



Annual Work Programme¹ 2016

Amendment No.1

Version 1.1

3 October 2016

¹ For the definition, see Article 16(1)(b) of SESAR JU Statutes annexed to Council Regulation (EC) No 219/2007 as amended. This term corresponds to the term "work plan" defined in Article 2(1)(22) of Regulation (EU) No 1290/2013 of the European Parliament and of the Council of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" (OJ L 347, 20.12.2013 p.81): "the document similar to the Commission work programme adopted by funding bodies entrusted with part of the implementation of Horizon 2020 in accordance with Article 9(2) of Regulation (EU) No 1291/2013".

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1 Introduction

1.1 Background

The SESAR Joint Undertaking (SJU) was established under Council Regulation (EC) 219/2007 of 27 February 2007 (as modified by Council Regulation (EC) 1361 / 2008 (SJU Regulation) and last amended by the Council Regulation (EU) 721/2014). Under this Regulation, the SJU is responsible for the modernisation of the European Air Traffic Management (ATM) system by coordinating, rationalising and concentrating all relevant research and development efforts in the EU. In 2016 the SESAR research & development activities will comprise of both the ongoing SESAR1 and new SESAR2020 Programmes. The SJU in conjunction with its existing members will execute a closure plan for SESAR1 in 2016, whilst a renewed membership call will determine a renewed membership to deliver SESAR2020. To deliver the work as stipulated, a SESAR solution life cycle structure is implemented at a project level, progressively increasing solution maturity with the objective of delivering and packaging SESAR solutions for industrialisation and deployment.

Work to be undertaken by the SJU in 2016 has been outlined in its multi-annual work programme² covering the period from 2014 to 2020 that describes the programme structure & detailed project descriptions and sets out clear deliverables and milestones, in addition to including estimates on programme costs and the means to execute a structured transition from SESAR1³.

Within this context, this document provides an overview of objectives and activities to be carried out by the SJU in 2016. Its aim is to outline in detail its current goals and associated annual objectives and outcomes. This document is in compliance with the SJU's financial rules, adopted at its Administrative Board meeting of June 2015, that outline the following requirements to ensure the validity of its annual work programme - 'the annual work programme of [SJU] shall comprise detailed objectives and expected results including performance indicators. It shall also contain a description of the action(s) to be financed and an indication of the amount of financial and human resource allocated to each action⁴.' The Annual Work Programme of the SJU shall also be the equivalent to a financing decision for the activities it covers.

1.2 Executive Summary

2016 is a year of transition for the SJU and the SESAR development programme. The managed closure of SESAR1 is scheduled to be completed within the reporting period, but research and innovation in the field of ATM (and in particular the coordinated approach to ATM research and innovation in the context of the Single European Sky (SES) deliverables) will continue beyond the initial 2013 financial framework into the 2014-2020 financial framework under the EC Horizon 2020 framework programme. As a result, SJU's 2016 Annual Work Programme will describe both the activities and output required to successfully close out SESAR1, the activities needed to transition into the SESAR2020 programme and the launch and execution of exploratory research & industrial research and innovation projects within the framework of SESAR2020.

The SJU in conjunction with its Members (excluding the EU) will execute a closure plan for SESAR1 during the reporting period that will finalise delivery of the last SESAR1 Release and establish the formal completion and closure of this element of the SESAR project⁵. This will involve not only project closures and making disbursements to the relevant parties but also ensuring that the appropriate guidance is prepared for those 'complimentary activities' that are transitioning to SESAR2020.

The membership accession process for SESAR2020 is expected to be concluded in Q1 2016⁶, whilst grant agreements with the selected applicants from the first call for proposals concerning exploratory research (ER) are scheduled to be signed in Q4 2015 and Q1 2016, with such ER projects scheduled to launch in Q1 2016. The first call for projects under the Industrial Research and Validation (IRV) and Very Large Demonstration (VLD) phases of SESAR2020 is scheduled for publication in Q4 2015 in accordance with the published multi-annual work programme. Furthermore, a second call for ER projects is planned (see Annex E for a full timetable for SESAR2020 calls for proposals) in 2016.

² SESAR 2020 Multi-annual Work Programme, Edition 1.0

³ The SJU's work programme running from 2007 to 2016, funded under the EU's TEN-T and FP7 framework programmes.

⁴ Article 31 (3) of the SJU's Financial Rules

⁵ The SESAR project within the context of this work programme refers to the R & D programme composed of both SESAR1 and SESAR2020 elements.

⁶ Q1 refers to the first quarter of a year (January-March), Q2 to the second quarter (April-June), Q3 to the third quarter (July-September) and Q4 to the final quarter (October-December).

In the domain of stakeholder management and external relations, 2016 will see a closer collaboration between the SESAR Deployment Manager and the SJU in the areas identified in the cooperation agreement signed between the two parties, namely; technical cooperation, European ATM Master Plan related activities and coordinated communication of the SESAR project’s results. Stakeholder engagement will also continue to be developed within the context of the EU’s external aviation policy framework, with SJU continuing to establish and develop relations with public and private sector organisations and coordinating with other ATM actors and states in other International Civil Aviation Organisation (ICAO) regions to prepare and validate interoperability standards and other relevant technical agreements. The SJU will also continue to participate in specific activities, workshops and events in order to advertise and communicate worldwide the successful achievements of the SESAR partnership.

At a corporate level, SJU will continue to forecast and maintain an accurate baseline for workloads, costings and staffing levels needed to ensure successful delivery of the programmes that it manages. Given that transitioning from SESAR1 to SESAR2020 has the potential to significantly impact SJU’s existing business processes and supporting ICT, the relevant change processes within SJU will be configured and managed effectively throughout 2016 to ensure continuity of service delivery.

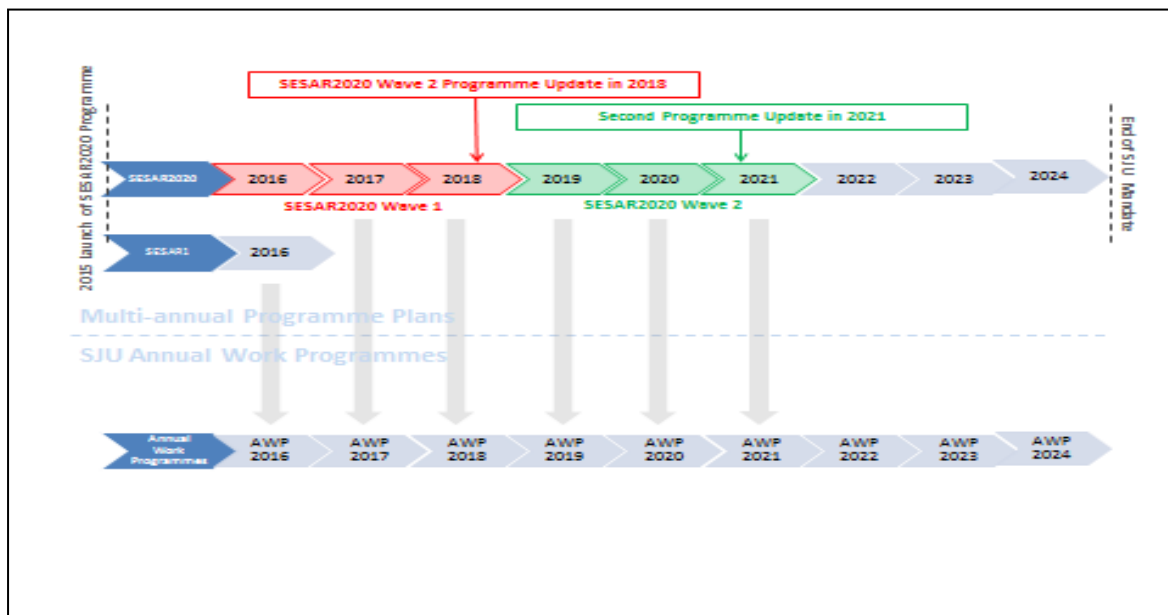
The above intent has been summarised in five headline goals for 2016 for the SJU. They are:

1. Completion and closure of SESAR1;
2. Ramp up of SESAR 2020;
3. Effective stakeholder engagement by the SJU;
4. Assist stakeholders in other areas concerning the technological pillar of Single European Sky and;
5. Continued provision of an effective organisation to support delivery of SJU’s mandate.

The 2016 AWP aims to provide a detailed view of all activities to be undertaken and objectives to be achieved during 2016 to meet these goals, drawing from SJU’s multi-annual programming documents (see figure 3). The 2016 AWP will also provide estimates regarding the allocation of resources available to SJU in 2016 and will set out performance indicators that will be used to quantify progress toward the deliverables set for the reporting period.

A summary schedule of the 2016 AWP delivery and the relationship with its multi-annual programme evolution is outlined below.

Figure 3: SJU’s multi-annual programming and the production of its annual work programmes (as per Article 31 (3) of the SJU’s Financial Rules)



1.3 SJU’s Mission, Vision and Objectives

The aim of the SJU is to ensure the modernisation of the European air traffic management (ATM) system by coordinating and concentrating all relevant research and development efforts in the European Union. The SJU is responsible for the execution of the European ATM Master Plan and in particular for carrying out the following tasks:

- Organising and coordinating the activities of the development phase of the SESAR project in accordance with the European ATM Master Plan, by combining and managing under a single structure public and private sector funding;
- ensuring the necessary funding for the activities of the development phase of the SESAR project in accordance with the European ATM Master Plan;
- ensuring the involvement of civil and military stakeholders of the air traffic management sector in Europe and in particular; air navigation service providers, airspace users, professional staff associations, airports, the manufacturing industry and relevant scientific institutions and members of the scientific community;
- organising relevant research and development to be carried out under its authority;
- ensuring the supervision of activities related to the development of common products identified in the European ATM Master Plan, either through grants to members or other appropriate mechanisms following proposals to achieve stipulated programme objectives (in accordance with Regulation 1271/2013⁷).

SJU’s vision statement is as follows:

“The SESAR Joint Undertaking for Research and Innovation is delivering solutions to modernise air traffic management, enabling high-performing aviation in Europe and worldwide.”

SJU’s vision statement is coherent with its mission and the four long term strategic objectives set by the Single European Sky (SES) initiative, namely (i) safety improvement, (ii) capacity increase, (iii) reduction of environmental impact and (iv) a reduction of service costs.

The purpose of this 2016 AWP is to set appropriate annual objectives that allow SJU to measure and manage progress toward accomplishing its mission and achieving its vision, using the European ATM Master Plan as a roadmap. To help it do this effectively, SJU adheres to a number of core values. These are:

- Innovation;
- making a difference and adding value;
- commitment;
- ethics and integrity.

These core values provide the reference points for SJU’s strategic development, driving and underpinning its operational activities and helping it to deliver an ambitious and complex work programme in 2016.

For 2016, the key objectives and the corresponding measurable target indicators are list in the following table:

	Description of 2016 Objective	Target indicators
1	Completion and closure of SESAR 1	100% of the projects closed by Q4 2016
2	Ramp up of SESAR 2020	Complete Membership Accession Process and related Membership Agreements signed by end of Q1 80% of S2020 Projects started by end of Q4 Launch of the SESAR2020 RPAS Exploratory Research call by end of Q3 2016

⁷The framework financial regulation for the bodies referred to in Article 208 of Regulation (EU, Euratom) # 966/2012 of the European Parliament and of the Council.

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		Launch of the SESAR 2020 Exploratory Research second call by end of Q4
3	Effective stakeholder engagement by the SJU	Complete the set-up of the various arrangements with third parties stakeholders (Airspace Users, Professional Staff Organisations,...) by end of Q4
4	Assist stakeholders in other areas concerning the technological pillar of Single European Sky	Complete RPAS Outlook Study by end of Q3 Updated SJU-EASA cooperative agreement by end of Q4
5	Provision of an effective organization to support delivery of SJU's mandate	Relevant (ADB) and ED decisions and SJU internal procedures successfully transited to SESAR 2020 and SJU staff trained accordingly by end of Q4

2 Multi-Annual Programming

Under Article 31 of its financial rules, the SJU is obliged to draw up a global work programme (multi-annual work programme) in addition to an annual work programme, taking into account the Commission guidelines in place. The multi-annual work programme sets out SJU's overall strategic programming including objectives, expected results and performance indicators and resource programming including multi-annual budget and staff estimates, providing the programme framework for delivery of the SESAR Concept of Operations.⁸ The resource programming shall include qualitative and quantitative information on human resources and budgetary matters.

Adopted by the Administrative Board in July 2015, the multi-annual work programme for the SJU covers the period 2016-2019 (with a further, less detailed outlook to 2021) and contains the context, objectives, budget and high-level description of the SESAR 2020 Research and Innovation (R&I) Programme. The contents of this document will be regularly updated and submitted by the SJU Executive Director to the Administrative Board.

For the SJU's 2017 work programme, in order to be in compliance with the new EU framework Financial Regulation, both the multi-annual programme and annual work programme may be integrated in a single programming document that will be updated annually. Given however that multi-annual work programme was adopted in June 2015, it is proposed not to integrate it with this annual work programme for 2016 but simply to make the document available.

The SESAR 2020 Multi-annual Work Programme is available through the SESAR public website.

⁸ The SJU Concept of Operations is the narrative that outlines the steps required to modernise the European ATM system. Step 1 involves moving from the current day to time based operations and optimising communication between ground and airborne equipment. Step 2 introduces trajectory based operations through the 4D trajectory. The third and final step will be a fully integrated performance based ATM System supported by System Wide Information Management, SWIM.

3 2016 Operational Activities

Within the 2016 AWP the SJU will establish a clear link between the high-level/strategic and operational elements of its' planning, providing a bridge between SJU's goals and its annual deliverables. This is important simply because it is the daily actions of its operations, when considered in their totality, which constitute SJU's longer-term strategic direction and will provide for the successful delivery of the SESAR R & D programme and eventually the SESAR project as a whole. As such, outlined below are 2016's operational objectives that provide the building blocks for the successful delivery of its strategic goals:

In 2016 the operational work toward Goals 1 and 2 outlined above will continue to be structured in three key phases, the 'pipeline to innovation' referred to previously in SJU's strategic documents. The first phase concerns exploratory research, itself further categorised into those elements/projects dealing with scientific activities and those which investigate the initial applications of such science for the ATM sector. The second phase includes applied research, pre-industrial development and validation projects and is delivered by the Members of the SJU (excluding the EU). The third phase deals with very large scale demonstrations (VLDs) which are designed as demonstrations of particular programme concepts. These demonstrations provide the bridge between the development and deployment phases of the SESAR project and are delivered through work undertaken by SJU Members, (excluding the EU) supplemented by open calls to ensure the widest possible stakeholder participation.

The SJU will also continue to assist all its stakeholders on relevant subjects relating to Single European Sky's technological pillar and its contribution to other areas of SES (Goal 3). In practice this will mean continuing to provide independent support and advice in areas where there appears to be a vector between SESAR deliverables and any peripheral initiatives that demonstrate a high level of interdependency with SESAR project objectives, such as cyber-security and Remotely Piloted Air Systems (RPAS).

An interoperable aviation network is a key component of the Single European Sky (SES). For this reason, one of the four SES regulations developed by the European Commission is focused on the interoperability (IOP) of ATM systems. To meet the IOP challenge, in 2016 the SJU will continue to deliver an 'initial IOP' within SESAR1, where a set of operational and technical objectives have been identified in order to deliver an initial IOP Solution called "iIOP Solution en-route". SESAR 2020 will use this initial IOP solution in SESAR1 as the backbone to develop the prototypes and validation platforms/ exercises in order to fully cover the scope of IOP as identified in the Master Plan.

Work will also continue on the process of maintaining effective corporate services to the programme that provide value for money whilst complying with all contractual requirements and external regulation/guidance. Of particular importance in 2016 will be the transition to the H2020 environment, resulting in significant changes to the financial and legal framework within which the SJU operates. The challenge for SJU in 2016 therefore is to ensure H2020 compliance, whilst at the same time continuing the evolution and consolidation of effective corporate processes, with an emphasis on further developing their efficiency and effectiveness in line with best practices.

In 2016, the progress toward closure of SESAR1 as well as the transition to SESAR2020 will be communicated through a strategic and enhanced outreach with targeted stakeholders in Europe and further afield. This will include EU institutions, ICAO, regional R&D programmes, standardisation bodies and third-party organisations. Through its external relations and communications activities, the SJU will underpin this outreach work by supporting and aligning strategic directions as well as presenting SESAR and programme results and progress at key events and preparing complementary printed and digital communications, including media and press activities.

The SJU in 2016 will continue to further develop and deliver the above goals through a number of operational objectives linked to programme specific key features and other corporate priorities, correlating their delivery to specific activities as outlined in this work programme. SJU will also set appropriate high-level performance indicators to track the progress and assess achievement of these objectives during 2016 and will provide regular information to the Administrative Board and other relevant stakeholders about their implementation and the performance of the Joint Undertaking in achieving the objectives as outlined in this work programme.

To meet the challenges laid out above, In 2016 SJU will organise its work in order to deliver these five main goals. These goals reflect its mandate at the time of writing (September 2015) and its priorities as defined through dialogue with its Members and other major stakeholders. The section below summarises the planned and ongoing work toward delivery of these goals during the course of the reporting period.

3.1 Completion and Closure of the SESAR1 Programme

In 2016 SJU will undertake the SESAR1 programme closure. This technical and administrative closure will be timely, structured, controlled and the delivery and transfer of defined benefits objectively assessed and clearly communicated to stakeholders.

To ensure operational and technical coherence, SESAR1 activities and deliverables are managed through a formal programme management framework. This framework has evolved significantly over the lifetime of SESAR1 in order to improve its effectiveness, offer greater transparency and to respond and adapt to key operational requirements as articulated by ATM stakeholders. This management framework is supported through an existing Industrial Support contract independent of the programme activities. In 2015 the SJU restructured the managed delivery of SESAR1 by grouping projects within the programme into 4 key features - summarised below - in order to meet the requirements of ATM stakeholders (these features also reflect those identified within edition 2 of the European ATM Master Plan (2015 edition)).

The key features in SESAR1 are further broken down into a number of 'SESAR solution' clusters. Solutions are operational and technological improvements that are developed by SESAR members and partners (and published by SJU) to address specific ATM research areas that contribute to the modernisation of the European and global ATM system. All SESAR solutions seek to demonstrate clear business benefits for the ATM sector when implemented by European ATM Stakeholders and serve to articulate in greater detail the operational and technological improvements developed within the wider context of each key feature. The published SESAR Solution packs contain documentation on the specific deliverables required for their industrialisation and a number of recommendations on the regulatory and standardisation frameworks required to support them. SESAR Solution Packs are published on the SESAR Solution portal on the SESAR external website. The SESAR1 Programme, ending on 31 December 2016, and as articulated in the European ATM Masterplan, is not planned to complete all solutions to sufficient maturity for Industrialisation and Deployment and consequently work will be undertaken in the SESAR2020 Programme to continue developing these solutions.

As the SESAR1 programme is scheduled to be completed and closed by the end of 2016, the SJU will deliver in full or in part all such identified SESAR1 solutions through the release process (the SESAR Release process validates solutions in operational environments in order to have conclusive and sufficient proof to support a decision for their further development/industrialisation). These mature solutions must also be further developed within the schema of the SESAR deployment legislative framework⁹, which aims to ensure that the ATM functionalities developed by SESAR are deployed in a timely, coordinated and synchronised way. In 2016, the remaining validation exercises identified under Release 5 will be completed during the reporting period.

The realisation of benefits and the successful delivery of each ATM Master Plan key feature will be measured across a number of full and partial SESAR 1 solutions to be delivered in 2016.

The 2016 AWP uses such key features as a framework to structure planning of activities and results to be delivered in 2016, with the work to be undertaken in each key feature reconciling with and integrating into the Master Plan's overall performance framework. In this way the SJU will use SESAR1's expected validated research results to report, influence and guide the overall development of the Master Plan.

This section will also summarise SESAR1 closure activities that will take place and identify those complementary activities that will transition to SESAR2020.

3.1.1 SESAR1: High Performing Airport Operations

Airports present one of the best opportunities for systemic improvement in relation to the ATM domain. The focus of this key feature therefore will be on delivering high performing operations at European airports, relying on the full integration of airports as nodes into the ATM network, which will allow a seamless process through collaborative decision making (CDM) in normal conditions (and through the further development of collaborative recovery procedures in more adverse conditions).

