreboard of Key Performance Indicators specific to the SESAR 3 JU

TABLE A7: SESAR 3 JU KPI SCOREBOARD ⁽⁶⁵⁾

KPI name	Unit of measurement	Baseline (2020)	Result for 2024	Target for 2027	Ambition beyond 2027
Resources (input), processes and activities ^(a)					
Signed grants	Number	0	68	140	140
Calls capturing synergies with other EU programmes and initiatives	Number	0	5	10	10
Complementary funding (mainly CEF)	Million EUR	0	120	400	600
Partners' contribution	Million EUR	0	272.6	928	1 600
Outcomes					
Solutions delivered at TRL6	Number	0	0	56	TBC
Progress of delivering development activities at TRL6 against Phases C and D of the European ATM Master Plan	%	C: 66 ^(b) D: 0 %	C: 66 % D: 0 %	C: 97 % D: TBC	C: 100 % D: TBC
Solutions with supporting standards and regulations (c)	Number	0	0	36	TBC
Market uptake of Phase C	%	0	13	TBC	TBC
Impacts ^(d)					
Airspace capacity (en-route and TMA)	%	8.5 million flights	TBC	+ 60 %	+ 100 % to 140 %
Airport capacity	%	17.9 million movements	TBC	+ 15 %	+ 16 % to 20 %
Environment (fuel reduction)	Kilograms of fuel per flight	6 400	TBC	– 109	– 600 kg
	%	–	TBC	– 1.6 %	– 9.3 %
Passenger time saving (departure punctuality)	Minute/flight	18	TBC	– 0.9	– 7 to 9
Cost-efficiency (air navigation services cost reduction)	EUR/flight	1 077	TBC	– 164	– 209

^(a) Except for the KPIs measured in %, the figures reported under 'Resources (input), processes and activities' and 'Outcomes' are cumulative.

^(b) For this indicator, the baseline is 2023.

^(c) Solutions at TRL6.

^(d) The baseline for the 'Impacts' indicators is 2023 as indicated in the European ATM Master Plan

⁽⁶⁵⁾ Compared to the 2023 CAAR, the SESAR 3 JU specific key performance indicators have been updated and aligned with the 2025 edition of the European ATM Master Plan.

6. Assessment of the internal control system

TABLE A8: ASSESSMENT OF THE SESAR 3 JU INTERNAL CONTROL SYSTEM IN 2024

ID	Control description	Type	Target	Measured value ^(a)	Measurement frequency	Date of latest measurement
CONTROL ENVIRONMENT						
1. The SESAR 3 JU demonstrates a commitment to integrity and ethical values						
C1P01-01	Percentage of managers/staff who participated in the SESAR 3 JU corporate training on ethics.	Min. %	100 %	91%	Yearly	31 December 2024
C1P01-02	An annual reminder about declaring conflicts of interest was sent to all managers and staff.	Score (0–3) ^(b)	3	3	Yearly	31 December 2024
C1P01-03	A code of conduct / ethical guidance exists and all staff members have access to it in the information and document management system.	Score (0–3)	3	3	Yearly	31 December 2024
2. The board demonstrates independence from management and exercises oversight of the development and performance of internal control						
C1P02-01	The SESAR 3 JU provides information and participates in regular coordination mechanisms so that the Commission, and in particular DG MOVE, exercises effective oversight of the SESAR 3 JU's activities.	Score (0–3)	3	3	Quarterly	31 December 2024
C1P02-02	GB meetings regularly deal with the topics of risk management, risk allocation and internal control.	Score (0–3)	3	3	Yearly	31 December 2024
C1P02-03	The management has a clear view of the specific activities they are responsible for, in compliance with their job description, and keeps track of the main issues identified.	Score (0–3)	3	3	Yearly	31 December 2024
C1P02-04	The head of unit in charge of risk management and internal control signs the Statement of the head of unit in charge of risk management and internal control.	Score (0–3)	3	3	Yearly	31 December 2023
3. Management establishes, with political oversight, structures, reporting lines, and appropriate authorities and responsibilities in the pursuit of objectives						
C1P03-01	Clear management structures are established and implemented at every level of the organisation, notably roles and tasks are clearly defined in the financial circuits. The supervisory activities focus particularly on high-risk areas.	Score (0–3)	3	3	Quarterly	31 December 2024
C1P03-02	Each job in the SESAR 3 JU is linked with the SESAR 3 JU's objectives and priorities	Score (0–3)	3	3	Yearly	31 December 2024
C1P03-03	Managers have a clear view of the activities within their teams and keep track of the main issues identified through regular team meetings	Score (0–3)	3	3	Half-yearly	31 December 2024