The following SESAR1 solutions that are being developed with the aim to contribute to the provision of more efficient mechanisms to enable improved airport operational performance will be completed and delivered during 2016:

⁹ Commission Implementing Regulation (EU) No 409/2013

1. Airport Operations Plan and AOP-NOP Seamless Integration; this solution integrates services to steer, monitor, manage airport performance as well as perform post-operations analysis. The solution also provides processes and tools to ensure airport performance in normal, adverse and exceptional operating conditions;
2. Airport Safety Nets for controllers: conformance monitoring alerts and detection of conflicting ATC clearances; this solution refers to the identification of operational requirements and technical specifications for a system that detects conflicting ATC clearances and non-conformance to procedures for traffic on runways, taxiways and in the apron, stand and gate areas;
3. Automated Assistance to Controller for Surface Movement Planning and Routing; this functionality allows controllers to graphically edit routes and compute estimated taxi times. Specifically, it provides controllers with airport layout descriptions, flight plan information (e.g. aircraft type, destination stand), known operational constraints and collaborative decision making (CDM) data which allows them to create operationally realistic taxi routes for mobile vehicles under air traffic control;
4. Departure Management integrating Surface Management constraints; this solution provides procedures and technical specifications that support departure management that take into account route planning and route monitoring information, in particular updates to taxi time;
5. D-TAXI service for CPDLC application; this solution allows the use of data link communications between the tower controllers and the flight crew during surface movement, based on the D-TAXI service from the Controller-Pilot Data-Link Communications (CPDLC) application (which has already been standardised by RTCA and EUROCAE);
6. Enhanced Traffic Situational Awareness and Airport Safety Nets for the vehicle drivers; this solution provides operational requirements and technical specifications to detect a risk of collision between a vehicle with aircraft and the infringement of restricted or closed areas. The vehicle driver is provided with the appropriate alert, either generated by the on-board system or uplinked from the controller airport safety net;
7. Guidance assistance through airfield ground lighting; this solution combines taxi route management with the airfield ground lighting in order to provide flight crew and vehicle drivers with supplementary means of guidance. Taxiway centre line lights are automatically and progressively switched on in segments as the mobile progresses along its assigned route;
8. Integrated and throughput-optimised sequence of arrivals and departures; this solution refers to a fully integrated and throughput optimised sequence of arrivals and departures, set up for the same runway (or for dependent runways), using an algorithm that takes into consideration minimum separation criteria;
9. Remotely Provided Air Traffic Service for Contingency Situations at Aerodromes; this solution enables the provision of ATS at a remote location or secondary facility at medium-sized airports in contingency situations where it is not possible to use the primary tower;
10. Runway status lights; this solution is a fully automated Runway Status Light system, based on Advanced Surface Movement Guidance & Control System (A-SMGCS surveillance) that can be used at airports to increase safety by preventing runway incursions and associated operational procedures;
11. Single Remote Tower operations for medium traffic volumes; this solution enables the provision of air traffic control services (ATS) from a remote location of aerodrome control services or aerodrome flight information services to airports with medium traffic volumes;
12. Virtual block control in low visibility procedures (LVPs); this solution supplements the set of stop bars on an aerodrome with virtual stop bars that are managed by tower systems and that are displayed on the controller working position. Thanks to surveillance data, virtual stop bars can be de-activated once passed by an aircraft.

The full SESAR1 solution data pack for the above solutions is scheduled to be completed and published by SJU in 2016. In addition, work will continue for a number of other SESAR1 solutions associated with this key feature. These solutions were not planned to reach V3 maturity by the end of the reporting period but nevertheless will make a significant contribution to understanding in this subject area and will provide the basis for continuing work within the framework of SESAR2020.

These are:

1. Conformance monitoring safety nets for Pilots; this solution seeks to provide safety alerts for the flight crew (either generated by the on-board system or uplinked from the controller alerting system), with the System detecting potential and actual risk of collision with other traffic and obstacles during airport surface operations, non-compliance with airport configuration (e.g. closed runway, non-compliant taxiway or restricted area) in addition to non-conformance to procedure or clearances;
2. Enhanced Airport Safety Nets for Controllers; this SESAR solution aims at extending the Airport Safety Nets for the controllers to the entire airport surface. The System detects potential and actual conflicting situations, incursions and non-conformance to procedures or ATC clearances, involving mobiles (and stationary traffic) on runways, taxiways and in the apron/stand/gate area as well as unauthorized / unidentified traffic. Appropriate alerts are provided to the controllers;
3. Enhanced Collaborative Airport Performance Management; this solution further improves the accuracy of advanced planning by accommodating numerous variables and providing stakeholders with scenario testing in order to support CDM when there is a DCB imbalance;
4. Enhanced Collaborative Airport Performance Planning and Monitoring; this solution will extend current A-CDM process monitoring to landside & ground access processes at an airport in both planning and execution timeframes; develop a dashboard showing all landside and airside leading key performance indicators covering Total Airport Management processes; consolidate KPIs ensuring coverage of both landside and airside operations & focusing on leading performance indicators;
5. Enhanced Guidance Assistance to Aircraft and Vehicles on the Airport Surface Combined with Routing; this solution provides to the Flight Crew the display of dynamic traffic context information and route to runway or stand. Ground signs (stop bars, centreline lights, etc.) are triggered automatically according to the route issued by ATC;
6. Enhanced Runway Condition Awareness; this solution consists of advanced systems and tools that will provide ATC with objective reports on runway condition for the whole runway or for whatever part desired and prediction of the runway exit taxiway and associated predicted ROT;
7. Enhanced Terminal Area for efficient curved operation; this solution will investigate the use of satellite navigation and augmentation such as GBAS and SBAS capabilities to provide benefits in term of capacity and efficiency in approach and using GNSS in the Terminal area;
8. Minimum-Pair separations based on Required Surveillance Performance (RSP); This solution investigates the application of pair wise separation (PWS) to a minimum of 2NM for arrivals on final approach (at the point that the leading aircraft in the pair crosses the runway threshold), based upon RSP. Reduction of separation minima is strictly dependent on the availability of accurate aircraft position data leading to the implementation of RSP therefore there is need to investigate the surveillance technology (e.g. Primary or Secondary Surveillance Radar, Dual-frequency Multi-constellation GNSS/GBAS, WAM) that could meet RSP requirements;
9. Remote Tower for multiple low density aerodromes; building upon the delivery of full 'remote tower' solutions above, this solution will assess the use of the remote tower concept for multiple aerodromes. This wider concept will assess the potential of more complex aerodromes being provided with simultaneous services and the provision of remote ATS to more than two aerodromes;
10. Safety support tools for runway excursions; this solution will provide support and alerts to the controllers and/or pilots in case of risk of runway excursion (take-off and landing);
11. Traffic alerts for pilots for airport operations; generation (on board the aircraft) of an alert to the pilots if an aircraft or vehicle presenting a risk of collision is detected during runway operations to allow the flight crew to undertake any action required to resolve the risk of collision with this mobile during runway operations;
12. Traffic optimisation on single and multiple runway airports; this SESAR Solution provides dynamic assistance to the Tower and approach controllers to optimise runway operations and make best use of minimum separations, runway occupancy, runway capacity and airport capacity, supporting ATC for the decision process (when and how to mix runway operations) resulting in an optimized use and enhanced management of runway capacity throughout the day of operations;

13. Wake turbulence separation optimisation; this solution aims to increase runway operations efficiency (compared with static aircraft characteristics based operations) and runway capacity through the application of reduced separations. This will require the use of an Optimised Runway Delivery tool so Air Traffic Controllers can deal with various runway throughputs enhancement concepts.

3.1.2 SESAR1: Optimised ATM Network Services

This key feature's intent is to improve the robustness and resilience of the ATM network through the provision of a dynamic, on-line and collaborative network operations plan (NOP) that is fully integrated with airport operations plans (AOPs) and that takes into account relevant actors' planning aspects. It is intended that the linking of AOP and NOP parameters to optimise network and airport management through the simultaneous updating of AOP and NOP via SWIM (System Wide Information Management) will provide both network and airport managers with a commonly updated, consistent and accurate plan. It is intended that the NOP will become the point of reference for all planning and executing actors (airport operators, ANSPs, airspace users and the Network Manager).

Five SESAR1 solutions relating to this key feature will be delivered in full and published in 2016. These solutions aim to provide full delivery of the following capabilities:

1. automated support for traffic complexity detection and resolution; this solution enables air traffic controllers to identify, assess and resolve local complexity situations, thereby reducing traffic peaks through early implementation of measures for workload balancing. The solution contains a traffic complexity assessment as well as individual traffic complexity-based solutions;
2. collaborative NOP for Step 1; this solution is a collaborative NOP information structure, which provides updated data exchanges between the Network Manager and stakeholders systems to the required level of service, thus allowing shared operational decision-making (e.g. TTA, STAM) and their justifications in real-time;
3. CTOT and TTA; Calculated Take-Off Time (CTOT) is a tactical slot allocation time calculated to determine the time at which a flight is required to become airborne. Target Time of Arrival (TTA) is a progressively refined planning time that is used to coordinate between arrival and departure management, and to support DCB. This solution provides a complete set of DCB measures (including Dynamic Airspace Configurations) combined with 4D constraints that are needed to optimally adapt airspace capacity to the demand and minimize demand adjustments;
4. extended flight plan; this solution sees the integration of 4D Flight Plan (FPL) data into the network manager flight planning acceptance and distribution system. The extended flight plan includes new information on the 4D trajectory (as calculated by the FOC flight planning system), which contains additional elements for each point of the trajectory such as speed and aircraft mass, as well as flight specific performance data, including predicted climb and descent profiles for a specific flight;
5. variable profile military reserved areas and enhanced (further automated) civil-military collaboration; this solution offers greater flexibility by allowing dynamic airspace management in all phases of ATM operations, from initial planning through to the execution phase, taking into account local traffic characteristics. The solution includes support tools, operational procedures and processes for real-time airspace status data exchange and for managing Variable Profile Area (VPA).

The full SESAR1 solution data pack for the above solutions is scheduled to be completed and published in 2016. In addition, work will continue for a number of other SESAR1 solutions associated with this key feature. However, these solutions were not planned to reach V3 maturity by the end of the reporting period but nevertheless will make a significant contribution to understanding in this subject area and will provide the basis for continuing work within the framework of SESAR2020.

These are:

1. Airspace Users (AU) Processes for Trajectory Definition; this solution includes and addresses one of the three major areas of development for the Airspace Users in future ATM: the FOC related processes for the management of the Shared Business Trajectory, responding to the need to accommodate individual AU's business needs and priorities without compromising optimum ATM system outcome and the performances of all stakeholders, through a full integration of the FOC within the ATM system;

2. AU Trajectory Execution from FOC perspective; this solution seeks to accommodate the AUs' business drivers, needs and priorities (AU's optimised operations) as they change during the execution of trajectories, provided the optimum system outcome is not compromised;
3. Collaborative Network Management Functions; this solution delivers subsidiary network management based on transparency, performance targets and agreed control mechanisms. Near real time data and visualisation of AOP/NOP evolving planning environment (such as weather, demand pattern and capacity bottlenecks) is available to support AU and local planning activity;
4. Integrated Local DCB Processes; the solution addresses the integration of Local Network Management with extended ATC planning and arrival management activities in short term to execution in a seamless process;
5. Mission Trajectory Driven Processes; this responds to the need to accommodate individual Military airspace users' needs and priorities without compromising optimum ATM system outcome and the performances of all stakeholders, through a full integration of the Wings Operations Centre (WOC) within the ATM system;
6. Network Prediction and Performance; network operations will be continuously monitored through Network Performance KPAs/KPIs. Network impact assessments will analyse trade-offs and facilitate collaborative decision making processes. As a result, regional, sub-regional and local DCB processes will benefit from shared situation awareness with respect to demand, capacity and performance impacts.

3.1.3 SESAR1: Advanced Air Traffic Services

The focus of this key feature is to increase automation with the aim to reduce substantially controller task load per flight, whilst meeting safety and environmental SESAR goals (including fuel efficiency), thus contributing to a reduction in ANSP costs. Despite increased automation, human operators will remain at the core of the system (as overall system managers) by using automated systems that incorporate the required degree of integrity and redundancy. Doing this effectively will rely on the design, development and validation of automated supporting tools (a complementary set of conflict/interaction, detection and situation monitoring and resolution tools) using the best available data (e.g. EPP from the a/c, extended flight plan, etc). These tools will assist air traffic control in aircraft trajectory conformance monitoring and in preventing, detecting and resolving conflicts in en-route and terminal area operations.

Seven SESAR1 solutions relating to this key feature will be delivered in full and published in 2016. These solutions aim deliver the following capabilities:

1. Arrival management into multiple airports; combines planning for several arrival streams into different airports by calculating the sequence of aircraft flying towards an area where their routes intersect;
2. ASAS Spacing applications remain behind and merge behind; such applications allow flight crew to achieve and maintain spacing for a designated aircraft. The applications are specified in new ATC instructions, instructing flight crew to achieve and maintain a given spacing for a designated aircraft, in time or in distance;
3. controlled Time of Arrival (CTA) in Medium density / medium complexity environment; solution provides a imposed time constraint at a defined point associated with an arrival runway, using airborne capabilities to improve arrival management;
4. enhanced terminal operations with automatic RNP transition to ILS/GLS; this solution refers to the use of advanced curved RNP procedures for final approach using ILS and GLS transitions and is expected to improve airport access in terrain or airspace-constrained environments and to reduce environmental impact;
5. free route through the use of direct routing; this solution offers additional flight planning route options on a large scale across flight information regions (FIRs), such that overall planned leg distances are reduced in comparison with the fixed route network and are therefore fully optimised;
6. Medium-term conflict detection (MTCD) and conformance monitoring controls; this solution addresses the development of tools to tactical and planner controllers assisting them on their

monitoring tasks during busy periods. These tools are expected to contribute to safety enhancement through the reduction of controllers' workload;

7. Optimised Route Network using Advanced RNP; this solution allows for the design of optimised routes (e.g. spaced parallel routes), further enhanced by on-board performance monitoring and alerting.

The full SESAR1 solution data pack for the above solutions is scheduled to be completed and published in 2016. In addition, work will continue for a number of other SESAR1 solutions associated with this key feature. However, these solutions were not planned to reach V3 maturity by the end of the reporting period but nevertheless will make a significant contribution to understanding in this subject area and will provide the basis for continuing work within the framework of SESAR2020. These are:

1. Extended Arrival Management with overlapping AMAN operations and interaction with DCB and CTA; this solution enhances the AMAN systems through the utilisation of more accurate ETA data e.g. EPP data. Information from multiple arrival management systems operating out to an extended range is integrated with local traffic/sector information, enabling trajectory negotiation between en-route and TMA ATS providers and airspace users;
2. High Productivity Controller Team Organisation; developing roles, responsibilities and tools associated with different controller "team" organisations, both in TMA and en-route environments (e.g. single-controller operations, sectorless ATM, multi-sector planning, etc.);
3. Improved Performance in the Provision of Separation; this solution will deliver improved performance in the provision of separation in the en-route and TMA operational environments. Vertical and longitudinal separation is ensured by tactical ATC intervention. Assistance tools are enhanced by using the following: enhanced ground Trajectory prediction, extended Predicted Profile, aircraft derived data, MET data, ASM and mission trajectory data;
4. Management of Performance Based Free Routing in lower Airspace: this solution aims at realising the objective of the airspace users to plan flight trajectories without reference to a fixed route network or published directs within high & very high-complexity environments;
5. Optimised traffic management to enable Free Routing in high and very high complexity environments; This SESAR Solution aims at realising the objective of the airspace users to plan flight trajectories without reference to a fixed route network or published directs within high & very high-complexity environments in order to provide them with significant opportunities to optimise their associated flights in line with their individual operator business needs or military requirements;
6. Use of Arrival and Departure Management Information for Traffic Optimisation within the TMA; this solution takes advantage of enhanced predicted demand information provided by local Arrival and Departure management systems to identify and resolve complex interacting traffic flows in the TMA and on the runway to provide the ability to coordinate complex interacting traffic flows within the TMA.

3.1.4 SESAR1: Enabling Aviation Infrastructure

It is essential to ensure that on-going development of aircraft and ground systems in SESAR 2020 focuses upon achieving harmonised global standards to ensure world-wide application and adoption. Essential to achieving this are definitions of interoperability of information exchange (air-ground and air-air) as well as other air-to-air interactions (e.g. collision avoidance). This will rely on closer cooperation between aircraft systems, flight operation centre systems and military mission management to ensure ATM performance delivery that supports all types of air-vehicle types and missions and incorporates weather effects, emissions, fuel saving, noise, air quality etc.

Three SESAR1 solutions relating to this key feature will be delivered in full and published in 2016. These solutions aim deliver the following capabilities:

1. automated assistance to controller for seamless coordination, transfer and dialogue through improved trajectory data sharing; this solution allows for better coordination, integration and identification of a controller's tasks thanks to improved trajectory data sharing (enabled by the Flight Object) in Predefined and User Preferred Route environments;

2. digital integrated briefing; This solution aims to improve information sharing between pilot, flight dispatchers and air traffic controllers for all phases of flight through the exchange of easier to understand, better filtered digital aeronautical data (including Digital NOTAM) and digital MET data;
3. MET (Meteorological) Information Exchange; this solution will lead to a better understanding of the impact on operations of actual and forecasted MET information, alerts and warnings of adverse weather conditions.

The full SESAR1 solution data pack for the above solutions is scheduled to be completed and published in 2016. In addition, work will continue for a number of other SESAR1 solutions associated with this key feature. However, these solutions were not planned to reach V3 maturity by the end of the reporting period but nevertheless will make a significant contribution to understanding in this subject area and will provide the basis for continuing work within the framework of SESAR2020.

These are:

1. Aeronautical Digital Map Service; when complete this solution will help to provide digital maps ready to be used by different ATM systems (e.g. Safety Nets) when performing separation functions. The output will be highly customizable in order to meet the different requirements from the consumers and easily convertible among different digital formats;
2. Alternative Position, Navigation and Timing (A-PNT); Alternative-Position, Navigation and Timing (A-PNT) is a technological enabler related with the need to introduce ground and airborne systems that can support currently defined and standardized PBN and other CNS-based operations and provide a backup with similar level of performance in case of corruption, degradation and absence/loss of GNSS;
3. Data Centre Service for Virtual Centres; virtual centres enable workload balancing throughout ATM facilities since their aim is to allow sector delegation across the SES airspace. Through standardisation of interfaces and separation in ANSPs and ADSPs, the Virtual Centre concept allows ANSPs to select between different data sources for providing their ATM services – increasing the potential cost savings;
4. Delay Sharing Service; it is intended that the XMAN Delay Sharing Service operates the AMAN functionalities within an extended horizon to provide local and overall arrival sequences for planning and tactical operational purposes in a cross border environment;
5. Integration of trajectory management processes in planning and execution; this Solution includes and addresses flight operations centre (FOC) related processes for the management of the reference business trajectory, responding to the need to accommodate individual AU's business needs and priorities without compromising optimum ATM system outcome and the performances of all stakeholders, through a full integration of the FOC within the ATM system;
6. Management and sharing of data used in trajectory (AIM, METEO); development of a number of enhanced capabilities to enable MET-and AIM-service providers to make available the required MET - and AIM -information of the required quality of service.;
7. Mission Trajectory Driven Processes; this solution responds to the need to accommodate individual Military AU's needs and priorities without compromising optimum ATM system outcome and the performances of all stakeholders, through a full integration of the WOC within the ATM system;
8. Multi Constellation / Multi Frequency (MC/MF) GNSS; this solution seeks to define a multi-constellation multi-frequency solution up to CAT III capability enabling required performance and robustness by using satellites from different constellations and applying multiple/dual frequency signal monitoring and processing;
9. New use and evolution of Cooperative and Non-Cooperative Surveillance; this solution looks at developing improvements in cooperative and non-cooperative surveillance systems, specifically looking at (i) composite surveillance; (ii) multi-sensor data fusion; (iii) new non-cooperative surveillance systems; (iv) environmental influences on non-cooperative surveillance; (v) secured surveillance systems; (vi) the full integration and exploitation of ADS-B in military platforms and (vii) a future ADS-B communication link;
10. Static Aeronautical Data Service; the function of the Static Aeronautical Data Service is to provide static aeronautical data in digital form to be used by different ATM systems (e.g. Safety Nets). The

output is an AIXM-compliant dataset whose subsets can be retrieved by individual requests demanding specific geographical areas, attributes or functional features;

11. Sub-regional Demand Capacity Balancing Service; plans the optimal use of operational ACC resources and demand management measures to facilitate AU (civil and military) requirements, based on the regional plan and within the prevailing business performance framework, for the rolling day of operation. The plan also includes measures for managing uncertainty (including weather) and cross border requirements;
12. Surveillance Performance Monitoring; each surveillance system element needs to be acceptance tested not only during commissioning but also in regular intervals in order to validate its operational use. Notably for new surveillance systems (WAM, MSPSR, ICNS, space-based ADS-B) performance assessment methods are still under discussion and need to be conclusively defined;
13. SWIM TI Common runtime registry; the SWIM registry related activities have focussed on a design-time registry. A Run-Time registry is usable for dynamic binding to services, provision of routing information to services, provision of service status information and lookup of policies;
14. SWIM TI Federated Identity Management; a number of Functional Blocks (i.e., high level functionalities as defined in TAD and TSs) have been considered as "shareable" (i.e., SWIM-TI functions whose realisation could be performed once for the benefit of several function users and could be used by other SWIM-TI functions from various SWIM profiles;
15. SWIM TI Green profile for G/G Civil Military Information Sharing; there may be interoperability and security aspects to be addressed when military systems are to access SWIM. With respect to interoperability, there may be a need to ensure that the protocols and data models used in military systems can be interfaced with SWIM with the adequate quality of service levels maintained. This solution development shall start with the identification and agreement of requirements specifying such needs in more detail before developing any TS and/or prototypes;
16. SWIM TI Purple Profile for Air/Ground Advisory Information Sharing; This Solution will specify the technical architecture and functions that are required to achieve full interoperability between air and ground SWIM segments and meet the safety and performance requirements required by airborne operations and provide verification Plans and Reports that demonstrate that prototypes are meeting requirements;
17. SWIM TI Purple Profile for Air/Ground Safety-Critical Information Sharing; So far, CPDLC and ADS-C ATM services are used for point-to-point exchange of safety-critical data between aircraft and ground ANSP systems. The "Purple Profile for Air/Ground Safety-Critical Information Sharing" solution will focus on distribution of safety-critical information through A/G SWIM infrastructure and ATN/IPS networking, rather than legacy point-to-point contracted services;
18. Trajectory Prediction Service; The function of the Trajectory Prediction (TP) Service is to compute and distribute an accurate and consistent 4D trajectory and update it as the flight progresses. The output could be used during different flight phases: to propose an initial reference trajectory in the planning phase, as input for DCM during the tactical phase or facilitate transfers during the operations phase;
19. Work Station, Service Interface Definition & Virtual Centre Concept; this solution will develop the ATSU architecture from a service oriented approach with a focus on the technical services and common interfaces. Based on the Virtual Centre concept, the CWP/HMI needs to interface with one or more information service providers or consumers;
20. Workstation, Controller productivity; will develop guidance and assessment methods regarding HMI, will investigate new HMI needs and interaction modes in relation with other SESAR solutions (including new user interface technologies such as speech recognition, multi-touch, gaze detection).

3.1.5 SESAR1: Complementary Activities

SESAR1 contains a number of complementary activities that wrap around the programme. Whilst not linked directly to the four key features identified above, these validation exercises provide an important contribution to overall programme delivery. Two enabling elements have been identified as particularly important within the context of overall programme delivery - communications, navigation and surveillance (CNS) activities and

SWIM. Activities relating to the validation of elements of SWIM and CNS, in addition to other identified enabling areas, will continue throughout the reporting period.

SWIM validation activity will continue in 2016 through a number of projects resulting in the delivery and publication of one full solution relating to SWIM in 2016 (initial SWIM (#46)). This solution will bring together several core elements for the initial implementation of SWIM, namely services for information exchange and governance; SWIM security; SWIM Technical Infrastructure Profiles, SWIM Foundation; ATM Information Reference Model (AIRM) and the Information Service Reference Model (ISRM).

Work will also continue on a number of other SESAR1 solutions associated with SWIM. However, these solutions were not planned to reach V3 maturity by the end of the reporting period but nevertheless will make a significant contribution to understanding in this subject area and will provide the basis for continuing work within the framework of SESAR2020. These partial solutions are outlined in more detail in Annex A:

Also linked to SWIM, AIM/MET¹⁰ validation activity will be delivered in 2016 as elements of projects involving developing AIRM deliverables, information service modelling deliverables, SWIM air-ground capability, aeronautical databases, MET information system development, verification & validation and AIM (although limited to pre-flight debriefing). An AIM/MET solution, MET Information Exchange, will be delivered and published in 2016. This solution will improve the overall understanding of the impact on operations of actual and forecasted MET information, alerts and warnings of adverse weather conditions.

Moreover, there will also be a number of projects looking at Controller Working Position (CWP) under SWIM, aiming to improve flow of information among control centres and airports. As a result, a number of solutions will be finalised in 2016, delivering digital integrated briefing that will improve information sharing between pilot, flight dispatchers and air traffic controllers for all phases of flight through the exchange of easier to understand, better filtered digital aeronautical data (including Digital NOTAM) and digital MET data.

Work will continue on a number of other SESAR1 solutions associated with CWP. However, these solutions were not planned to reach V3 maturity by the end of the reporting period but nevertheless will make a significant contribution to understanding in this subject area and will provide the basis for continuing work within the framework of SESAR2020. These are outlined in greater detail in Annex A but include:

1. workstation, service interface definition & virtual centre concept; within the context of possible out-sourcing of some ATM data services to information providers supporting multiple stakeholders, this solution looks at the out-sourcing of ATM data services concept and the requirement to provide a clear industry standard interface, in particular between the controller workstation and the related data services;
2. workstation, controller productivity: this solution shall select innovative interaction technologies that are already beyond maturity level V1 / TRL 2, then define and run evaluations and demonstrations with involvement of operational users to investigate the possible benefits of the selected technologies to support V2 and/or V3 activities in SESAR 2020 solution projects. The quality criteria to take into consideration are human factors, safety, productivity improvements against current interaction means, and workload reduction.

Concerning CNS, there are no full SESAR1 solution data packs for the following solutions that are scheduled to be completed and published in 2016. However, activities concerning a number of other SESAR1 solutions associated with this enabling area will continue throughout 2016. These solutions were not planned to reach V3 maturity by the end of the reporting period but nevertheless will make a significant contribution to understanding in this subject area and will provide the basis for continuing work within the framework of SESAR2020.

Remote tower operations validation activity will be delivered in 2016 as elements of projects involving coordination and consolidation of operational concept definition and validation, Coupled AMAN-DMAN, airport systems specification drafting and maintenance, remotely operated tower multiple controlled airports with integrated working position and remotely operated tower technology used for contingency and enhanced local operations.

Work will continue on a number of other SESAR1 solutions associated with CWP. However, these solutions were not planned to reach V3 maturity by the end of the reporting period but nevertheless will make a

¹⁰ MET is part of PCP and one of the priorities for the SJU

significant contribution to understanding in this subject area and will provide the basis for continuing work within the framework of SESAR2020. These include:

1. data centre services for virtual centres; the virtual centre model proposes to revise the current view of the technical ATM service provisioning landscape and offers a revised service layout which intends to address new business options to buy, make, or outsource capabilities for cost reduction and/or operational and business agility. This solution looks at the supporting components necessary for the proper operation of a repository for storage, management and dissemination of data for such virtual centres;

3.1.6 SESAR1: Transversal Activities

A number of transversal activities will provide coordination and guidance to the whole SESAR1 programme and an integration role across key features and phases of research. Transversal activities are the key to coordinating the delivery of successful programme results and are designed to provide the interlinkages between the separate technical elements of ATM research and to provide the potential to extend the SESAR operational concept in accordance with user needs.

Within SESAR1, such transversal activities cover Target Concept and Architectural Maintenance, Master Plan Maintenance and the Validation Infrastructure. These activities will ensure a smooth transition and evolution of ATM architecture from SESAR1 into SESAR2020 and take into account safety and security implications as well as ensuring the delivery of performance to meet future needs. A full list of transversal activities planned during 2016 is included in Annex A.

3.1.7 SESAR1: Long Term and Innovative Research

SESAR1 includes a number of activities looking specifically at long-term and innovative research ideas in the field of ATM. These activities, bundled into Work Package E (WPE), encompass projects, research networks and individual PhD research and explore novel and unconventional areas that involve new technologies, concepts or ideas that have the potential to add significant value to the ATM domain. The results stemming from WPE will continue to be communicated into and shared across SESAR.

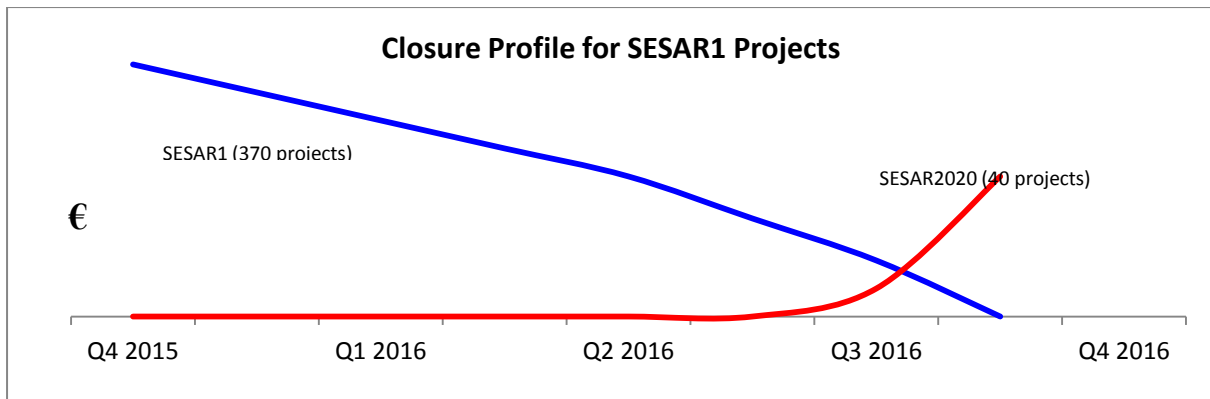
Funding for high-potential research projects will continue in 2016, as will other forms of cooperation currently undertaken within SESAR1, with relevant research networks involving academia, research centres and industry. The SJU will continue to award prizes for outstanding research in fields relevant to the organisation's mandate (in accordance with the Constituent Act or by delegation of the Commission pursuant to Article 58(1)(c)(iv) of Regulation (EU, Euratom) No 966/2012). Specifically, the 'SESAR Young Scientist Award', recognising outstanding talent and potential contributions from young scientists to any relevant SESAR activity, will continue in 2016.

3.1.8 SESAR1: Programme Closure and Transition to SESAR2020

All SESAR 1 projects shall be closed in an auditable and controlled way by the end of 2016. To pre-empt potentially unmanageable peaks of activity for the SJU and its members during the reporting period, a closure plan for SESAR1 has been prepared and approved in 2015. The plan will run throughout 2016 to formally manage the completion and closure processes of all SESAR1 projects by the year-end and optimise the planned closure date for all active projects. Part of the consequence of this plan is that the handover date of the final technical deliverables for several projects and the subsequent project closure gates have been revised and will now take place mainly in the second half of 2016.

The execution of the closure plan throughout the reporting period will focus on managing the timely completion of the remaining SESAR 1 work, with particular emphasis on the delivery of Release 5 results and the proper performance of the closure processes of all relevant projects by 31 December 2016. The focus will be on limiting the risk that projects have not delivered their final results by the time they need to be closed in line with the agreed closure plan, as any delay risks impacting the level of budgetary implementation for both SESAR1 and SESAR2020.

At the end of 2015, closure activity is proceeding according to plan with a significant number of the total 370 SESAR1 projects now closed. The closure profile for SESAR1 has been developed, agreed, baselined and proactively managed by the Programme Control Group, then approved and overseen by the Programme Committee. This is outlined below.



The closure process for individual SESAR1 projects determines through the project closure gate and the subsequent closure decision the extent to which the project has achieved its objectives and whether it has expended the funding available to it in line with its budget. Following project closure, there may be a need for further work on the SESAR Solution(s) to which the project has contributed. In such cases the closure process also aims to assure, to the extent possible, the seamless continuation of the work in a new project within the SEAR2020 framework. To accurately capture and propagate this knowledge, the programme closure plan will also address content and material developed in SESAR1, ensuring that it is:

- made available to the SESAR Deployment Manager for use in the deployment programme;
- transferred to the SESAR 2020 programme for further development or;
- archived in line with the legal requirements.

The SESAR Release Strategy for ATM Operational Improvements (OI) and Solutions has been developed to be independent of the respective Programme (1, 2020 or beyond) and drives the definition of top down validation activities per Release connecting the Programme Key Features with the SESAR Release Process. The Release Strategy reflects the maturity level of all OI steps and in particular identifies when they need to achieve end of V3 maturity in order to meet member's business needs. At the end of each Release, the maturity of the proposed SESAR Solutions is assessed. The results can lead to declaring the SESAR Solution as mature enough for pre-industrialisation and inclusion in the Deployment Programme or to requiring further validation activities to be planned in the next Release.

The SESAR 1 Programme will be concluded with Release 5. Maturity assessment of the SESAR Solutions validated in Release 5 will also be performed and the resulting Solutions ready for pre-industrialisation will be published as part of the SESAR 1 final outcomes. Regarding the Solutions requiring further validations, they will be addressed as part of the SESAR 2020 Programme.

The definition phase of the SESAR 2020 Programme was carried out in parallel with the definition of the Release 5 content and was finalised when Release 5 was in its early execution phase. This parallel approach enables the SJU and the candidate members to keep an accurate view of the evolution of the maturity of the SESAR solutions and to reflect it in regular updates of the Release Strategy. Therefore, SESAR Solutions considered as not ready at the end of SESAR 1 were included in the SESAR 2020 projects definition in order to further complete their validation.

Simultaneously, the ATM Master Plan campaign also took benefit of the updates of the Release Strategy. In particular, the Master Plan Level 1 in its Operational View identifies and describes the SESAR Solutions as defined in the SESAR 2020 Programme. In a similar way, Master Plan Level 2 has been updated to reflect the SESAR 1 progress and the SESAR 2020 expectations in terms of planning and architecture.

A consistent transition between both Programmes has therefore been ensured through guaranteeing the consistency between the main drivers such as the Release Strategy, the SESAR 2020 Programme and the ATM Master Plan.

In addition to this consistency, clear reference to SESAR 1 deliverables has been made in the description of the SESAR 2020 projects. Aim is to ensure that the SESAR 2020 programme will start building on the foundation resulting from SESAR 1 validation activities.

Actions have been taken for issues identified in the last year of SESAR 1. In particular the validation of Free Route operations in high and very high operational complexity environments and across different Air Traffic Service Centres will be partly validated at the end of SESAR 1 programme. Therefore, SESAR 2020 project PJ06

and the VLD PJ23 will complete the validation in order to cope with the first Deployment Common Project (PCP) deadline.

Similarly, issues raised on the development of interfaces for exchange of information between heterogeneous ground systems (Interoperability - IOP) have been addressed in the SJU Governance at Programme Committee level. An IOP roadmap has been agreed aiming at clearly delivering an initial IOP SESAR Solution as outcome of SESAR 1 programme and at planning the sequence of the main activities to be performed in SESAR 2020 in order to cover adequately the full scope of the IOP solution as described in the PCP.

3.2 Ramp Up of SESAR2020

The focus of the organisation will shift significantly in 2016 away from SESAR1 toward enabling the successful ramp-up of SESAR 2020. Under this programme SJU will continue to be responsible for managing research and innovation delivered by its renewed membership, in addition to managing open calls for proposals, all under Horizon 2020 rules.

SESAR2020 will build further upon the work undertaken in SESAR1 and concentrate its effort around the key features of the European ATM Master Plan (edition 3, 2015). As such, this element of the work programme is similarly focused to goal 1, with each section below corresponding to the four grouped area of activities that are focused around identified front-line ATM service areas, the 'key features' of SESAR2020, in addition to detailing those transversal elements of the programme such as shared infrastructure or the use of relevant enabling technologies that are important in ensuring the integrity of the overall programme and communicating the results to stakeholders.

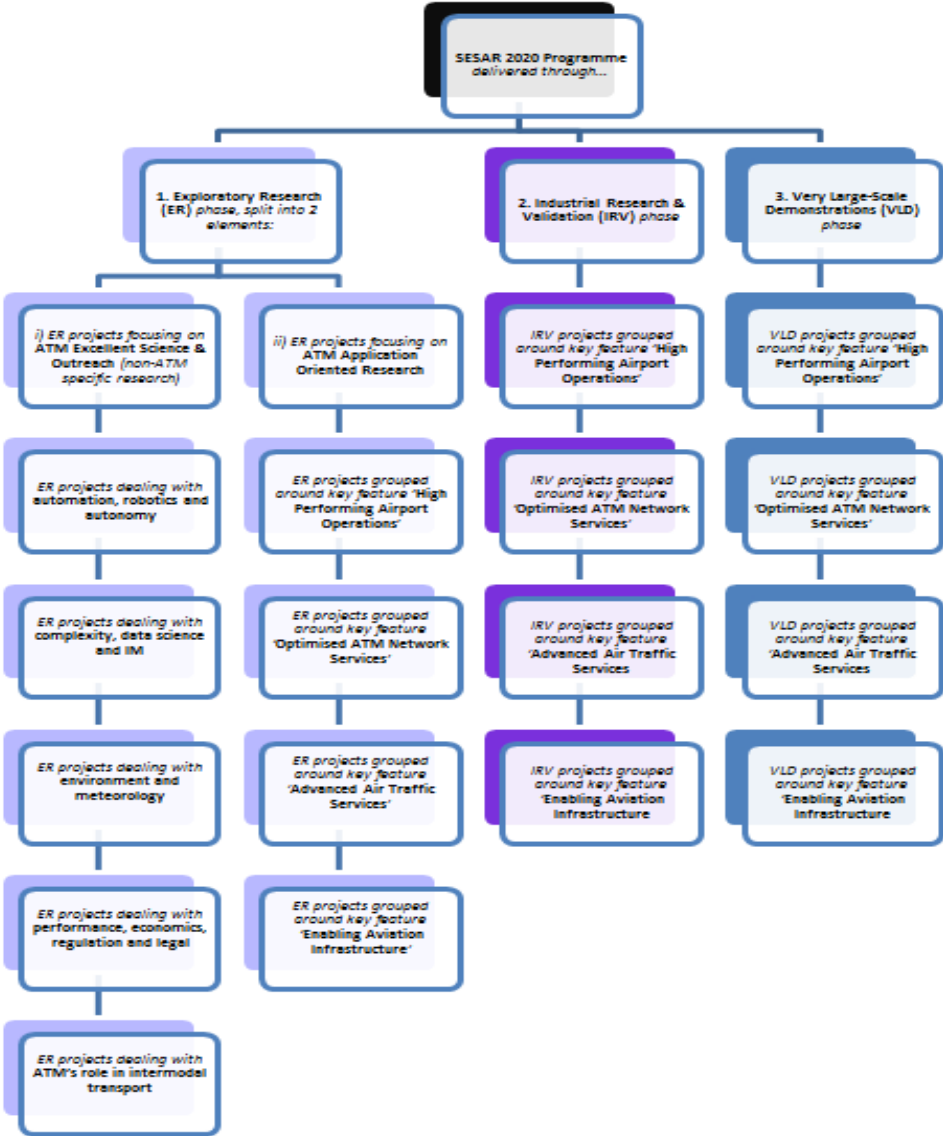
This section will provide a brief narrative of the status of SESAR2020 projects in each key feature grouping in 2016 and also outline any significant transversal activities scheduled to take place during the reporting period. The activities to be undertaken in each key feature are further categorised by Exploratory Research (ER), covering either those specific projects looking at scientific analysis or those analysing the initial application of such science for ATM, projects at the industrial research and validation (IRV) stage of development to be solely delivered by the SJU's Members (excluding the EU) or very large scale demonstrations (VLDs) which, as explained in the previous section, are large scale operational exercises that seek to fill the gap between development and deployment in SESAR.

In addition to those ER elements described within each of the key feature sections below, another important element of ER – 'Excellent Science and Outreach' - (designed to provide the science necessary to support ATM change either directly or through connection to other funded areas of research) is outlined below. This element of the SESAR2020 programme (defined in the SJUs adopted and published multi-annual Work Programme and relates to the activities of the Joint Undertaking covering the period 2014-2020 financial framework) is important as it draws on relevant research activities in other industries and fields thus providing a bridge between the wider research community and ATM. A diagram of the main structure of SESAR2020 is outlined below, demonstrating how the programme is delivered through its constituent ER, IRV & VLD phases. Whilst it can be seen that 'Excellent Science' sits outside the key-feature structure, it remains an integral part of exploratory research and thus the wider SESAR2020 programme.

SJU expects to conclude the initial SESAR2020 exploratory research call by signing grant agreements with successful applicants in Q4 2015 and Q1 2016, and the 2016 activities listed in this section and in the corresponding part of Annex A are predicated upon this timetable being met. The technical definition of the IRV and its corresponding budget have been agreed with the Commission and a multi-annual work programme, describing the programme structure, detailed project descriptions and setting out clear deliverables and milestones has been shared with members and adopted by the Administrative Board in 2015. Adaption to the new H2020 environment delayed the first SESAR 2020 IRV call to Q4 2015/Q1 2016. Consequently, the timetabling of the 2016 activities listed here is provisional and may be subject to change and/or delay.

An outline and provisional timetable for all relevant SESAR2020 call for contributions in 2016 is also included within this work programme in Annex E.

Figure 4: Structure and Key Features of the SESAR2020 programme.



3.2.1 SESAR2020: Ramp-Up Activities in 2016

The plan for securing SESAR2020 in 2016 is to conclude the Membership of the Joint Undertaking by signing a new Membership Agreement with up to 19 candidate Members already selected during 2015 and to complete this before the award of grants resulting from the first Call for Proposals. With the award of Grants to the Members as a result of the Call for Proposals on Wave 1 of the Industrial Research & Validation and the Large Scale Demonstration activities, in accordance with the published Multi-annual Work Programme, this inter-related Membership and first Grant Award procedure will then be concluded. The expected scope of activities awarded to the Members is summarised in the following sections.

In addition to those transversal elements already identified under Goal 1 (i.e. those SESAR1 activities that provide support in ramping up the operational part of the SESAR 2020 programme identified in section 3.1.8), a further number of programme management tasks must be undertaken in order to provide a robust framework to ramp-up to the new programme. These are necessary, *inter alia*, to ensure the effective scheduling of activities, the organisation of the necessary project resources, the implementation of effective change management (through the introduction of organisationally uniform change processes) and putting in place appropriate communication frameworks for the SESAR 2020 programme.

To do this, the SESAR 2020 programme execution framework has been put in place. This framework is based on two programmatic documents to be adopted within the SJU governance:

- i) 'the introduction to SESAR2020 programme execution framework' and
- ii) 'SESAR 2020 – programme guidance' which outlines the approach to be taken by SJU in order to ensure the optimal use of programme resources within the context of both the programme delivery and SESAR Solution life-cycles. The activities contained within this framework provide the information, content and guidance to support delivery of SESAR2020 and are outlined in more detail in Annex A.

3.2.2 SESAR2020: High Performing Airport Operations

Airports remain one of the most significant bottlenecks in ATM and therefore represent great potential for system-wide improvement. Significant focus will be placed on realising improvements within this key feature in the SESAR 2020 research activities that will be launched in 2016. These activities will include research into areas of enhanced runway throughput, integrated surface management, airport safety nets, total airport management and validation of the remote tower concept for multiple airports. A first call for proposals for exploratory research was launched in 2015 ('Improved Visualisation and Awareness' (REF: ER-06-2015)), asking for exploratory research ideas on new ways of displaying and presenting data on aircraft, vehicles and infrastructure in a manned airport visual control room, (using applications and technologies developed for remote tower operations) that may offer solutions for use in conventional environments with significant potential for safety improvements. Project proposals received will be selected following tender procedures in Q4 2015/Q1 2016 and launched in Q1 2016.

Additionally, the following activities are currently scheduled to be launched during 2016; industrial research and validation activities relating to increased runway and airport throughput, integrated surface management, airport safety nets, total airport management, remote towers for multiple airports and launch of S2020 very large demonstration activities relating to integrated airport operations (SESAR 2020 VLD Wave 1 integrated airport operations project. Following the scheduled launch of the IRV/VLD call in Q4 2015/Q1 2016, it is anticipated that these activities be launched in Q3 2016).