ID	Control description	Type	Target	Measured value ^(a)	Measurement frequency	Date of latest measurement
4. The SESAR 3 JU demonstrates a commitment to attracting, developing and retaining competent individuals in alignment with objectives						
C1P04-01	The catalogue of training course sessions takes into account the skills needed at the SESAR 3 JU level in accordance with the learning and development policy	Score (0–3)	3	3	Yearly	31 December 2024
C1P04-02	The SESAR 3 JU complies with the rules on promotion within the organisation, and vacancies are open to internal candidates	Score (0–3)	3	3	Yearly	31 December 2024
5. The SESAR 3 JU holds individuals accountable for their internal control responsibilities in the pursuit of objectives						
C1P05-01	The SESAR 3 JU implements a career development review for SESAR 3 JU staff where: ▪ mutual expectations are set and responsibilities are clearly allocated; ▪ performance is reviewed and assessed on a yearly basis; ▪ reclassification is decided.	Score (0–3)	3	3	Yearly	31 December 2024
C1P05-02	SESAR 3 JU policies are communicated to staff and appropriate measures to ensure staff familiarisation with them are put in place.	Score (0–3)	3	3	Yearly	31 December 2024
RISK ASSESSMENT						
6. The SESAR 3 JU specifies objectives with sufficient clarity to enable the identification and assessment of risks relating to objectives						
C2P06-01	Number of critical and very important recommendations from internal auditors.	Max. number	1	0	Yearly	31 December 2024
C2P06-02	Number of financial/non-financial exceptions and non-compliance events.	Max. number	4	3	Yearly	31 December 2024
C2P06-03	The SESAR 3 JU has a mission statement, clearly stated in a formalised document and easily accessible to all.	Score (0–3)	3	3	Yearly	31 December 2024
C2P06-04	The BAWP clearly states the order of priorities among the main tasks in case of significant changes.	Score (0–3)	3	3	Yearly	31 December 2024
C2P06-05	The SESAR 3 JU monitors the achievement of objectives through the indicators. Management ensures that all abnormalities in the progress of the objectives' achievement are reported when appropriate.	Score (0–3)	3	3	Quarterly	31 December 2024
7. The SESAR 3 JU identifies risks to the achievement of its objectives across the organisation and analyses risks as a basis for determining how the risks should be managed						

ID	Control description	Type	Target	Measured value ^(a)	Measurement frequency	Date of latest measurement
C2P07-01	Management regularly reviews progress towards the specific objectives, and strategic and operational risks in the SESAR 3 JU have been identified/assessed at the appropriate level.	Score (0–3)	3	3	Half-yearly	31 December 2024
C2P07-02	Management puts mitigation plans in place for the risks identified in the risk register, and regularly monitors their implementation.	Score (0–3)	3	3	Half-yearly	31 December 2024
8. The SESAR 3 JU considers the potential for fraud in assessing risks to the achievement of objectives						
C2P08-01	The SESAR 3 JU has an up-to-date anti-fraud strategy (not older than 3 years), which is based on a stand-alone risk assessment.	Score (0–3)	3	3	Yearly	31 December 2024
C2P08-02	Number of opened and ongoing OLAF cases during the reporting year.	Max. number	0	0	Yearly	31 December 2024
C2P08-03	The SESAR 3 JU informs its staff about the rules relating to conflict of interests, fraud prevention and reporting of irregularities.	Score (0–3)	3	3	Yearly	31 December 2024
9. The SESAR 3 JU identifies and assesses changes that could significantly impact the internal control system						
C2P09-01	A procedure exists for updating the objectives to take into account significant changes in activities and priorities.	Score (0–3)	3	3	Quarterly	31 December 2024
CONTROL ACTIVITIES						
10. The SESAR 3 JU selects and develops control activities that contribute to the mitigation of risks to the achievement of objectives to acceptable levels						
C3P10-01	A control strategy exists and has been reviewed/updated, and staff have been made aware of it.	Score (0–3)	3	2	Yearly	31 December 2024
C3P10-02	Number of business continuity exercises performed during the year for which lessons learnt are documented and implemented.	Min. number	0	0	Yearly	31 December 2024
C3P10-03	Number of security exercises performed during the year for which lessons learnt are documented and implemented.	Min. number	1	1	Yearly	31 December 2024
C3P10-04	ABAC access rights are reviewed once a year.	Score (0–3)	3	3	Yearly	31 December 2024
C3P10-05	A list of critical functions exists.	Score (0–3)	3	3	Yearly	31 December 2024
C3P10-06	The SESAR 3 JU has a business continuity plan.	Score (0–3)	3	3	Yearly	31 December 2024
11. The SESAR 3 JU selects and develops general control activities over technology to support the achievement of objectives						
C3P11-01	Number of IT security incidents with impact on the confidentiality, integrity or availability of information systems, reported during the year.	Max. number	0	0	Monthly	31 December 2024