3.2.3 SESAR2020: Optimised ATM Network Services

Research Activity for this key feature was not addressed in the 2015 ER Call for Proposals, however the following call activity is scheduled during 2016; launch of SESAR 2020 activities relating to optimised airspace user operations, advanced demand and capacity balancing, advanced airspace management and launch of S2020 very large demonstration activities relating to network collaborative management SESAR 2020 VLD Wave 1. These activities are provisionally scheduled to be launched in Q3 2016.

3.2.4 SESAR2020: Advanced Air Traffic Services

Under this key feature, a call for proposals for exploratory research was concluded in 2015 ('Separation Management and Separation Standards' (REF: ER-07-2015)) calling for innovative research proposals to

investigate the overall principle of separation management in ATM and propose innovative and adapted separation schemes, both in terms of the definition of separation minima and the mechanism for assuring separation. Project proposals received will be implemented following tender awards in Q4 2015/Q1 2016 and launched in Q1 2016.

Additionally, the following relevant IRV activity is currently scheduled to be launched during 2016; launch of SESAR 2020 industrial research and validation activities relating to enhanced arrivals and departures, trajectory based free routing, separation management en-route and TMA and enhanced air and ground safety nets. 2016 will also see the launch of S2020 very large demonstration activities relating to flexible airspace management & free route (SESAR 2020 VLD Wave 1 flexible airspace management project scheduled to be launched in Q3), VLD activities relating to arrival management extended to en-route airspace (SESAR 2020 VLD Wave 1 arrival management project scheduled to be launched in Q3 2016) and VLD activities relating to enhanced terminal airspace using RNP based operations (SESAR 2020 VLD Wave 1 enhanced terminal airspace project scheduled to be launched in Q3 2016).

3.2.5 SESAR2020: Enabling Aviation Infrastructure

It is essential to ensure that on-going development of aircraft and ground systems in SESAR 2020 focuses upon developing harmonised global standards that are adopted and applied world-wide. Defining interoperability of information exchange (air-ground and air-air) as well as other air-to-air interactions (e.g. collision avoidance) is therefore essential. This will rely on closer coordination and communication between aircraft systems, flight operation centre systems and military mission management to ensure ATM performance delivery that supports all types of air-vehicle types and missions and incorporates weather effects, emissions, fuel saving, noise, air quality etc.

Within this context, a call for proposals for exploratory research within the framework of SESAR2020 was concluded in 2015 in the field of 'Communication, Navigation and Surveillance' (REF: ER-08-2015)), with ER projects in this area expected to assess the benefits and risks from an integrated communication, navigation and surveillance (CNS) infrastructure in particular with regard to redundancy and performance needs, with improved integration and interoperability of systems likely to improve efficiency, reduce cost and improve safety. Projects will be selected in Q4 2015/Q1 2016 and launched in Q1 2016.

Improving the integration of remotely piloted aircraft systems (RPAS) operations is also a key deliverable of SESAR 2020. Presently these are not routinely integrated into the ATM environment and RPAS can only fly in segregated airspace. Moreover, there is a lack of regulation on the subject. Implementation, certification and flight-authorisation plans are fragmented and are only conducted at a national level. As the successful integration of RPAS, general aviation (GA) and rotorcraft with commercial aviation is a key issue for SES, the overall integration of RPAS vehicles into the ATM system is one of the pivotal deliverables for this key feature (more information concerning 2016 RPAS deliverables is outlined in section 3.4.3).

In the course of 2016 the SJU will launch industrial research and validation activities relating to air vehicle systems, communication, navigation and surveillance systems, activities relating to common services, controller working position/human machine interface (CWP/HMI), SWIM infrastructures, 4D trajectory management and initial trajectory information sharing.

VLD activities relating to this key feature are also scheduled for launch in 2016; flight information exchange; initial trajectory information sharing (SESAR 2020 VLD Wave 1 initial trajectory information sharing project scheduled to be launched in Q3 2016 (published in the 2015 IR/VLD call)) and flight information exchange (SESAR 2020 VLD Wave 1 flight information exchange project also scheduled to be launched in Q3 2016 (published in the 2015 IR/VLD call)).

In addition to those elements of exploratory research described above that will help to mature ATM concepts to the level needed to progress to applied research work to be undertaken in the industrial research and validation phases of SESAR 2020, another element of exploratory research, 'ATM Excellent Science and Outreach', is designed to provide the science necessary to support ATM change either directly or through connection to other funded research areas in other disciplines. SESAR2020 projects in these areas will have a recommended duration of eighteen months and a maximum duration of 24 months (with the exception of some academic projects that could last up to three years).

These projects shall cover the following activities:

3.2.5.1 SESAR 2020 Exploratory Research for Automation, Robotics and Autonomy within ATM in 2016 (ATM Excellent Science and Outreach);

This element of SESAR's exploratory research programme will focus upon achieving higher levels of automation within ATM, focusing on robotics specifically to deliver significant operational benefits and reducing the need for human intervention in essential processes and functions. A call for proposals issued for 'Automation in ATM' (REF: ER-01-2015) closed in June 2015. The projects will be selected in Q4 2015/Q1 2016 and launched in Q1 2016.

3.2.5.2 SESAR 2020 Exploratory Research for Complexity, Data Science and Information Management in 2016 (ATM Excellent Science and Outreach);

The exploitation and application of large data sets in order to facilitate a more effective use of information management within ATM could help to optimise planning and execution of future ATM operations. As such, SESAR2020 research activities under this theme will address complexity science, data science and information management to better understand how complex data sets interact within ATM systems. Two calls for proposals have been issued. One for 'Data Science in ATM' (REF: ER-02-2015) and a second for 'Information Management in ATM' (REF: ER-03-2015). Projects in both areas will be selected in Q4 2015/Q1 2016 and launched in Q1 2016.

3.2.5.3 SESAR 2020 Exploratory Research for Environment and Meteorology for ATM in 2016 (ATM Excellent Science and Outreach);

The objective of the research activities under this theme is to benefit from ongoing research activities currently outside the field of ATM and apply it to the environment and meteorology domains in the context of future ATM evolution. As such, a call for proposals issued for 'Environment & Meteorology for ATM' (REF: ER-04-2015) closed in June 2015. The project proposals received are to be implemented following the bid review process and tender awards in Q4 2015/Q1 2016 and launched in Q1 2016.

3.2.5.4 SESAR 2020 Exploratory Research for Performance, Economics, Legal and Regulatory Matters in 2016 (ATM Excellent Science and Outreach);

In recent years, the importance of understanding the evolution of the ATM service market structure and the need to minimise airborne costs through the use of cost-effective new business and pricing models has become evident. It is intended that the research performed in this area will help to contribute to competitiveness and innovation within the European ATM industry.

The interlinkages between the economic, legal and regulatory frameworks are significant and this will impact the way in which research in this area is structured to ensure the impact of change in one area must be assessed across all areas to ensure coherence and to avoid delay. A call for proposals issued for 'Economics and Legal Change in ATM' (REF: ER-05-2015) closed in June 2015. The projects will be selected in Q4 2015/Q1 2016 and launched in Q1 2016.

3.2.6 SESAR2020: Transversal Activities (ATM Operations, Architecture, Performance and Validation):

In order to coordinate programme delivery and to provide the key integration role across phases of research and key features, a number of transversal activities are foreseen in SESAR2020. These research areas will focus on extending the SESAR operational concept, ensuring robust transition and evolution of architecture whilst taking into account safety and security implications as well as ensuring the delivery of performance to meet future needs (transversal activities are also key to the clear communication of research results from the programme to the relevant SJU stakeholders).

A key transversal element, content integration, is planned to ensure the integration and coherence of operational and technical solutions proposed within SESAR1 and SESAR2020 to ensure results of research are

complete and coherent with the overall aims of SESAR. Content integration activities within SESAR2020 will also cover delivery of the programme's performance framework, ensuring that the relevant performance criteria are adopted by individual projects, which helps to ensure alignment with the expectations outlined in the European ATM Master Plan with regards to performance and transition to deployment.

Content integration activity in 2016 will include the following: Transition Concept of Operations (CONOPS) for supporting SESAR2020 (undertaken by SESAR 1 projects with the intention to support the kick-off of SESAR2020); the creation of project handbooks, including Transversal Areas (Safety, Environment, Human Performance, Security); the aforementioned creation and delivery of a performance framework and validation targets for supporting SESAR2020, implementing a transition validation strategy (VALS) and creating a transition ADD.

Another challenge for SESAR 2020 is to identify and detail a set of strategic validation tools and interoperability solutions that could improve the validation process (supporting several partners and/or several projects validation needs and thus improving cost-efficiency). As such, the application of common system engineering methodologies to develop Verification and Validation Infrastructures (V&VIs) and Verification and Validation Platforms (V&VPs) will be developed through 2016.

The results from transversal areas of research will directly contribute to the overall development and delivery of relevant SESAR 2020 activities in ATM Design & Integration, performance management, validation, verification & demonstration engineering and European ATM Master Plan maintenance. Elements of transversal deliverables concerning ATM operations, architecture, performance and validation have been incorporated into exploratory research projects scheduled for launch in 2016. For example, a call for proposals for 'Trajectory Based Operations (TBO)' (REF: ER-09-2015) is designed to elicit responses from the research community concerning the TBO operating concept which should allow the flexibility needed by airspace users to optimise their operations while simultaneously ensuring the predictability needed at ATM network level for maximum overall performance. Projects will be selected in Q4 2015/Q1 2016 and launched in Q1 2016.

Likewise, call for proposals were issued for 'ATM Architecture' (REF: ER-10-2015), asking for innovative ideas for ATM system design incorporating flexibility, agility and resilience, applying formal mathematical approaches at the early phases of system design. Additionally a CfP for modelling change in order to better understand how architectural and design choices influence the ATM system and its various behaviours and map the interdependencies among the different ATM subsystems and the nature of these interdependencies was issued. Projects will be selected in Q4 2015/Q1 2016 and launched in Q1 2016. Performance is another transversal area that is critical in the successful restructuring and improvement of the European Air Traffic Management Network (EATMN) (which is on the critical path of the Single European Sky initiative). Improvements in the management of this network should be supported by reliable and robust performance management system. This must be, driven by EU-wide performance targets, proposed and monitored within an agreed framework for performance targeting, measuring and benchmarking in ATM and the SESAR performance ambitions outlined in the European ATM Master Plan. To support this activity a first call for proposals has been issued for 'ATM Performance' (REF: ER-11-2015), asking for studies to investigate new effective methodologies and tools for micro and macro modelling of performance in ATM that are capable of capturing the interdependencies between different ATM Key Performance Areas. Following tender awards in Q4 2015/Q1 2016 projects will be launched in Q1 2016.

A full list of transversal activities to be undertaken in 2016 is included in Annex A.

3.2.7 SESAR2020: Maintenance and Update of the European ATM Master Plan

Within the Single European Sky (SES) initiative, the European ATM Master Plan is the agreed roadmap driving the modernisation of the Air Traffic Management system and connecting SESAR R&I with deployment. It is the key tool for SESAR, providing the basis for timely, coordinated and efficient research and deployment of new technologies and procedures.

The maintenance and execution of the European ATM Master Plan, as defined in the SJU Regulation, are consequently at the heart of the SJU activities. Selected results of Exploratory Research topics that offer the potential for contribution to ATM performance benefits supported by stakeholders will contribute to the ongoing evolution of the European ATM Master Plan and in particular prolonging its scope and targets.

The main scope of the European ATM Master Plan Maintenance project is to support the delivery of up-to-date maintenance of the ATM Master Plan and the alignment of its three levels. This includes ensuring that the

ATM performance needs and expectations are correctly established at the highest level and can flow into the programme to drive research and deployment prioritisation.

The SJU shall implement actions for the maintenance of the ATM Master Plan and the preparation of its next update as requested in the annex to the Commission decision on *'the European Union's position on the approval of a modification to the European ATM Master Plan'* (Edition 2015). The SJU shall report on at least a quarterly basis to the Commission on progress made.

3.3 SESAR: Wide Stakeholder Engagement by the SJU

In 2016, the closure of SESAR1 as well as the transition to SESAR2020 will be enabled using a strategic and enhanced outreach with targeted stakeholders in Europe and internationally, including EU institutions, ICAO, regional R&D programmes, standards making organisations and third-party organisations. Through its external relations and communications activities, the SJU will underpin this outreach work by supporting and aligning strategic directions as well as presenting SESAR and programme results and progress at key events and preparing complementary printed and digital communications, including media and press activities.

Demonstration activities are also critical to strengthening and deepening stakeholder engagement. These activities, specifically large-scale demonstrations and those involving remotely piloted air systems (RPAS) will continue throughout 2016 in order to test SESAR solutions in a variety of real operational environments.

The increase in effort around activities associated with dissemination and promotion of 'SESAR Solutions' will be a feature of the work to be performed in 2016.

3.3.1 External Affairs:

External Affairs is a horizontal function within SJU that has both an intra-European and extra-European scope.

3.3.1.1 Intra-European

- Management of regular contact and strategic relations, representation, outreach, and awareness-raising with relevant aviation organisations, EU Institutions and industry stakeholders in line with the policy of the SJU and the European Union.
- Advocacy on the technical development (content and process) vis-à-vis political, institutional stakeholder and corporate objectives of the SJU
- Provision of intelligence and guidance and strategic planning on emerging issues and legislation that could impact the SJU, and the appropriate mitigations or solutions against any threats to the organization, its relationships with third parties and/or its external image.
- Fostering of successful partner relationships with EU institutions and agencies, as well as external organisations and companies. This includes the management of the activities and relationship with third parties including airspace users, airports, professional staff associations (international validation team included), national supervisory authorities, the military and some strategic external agreements.

3.3.1.2 Extra-European

From the EC Aviation Strategy, the international dimension of aviation, both ATM and related innovation is acknowledged to be of paramount importance in maintaining Europe's industrial leadership, and with this is a need for expansion of SES beyond the EU towards a 'Single Global Sky'. The SJU will continue as appropriate, to engage with the Commission and other EU bodies, as appropriate, in matters relating to international relations within the context of the EU's external aviation policy framework. This engagement will be fully aligned with the mandates the EC receives from the Council on its arrangements with third countries.

As such, the SJU cooperative arrangements will be in line with the EC mandates and will continue to strengthen partnerships with both public and private stakeholders in policy and strategic technical areas of mutual interest, seeking to coordinate and exchange experience and knowledge and to formalise such relationships through the signature of appropriate Cooperation instruments. In particular, in 2016 it will continue to coordinate under the EU policies with ICAO and international aviation organisations and authorities in other ICAO regions to coordinate plans and prepare and validate interoperability standards and relevant technical agreements. Specific developments foreseen in 2016 with major regulatory stakeholders are outlined in more detail in Annex A, as are the planning arrangements for the international aviation organisations and authorities cooperation arrangements relevant for SESAR.

3.3.1.3 Arrangements with third party stakeholders

The third party stakeholders are entities which are not members of the SJU that play a central role in European ATM. In particular, these stakeholders belong to the following categories: airspace users, professional staff associations, military, airports, National supervisory authorities and associated members of the SJU. Their involvement in the SJU's work throughout SESAR1 facilitated by dedicated contractual arrangements, has significantly strengthened the commitment to and endorsement of SJU's overall mission and vision since its inception. In 2016 the SJU will shift its focus significantly away from SESAR1 towards the design of appropriate cooperation frameworks for the start of SESAR 2020. These new cooperation frameworks will differ from previous arrangements put in place with some third parties (e.g. Airspace Users) due to the introduction of grants under H2020 rules; meaning there will be no longer be additional budget from the SJU as the maximum budget will now be allocated to the programme calls and each proposal and therefore each grant has to be complete in order to deliver the results and impact required in the call. The only exception is the engagement of Airspace users to the VLD projects where the SJU may use an open call to complement a grant to extend its geographic scope or range of stakeholder involvement to achieve a greater impact from the results. Where this applies it is described in section 3.5.4 (Work Area 2) of this document.

This transition to renewed contract arrangements will require significant resources in 2016 and is likely to involve intense coordination activities to ensure that these stakeholders are ensured a continued important role and impact in the SESAR2020. The main developments planned for each category in 2016 are summarised below and outlined in more detail in Annex A.

3.3.1.3.1 Airspace users

A strong relationship exists between the SJU and the civil airspace user community both in a governance/shareholder capacity and in terms of direct contribution to the SJU's work programme. Although the present contractual arrangements for direct contribution will terminate at the end of 2016, a new contractual framework for increased strategic engagement will be put in place for SESAR 2020, targeting the full range of civil airspace user operations (scheduled, general and business aviation including rotorcraft). The objective of the new framework is to secure continued civil airspace user awareness and engagement. It will be geared at providing direct support to the SJU, strengthening participation in activities related to the ATM Master Plan and motivating the air space user community to engage. As it is essential that airspace users continue to have confidence in SESAR delivering benefits for the ATM sector, the SJU is committed to providing a strong platform for customer-oriented innovation in European air transport. To achieve this, quarterly meetings will continue until the end of the current contract, to provide a platform for information exchange and feedback, ensure a smooth closure of SESAR 1, and the transition to SESAR 2020. Furthermore, the SJU will analyse of the air space user industry to identify any gaps or new elements in the Air environment. A particular effort will be made to raise significant SESAR 2020 awareness-raising in the sector to enhance awareness on the understanding of the role of the SESAR development phase in the innovation cycle for those users considering deployment of SESAR solutions and changes expected resulting from the implementation of looking for uptake of outcomes results of the various research activities carried by the SJU.

3.3.1.3.2 Professional staff associations

The professional staff associations (PSAs) current contractual arrangements will finish on 31/12/2016. The professional inputs of the pilots, controllers and air traffic electronics engineers have proven invaluable in terms of buy-in to the SJU's work, provision of operational expertise and feedback on changes, new procedures and overall concept and vision. PSAs continue to participate in the governance structures of the SJU and quarterly meetings are foreseen throughout 2016. PSAs will also participate in up to 10 International Validation Exercises, coupled with their European and Global General Assemblies as well as various meetings on specific SESAR related topics from the five affiliated associations in which various members of the SJU team participate. Over and above this there are expert contracts on-going in areas such as validation, safety resilience (subject of a contract foreseen in 2016 to close out work and manage handover to SESAR 2020), as well as other exploratory research subjects and RPAS and Cybersecurity where the PSAs have provided voluntary added-value to the SESAR project.

The arrangements with the professional staff associations relating to the International Validation Team (IVT) through the IVT specific exercises have provided for their access to validations exercises and demonstration activities as observers. Including non-members in the programme validation activities has proven an important benefit of the change process of ATM modernisation and as such given valuable and confirmed feedback

proven to help to improve the performance of operational tools developments as well as to highlight issues that need further consideration, whether it is operational, systemic or regulatory advice. Providing this access to the SESAR activities is a task that will continue to be coordinated not to lose momentum and for a successful outcome from a strategic and external relations perspective.

3.3.1.3.3 Military

The military engagement plan (MEP) will allow for continued engagement and participation of the military until the end of the SESAR1 programme in December 2016. The SJU will also continue to work with the European Defence Agency (EDA) to provide more visibility to the EDA on MEP outcomes. The EDA, in its turn, will continue to act as a focal point for the SESAR project in national and international military fora, to reinforce the military engagement in SESAR and to avoid any adverse impacts on defence capabilities stemming from SESAR solution deployments.

3.3.1.3.4 Airports

The SJU intend to let a one year contract with ACI for the duration of 2016, to allow it finish the work of its 4-year framework contract with the Airports Council International (ACI), which will run until 31 December 2015. ACI represents over 450 airports in Europe and complements the profile of the SESAR Member SEAC, with its broadening of the airport scope to small and medium-sized airports with local and regional air traffic. The relationship with ACI has much improved awareness of the benefits of SESAR and uptake of solutions throughout the European area. Engaging with the ACI offers and provides the SJU with a platform for raising awareness and buy-in (i.e. roadshows with feedback from major aviation stakeholders on relevant SESAR deliverables making it possible to review and refine specific airport inputs to SESAR1 and SESAR2020. It is foreseen to continue ACI's presence at the Administrative Board in 2016, to host 3-5 ACI/SJU Roadshows/events, to profile SESAR at key ACI events, to work with an ACI_SJU liaison officer and to continue in the development of new tools contributing to improved airport efficiency.

3.3.1.3.5 National Supervisory Authorities (NSAs)

Competent authorities need to be involved in a research and innovation programme such as SESAR all the more since the SESAR deployment phase has started. The technical complexity of some of the SESAR solutions requires authorities to be acquainted with all aspects well before they are proposed for deployment. Cooperation arrangements with the National Aviation Authorities (NSAs) will therefore be renewed in 2016 to ensure familiarisation with the 2020 SESAR Solutions to provide information to the authorities and EASA for consideration in the certification decision-making process.

The current cooperative arrangements between the SJU and EASA for SESAR 1 will be transformed into an MoC that will take account of SESAR 2020. In addition, in 2016, EASA will also review and provide guidance on the SJU deliverables related to the PCP ATM functionalities and support SESAR in the provision of necessary authorisations to execute future Very Large Scale Demonstration activities (SESAR 2020).

As of 2016, MoCs with the National Aviation Authorities will also be renewed to ensure that they are properly involved as early as possible in the preparation of SESAR 2020 activities. Furthermore, coordination mechanisms will be put in place to facilitate the consolidation of inputs from industry and authorities for SESAR 2020.