ID	Control description	Type	Target	Measured value ^(a)	Measurement frequency	Date of latest measurement
C3P11-02	Statistics on system downtime, server capacity and other performance indicators are regularly analysed. System performance issues are reported to the appropriate management level.	Score (0–3)	3	3	Monthly	31 December 2024
C3P11-03	Feedback from IT users regarding system performance is collected and analysed.	Score (0–3)	3	3	Yearly	31 December 2024
C3P11-04	The SESAR 3 JU has defined and operates an appropriate organisation for the management of the information systems it uses (generally in the form of an IT steering committee). Each information system owned by the SESAR 3 JU possesses a clearly identified business owner (and is overseen by a steering committee). The IT steering committee takes appropriate action if necessary.	Score (0–3)	3	3	Quarterly	31 December 2024
12. The SESAR 3 JU deploys control activities through corporate policies that establish what is expected and in procedures that put policies into action						
C3P12-01	Exceptions and non-compliance events are systematically reported in the exception register according to defined and documented procedures.	Score (0–3)	3	3	Yearly	31 December 2024
C3P12-02	A policy, processes and procedures for information security exist, and staff have been made aware of them.	Score (0–3)	3	3	Yearly	31 December 2024
C3P12-03	A policy, processes and procedures for document management exist, and staff have been made aware of them.	Score (0–3)	3	3	Yearly	31 December 2024
C3P12-04	A policy, processes and procedures for data protection exist, and staff have been made aware of them.	Score (0–3)	3	3	Yearly	31 December 2024
C3P12-05	A policy, processes and procedures for public access to documents exist, and staff have been made aware of them.	Score (0–3)	3	3	Yearly	31 December 2024
C3P12-06	Appropriate control procedures are in place for the SESAR 3 JU's main operational and financial processes and for the main ICT systems and services.	Score (0–3)	3	3	Yearly	31 December 2024
C3P12-07	The main SESAR 3 JU processes are defined and described/documented and are applied in practice.	Score (0–3)	3	2	Half-yearly	31 December 2024
INFORMATION AND COMMUNICATION						
13. The SESAR 3 JU obtains or generates and uses relevant quality information to support the functioning of internal control						
C4P13-01	The SESAR 3 JU implements a quality policy and quality manual that includes references to internal control and its monitoring.	Score (0–3)	3	2	Yearly	31 December 2024

ID	Control description	Type	Target	Measured value ^(a)	Measurement frequency	Date of latest measurement
14. The SESAR 3 JU internally communicates information, including objectives and responsibilities for internal control, necessary to support the functioning of internal control						
C4P14-01	The SESAR 3 JU has an internal communication strategy in place.	Score (0–3)	3	3	Yearly	31 December 2024
C4P14-02	Regular team meetings and staff briefings take place to share information within the teams at various levels.	Score (0–3)	3	3	Quarterly	31 December 2024
C4P14-03	Arrangements are in place to ensure that management and staff are informed of other units' departments' or the SESAR 3 JU's, decisions/projects/initiatives that may affect their responsibilities and tasks.	Score (0–3)	3	3	Half-yearly	31 December 2024
15. The SESAR 3 JU communicates with external parties about matters affecting the functioning of internal control						
C4P15-01	Communication activities are aligned with the European Commission's political priorities.	Score (0–3)	3	3	Half-yearly	31 December 2024
C4P15-02	The chief communication and external affairs brings the communication planning to the Corporate Management Team for approval.	Score (0–3)	3	3	Yearly	31 December 2024
C4P15-03	An external communication strategy and implementation plan exist.	Score (0–3)	3	3	Yearly	31 December 2024
MONITORING ACTIVITIES						
16. The SESAR 3 JU selects, develops and performs ongoing and/or separate assessments to ascertain whether the components of internal control are present and functioning						
C5P16-01	Specific and continuous assessment exercises have been coordinated horizontally in the context of the ICF.	Score (0–3)	3	3	Yearly	31 December 2024
C5P16-02	The SESAR 3 JU performs regular staff surveys (every 2–3 years) to monitor the commitment and satisfaction of staff.	Score (0–3)	3	3	Yearly	31 December 2024
17. The SESAR 3 JU assesses and communicates internal control deficiencies in a timely manner to those parties responsible for taking corrective action, including senior management, as appropriate						
C5P17-01	The results of the continuous and specific assessment have been discussed with senior management and the board.	Score (0–3)	3	3	Yearly	31 December 2024
C5P17-02	The results of the continuous and specific assessment of internal controls have been properly disclosed in the CAAR.	Score (0–3)	3	3	Yearly	31 December 2024

^(a) Colour shading of cells based on measured value figures: green, measured value equals target; yellow, measured value is slightly less than target but not 0; red, measured value is well below target or is 0.

^(b) 0, not implemented; 1, limited implementation; 2, implementation in progress; 3, fully implemented.

7. Statement of the manager in charge of risk management and internal control

I, the undersigned,

Manager in charge of risk management and internal control within the SESAR 3 JU,

In my capacity as manager in charge of risk management and internal control, declare that in accordance with the SESAR 3 JU's internal control framework, I have reported my advice and recommendations on the overall state of internal control in the joint undertaking to the Executive Director.

I hereby certify that the information provided in the present CAAR and in its annexes is, to the best of my knowledge, accurate, reliable and complete.

Brussels, 23 June 2025

(Signed)

Alain Siebert

Chief Technology and Strategy

Head of Unit in charge of Risk Management and Internal Control

SESAR 3 Joint Undertaking

8. In-kind contributions to additional activities report

EUROCONTROL IKAA REPORTING for year 2024

							Annual reporting		
Title	Description	Cateogry	Scope/ Type	AA linked to projects	Project acronym	AA linked to programme	Planned value for the year (in M€)	Incurred value for the year (in M€)	Certified value for the year (in M€)
		1. Support to additional R&I					€ 6,692	€ 4,675	€ 4,675
		2. Scale-up of technologies					€ 0,561	€ 0,383	€ 0,383
		3. Demonstrators					€ 3,776	€ 1,687	€ 1,687
		4. Creating new business opportunities					€ 0,100	€ 0,194	€ 0,194
		5. Training & skilling development					€ -	€ -	€ -
		6. Contribution to the development of new standards, regulations and policies					€ 4,357	€ 8,710	€ 8,710
		7. Supporting ecosystem development					€ 2,701	€ 0,872	€ 0,872
		8. Communication, dissemination, awareness raising, citizen engagement					€ 0,053	€ 0,394	€ 0,394
		9. Other					€ -	€ -	€ -
							€ 18,240	€ 16,915	€ 16,915

ALL OTHER MEMBERS IKAA REPORTING for year 2024

							Annual reporting		
Title	Description	Cateogry	Scope/ Type	AA linked to projects	Project acronym	AA linked to programme	Planned value for the year (in M€)	Incurred value for the year (in M€)	Certified value for the year (in M€)
		1. Support to additional R&I					€ 15,865	€ 13,930	€ 6,865
		2. Scale-up of technologies					€ 12,401	€ 2,923	€ 2,045
		3. Demonstrators					€ 16,532	€ 17,451	€ 2,106
		4. Creating new business opportunities					€ 0,949	€ 0,911	€ -
		5. Training & skilling development					€ -	€ -	€ -
		6. Contribution to the development of new standards, regulations and policies					€ 6,127	€ 0,244	€ 0,046
		7. Supporting ecosystem development					€ 25,868	€ 20,111	€ 9,794
		8. Communication, dissemination, awareness raising, citizen engagement					€ 0,644	€ 0,624	€ 0,012
		9. Other					€ 23,770	€ 39,473	€ 4,516
							€ 102,157	€ 95,667	€ 25,385

Total IKAA in 2021 – [2024] (evolution – value in EUR)		
Planned IKAA	Reported IKAA with pending certification	Certified IKAA
315 110 318	129 340 413	131 215 102.93

9. Provisional/final annual accounts

The following tables present an extract of the final accounts of the SESAR 3 JU for 2024, which were handed over as a separate document to the budgetary authorities, the ECA and the external auditors. The final annual accounts for 2024 have been published on the [SESAR 3 JU website](#).