3.3.1.3.6 Associate Partners of the SJU

The category of stakeholders "Associate Partner of the SJU" was created under SESAR 1 to answer the need to complement and complete the expertise brought by the SJU Members to the SESAR 1 Programme in specific ATM fields and from the specific categories of SMEs, Research Organisations, Universities and Institutes of higher education. Ten entities were selected to cover five areas (two for each area) and were awarded grants:

- Information Management;
- Network & Airport Collaboration;
- Airborne & CNS Systems;
- Modelling Support to Validation;
- UAV/UAS integration in SESAR.

The SJU has an ongoing contractual relationship with these parties for the duration of SESAR1. Two further requests for a Specific Agreement, engaging the Associate Partners, are expected in 2016. However, under SESAR 2020 it is not planned at this stage to further engage with Associate Partners. This change will take effect from 2017 and transitional arrangements will be made during the course of 2016.

3.3.2 Coordination with Other Programmes

During the reporting period the SJU will continue to engage with the Commission as a technical enabler in matters relating to international relations within the context of the EU's external aviation policy framework. As such, SJU will continue to strengthen partnerships with stakeholders in policy areas of mutual interest, seeking to coordinate and exchange experience and knowledge with identified partners and to formalise such relationships through the signature of appropriate Memoranda of Cooperation (MoC) with relevant bodies. In particular, in 2016 it will continue to establish and develop relations with public and private sector organisations, coordinating with other ATM actors and states in other International Civil Aviation Organisation (ICAO) regions to prepare and validate interoperability standards and other relevant technical agreements.

Particular importance will be given, like in past years, to countries that are within EUROCONTROL but are non EU, in order to ensure an appropriate level of engagement from these countries. During 2016 the issues of global interoperability standards are of increased interest in the light of the triennial approval of the ICAO Global Air Navigation Capacity and Efficiency Plan. For this reason particular importance will be given to States in other ICAO regions to set up bilateral discussions in order to prepare, coordinate and demonstrate/validate interoperability standards inputs to ICAO and Industry standardisation bodies. Key programmes and stakeholders that will play a large part in developing this policy framework are outlined below.

The SJU has continues to coordinate its Master Plan and Programme view with the Federal Aviation Administration (FAA) in areas and topics where it is essential to harmonise towards industry and ICAO standards provisions to support both the development and deployment of SESAR Solutions to progress overall global interoperability.

The principal agreement with the FAA is to have clear and concrete harmonised, supporting or joint positions on standards and their implementation timelines. There are areas of the harmonisation that through the MoC work has proven more imminent than others because of the global interoperability issue. The working method in 2016 will therefore be to give the appropriate focus to areas with issues that need to be resolved in a time-synchronised manner to avoid unnecessary delays in the respective programmes and at ICAO or Industry Standardisation bodies. In this context we have agreed with the US to look into concluding agreements and offering mutual support in particular in the areas of:

- ATM Architecture;
- Re-categorisation of wake turbulence separation criteria;
- Cyber security issues in ATM;
- RPAS integration;
- Data communications in the 4D Trajectory based concept;
- SWIM information and services;
- Collaborative projects relating to SWIM and i4D;

The Clean Sky JTI (1 & 2) includes within its current scope two aspects of key interest for SESAR: the airborne flight management and trajectory as well as environmental modelling to demonstrate the improvement that is expected from the Clean Sky vehicle technology developments.

To prepare for the launch of the SESAR2020 Programme, the SJU and Clean Sky 2 Joint Undertaking signed a MoC in December 2015 in order to establish an effective coordination between the two programmes, in particular, finding synergies and avoiding overlaps where technologies to be developed are similar and facilitating information flows to communicate SESAR developments of SESAR solutions such as operational and system requirements and specifications for to avoid overlaps with CS2JU developments (e.g. cockpit and avionics).

The SJU is an active member of ACARE and this participation will continue in 2016 with contributions to the General Assembly, Strategy & Integration Board and Implementation Monitoring Group. The SJU shall during 2016 prioritise its on-going participation to ensure ACARE can provide advice and a coordination platform for the SJU, aligned with the EC role and participation. The results and documentation developed in the context of ACARE's Strategic Research and Innovation Agenda have been used to inform and influence the content proposed to be included as part of the SESAR2020 programme.

Standardisation bodies play an important role within the context of the SESAR programme. Consequently, the SJU will continue to coordinate closely with EUROCAE through membership of the Technical Committee and Council. Direct liaison with the EUROCAE secretariat is also expected in order to coordinate the anticipated SESAR programme contributions towards active and planned EUROCAE standardisation groups and activities. The SJU will also continue to support EUROCAE in its coordination function for standards. The SJU will, in the context of standardisation, continue to play an active part in the European ATM Standards Coordination Group (EASCG). It is also worth mentioning in terms of standardisation that the SJU have coordination mechanism with the European Telecommunications Standards Institute (ETSI). During 2016, SJU will therefore continuously work with global partners, supporting key topics and their priorities to gain the most value from the SESAR work into ICAO. This will safeguard SESAR solutions and European industry products and procedures as a globally interoperable means of compliance with standards. The SJU will also have a focus on global demonstration activities dedicated to global interoperability..

The European Aviation Safety Agency (EASA) will continue to have an increasing role in the contribution to the SESAR programme within the regulatory domain. During 2016, the SJU plan to involve EASA in a range of its activities ranging from analyses of deliverables to involvement in SESAR high level activities such as:

- Regulation and standardisation;
- Datalink regulatory and technical issues;
- Future areas of research for ATM Safety;
- RPAS;
- Certification and approval of new concepts;
- Demonstrations and Large Scale Demonstration.

The National Authorities, the NSAs (National Supervisory Authorities) have since the early days of SESAR participated in the SESAR development and validation activities in order to early have their inputs in developments in terms of capturing concerns and regulatory needs for future deployments of SESAR Solutions. Their inputs have been of clear benefit for both Authorities and SESAR as it de-risks SESAR Solutions readiness for implementation by adapting to the foreseen standardisation and regulatory arrangements and as such contributes to a greater level of confidence by the final investors and for the industries in developing and validating technical and operational SESAR solutions with requirements, specifications and prototypes. During 2016 all the existing MoCs with the National Authorities will be updated to be in line with the needs of SESAR2020.

It is expected to conclude a MoC between the SJU and EASA in the first quarter of 2016 to be prepared for SESAR2020.

The SJU and the European Space Agency (ESA) continue to enjoy a productive working relationship, particularly concerning the IRIS programme¹¹. In 2016, the SJU will continue to participate directly within the Joint Iris Advisory Committee. The SJU is also currently preparing a MoC between the SJU and ESA that is scheduled to be concluded in the first quarter of 2016.

Under existing working arrangements agreed between SJU and the European Defence Agency (EDA), EDA is playing an increasing role in the contribution to SESAR on matters related to military aspects or domains in the SESAR programme. In order to ensure the adequate military input, EDA provides the commitment of its participating Member States and the Military international organisations, as well as relevant political level(s) to buy-in the results of the SESAR Programme. Furthermore, EDA also provides its expertise within those for a where to gather the necessary results on specific areas, in coordination with the SESAR JU. In preparation for SESAR2020 and the continuing military engagement in SESAR, a MoC is currently being prepared that will be concluded in the first quarter of 2016.

Additionally it is foreseen that appropriate cooperative arrangements with the Deployment Manager will continue throughout 2016, recognising that some members and/or contributing partners of SJU are most likely to be also partners in the deployment manager as consortium members. These dual roles and responsibilities will be duly considered. The MoC between the SJU and the SDM was signed in 2015 establishing the working arrangements in terms of collaboration where necessary on Master Planning, the SESAR work programme and external and International relations including international standardisation.

¹¹ Iris is an ESA-led programme that aims to make aviation safer by developing a new satellite-based air-ground communication system for Air Traffic Management (ATM). By 2018, Iris Precursor will provide air-ground communications for initial '4D' flight path control.

3.3.3 Communications

Communication and Promoting (showcasing) plays an integral role in engaging with and informing the wider Air Transport community about the SJU's work and results while encouraging wider international commitment to the SES approach to ATM modernisation and also contributing to maintaining the momentum around the SESAR project. In 2016, the SJU Communication will support the closure of SESAR1 as well as the transition to SESAR2020 through the application of the following targeted objectives, in accordance with the SJU 2015-2020 Communications Strategy:

- Illustrate and showcase SESAR solutions that are already delivered and have tangible benefits for the air transport industry and society as a whole;
- Extend awareness and outreach on SESAR to secure stakeholders commitment;
- Promote SESAR as an integral part of the 'day-to-day' Air transport and ATM world;
- Enhance the SJU public - private partnership arrangements.

To meet these objectives, the SJU Communications Sector will:

- Promote and Market the SESAR brand, the benefits that can be realised through SESAR Solutions and the availability of industrial products to deliver these results in international fora through;
 - A dedicated theatre stand at the annual World ATM Congress in 2016 and 2017 , co-branded with the SESAR Deployment Manager, in addition to a pre-event on the European ATM Master Plan in 2016;
 - Dedicated SESAR events, such as the SESAR 1 Closure conference & exhibition, a SESAR Solutions workshop, SESAR demonstration activities and a dedicated workshop;
 - Securing SESAR presence at several events organised by our members, stakeholder groups and at high-level meetings (including EU Presidency events) of importance to the SJU goals.

(See Communications activities in Annex A for list of events).

- Create and disseminate targeted printed materials through;
 - A joint publication with Next-GEN on the current state of harmonisation between our two entities
 - Release 5 Results brochure
 - Closure of SESAR 1 material
 - 2015 Annual Report
 - An updated SESAR 2020 visual corporate identity.

(See Communications activities in Annex A for list of publications).

- Digital communications through;
 - Short and focussed animations and films on SESAR Solutions to support the SJU goals as well as our stakeholders and members activities and strategic interests;
 - Regular e-news dissemination;
 - A dedicated mobile application for use at SJU events
- Press and media outreach through;
 - The use of optimised media monitoring tools and the organisation and planning of press-specific activities.
 - Production of monthly press reports;
 - Organisation of press events to coincide with the World ATM Congress and the SESAR 1 Closure event and other relevant events.
 - Stakeholder assessment exercise in 2016

3.3.4 SESAR1 Demonstration Activities

Demonstration activities are an important element of communicating the value and applicability of SESAR solutions. They consist of pulling together stakeholders from airlines, air navigation service providers, manufacturing industry and airports to show in a real life environment the benefits of SESAR solutions. Demonstrations are seen as a very powerful tool to engage operational users in SESAR and they continue to identify relevant technical and operational issues which can be obstacles to wider scale implementation.

In 2016 SJU will be involved in activities concerning two elements of demonstration activities; large-scale demonstrations and those involving remotely piloted air systems (RPAS). These types of demonstrations will unite the skills and innovative capabilities of a wide range of European ATM stakeholders in order to test SESAR solutions in a variety of real operational environments. Details of specific demonstration activities are outlined in more detail in Annex A.

3.3.5 'Promotion' Strategy for SESAR Solutions

SESAR is based on a common and innovative concept of Air Traffic Management (ATM) operations, whose components are defined, developed and deployed according to a common roadmap and through dedicated governance, incentive mechanisms and partnerships involving EU bodies and stakeholders. Concretely, it enables deploying advanced technologies in view of a highly performant Air Traffic Management system, especially, in terms of greater cost and flight efficiency, obtained through defragmentation of systems and technological innovation.

With the increasing availability of SESAR Solutions then during 2016 the SJU shall communicate and further promote its results with a view to showcasing European ATM modernisation coming from the SESAR Project. This shall be planned and executed in cooperation with the SESAR Deployment Manager and the services of the EC in order to align with and complement the published 'Aviation Strategy for Europe'¹². The newly signed cooperation agreement with the CleanSky 2 JTI will also enable the coordinated contribution to the Aviation Strategy from both ATM operations and Air Vehicle performance perspectives.

The SJU promotion approach shall include all of the key features described within the European ATM Masterplan both from the technological and operational points of view and show how ATM can be optimised to better serve the passenger and the efficiency of service provision. Such innovative solutions will be shown to reconcile the expected growth in air traffic with more cost-effective, competitive and sustainable operations and services. The goal will be to showcase well beyond a technological revolution but towards a service revolution that offers new travel experiences for passengers and businesses.

Furthermore, the results of work on ATM infrastructure, including 'Big Data' and the build-up of the aviation intranet interconnecting different aviation stakeholders through SWIM and the integration of new vehicle types into managed airspace will also be included.

The international dimension of innovation is also to be acknowledged as it is of paramount importance to maintain Europe's industrial leadership. Consequently, improved scientific cooperation and shared objectives in areas of mutual benefit with key third countries and international organisations can streamline efforts and contribute to the promotion of EU/global standards and interoperability, (i.e. ICAO, the United States' NextGen project) and so the SJU will market its results and capabilities with an increasingly global outlook during 2016.

3.4 Other SESAR Joint Undertaking Activities in 2016

There is a clear distinction between the SJU and the SJU with its Members. The SJU has its own competence in ATM and commits to support activities that are not directly connected with H2020 funded activities, often at the formal request of the European Commission (DG-MOVE). This work can include advice and support or may lead to launching of calls for funded activities.

In 2016 the SJU will continue to assist the European Commission and its other stakeholders on all subjects relating to other phases of the SESAR project and its contribution to other areas of the Single European Sky initiative. This will include continued technical assistance to SESAR policy makers on specific tasks¹³ such as the Datalink initiative, cyber-security, RPAS and SPI.

In practice this has meant providing independent support and advice in areas where there appears to be a vector between SESAR1 and SESAR2020 deliverables & any peripheral initiatives that seem to demonstrate a high level of interdependency with SESAR objectives. This engagement ensures that other initiatives do not duplicate SJU's deliverables & remain aligned with SESAR requirements. The main activities planned in 2016 that are not directly addressed in SESAR1 and SESAR2020 but remain important within the context of SES and are described in the following sub-sections.

¹² See Communication from EC to Parliament COM(2015) 598 and associated Commission Staff Working Document SWD(2015) 261, in particular Chapter V - Strengthening European Aviation Through Research, Innovation and Investment.

¹³ Regulation (EU) No. 409/2013

3.4.1 Data Link Services

The Commission Regulation that stipulated requirements for data link services (DLS) for the Single European Sky entered force in February 2009. This Regulation lays down requirements for the coordinated introduction of DLS based on air-ground point-to-point data communications. Following some performance issues raised concerning the VDL/2 link and subsequent EASA investigation into the issue, the Commission asked SJU to progress the first steps of the resulting 10-point action plan. The steering and monitoring of this work will continue throughout 2016 in particular the VDL/2 ATN datalink study (ELSA) expected to deliver its results in 2016. The newly formed datalink advisory group will continue to provide a forum for the SJU to share results and agree required actions on the subject of datalink with the Commission, EASA, SDM and Eurocontrol.

3.4.2 Cyber-Security

The future ATM system in Europe will rely heavily on the virtual exchange of information between multiple stakeholders. This exponential increase in information exchange is greatly enhanced by the concept of SWIM. However using such systems also infers greater risk of vulnerability to cyber-attack and questions about how to guarantee the security and resilience of such platforms must be addressed.

Given how vulnerable to hacking ATM systems remain, SESAR's approach in 2016 to cyber-security within the context of ATM will be used to support SESAR's next developments – particularly SWIM – to provide the basis for proactive, effective & efficient management of information concerning any cyber security specific threats in new ATM systems. In order to facilitate this, the outcomes of the 'SESAR strategy and management framework study for information cyber-security' delivered in 2015 will be further developed in 2016 in order to take advantage of the synchronised SWIM environment through the adoption of appropriate guidance for SESAR2020 projects to introduce the relevant governance, infrastructure & common standards required to provide a robust and system-wide approach to ATM cyber-security.

3.4.3 Remotely Piloted Aircraft Systems (RPAS)

The continued gradual and staggered safe integration of RPAS into non-segregated ATM environments in Europe will continue in 2016, as per the European RPAS roadmap adopted in 2013. To facilitate this, SJU has authored a timetable for the integration of RPAS into non-segregated airspace which places the RPAS roadmap's deliverables within the context of SESAR 2020.

Pre-operational RPAS flight trials related to safety, capacity, efficiency, airport and airspace integration throughput and security are planned in 2016 as part of SESAR1 Very Large Demonstration activities. During the reporting period SJU also plans to finalise the definition phase of RPAS integration into non-segregated airspace. For the Definition Phase of RPAS integration, SJU outlined the R&D work in seven areas of RPAS operations that would be required to integrate RPAS into the non-segregated ATM System as defined in the EU RPAS Roadmap. These were:

1. Detect and Avoid: equivalent capability of humans to avoid hazards like other aircraft, obstacles, terrain, severe weather conditions, wake turbulence etc.;
2. C2 Data Link: used to command and control the remotely piloted aircraft, which as such is new to aviation and ATM;
3. Airspace access and Airport operations: addressing the performance threshold for RPAS to seamlessly integrate with manned aircraft in all type of airspace classes and airports;
4. Contingency: due to the nature of remotely controlling an unmanned aircraft, the loss of data link requires a harmonised approach in relation to how the ATC system handles failure modes while avoiding an increase of workload and/or complexity;
5. Human factors: address the unique human factors aspects of RPAS and their interaction with the ATM actors and other airspace users;
6. Security and cyber-resilience: apart from the cyber-security aspects that need to be addressed, also the physical aspects will require attention ensuring safe RPAS operations;
7. Coordination of demonstrations and validations activities: addresses a coordinating role that allows to gain experience as well as the appropriate data on time and feasibility in order to set the big picture on RPAS developments and integration; this activity is considered as essential to ensure full synchronisation with regulatory and standardization activities.

It is estimated that the overall budget required to deliver these capabilities in full would be circa EUR 150 million. Given the other priorities described in the Aviation Strategy and the European ATM Masterplan it has not been possible to allocate this level of funding to the subject.

Based on the phased integration as identified in the roadmap, three scenarios can be considered and are further detailed in the “Essential R&I requirements related to RPAS insertion into the European civil aviation system” document:

- Option 1 “Initial & partial integration and low level of maturity target” (budget of 40M€)
- Option 2 “IFR and partial B-VLOS integration and pre-industrial maturity target” (budget of 90M€)
- Option 3 “Full Civil RPAS integration” (budget of 150M€)

It has been possible within the funding available to integrate Option 1 across the SESAR2020 Programme, but this leaves a significant amount of work still to be performed.

The table below indicates the high level planning of the RPAS activities related to the Industrial Research & Validation part of SESAR 2020.

Project	SESAR Solution id	SESAR Solution	SESAR 2020 TIMEFRAME			
			R6/2016	R7/2017	R8/2018	Wave 2 (2019 to 2021)
PJ.03a Integrated Surface Management	PJ.03a-09	Surface operations by RPAS		V1		V2 & V2+
PJ.10 Separation Management En-Route and TMA	PJ.10-05	IFR RPAS Integration	V1		V2	V2+
PJ.11 Enhanced Air and Ground Safety Nets	PJ.11-A2	Airborne Collision Avoidance for Remotely Piloted Aircraft Systems – ACAS Xu	V1		V2	V2+
PJ.13 Air Vehicle Systems	PJ.13-01-01	Airborne Detect and Avoid Systems supporting integrated RPAS operations (Cooperative D&A)	V1	V2		V3
PJ.13 Air Vehicle Systems	PJ.13-01-01	Airborne Detect and Avoid Systems supporting integrated RPAS operations (Non cooperative D&A)			V1	V2

It must be noted that the planning above was derived from the Multi-Annual Work Programme and is therefore assuming a T0 in January 2016 for the start of the corresponding projects, consequently a pro-rata delay and planning must be assumed, based on the award of grants in Q3/4 subsequent to information submitted by the candidate members in their answer to the SESAR 2020 call for proposals. It must be noted that in addition, the RPAS topic will be addressed as well through the transversal activities (content integration, master planning, validation and demonstration engineering).

From a budget standpoint, since some of those RPAS activities are strongly coupled with other ATM operational improvements or enablers to achieve synergies, it is not possible to identify the exact value of the RPAS topic as integrated today in the SESAR 2020 Industrial Research & Validation. However it can be estimated that the co-financing effort required addressing those topics ranges from 15 to 18M€. Pending the outcome of the last phase of the accession process, this would mean a total value of around 30 to 36M€.

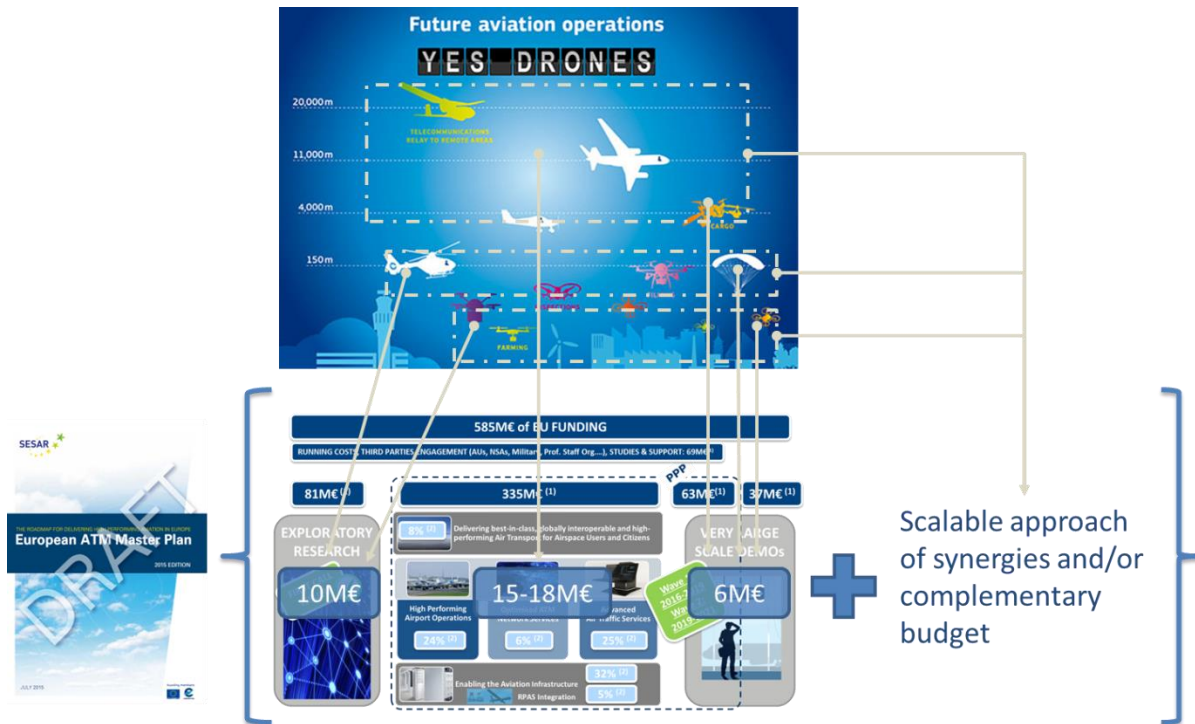
In addition the Exploratory Research scope and budget is to be used to supplement this effort. While the first call does not address specifically the RPAS topic, a further call dedicated to RPAS with a specific focus on VLL & B-VLOS as well as to some extent on VFR, addressing all domains of activities is planned (See section 3.5.3). While Exploratory Research calls are dedicated to low technology readiness level it is considered that “light technology” solutions are easier to transit quickly to industrialisation maturity. In addition, Exploratory Research calls can address as well low maturity levels in terms of operations (E-OCVM vs. strict TRL) allowing matured technology to be further refined and validated in order to increase the overall operational readiness (e.g. for Detect & Avoid operations).

Finally, VLD activities are planned to be addressed by Member’s contributions to the SJU but as well complemented through open calls to add contributions from beyond the SESAR Members and their respective developments. This is expected to include additional facilities, a greater geographic spread, the engagement of various airspace users and/or Military, as well as conducting VLDs with black-box / stand-alone technologies developed and provided through external programmes such as Clean Sky for example.

In summary, the challenge of addressing the R&D needs of the RPAS integration can only be partially met by the SJU within the current budget as already highlighted to the Commission. However a coherent approach can be identified in order to progress this very strategic topic by:

- Addressing part of the activities, mainly IFR/high altitude or high range operations, through the SJU Members structure and the Industrial Research and Validation – 15 to 18M€;

- Using 9M€ of resources initially planned from Exploratory Research domain that can be supplemented either through significant re-prioritisation of Exploratory Research topics or through the usage of additional funding at a later stage – up to 20M€;
- Leveraging resources from Very Large Scale Demonstrations to reach high maturity levels where feasible – up to 6M€; and
- Harvesting synergies with other on-going or upcoming activities led by other bodies than the SJU, but providing an overarching umbrella through the European ATM Master Plan.



While this short-term funding of priority tasks in the SESAR2020 Programme has taken place there is also a need to look towards the mid-term review of the H2020 financial framework in 2017 for additional funds to fill the gaps.

It is also envisaged to launch and oversee the delivery of study, the so called “SESAR RPAS Market Outlook”, to analyse economic impact of RPAS for the manufacturing and service sectors and an RPAS-specific exploratory research call for proposals under SESAR2020 will be launched in Q1 2016, focusing on key issues such as RPAS 'sense and avoid', identification & surveillance, command & control and geo-fencing mainly for low level flight operations.

3.4.4 Surveillance Performance and Interoperability (SPI)

Following the SJU’s report to the European Commission on the way forward for the Surveillance Performance and Interoperability Implementing Rule (SPI IR), and the conclusions of a stakeholder workshop that took place early in 2015, a task has been given to EASA to progress with a revised regulatory proposal that includes the need for a wider set of aircraft to carry an ADS-B capable transponder. This has implications on the radio-frequency load on the impacted spectrum. The SJU will provide support during 2016 in the form of modelling of this spectrum use, to confirm that the systems relying on the 1030/1090 frequencies (radar and collision avoidance systems) will not be adversely impacted by such an increase in broadcasting units.

3.5 Calls for Proposals and Call Management in 2016

This section describes major grant management activities of strategic importance to the SJU in 2016. (Note: a summary of procurement activity is described within Annex F). It is intended that all calls for proposals published in 2016 will comply in full with the relevant provisions contained within the General Annexes¹⁴ of the Commission Work Programme 2016-2017 as adopted by Commission Implementing Decision C(2015)6776 of 13 October 2015.

SJU has finalised the pre-selection and dialogue phases for new members and is scheduled to conclude the SESAR 2020 membership accession process by Q1 2016. Additionally, the SJU expects to conclude the first formal call for proposals restricted to its Members for SESAR2020, and will launch the first projects awarded under its exploratory research (ER) first call (launched under Part III “Societal Challenges” of the Horizon 2020 Research Framework and related to its ‘Smart, Green and Integrated Transport’ activities) by signing grant agreements Q1 2016.

The work of the SJU for SESAR2020 has been outlined in a multi-annual work programme that describes the programme structure & detailed project descriptions and sets out clear deliverables and milestones, in addition to including estimates on programme costs and the means to execute a structured transition from SESAR1. This multi-annual work programme was adopted by the ADB in June 2015 and has been shared with all candidate members. As the scope, objectives and expected results described in the multi-annual work programme remain valid in 2016 they will not be repeated in this document. If read together with this document they fully meet the needs of Article 31 of the SJU Financial Rules.

Common rules and guidance material provided by the Common Support Centre (CSC) are followed for all calls. Any specific SJU procedures and processes needed to fit these rules into the operation of the SJU are contained in the Quality Management System of the SJU. Any derogations to or activation of available options in the Grant Agreements are stated in this Work Programme.

This Work Programme has been developed in line with Article 18(4) of the Rules for Participation (RfP) of H2020: "4. On the basis of a requirement in a work programme or work plan, the grant agreement may establish rights and obligations of the participants with regard to access rights, exploitation and dissemination, in addition to those laid down in this Regulation."

On this basis the SJU will activate the IPR options available in the SESAR JU Model Grant Agreement as required to support the integrated nature of projects (actions) awarded by the SJU.

The first SESAR 2020 Industrial Research & Validation restricted call for proposals addressed to the members, was launched in Q4 2015 and will close in Q1 2016. Following closure of the call, the evaluation and grant preparation phases of the standard Horizon 2020 workflow will be completed, leading to the signature of grants in Q3 2016.

There are three additional new calls for proposals scheduled for 2016:

- i) a separate ER open call for proposals for RPAS related research is scheduled for launch in Q1 2016 (See section 3.5.3;
- ii) a second ER call for proposals for SESAR2020 activities is also provisionally scheduled to be launched in Q3 2016 (See section 3.5.4), and
- iii) an open call for proposals concerning further VLD validation activity for SESAR2020 (Wave 1) is scheduled to be launched in Q3 2016 (See section 3.5.5).

¹⁴ Available on the Participant Portal at: http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016-2017/annexes/h2020-wp1617-annex-ga_en.pdf

3.5.1 Update on the 2015 Restricted Call for SESAR2020 Transversal Activities, Industrial Research & Validation, and Very Large Scale Demonstrations

Note: This call was issued in 2015 and is restricted to the candidate Members of the SJU. All call conditions and details are included in SJU's 2015 annual work programme 2015 Amendment No1. Only the activities anticipated for 2016 are described in this document.

Procedural Steps Required to Finalise Call Management Process ¹⁵	Indicative Timeframe
Call deadline	16 March 2016
Finalise evaluations	Q2 2016
Preparation and signature of grant agreements	Q2-Q3 2016
Pre-financing payments	Q2-Q3 2016
Implementation and launch of projects	Q3-Q4 2016

Given the first call for proposals (Wave 1) has a total value of €260,075 and the available funding for grants awarded in 2016 is limited to €50M then it has been agreed that a grant amendment procedure will be used in order to launch all complementary grants of Wave 1.

The following grant amendment procedure applies from the award of grants in 2016 and will be used until full funding of the grant is possible.

SJU MGAM Amendment Procedure

Introductory points

1. In order to ensure consistency of the new development activities, the SJU - in agreement with its candidate members – identified the needs to:
 - breakdown the SESAR 2020 Development Phase activities into two Waves and
 - launch the call for proposals for Wave 1 (with 1 grant being awarded per project/action) in 2015 with an end date in 2019, covering technically its entirety.
2. The overall maximum budget, to fund at a rate of 70% Wave 1, has been estimated to a maximum of €260 million.
3. As a result of the EC-SJU annual financial implementation agreements for 2015, the budget currently available for the SJU is €50 million.
4. For each project a complete Wave 1 description of action (i.e. running until maximum 2019) is to be attached to the grant agreement as Annex 1 and corresponding estimated budget developed by the Beneficiaries will be provided and attached as Annex 2.
5. The description of the action will have an adequate level of detail in particular for the activities to be initiated in the shortest term after the beginning of the project.
6. The funding of projects/actions will be done in two or more instalments to be defined in according to the estimated costs of the project activities over time and the budget available to the SJU at that time.
7. The first cumulative instalments under Wave 1 shall under no circumstances exceed the overall budget of €50 million available at the time of issue of the call for proposal.
8. The payment of the next instalments - to be done in proportion of the activities performed under each project and of the SJU budget available - shall be formalised by grant amendments in accordance with H2020 procedures.

Amendment procedure

In accordance with the H2020 grant amendment procedures, these amendments shall be triggered by a request from the Grant Coordinator according to the following process as supported by the COMPASS and SyGMa IT systems:

- (a) The Grant Coordinator shall submit a report detailing the technical results and eligible costs incurred for the project activities undertaken with the initial grant amount (tranche of funding).
- (b) The SJU Project Officer (PO) in charge will assess the report as part of the project's annual gate exercise (described in a common Project Execution Guidance document) and as a result draft a recommendation regarding the need and conditions of the next project activities.

¹⁵ The maximum duration allowed from closure of a call to completion of the call management process under H2020 rules is 8 months

- (c) On this basis, the Grant Coordinator shall initiate an amendment preparation, compose this amendment (e.g. by making needed change to the maximum grant amount, change of the pre-financing, etc.¹⁶) and encode the related justification in the H2020 Participant Portal;
- (d) Upon official reception of the request, the SJU PO shall check the amendment request admissibility (including technical and financial aspects) in Compass and decide if the request is valid or if additional information is required (in such a case up to 15 additional days will be given to the Grant Coordinator to provide its answer).
- (e) Upon receipt of all required information, the SJU shall assess the proposed amendment request is valid and accept/reject the proposed amendment as per the applicable H2020 rules.
- (f) The SJU may be supported in his/her assessment by independent expert(s).
- (g) Any decision of the SJU shall be formalised either:
 - i. In case of rejection of the proposed amendment: by issuing a letter of rejection of the amendment
 - ii. In case of acceptance of the proposed amendment: by signature of the amendment request
- (h) As a consequence, a maximum of 55 days (45 days + 15¹⁷ optional days) from the date of submission of the amendment request in the system will be required to perform this process using the H2020 tools

3.5.2 Update on the 2015 Call for SESAR2020 Exploratory Research

This call closed on 25 June 2015. A total of 128 proposals were received, of which 5 were ineligible. The remaining 123 proposals were evaluated by independent experts between July and October 2015 and the evaluation report completed. The list of projects to be funded and the grant preparation is expected in Q4 2015, subsequent to which the relevant grant agreements are expected to be signed no later than Q1 2016. Only the activities anticipated for 2016 are described in this document.

Procedural Steps Required to Finalise Call Management Process	Indicative Timeframe
Preparation and signature of grant agreements	Q4 2015-Q1 2016
Pre-financing payments	Q1 2016
Implementation and launch of projects	Q1 2016

3.5.3 Conditions for the SESAR2020 RPAS Exploratory Research Call

- (a) **Call identifier:** H2020-SESAR-2016-1
- (b) **Indicative Publication date:** July 2016
- (c) **Indicative Deadline:** October 2016
- (d) **Indicative Budget:** €9,000,000

Budget 2016	Commitment	Payment
B03100 'Studies/Development Conducted by the SJU	EUR 9,000,000	EUR 4,500,000

(e) Activities covered by this call:

SESAR Exploratory Research into Remotely Piloted Aircraft Systems (RPAS) and Unmanned Aircraft Systems (UAS) will address the key research questions impacting the operation of UAS and RPAS in the very low level (VLL), including beyond visual line of sight (B-VLOS) operations, as well as visual flight rules (VFR) environments (noting that the issue of instrument flight rules (IFR) integration will be addressed as part of the SESAR2020 Industrial research call).

The two work areas of this call are UAS/RPAS integration operational issues and UAS/RPAS integration technical issues.

¹⁶ These amendment clauses shall consequently be enabled in SyGMa for the SJU actions

¹⁷ As per point d) above

- 1) The UAS/RPAS integration operational issues research aims at the development operational concept and requirements which support the operation of UAS and RPAS in the VLL and VFR environments without being constrained by pre-defined technology solutions.

The Topics relating to this Work Area include the following:

- a) The need for UAS/RPAS control in VLL – will study the need for control of UAS/RPAS in the VLL environment addressing specifically the operational need and possible functional breakdown of such a required capability. Consideration should be given to VLL operations and their integration with VFR and IFR operations and any required interface with air traffic control and the role of incursion protection against protected areas.
 - b) Urban UAS/RPAS operations – will study the VLL operational concept in urban areas including the identification of the requirements for supporting technologies. Consideration will be given to public safety.
 - c) Autonomy in VFR operations – will study the operational and function implications of autonomous UAS operating in the VFR environment both as a fall-back capability in the case of C2 datalink failure and as the primary means of control. The interaction with traditional manned VFR traffic will be considered.
 - d) Operational mitigation to command and control failure/corruption – will study how the operational concept and control mechanism can provide a mitigation to the loss of command and control datalinks caused by technical failures or by deliberate interference or cyber-attack.
- 2) The RPAS integration technical issues research will address the feasibility of technology options which support UAS and RPAS operations and integration where required in the VLL and VFR domains.

The Topics relating to this Work Area are the following:

- a) Technical options for the VLL control scenario – will study the potential technology options for the control of UAS/RPAS under the assumption that a control system for such operations would be required. It will also consider the need to protect against UAS/RPAS intrusion into protected areas and controlled airspace using mechanisms such as geo-fencing.
- b) RPAS command and control - will study the control link architecture options for the voice or datalink control link between ATC and the RPAS, including the impact of the communication link being required to go via the airborne platform or whether ground-to-ground communication options are feasible. Technical solutions and fall-back solutions in the case of a loss of data link will also be considered;
- c) Detect and avoid technical solutions – will study the technological requirements and solutions which provide UAS and RPAS with a ‘detect and avoid’ capability which will include provision against collisions with fixed and temporary obstacles (including those that may not be registered), terrain and other aircraft. Applicability in both VLL and VFR operations will be considered.
- d) Low-cost technology solutions for UAS/RPAS operations – will study technology options suited to the cost, weight and power restrictions of UAS/RPAS in support of VFR operations. This will include datalink, navigation and position capabilities as well as electronic conspicuity. These technical solutions can also be considered for any required interface between the UAS/RPAS with IFR traffic and the ATC system.
- e) UAS/RPAS autopilot systems – will study the requirements and technology options for providing an autopilot capability in support of both RPAS operations with the pilot in the loop and autonomous UAS operations with autopilot integrated with autonomous control functions.
- f) Security and cyber-resilience system architecture options – will study the technical architecture options for UAS and RPAS to provide protection against, and mitigations in case of, security threats to the UAS/RPAS system either through the command and control datalink or through other mechanisms such as malicious software.

(f) Indicative timetable for the evaluation and grant agreements

Information on the outcome of the evaluation	Indicative date for the signing of the grant agreements
Maximum 5 months from the final date for submission	Maximum 8 months from the final date for submission

(g) Eligibility conditions for grant proposals and related requirements:

All proposals must conform to the conditions set out in the Rules of Participation¹⁸. Furthermore, a proposal will only be considered eligible if it:

1. Corresponds wholly or in part to the topic description in section 3.5.3 (e) above;
2. Contains a plan detailing the added value of expected outcomes and results (a draft plan for the exploitation and dissemination of the results, in accordance with Article 13 (1) of the Rules of Participation) of the topic concerned for the purpose of dissemination and SESAR deployment preparation;
3. Complies with the submission requirements in that :
 - Each proposal must be submitted and received by the SJU no later than the call deadline in accordance with the timetable defined above, and;
 - Using the application form and/or electronic submission system (participant portal) available.

(h) Eligibility, selection and award criteria:

1. Eligibility criteria

A. List of countries, and applicable rules for funding

This list is the version applicable at the time of writing this document and may be revised at the time of issuing the call. It is repeated here for the purposes of transparency. For the latest Please refer to the H2020 General Annex A. List of countries eligible for funding.

Legal entities established in the following countries and territories will be eligible to receive funding through Horizon 2020:

a) The Member States of the European Union, including their overseas departments;

b) The Overseas Countries and Territories (OCT) linked to the Member States¹⁹:

Anguilla, Aruba, Bermuda, Bonaire, British Virgin Islands, Cayman Islands, Curaçao, Falkland Islands, French Polynesia, Greenland, Montserrat, New Caledonia, Pitcairn Islands, Saba, Saint Barthélemy, Saint Helena, Saint Pierre and Miquelon, Sint Eustatius, Sint Maarten, Turks and Caicos Islands, Wallis and Futuna.

c) The Countries Associated to Horizon 2020²⁰: the latest information on which countries are associated, or in the process of association to Horizon 2020 can be found in the online manual²¹.

d) The following countries, except where this is explicitly excluded in the call text:

Afghanistan, Albania, Algeria, American Samoa, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Chile, Colombia, Comoros, Congo (Democratic People's Republic), Congo (Republic), Costa Rica, Côte d'Ivoire, Cuba, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Eritrea, Ethiopia, Fiji, Gabon, Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Indonesia, Iran, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Korea (Democratic Republic), Kosovo²², Kyrgyz Republic, Lao, Lebanon, Lesotho, Liberia, Libya, former Yugoslav Republic of Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Marshall Islands, Mauritania, Mauritius, Micronesia, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Palau, Palestine, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Samoa, Sao Tome and Principe, Senegal, Serbia, Seychelles, Sierra Leone, Solomon Islands, Somalia, South Africa, South Sudan, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Sudan, Suriname, Swaziland, Syrian Arab Republic, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, Uzbekistan, Vanuatu, Uruguay, Venezuela, Vietnam, , Yemen, Zambia, Zimbabwe.

¹⁸ Regulation (EU) No 1290/2013 of the European Parliament and the Council of 11 December 2013 laying down the rules for participation and dissemination in 'Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) and repealing Regulation 1906/2006

¹⁹ 7 Entities from Overseas Countries and Territories (OCT) are eligible for funding under the same conditions as entities from the Member States to which the OCT in question is linked.

²⁰ Signed an agreement with the Union as identified in Article 7 of the Horizon 2020 Regulation.

²¹ http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/international-cooperation_en.htm

²² This designation is without prejudice to positions on status and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

International European interest organisations²³ will also be eligible to receive funding from Horizon 2020.

Legal entities established in countries not listed above will be eligible for funding when such funding is explicitly foreseen in the relevant call text.

e) In addition, legal entities established in countries not listed above and international organisations will be eligible for funding:

- When funding for such participants is provided for under a bilateral scientific and technological agreement or any other arrangement between the Union and an international organisation or a third country;
- When the Commission deems participation of the entity essential for carrying out the action funded through Horizon 2020.

All proposals must conform to the conditions set out in the Rules for Participation. Furthermore, the following conditions apply unless they are supplemented or modified in the call conditions.

B. A proposal will only be considered eligible if:

Please refer to H2020 General Annexes C. Standard eligibility conditions and D. Types of action: specific provisions and funding rates.

- i. its content corresponds, wholly or in part, to the topic description against which it is submitted;
- ii. it complies with the eligibility conditions for Research and Innovation Actions (RIAs), i.e. at least three legal entities. Each of the three shall be established in a different Member State or associated country. All three legal entities shall be independent of each other.

Description of Research and innovation actions (RIAs):

Action primarily consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. For this purpose they may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment.

Projects may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment.

2. Selection criteria

Please refer to H2020 General Annex H.' Evaluation rules'.

a. Financial capacity: In line with the Financial Regulation and the Rules for Participation. At the proposal stage, coordinators will be invited to complete a self-assessment using an on-line tool.

b. Operational capacity : As a distinct operation, carried out during the evaluation of the award criterion 'Quality and efficiency of the implementation', experts will indicate whether the participants meet the selection criterion related to operational capacity, to carry out the proposed work, based on the competence and experience of the individual participant(s).

3. Award criteria

Experts will evaluate on the basis of the criteria 'excellence', 'impact' and 'quality and efficiency of the implementation'. The aspects to be considered in each case depend on the types of action as set out in the table below, unless stated otherwise in the call conditions.

The award criteria for SESAR 2020 Exploratory Research (RPAS) projects are the following:

²³ These are international organisations, the majority of whose members are Member States or associated countries, and whose principal objective is to promote scientific and technological cooperation in Europe.