1.1 Balance Sheet

	Note	31.12.2024	31.12.2023
Non-current assets			
Intangible assets	2.1	2 592.00	1 620.00
Property, plant and equipment	2.2	142 253.74	71 391.00
Long term pre-financing	2.3	27 804 448.63	79 638 577.57
		27 949 294.37	79 711 588.57
Current assets			
Short term pre-financing	2.3	84 607 076.58	63 488 157.22
Exchange receivables and non-exchange recoverables	2.4	81 651 001.69	21 689 892.52
Cash and cash equivalents	2.5	-	4 892.69
		166 258 078.27	85 182 942.43
Total assets		194 207 372.64	164 894 531.00
Current liabilities			
Short term provisions	2.6	-	-
Payables and other liabilities	2.7	131 118 238.33	36 797 548.67
Accrued charges and deferred income	2.8	23 328 727.46	22 767 797.32
Total liabilities		154 446 965.79	59 565 345.99
Net assets			
Contribution from Members	2.9	3 110 459 808.67	3 072 510 792.39
Accumulated deficit		(2 967 181 607.38)	(2 862 431 542.18)
Economic result of the year		(103 517 794.44)	(104 750 065.20)
Total net assets		39 760 406.85	105 329 185.01
Liabilities and net assets		194 207 372.64	164 894 531.00

1.2 Statement of financial performance

	Note	2024	2023
Revenue			
Revenue from non-exchange transactions			
Recovery of operating expenses	3.1	48 440.64	735 726.31
Revenue from exchange transactions			
Financial revenues	3.3	2 615.35	24 155.20
Other exchange revenue		1 589.92	
Total revenue		52 645.91	777 881.51
Expenses			
Operating costs	3.4	(95 291 074.85)	(96 240 456.56)
Staff costs	3.5	(5 745 374.68)	(5 321 636.14)
Finance expenses	3.6	(3 587.67)	(604 724.34)
Other expenses	3.7	(2 530 403.15)	(3 361 129.67)
Total expenses		(103 570 440.35)	(105 527 946.71)
Economic result of the year		(103 517 794.44)	(104 750 065.20)

1.3 Cash flow statement

	2024	2023
Economic result of the year	(103 517 794.44)	(104,750,065.20)
Operating activities		
Depreciation and amortization	59 128.45	53,987.24
(Increase)/decrease in pre-financing	30 715 209.58	(132,634,520.67)
(Increase)/decrease in exchange receivables and non-exchange recoverables	(59 961 109.17)	87,354,731.94
Increase/(decrease) in payables	94 320 689.66	(138,933,356.14)
Increase/(decrease) in accrued charges & deferred income	560 930.14	(5,331,149.19)
Increase/(decrease) in cash contributions	37 949 016.28	190,657,493.27
Increase/(decrease) in in-kind contributions		105,137,660.08
Other non-cash movements		(1,533,666.83)
Investing activities		
(Increase)/decrease in intangible assets and property, plant and equipment	(130 963.19)	(25,454,24)
Net cashflow	(4 892.69)	4,339.74
Net increase/(decrease) in cash and cash equivalents	(4 892.69)	4,339.74
Cash and cash equivalents at the beginning of the year	4 892.69	9,232,43
Cash and cash equivalents at year-end	-	4,892.69

1.4 Statement of changes in net assets

	Contribution from Members	Accumulated Surplus/(Deficit)	Economic result of the year	Net Assets
Balance as at 31.12.2022	2 776 715 639.04	(2 673 233 664.21)	(189 197 877.97)	(85 715 903.14)
Allocation 2022 economic result	-	(189 197 877.97)	189 197 877.97	-
Cash contribution	190 657 493.27	-	-	190 657 493.27
Contribution in kind	105 137 660.08	-	-	105 137 660.08
Economic result of the year	-	-	(104 750 065.20)	(104 750 065.20)
Balance as at 31.12.2023	3 072 510 792.39	(2 862 431 542.18)	(104 750 065.20)	105 329 185.01
Allocation 2023 economic result	-	(104 750 065.20)	104 750 065.20	-
Cash contribution	37 949 016.28	-	-	37 949 016.28
Contribution in kind	-	-	-	-
Economic result of the year	-	-	(103 517 794.44)	(103 517 794.44)
Balance as at 31.12.2024	3 110 459 808.67	(2 967 181 607.38)	(103 517 794.44)	39 760 406.85