<p>Type of Actions</p>	<p>Excellence <i>The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description</i></p>	<p>Impact <i>The extent to which the outputs of the project should contribute at the European and/or International level to the expected impacts</i></p>	<p>Quality & efficiency of the implementation <i>The following aspects will be taken into account:</i></p>
<p>Research and Innovation Actions (RIA)</p>	<ol style="list-style-type: none"> 1. Clarity of targeted breakthrough and its specific science and technology contributions towards a long-term vision for the future evolution of the European ATM system 2. Scientific interest, including a clear and complete description of the research questions to be addressed together with any relevant assumptions and the potential benefits to be derived from the Project. 3. Scientific quality and appropriateness of the proposed methodology. 4. Degree of innovation. Previous and current research is fully taken into account. Projects may propose research that follows on from existing projects, in this case bidders must carefully explain their assumptions, how they will access previous results etc. 5. Data, tools, equipment and additional expertise have been identified and plausible ways and means to obtain these are explained. 6. Clear explanation of possible outcomes and next steps towards implementation, especially with regard to industry links and the relationship to the SESAR work programme. 	<ol style="list-style-type: none"> 1. Alignment with the work areas under this first call. 2. The potential for the Project to contribute the SESAR state-of-the-art and bring SESAR benefits (safety, capacity, environment, cost effectiveness). 3. Importance of the new ideas/concepts and technologies outcome with regards to its transformational impact on technology and/or society. 4. Quality of measures for achieving impact on science, technology on the future evolution of the European ATM system. 	<ol style="list-style-type: none"> 1. The work breakdown is clear and consistent with the needs of the project and clarity of intermediate targets. 2. Relevant expertise in the consortium. 3. Appropriate allocation and justification of resources (person-months, equipment, budget).

3.5.4 Conditions for the SESAR2020 Exploratory Research and Very Large Demonstrations Open Call

- (a) Call identifier: H2020-SESAR-2016-2
- (b) Indicative Publication date: December 2016
- (c) Indicative Deadline: April 2017
- (d) Indicative Budget: €28,500,000

Budget to budget-line allocation

Budget 2016	Commitment	Payment
B03100 'Studies/Development Conducted by the SJU	EUR 28,000,000	EUR 0
B03100 'Studies/Development Conducted by the SJU (Assigned Revenue)	EUR 500,000	EUR 0

Budget to Scope allocation

Work Area	Type of Activity	Type of Action	Indicative Budget
WA1: ER3	EXPLORATORY RESEARCH		EUR 10,000,000
WA1.1 1 Topic	Transversal Exploratory Research	Coordination and Support Action	EUR 4,000,000
WA1.2 5 Topics	ATM Application-Oriented Research	Research and Innovation Actions	EUR 6,000,000
WA2: VLD (Open)	VERY LARGE SCALE DEMONSTRATIONS		EUR 18,500,000
WA2.1 6 Topics	SESAR Solutions demonstrations for High Performing Aviation in Europe	Innovation Action	EUR 10,000,000
WA2.2 2 Topics	Global Interoperability	Innovation Actions	EUR 3,000,000
WA2.3 2 Topics	Safe Integration of all Air Vehicles	Innovation Actions	EUR 5,000,000
WA2.4 1 Topic	Active Geo-fencing Service	Innovation Action	EUR 500,000

(e) Activities covered by this call:

Since the publication of the first version of this Work Programme the call for Exploratory Research and the call for Very Large Scale Demonstrations have been combined to reduce the SJU administrative overhead and re-scheduled to align with the changed availability of resources caused by the latest schedule of activities supporting the H2020-SESAR-2015-2 IR-VLD call to Members.

This call consists of two different Work Areas each with a clear scope of activities structured to the topic level. The Work Areas are 'Exploratory Research', consisting of 6 topics and 'Very Large Scale Demonstrations', consisting of a further 11 topics. The two work areas and 17 topics are fully described below:

1) WORK AREA 1 – EXPLORATORY RESEARCH (ER)

SESAR Exploratory Research (ER) drives the development and evaluation of innovative or unconventional ideas, concepts, methods and technologies; that can define and deliver the performance required for the next generation of European ATM system.

In this Work Area there are six topics to be covered under two sub Work Areas; transversal exploratory research activities (WA1.1) and a further set of ATM application-oriented research (WA1.2) which builds on and complements the research topics already included in the first call for exploratory research in 2015.

WA1.1. Transversal Exploratory Research

This sub Work Area consists of one support topic that shall establish an overarching view across ATM exploratory research, providing a coordinated exchange of research knowledge across a wide range of relevant themes, and within the context of this networking, help to further stimulate the Future ATM Skilled work-force for ATM.

The SJU is looking to award one project, with a maximum duration of 4 years, covering the scope in the topic description below:

- a. The SJU intends to establish one **Knowledge Transfer Network** that will support the SJU by focussing on the assessment, transfer, communication and sharing of research results among the ATM community. The challenge is to support and encourage collaborative research on future and emerging innovative ideas, expertise and knowledge for the benefit of the future evolution of the European ATM system and its people. The Knowledge Transfer Network will also include the organisation and running of interdisciplinary or 'themed' network activities based around key ATM research subjects and SJU exploratory research projects with the aim to stimulate learning and the exchange of knowledge between academia, the research community and industrial partners. Introducing knowledge from other disciplines will encourage the exploration of innovative and unconventional ideas in ATM.

The range of possible themes for the network activities to be included covers the key subject areas for SESAR 2020 exploratory research:

- ✓ Automation,
- ✓ Robotics & Autonomy;
- ✓ Complexity Data Science & Information Management;
- ✓ Environment & Meteorology for ATM;
- ✓ Performance, Economics,
- ✓ Legal & Regulation; ATM role in Intermodal transport;
- ✓ CNS for ATM;
- ✓ High Performing Airport Operations;
- ✓ Optimised ATM Network Services;
- ✓ Advanced Air Traffic Services;
- ✓ Enabling Aviation Infrastructure.

The Knowledge Transfer Network shall cover the following activities:

- i) **Communication** – organisation of workshops and symposiums, ATM research summer schools, the development of newsletters and other actions aimed at the dissemination and sharing of SESAR exploratory research results.
- ii) **Observatory and roadmap** – monitoring, identification and analysis of new opportunities for innovative ATM research of relevance to the evolution of the European ATM system and the development of a long-term roadmap development of innovative and interdisciplinary ATM concepts beyond SESAR 2020.
- iii) **Take-up** - stimulate the transfer of exploratory research results towards applications-oriented research and onwards towards industrial research. This will include the assessment of direct/indirect impacts of SESAR Exploratory Research program on the long-term evolution of the European ATM system including establishing stronger links performance measures. The Networks will identify the maturity of research results and facilitate the link with research at higher-levels of maturity for example within the SESAR Industrial research programme.
- iv) **Future ATM Skilled work-force** - supports European ATM education and training in the ATM Community to develop new talent with a deep knowledge of the future ATM scientific research needs which will sustain a supply of bright young ATM research talent in the long term as well as stimulating the next generation of ATM operational and engineering staff. The future ATM skilled work-force activity will provide opportunities for postgraduate students to participate and contribute to ATM research in Europe including support for PhD research projects based around the themes listed above.

- v) **Support to SJU initiatives** – support the organisation of the SESAR Innovation Days research conference and the SESAR Young Scientist Award. The SJU will provide a link to its Scientific Committee who also takes a key role in these activities.

WA1.2 ATM application-oriented research

This will help mature new concepts for ATM beyond those identified in the ATM Master Plan as well as help mature emerging technologies and methods to the level of maturity required to feed the applied research conducted in the Industrial Research and Validation phase of SESAR; thus connecting the ATM Exploratory Research to the ATM Applied Research in the context of the European ATM Master Plan.

The SJU is looking to award around 8-12 projects, with an indicative duration of 2 years, across the following five topics:

- a. **Advanced Air Traffic Services** – Current separation minima are for the most part defined to be dependent on the reliability and accuracy of the position information displayed to the controller. In some cases reduced minima have been defined for flights guided by specific navigation equipment, as is the case for aircraft on parallel Instrument Landing System (ILS) localizers, based on the fact that the knowledge that the aircraft is on the localizer reduces both the uncertainty of the present position and how its future position may evolve. This topic will address the extension of this concept, proposing new separation minima when non-surveillance information on the aircraft position is available, for example for aircraft flying on PBN routes, flights having downlinked their FMS-predicted trajectory, or flights having agreed to comply with specific ATM constraints.
- b. **Optimised ATM Network Services** – The sharing and management of trajectory information provides consistent information which allows the use of each flight's agreed trajectory as a unique, common reference for decision-making. Today Europe's Network Manager (NM) carries out regional coordination of Demand and Capacity Balancing (DCB) in a centralised architectural approach. This topic will address the application of Trajectory Based Operations in support of DCB functions, independent to any specific system architecture allowing the extension of such functions to a global context leading to a consistent and coherent trajectory management approach within and between regions.
- c. **Enabling Aviation Infrastructure** - This topic addresses how lightweight and/or low-cost devices suitable for airspace users such as General Aviation, could be allowed to operate safely and effectively alongside full-specification devices without compromising safety or adversely impacting the aviation spectrum environment. The topic will address how technology for voice and data link communications, PBN, surveillance, and collision-avoidance, could be regulated and approved by aviation authorities without having to undergo the rigorous and costly certification processes associated with existing full-specification devices.
- d. **Enabling Aviation Infrastructure** - The use, or adaptation, of new technologies being developed outside ATM to support ATM Communication, navigation and surveillance (CNS) needs will be considered including analysis of the safety, performance and security implications for the ATM system. More flexible system architectures for ground and airborne systems will be considered in this context (e.g. building on integrated modular avionics and an open interface approach to ground system development) to help unlock us from legacy technologies.
- e. **ATM Operations, Architecture, Performance and Validation** - This topic will address activities on ATM system design and architecture using novel methods to analyse and propose evolutionary approaches aimed at guaranteeing its robust transition towards the future. This includes the needs and challenges in developing a harmonised technical infrastructure for ANS, including its operational and economic impacts. The potential of architecture in providing suitable means of assurance for validation or evidence to support decision-making and strategic thinking.

2) WORK AREA 2 – VERY LARGE SCALE DEMONSTRATIONS (VLD)

VLDs are an integral part of the SESAR Solutions delivery approach towards the SESAR deployment phase. The objective of VLDs is to bridge “industrial research” and “deployment”, and not to replace either type of activity.

All VLDs shall aim, as a minimum, at including a demonstration in a close-to-operational environment along with the preparation for platform availability to support demonstrations in targeted operational environments that engages relevant end-users and stakeholders.

This Work Area addresses 11 topics across four sub Work Areas; the first three of these complement the SJU Members Wave 1 VLD activities, launched through the H2020-SESAR-2015-2 call, where additional activities are sought that will ensure successful very large-scale demonstrations (VLDs), and the final one addresses a European Parliament Preparatory Action specifically requesting action on the demonstration of an Active Geofencing Service for drones flying below 150 metres.

WA2.1 SESAR Solutions for High Performing Aviation in Europe

This sub Work Area is aiming at securing the involvement of additional end-users to perform operational demonstrations to confirm the benefits and increase awareness of promising solutions targeting specific operational scenarios and operating environments. The scope is structured into separate topics that are all geared at securing the involvement of additional end-users to perform operational demonstrations to confirm the performance of SESAR Solutions and raise awareness.

The SJU is looking to award around 10-15 projects, with an indicative duration of 2 years, across the following six topics:

- a. **Arrival Management Extended to En-Route Airspace** - The Arrival Management (AMAN) extended to en-route extends the AMAN horizon from 100-120 NM to 180-200 NM from the arrival airport, allowing traffic sequencing to be conducted in the en-route and early descent phases. The arrival constraint generated by the extended AMAN takes into account the different flows of arrival flights delivered by different neighbouring ACCs and this information is passed to two or more upstream ACCs.
- b. **Integrated Airport Operations** - addressing efficient provision of approach and aerodrome control services through improved both runway safety and throughput and optimised surface operations. This encompasses advanced departure management procedures and tools, enhanced surface management including planning and routing, and the use of ground safety nets to monitor routing conformance, detect conflicting clearances and deliver alerts to the controller.
- c. **Network collaborative Management** – addressing cooperative traffic management environment based on the exchange, modification, and management of trajectory information in both pre-departure and execution phases of the flight in order to improve the European Network performance, particularly capacity and flight efficiency. It consists in optimising the delivery of traffic in sectors and airports while assessing accurately the capacity needs corresponding to the traffic demand. It includes an enhanced evaluation of the demand through identification of hotspots and assessment the traffic complexity and the proposal of appropriate ATFCM solutions which integrate multiple local dynamic capacity balancing (DCB) constraints.
- d. **Initial Trajectory Information Sharing** - The trajectory will become the standard for ATM and requires to be regularly updated and shared among involved stakeholders including ANSPs/ACCs and network management. This is a first step which is expected to bring already significant improvement in flight efficiency and particularly predictability. It consists in equipping an adequate number of mainline aircraft and assessing technical and operational impact of downlinking trajectory information contained in the FMS during commercial flights.
- e. **Efficient services and infrastructure delivery** - addressing common support function which would allow temporary provision of some services or information such as Flight plan or radar information in order to ensure continuity in the delivery of efficient ATS services in case of major technical failure at one of the ACCs.
- f. **Increased access to airports for low visibility mixed fleet operations** – A great number of European airports are not equipped with advanced ground infrastructure that allows Cat II/III procedures in bad weather conditions and especially in low visibility conditions (particularly true but not limited to medium and small size airports). This topic addresses the use of advanced on-board equipment as well as GNSS (such as EGNOS) to support safe airport access for mixed fleet operations including Business Aviation as well as Mainline.

WA2.2 Global Interoperability

This sub Work Area is structured into two topics that both recognise that aviation is a global industry and interoperability together with global harmonisation are key for its safe and sustained growth. The activities under this work area shall address global interoperability demonstrations targeting operational changes that are considered to be on the critical path for ATM modernisation.

The SJU has put in place Memoranda of Cooperation (MoC) under the EU bilateral agreements and relations with non-EU States. These MoC's provide the international context and frame for the activities to

be conducted under this work area, in particular with regards to link the International Civil Aviation Organisation’s (ICAO), Global Air Navigation Plan, GANP/ASBU’s development and implementation efforts.

The SJU is looking to award around 2-4 projects, with an indicative duration of 2 years, across the following two topics:

- a. **Applications for trajectory based flow and queue management using EPP extended into Oceanic/Inter-continental operations** – addresses the use of aircraft derived EPP information in a simulated and/or live environment to improve operational applications for ATS/ATC- traffic synchronisation and ATFM purposes with a specific emphasis on global interoperability. It may also include demonstrations on technical feasibility and benefits of using satellite communications during the entire flight to exchange trajectory information.
- b. **Applications for improved flight trajectories using SWIM B2B services** – building on the results achieved in previous SWIM global demonstration activities, this topic addresses the use of specific SWIM services for improved flight planning, flight briefing and flight following through global interoperability. This encompasses in particular pre-departure flight plan information that could be exchanged in an agreed standard but also other kind of B2B services relevant during the execution of the flight.

WA2.3 Safe Integration of all Air Vehicles

This sub Work Area is structured into two topics that focus on Safe Integration of all air Vehicles. The activities to be performed are geared at demonstrating solutions which support interoperability and allow the integration of all airspace users (including general aviation, rotorcraft and drone operators) in an efficient and non-discriminatory manner, whilst also ensuring safety.

The SJU is looking to award around 7-10 projects, with an indicative duration of 2 years, across the following two topics:

- a. **Solutions for General Aviation and Rotorcraft** – addresses specific solutions linked to SESAR concepts using non certified on-board equipment and shall demonstrate the benefits of such solutions regarding the improvement of situation awareness and safety. Although demonstrations are expected to occur in class G airspace, they should be geared to the possible extent, at building confidence for safe integration of GA and rotorcraft operations in all classes of airspace.
- b. **Safe integration of drones** – Safe integration of drones in the airspace has to be considered in the relevant context according to mission type, altitude, class of airspace and type of drone. This topic addresses demonstrations to build confidence on solutions that would support the safe integration of drones in all classes of airspace (including Very Low Level Operations) and that could be deployed at a larger scale within the next 5-8 years. Particular focus should be put on solutions enabling the following mission types: long range surveying (primarily BVLOS), light load movement (primarily BVLOS) and long endurance surveying (primarily at altitudes above 150 metres).

WA2.4 Active Geofencing Service

This sub Work Area focusses solely on an Active Geofencing Service and covers a specific Preparatory Action of the European Parliament (Assigned Revenue). It is targeting demonstrations of web based Geofencing solutions that use location signals to prevent drones from flying in no-fly zones. No-fly zones can be generated, monitored and controlled by the authorities responsible.

The SJU is looking to award 1 project in this sub Work Area, with a maximum duration of 2 years, covering the scope of the topic description below:

- a. **Integrating Remotely Piloted Aircraft Systems (RPAS) in the European airspace using an Active Geofencing Service (AGS)** – demonstrate the benefits of an Active Geofencing Service for drones for operations below 150 metres (500 feet) and propose the necessary deployment actions to fully deliver the benefits being claimed.

(f) Indicative timetable for the evaluation and grant agreements

Information on the outcome of the evaluation	Indicative date for the signing of the grant agreements
Maximum 5 months from the final date for submission	Maximum 8 months from the final date for submission

(g) Eligibility conditions for grant proposals and related requirements:

All proposals must conform to the conditions set out in the Rules of Participation²⁴. Furthermore, a proposal will only be considered eligible if it:

1. Corresponds to the topic description in section 3.5.3 (e) above;
2. Contains a plan detailing the added value of expected outcomes and results (a draft plan for the exploitation and dissemination of the results, in accordance with Article 13 (1) of the Rules of Participation) of the topic concerned for the purpose of dissemination and SESAR deployment preparation;
3. Complies with the submission requirements in that :
 - Each proposal must be submitted and received by the SJU no later than the call deadline in accordance with the timetable defined above, and;
 - Using the application form and/or electronic submission system (participant portal) available.

(h) Eligibility, selection and award criteria:

1. Eligibility criteria

A. List of countries, and applicable rules for funding

This list is the version applicable under H2020 at the time of writing this document and may be revised at the time of issuing the call. It is repeated here for the purposes of transparency. For the latest, please refer to the H2020 General Annex A. List of countries eligible for funding.

Legal entities established in the following countries and territories will be eligible to receive funding through Horizon 2020:

- a) The Member States of the European Union, including their overseas departments;
- b) The Overseas Countries and Territories (OCT) linked to the Member States²⁵:
 - Anguilla, Aruba, Bermuda, Bonaire, British Virgin Islands, Cayman Islands, Curaçao, Falkland Islands, French Polynesia, Greenland, Montserrat, New Caledonia, Pitcairn Islands, Saba, Saint Barthélemy, Saint Helena, Saint Pierre and Miquelon, Sint Eustatius, Sint Maarten, Turks and Caicos Islands, Wallis and Futuna.
- c) The Countries Associated to Horizon 2020²⁶: the latest information on which countries are associated, or in the process of association to Horizon 2020 can be found in the online manual²⁷.
- d) The following countries, except where this is explicitly excluded in the call text:

Afghanistan, Albania, Algeria, American Samoa, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Chile, Colombia, Comoros, Congo (Democratic People's Republic), Congo (Republic), Costa Rica, Côte d'Ivoire, Cuba, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Eritrea, Ethiopia, Fiji, Gabon, Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Indonesia, Iran, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Korea (Democratic Republic), Kosovo²⁸, Kyrgyz Republic, Lao, Lebanon, Lesotho, Liberia, Libya, former Yugoslav Republic of Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Marshall Islands, Mauritania, Mauritius, Micronesia, Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Palau, Palestine, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Samoa, Sao Tome and Principe, Senegal, Serbia, Seychelles, Sierra Leone, Solomon Islands, Somalia, South Africa, South Sudan, Sri Lanka, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Sudan, Suriname, Swaziland, Syrian Arab Republic, Tajikistan, Tanzania, Thailand, Timor-

²⁴ Regulation (EU) No 1290/2013 of the European Parliament and the Council of 11 December 2013 laying down the rules for participation and dissemination in 'Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020) and repealing Regulation 1906/2006

²⁵ 7 Entities from Overseas Countries and Territories (OCT) are eligible for funding under the same conditions as entities from the Member States to which the OCT in question is linked.

²⁶ Signed an agreement with the Union as identified in Article 7 of the Horizon 2020 Regulation.

²⁷ http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/international-cooperation_en.htm

²⁸ This designation is without prejudice to positions on status and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Leste, Togo, Tonga, Tunisia, Turkey, Turkmenistan, Tuvalu, Uganda, Ukraine, Uzbekistan, Vanuatu, Uruguay, Venezuela, Vietnam, , Yemen, Zambia, Zimbabwe.

International European interest organisations²⁹ will also be eligible to receive funding from Horizon 2020.

Legal entities established in countries not listed above will be eligible for funding when such funding is explicitly foreseen in the relevant call text.

- e) In addition, legal entities established in countries not listed above and international organisations will be eligible for funding:
- When funding for such participants is provided for under a bilateral scientific and technological agreement or any other arrangement between the Union and an international organisation or a third country;
 - When the Commission deems participation of the entity essential for carrying out the action funded through Horizon 2020.

All proposals must conform to the conditions set out in the Rules for Participation. Furthermore, the following conditions apply unless they are supplemented or modified in the call conditions.

B. A proposal will only be considered eligible if:

Please refer to H2020 General Annexes C. Standard eligibility conditions and D. Types of action: specific provisions and funding rates.

- i. its content corresponds, wholly or in part, to the topic description against which it is submitted;
- ii. it complies with the eligibility conditions for Coordination and Support Actions (CSAs), or;
- iii. it complies with the eligibility conditions for Research and Innovation Actions (RIAs) and Innovation Actions (IAs), i.e. at least three legal entities. Each of the three shall be established in a different Member State or associated country. All three legal entities shall be independent of each other.

Description of Coordination & Support Actions (CSAs):

Action consisting primarily of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructure, and may also include complementary activities of networking and coordination between programmes in different countries.

Description of Research and innovation actions (RIAs):

Action primarily consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. For this purpose they may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment. Projects may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment.

Description of Innovation Actions (IAs):

Action primarily consisting of activities directly aimed at producing plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.

2. Selection criteria

Please refer to H2020 General Annex H.' Evaluation rules'.