10. Materiality criteria

The assessment of the effectiveness of the SESAR 3 JU control system for Horizon 2020 grants is based mainly, but not exclusively, on the results of *ex post* audits. Effectiveness is expressed in terms of detected and residual error rates, calculated using a representative sample on an annual basis and on a multiannual basis.

The starting point for determining the effectiveness of the controls in place is the cumulative level of error, expressed as the percentage of errors in favour of the SESAR 3 JU, detected by *ex post* audits, measured with respect to the amounts accepted after *ex ante* controls.

To take into account the impact of the *ex post* controls, this error level is adjusted by subtracting:

- ▶ errors detected and corrected as a result of the implementation of audit conclusions;
- ▶ errors corrected as a result of the extension of audit results to non-audited contracts with the same beneficiary.

This results in a residual error rate, which is calculated as follows:

$$Re sER\% = \frac{(Re pER\% * (P - A)) - (Re pERsys\% * E)}{P}$$

where:

- ▶ **ResER%** represents the residual error rate, expressed as a percentage;
- ▶ **RepER%** represents the representative error rate, or error rate detected in the representative sample, in the form of a weighted average error rate, expressed as a percentage and calculated as described below;
- ▶ **RepERsys%** represents the portion of the RepER% representing negative systematic errors, expressed as a percentage;
- ▶ **P** represents the total requested SESAR contribution (EUR) in the auditable population (i.e. all paid financial statements);
- ▶ **A** represents the total requested SESAR contribution (EUR), as approved by financial officers, of all audited financial statements (this is collected from audit results);
- ▶ **E** represents the total non-audited requested SESAR contribution (EUR) of all audited beneficiaries.

The representative error rate is established as a weighted average error rate identified for an audited representative sample.

The weighted average error rate is calculated according to the following formula:

$$RepER\% = \frac{\Sigma(er)}{A}$$

where:

- ▶ **Σ(er)** represents the sum of all individual errors of the sample – only the errors in favour of the JU will be taken into consideration;
- ▶ **A** represents the total amount (EUR) of the audited sample.

Multiannual approach

As a result of the multiannual nature of the SESAR 3 JU, the effectiveness of its controls can be fully measured and assessed only in the final stages of the programme's lifetime, once the ex post audit strategy has been fully implemented and systematic errors have been detected and corrected.

The control objective is to ensure, for the SESAR Horizon 2020 programme, that the residual error rate, which represents the level of errors that remain undetected and uncorrected, does not exceed 2 % of the total expense recognised until the end of the programme.

If the residual error rate is higher than 5 %, a reservation should be made and an additional action plan should be drawn up.

These thresholds are consistent with those established by the Commission and by the ECA for its annual assessment of the effectiveness of the control systems operated by the Commission.

Notwithstanding the multiannual span of the control strategy, the executive director is required to sign a statement of assurance for each financial year. In order to determine whether this statement of assurance should be qualified with a reservation, the effectiveness of the control systems in place needs to be assessed not only for the year of reference, but also from a multiannual perspective, to determine whether it is possible to reasonably conclude that the control objective will be met in the future as planned.

In view of the crucial role of ex post audits, this assessment needs to check, in particular, whether the scope and results of the ex post audits carried out until the end of the reporting period are sufficient and adequate, respectively, to meet the multiannual control strategy goals.

Adequacy of the scope

The adequacy of the scope of the (cumulative) audit effort carried out until the end of each year is to be measured by comparing the planned with the actual volume of audits completed.

The data are to be shown per year and cumulated, in line with the current annual activity report presentation of error rates.

The executive director should form a qualitative opinion to determine whether deviations from the plan are of such significance that they seriously endanger the achievement of the control objective for the programmes. If this were the case, the executive director would be expected to qualify their annual statement of assurance with a reservation.

Audit coverage: SESAR-specific Horizon 2020 audits

By the end of 2024, the SESAR 3 JU had audited 138 participations, covering 12.6 % of its Horizon 2020 expenditure to date. This percentage refers to the value of the participations of the audited beneficiaries, also referred to as the 'direct' coverage. The non-audited participations of the audited beneficiaries, also referred to as the 'indirect' coverage, which after the full treatment of audit results are considered clean from systemic errors, are calculated as 73 %, with a total (direct and indirect) coverage of 85.6 %..

11. Abbreviations

Abbreviation	Definition
ABAC	Accrual Based Accounting
ACARE	Advisory Council for Aviation Research and Innovation in Europe
ACI	Airports Council International
AF	air traffic management functionality
AI	artificial intelligence
ANSP	air navigation service provider
Ares	advanced records system
ATCO	air traffic controller
ATM	air traffic management
AU	airspace user
BAWP	biannual work programme
CANSO	Civil Air Navigation Services Organisation
CAS	Common Audit Service
CBE JU	Circular Bio-based Europe Joint Undertaking
CEF	Connecting Europe Facility
CINEA	European Climate, Infrastructure and Environment Executive Agency
CONOPS	Concept of Operations
CNS	communications, navigation and surveillance
CO ₂	carbon dioxide
CP	common project
DES	Digital European Sky Programme
DG	Directorate-General
DP	development priority
DSD	digital sky demonstrator
EASA	European Union Aviation Safety Agency
EASCG	European Air Traffic Management Standards Coordination Group
EBAA	European Business Aviation Association
ECA	European Court of Auditors
ECAC	European Civil Aviation Conference
EDA	European Defence Agency
EFTA	European Free Trade Association
EMAS	eco-management and audit scheme
ER	exploratory research
ESA	European Space Agency
EUROCAE	European Organisation for Civil Aviation Equipment

Abbreviation	Definition
EUROCONTROL	European Organisation for the Safety of Air Navigation
EUSPA	European Union Agency for the Space Programme
FAA	US Federal Aviation Administration
FTE	full-time equivalent
GANP	global air navigation plan
GB	Governing Board
HAN	Hermes-Ares-NomCom
HAO	Higher airspace operations
IAM	innovative air mobility
IAS	Internal Audit Service
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICT	information and communications technology
IKAA	In-kind contributions to additional activities
IKOP	in-kind contributions to operational activities
IR	industrial research
IT	information technology
KPI	key performance indicator
max.	maximum
min.	minimum
MOC	memorandum of cooperation
MOU	memorandum of understanding
n/a	not applicable
OLAF	European Anti-Fraud Office
PBN	performance-based navigation
PC	Programme Committee
PPMT	public procurement management tool
PSO	professional staff organisation
R&D	research and development
R&I	research and innovation
RP4	fourth reference period
RPAS	remotely piloted aircraft system
SAO	strategic area of operation
SBA	Single Basic Act
SC	Scientific Committee
SDM	SESAR Deployment Manager
SDO	strategic deployment objective

Abbreviation	Definition
SES	Single European Sky
SESAR	Single European sky ATM research
SESAR 2020	SESAR 2020 innovation R&I programme, also referred to as the 'SESAR 2020 Programme' or 'SESAR 2020 R&I Programme'. It is the coordinated set of activities described in this document, being undertaken by the SESAR JU Members and managed by the SESAR JU.
SESAR JU	Single European Sky ATM Research Joint Undertaking
SESAR 3 JU	Single European Sky ATM Research 3 Joint Undertaking
Single Basic Act	Council Regulation (EU) 2021/2085 of 19 November 2021 establishing the Joint Undertakings under Horizon Europe and repealing Regulations (EC) No 219/2007, (EU) No 557/2014, (EU) No 558/2014, (EU) No 559/2014, (EU) No 560/2014, (EU) No 561/2014 and (EU) No 642/2014
SLA	service-level agreement
SME	small and medium-sized enterprise
SRG	States' Representatives Group
STAR	standard arrival route
SWIM	system-wide information management
TA	temporary agent
TBO	trajectory-based operation
TCG	Technical Coordination Group
TMA	terminal manoeuvring area
TRL	technology readiness level
U-space	A set of new services relying on a high level of digitalisation and automation of functions, and specific procedures designed to support safe, efficient and secure access to airspace for a large numbers of drones, with an initial look at very low-level operations.



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