- a. Financial capacity: In line with the Financial Regulation and the Rules for Participation. At the proposal stage, coordinators will be invited to complete a self-assessment using an on-line tool.
- b. Operational capacity : As a distinct operation, carried out during the evaluation of the award criterion 'Quality and efficiency of the implementation', experts will indicate whether the participants meet the

²⁹ These are international organisations, the majority of whose members are Member States or associated countries, and whose principal objective is to promote scientific and technological cooperation in Europe.

selection criterion related to operational capacity, to carry out the proposed work, based on the competence and experience of the individual participant(s).

3. Award criteria

Experts will evaluate on the basis of the criteria 'excellence', 'impact' and 'quality and efficiency of the implementation'. The aspects to be considered in each case depend on the types of action as set out in the table below, unless stated otherwise in the call conditions.

The award criteria for each Work Area are specific to the Actions; these are described in the following tables:

Table 1 – Exploratory Research Activities (WA 1.1):

Type of Actions	Excellence <i>The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description</i>	Impact <i>The extent to which the outputs of the project should contribute at the European and/or International level to the expected impacts</i>	Quality & efficiency of the implementation <i>The following aspects will be taken into account:</i>
WA 1.1 - Coordination and Support Actions (CSA)	<ol style="list-style-type: none"> 1. Clarity and pertinence of the proposal: objectives, scope, problem statement and requirements. 2. Soundness of the concept, and credibility of the proposed methodology. 3. Quality of the proposed coordination and/or support measures. 	<ol style="list-style-type: none"> 1. The expected impact on the SESAR Programme and on ATM research is clearly described. 2. Effectiveness of the proposed communication activities for promoting the projects and its outcome. 3. Quality of measures for achieving impact on science, technology and skills growth on the future evolution of the European ATM system. 	<ol style="list-style-type: none"> 1. The work breakdown is clear and consistent with the needs of the project. There is clarity of intermediate targets with valid roles assigned to participants and appropriate allocation of tasks. 2. Complementarity and relevance of the participants and expertise in the consortium. 3. Appropriate allocation and justification of resources (person-months, equipment, and budget) in line with the objectives and deliverables. 4. Appropriate management structures and procedures including risk and innovation management.

Table 2 – Exploratory Research Activities (WA 1.2):

Type of Actions	Excellence <i>The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description</i>	Impact <i>The extent to which the outputs of the project should contribute at the European and/or International level to the expected impacts</i>	Quality & efficiency of the implementation <i>The following aspects will be taken into account:</i>
WA 1.2 - Research and Innovation Actions (RIA)	<ol style="list-style-type: none"> 1. Clarity of targeted breakthrough and its specific science and technology contributions towards a long-term vision for the future evolution of the European ATM system. 2. Degree of innovation. How the proposal demonstrates innovation potential (e.g. ground-breaking objectives, novel concepts and approaches, new products, services or business and organisational models). 3. Previous and current interdisciplinary research is fully taken into account. Projects may propose research that follows on from existing projects, in this case proposals must clearly explain assumptions, how they will access previous results and make use of stakeholder knowledge. 	<ol style="list-style-type: none"> 1. The potential of the Project to contribute the SESAR state-of-the-art and bring SESAR benefits (safety, capacity, environment, cost effectiveness). 2. Importance of the new ideas/concepts and technologies outcome with regards to its transformational impact on technology and/or society. 3. Clear explanation and communication of possible outcomes and next steps towards implementation, especially with regard to industry links and the relationship to the SESAR work programme. 4. Quality of measures for achieving impact on science, technology and skills growth relevant for the future evolution of the European ATM system. 	<ol style="list-style-type: none"> 1. The work breakdown is clear and consistent with the needs of the project and clarity of intermediate targets. 2. Relevant expertise in the consortium. 3. Appropriate allocation and justification of resources (person-months, equipment, and budget).

Table 3 - Very Large Scale Demonstration Activities (WA2):

Type of Actions	Excellence <i>The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description</i>	Impact <i>The extent to which the outputs of the project should contribute at the European and/or International level to the expected impacts</i>	Quality & efficiency of the implementation <i>The following aspects will be taken into account:</i>
WA2 - Innovation Actions (IAs)	<ol style="list-style-type: none"> 1. Clarity and pertinence of the proposal: objectives, scope and requirements defined in the Description of Work are well understood and fully addressed in the Proposal. 2. Clarity and pertinence of the Concept and proposed approach 3. Added value to the SESAR Programme and benefits in bridging R&I towards deployment are clearly described (ambition). 	<ol style="list-style-type: none"> 1. The expected impact on the Programme in terms of generating buy-in and bringing SESAR performance benefits as outlined in the European ATM Master Plan is clearly described. 2. The proposal clearly explains to what extent the project contributes to the related standardisation activities (when relevant). 3. Effectiveness of the proposed communication activities for promoting the projects and its outcome. 	<ol style="list-style-type: none"> 1. Coherence and effectiveness of the work plan considering in particular its integration within the overall Programme lifecycle (Compliance with SESAR 2020 Programme Executive Guidance is required). 2. Appropriateness of the proposed management structure and procedures, including complementarity of the participants within the Project (Compliance with SESAR 2020 Programme Executive Guidance is required). 3. Relevant technical expertise in the area related to the project, quality of the proposed Project Manager CV 4. Consistency between the expected project results and the estimated budget.

Table 4 – Scoring criteria for all Action types:

	Excellence	Impact	Quality
Weight (%):	40	40	20
Threshold per Criteria (n/5):	3	3	3
Overall Pass Threshold (%):	70		

4 Support to Operations

The SJU will continue to align the capabilities of its corporate & support services to maintain the provision of effective support to the delivery of its work programme. In 2016 SJU will be in the process of transitioning into the H2020 environment while closing down SESAR1 and ramping up SESAR2020. This will require strong cooperation with Commission services such as DG Move and the 'Common Support Service' for H2020.. This process requires a review of the processes of the internal corporate and support services, and the governance structures, a process begun in 2015 that will continue in 2016. The challenge for SJU in 2016 is the continued evolution and consolidation of these processes, with an emphasis on further developing their efficiency and effectiveness in line with best practice.

As 2017 will be the timing for the Horizon2020 funding framework mid-term review then during 2016 preparation activities will be performed to prepare for the review, collecting material and proposals for any changes to operations and/or budget to secure the full benefits of SESAR development in accordance with the European ATM Master Plan and the Aviation Strategy.

4.1 Corporate Planning and Performance Reporting

There will be a significant re-alignment of the SJU's corporate reporting functionality in 2016. The production, adoption and distribution of SJU's multi-annual and annual work programmes and any other reporting variant originating from EC working groups during 2016 (such as the Combined Annual Activity Report or Single Programming Document) will be integrated further into SJU's existing processes. An established, clear & well-communicated corporate plan/timetable for all required staff input for the production and adoption of all relevant ex-ante and ex-post reporting will also be put in place. The SJU has already secured key strategic support and advice under contract and will continue to use this facility during 2016 for direct relevance on the SESAR1 Programme, European ATM Master Plan and advice to the SJU in general.

From 1 January 2016, in order to be in compliance with the 2013 EU Financial Framework Regulation (FFR), both multi-annual and annual work programmes prepared during the reporting period will be integrated in a single programming document that will be updated annually³⁰. A revised structure, compliant with the FFR's requirements, will therefore be used when preparing the 2017 work programme.

In order to demonstrate how SJU is meeting its defined strategic goals and the expectations of its stakeholders, SJU will also put in place during the reporting period a set of appropriate corporate performance metrics. Performance development and monitoring of EU bodies is a timely issue and intrinsically linked to an overall tightening of EU budgets. Benchmarking is obligatory for all EU Agencies and most EU bodies now have such a performance monitoring system in use. SJU's performance metrics will be used primarily to inform the executive governance level of SJU of the organisation's overall performance and of progress toward deliverables (specifically goal 4 of its work programme) and to motivate the organisation to work toward delivering its strategy across all areas of SJU's operations.

4.2 Financial Management

In 2016 the SJU will continue to refine its internal financial processes and procedures and to streamline the workflows within SJU's Finance systems. It will also focus on maintaining a high level of accuracy in budgetary forecasting and the continuation of the authorship, review and approval of SJU's financial procedures.

Financial initiation and verification functions will continue to be performed in ABAC respecting the 'four-eyes principle' and with a clear separation of responsibilities. The delegation of authority for budget implementation and the assignment of appropriate initiating and verifying functions to staff will continue to ensure that functions are adequately segregated. The processes for the programme's deliverables and payment acceptance (as described in the financial circuit) will continue to ensure full and continued compliance with the FFR and SJU's own financial rules, with special emphasis in the closure of SESAR1. Financial Management will also undertake appropriate ex-post audits of projects following the completion of the payment cycle, thus continuing its pro-active approach to ensure the transparent and effective management of its financial resources.

³⁰ Article 32 of the FFR (Regulation (EU) No 1271/2013, 30/9/2013)

In terms of disbursements, no further pre-financing disbursements are planned for SESAR1 in 2016, whereas a maximum of €55 million of payment appropriations to SESAR2020 projects are expected to be disbursed during the 2016 reporting period, either to exploratory research projects (up to €24.2 million) or to SESAR2020 projects during their ramp-up phase (up to €30.8 million). Co-financing for SESAR1 projects will continue in 2016 following the receipt and review of Members' interim financial statements outlining incurred costs, accepted deliverables and work in progress. Figures for such co-financing disbursements for 2016 could go up to €42 million, although are more realistically estimated at around €25-30 million considering clearing of Pre-Financings and a contractual retention of 15% of the maximum Co-Financing before final payments in 2017.

For Financial Management, it is clear that of particular importance in 2016 will be the work undertaken to manage the simultaneous closure of SESAR1 and launch of SESAR 2020. This will necessitate the delineated financial management of two discrete programmes, requiring a clear separation of data flows in SJU's financial systems and in its ex-ante and ex-post financial reporting and project audit obligations.

SESAR Development is an tightly integrated programme of work which has been progressively funded under the SJU financial rules applicable to FP7 and TEN-T funds, but with the introduction of H2020 grants and the fact that no provision was made in the amended SESAR JU founding regulation for 'budget commitments by annual instalments' it has been necessary to put in place a 'transitional arrangement' with DG-BUDG. From 2016 onwards the SJU will draw down additional commitment funds in order to progressively meet the needs of grants awarded for the Wave 1 IR/VLD call to Members and thus end the 'transitional arrangement'.

4.3 Corporate Support

The Corporate Support area delivers a number of services in support of the efficient functioning of SJU. The area is responsible for the provision, maintenance and coordination of services in the following areas: corporate ICT, facilities management and the coordination of administrative support to programme experts, missions and insurance services.

The main focus of SJU's ICT support area during the reporting period will be to continue to provide timely and effective support to users on all ICT matters. Additionally, the area will also provide additional support to the organisation in 2016 in the renewal of a number of business-critical ICT contracts. Currently these ICT contracts are managed via a support agreement in place with Eurocontrol but this agreement will terminate following the completion and closure of SESAR1 and as a result, a number of ICT support services must be renewed in 2016. The renewal process, covering elements such as hardware, software and specialist contracted ICT staff, will be undertaken in such a way as to maximise value for money and increase efficiency. Those elements subject to renewal are outlined in more detail in Annex F.

Understanding and maintaining the continuity of services and information requires particular care and attention to ensure that changes are not introduced during the procurement and contracting process that will have an impact on the usability of SJU's systems and/or information. Ensuring such continuity of service will be therefore a particular point of attention when changing elements of the infrastructure environment in 2016 (e.g. migration of EU connectivity within the context of the TESTA project³¹, migration of collaboration platforms, quality, document and business management, and interfacing with EU IT tools such as ECAS for H2020).

In terms of facilities management, work will continue in 2016 on a number of initiatives in SJU's premises in Brussels to improve the productivity, safety & efficiency of the working environment and facilities offered to SJU staff. These maintenance and minor works projects (such as the replacement of the carpet, furniture upgrade, the cafeteria refurbishment, the improvement of the security of the parking area and the finalisation of the shading of the glass partitions) were started in 2015 but are all scheduled to be finalised during the course of 2016. The Catering service contract is also subject to renewal in 2016.

Other elements of corporate support will continue, particularly concerning the process for engaging and managing experts and their claims within the H2020 Common Support Service workflow and tools. In order to do this, the Expert Coordinator acts as technical support on H2020 tools to ensure the timely provision of independent experts via the H2020 database but also via SJU call(s) to be launched in 2016 and will also provide support to the expert & claim management processes in accordance with the relevant contractual obligations.

³¹ TESTA is a telecommunications interconnection platform for secure information exchange

Similarly, missions support will also continue during 2016, with the corporate support area providing overall mission process management and support to all staff across the SJU while transitioning to the EC Mission system over the period. It must be noted that the EC Mission System project has been delayed each year over the last 2 years and the 2016 implementation still has to be confirmed by the EC. To cater for this totally unexpected situation the SJU had to again extend its existing contract support in 2015 in order to prepare for a transition in 2016. In order to comply with sound procurement principles, alternatives will be launched by the SJU if uncertainty around the EC Mission systems persists at the end of 1st quarter 2016. The area will also provide support and coordination in recovering any incident covered by SJU's insurance policies. 2016 will also see the renewal of SJU's insurance contracts.

4.4 Human Resources Management

In 2016 the Human Resources service of SJU will seek to further raise staff competence and capability, assisting the delivery of organisation-wide productivity improvements through the application and administration of a range of enablers such as effective training, staff development and transparent and fair staff appraisal exercises.

SJU will strengthen its culture of excellence at all levels of staff by providing targeted technical and other relevant training and development programmes for staff, assisting staff in identifying their training needs and support learning to allow access to appropriate generic and technical training courses and material.

In conjunction with the Commission, SJU's Administrative Board will continue to adopt the relevant Implementing Rules relating to HR policy. SJU's Multiannual Staff Policy (MSPP) 2017-2019 will also be prepared in the second part of the year and will reflect the evolution of the Establishment Plan of SJU. In 2016, the current iteration of the MSPP (2016-2018) stipulates that SJU will have 44 full-time staff members (39 Temporary Agents, 2 Contract Agents and 3 Seconded National Experts, in addition to 6 contract / interimaire staff). See Annex G for a more detailed breakdown of staff resourcing during the reporting period.

4.5 Internal Audit

In accordance with the internal audit plan, SJU will continue to cooperate with the European Court of Auditors and the Internal Audit Service of the European Commission, hosting their audit missions and taking measures to respond to any resulting recommendations. The Internal Auditor will continue to coordinate work in this area in 2016, including the preparations of reports, follow-up activities and continuing to ensure general awareness amongst management and staff of SJU of the principles, objectives and procedures of internal and external auditing. It should also be noted that in 2016 the SJU will adopt an anti-fraud strategy. The SJU internal audit capability will ensure that the strategy is implemented in a coherent and comprehensive manner and that compliance with the strategy is formally monitored and reported upon on a regular basis.

The results of the 2016 audit plan will provide a significant input to the preparation of the H2020 mid-term review in 2017.

4.6 Legal Affairs

The legal affairs area will continue to provide appropriate legal advice where necessary to support the internal operations of SJU and to assist in its development. Specifically, it will continue to assure the provision of quality legal advice for internal decision-making and provide advice with regard to SJU's position in any possible litigation. It will also ensure that SJU's procurement and grant management processes and procedures are in compliance with SJU's own financial rules and all other relevant regulation and legislation.

SJU Legal and procurement team manages a significant number of procurements, grants and awards to support either programme delivery or SJU's organisational development. In 2016 it will continue to streamline such procurement activities through consolidation and reinforcement of its financial and procurement procedures, building and maintaining capabilities to provide proficient advice to all relevant parties on procurement specific matters and ensuring compliance with all relevant regulatory and legislative requirements in this regard. SJU will place particular emphasis on ensuring that any new procurement and grant procedures are designed and reviewed in order that they comply with applicable financial rules, best practice and any relevant lessons learned exercises.

The SJU will also continue to provide effective administration and oversight of grants throughout 2016, proactively managing all elements of the grant life-cycle in accordance with the SJU's own financial rules and all other relevant constituent acts as applicable including those relating to H2020.

See s2.2.6 for details of strategic programme calls for proposals and management of launched calls in 2016. Further, annex F of this work programme contains a summary of all other major procurement exercises planned for the reporting period.

4.7 Quality Management

During the reporting period the SJU will aim to further embed a quality culture through the gradual materialisation and further development of the quality management system (QMS). The work will be delivered in a number of tranches, with the main focus of effort in 2016 being the collection of up-to-date processes and the introduction and maintenance of an interactive quality manual fully embracing the new Horizon 2020 Common Support Service workflows.

5 Governance

The Statutes of the SESAR Joint Undertaking (SJU) clearly set out its governance, organs, composition, procedures and responsibilities. In accordance with Article 2 of such Statutes, the organs are limited to the SJU Administrative Board (ADB) and the Executive Director (ED).

During 2016, and in accordance with the Annex to the SJU Regulation, the Administrative Board (ADB) shall meet at least 3 times and any Extraordinary meetings shall be convened either at the request of one-third of the members of the ADB representing at least 30% of the voting rights, at the request of the Commission or of the Executive Director. During 2016 the three scheduled meetings are anticipated to occur on 28 April, 20 October and 15 December 2016.

The SJU Administrative Board (ADB) is responsible for ensuring that the SJU complies with its statutory responsibilities as set out in its founding Regulation, all other relevant legislation and the relevant European Commission accounting rules in relation to its use of public funds. The Executive Director (ED) is responsible for the successful leadership and day-to-day management of the SJU and for the execution of its work programme and is accountable to the Administrative Board, to which he reports on a regular basis.

Under SESAR1, three permanent working groups were created to provide specialist advice and support to the ED, which was not provided elsewhere. This arrangement supports and assists the SJU ED in the delivery of the SJU mandate and all working groups report directly to him.

Working groups are established recognising the importance of transparent decision-making, ensuring clear allocation and separation of responsibilities as well as taking due consideration of the potential and management of any conflicts of interest.

The established working groups are currently:

The Programme Committee is the body assisting the ED in the establishment of clearly defined and effective programme management through strategic guidance and tactical steering of the SJU's work programme, but with its remit limited to the higher maturity Industrial research, validation and large scale demonstration activities. This committee can launch ad-hoc and permanent supporting groups to conduct defined activities on its behalf. In SESAR 1 the Programme Committee has established two permanent groups – the Project Control Group and a supporting Work Package Leaders meeting responsible for planning and content respectively;

The Scientific Committee provides scientific advice on the programme and can undertake specific tasks under the direction of the ED. The primary focus of this committee is on the lower maturity research and application to later maturity levels;

The SESAR Performance Partnership is a strategic body whose purpose is to provide a single forum for coordination and endorsement of the views and interests of pan-European stakeholders regarding necessary changes to the European ATM Master Plan. In addition, the partnership monitors the objectives and results of the development phase of the programme. Both purposes have the aim of providing specific advice to the SJU ED.

These governance arrangements, illustrated below, will remain in place for the remainder of SESAR1:

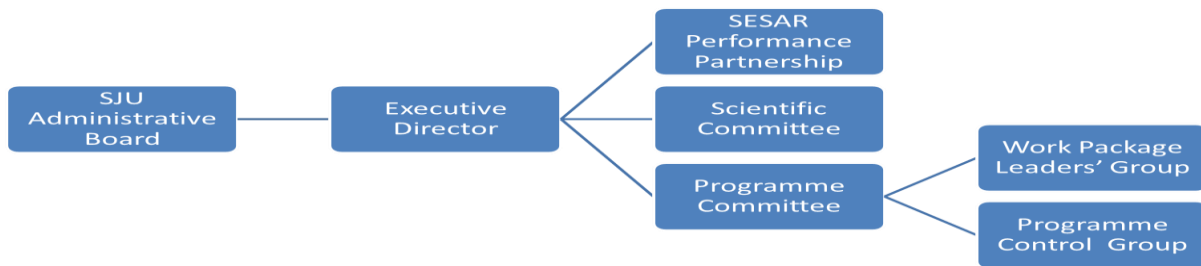


Figure 1: Current SESAR1 SJU governance

Drawing upon the lessons learned during the operation of the SJU to date, it is intended that an evolved set of working groups, compliant within the needs of the SESAR2020 programme and the regulatory requirements supporting it, will better facilitate the transparent, efficient and effective use of limited resources by the SJU.

These governance improvements will be implemented under SJU’s existing statutory provisions and will aim to provide continuity of knowledge and expertise between programmes.

In order to take into account the lessons learnt from SESAR 1 as well the necessary adaptations resulting from the start of the SESAR deployment phase it is proposed to reconfigure the current governance arrangements under the SESAR2020 programme. There will be three permanent programme-level advisory/working groups supporting the Executive Director (ED) in his execution of the SESAR mandate. These will be:

- A renewed Programme Committee, composed of representatives of each of the members of the Joint Undertaking and a representative of civil users of airspace. These representatives shall be proposed to the ED by the relevant ADB Members for formal appointment to the Committee. As today, the Programme Committee will support the SJU ED in the SESAR 2020 programme delivery, covering the industrial research and validation and VLD phases of the programme. It will be supported by two sub-committees: a Delivery Management sub-committee focusing on the management of the programme and of the various contributions and an Operations and Technical sub-committee focusing on the content steering of the activities;
- A new ATM Master Planning Committee, composed of representatives of the European Commission, Eurocontrol, civil users of airspace, the military, air navigation service providers, equipment manufacturers, airports, professional staff organisation in the air traffic management sector, the Network Manager and the Deployment Manager. These representatives shall be proposed to the ED by the relevant ADB Members for formal appointment to the Committee. The Committee will provide advice to the ED on the progress of the execution and the implementation of the European ATM Master Plan. In particular, they will monitor and identify potential gaps or opportunities for improving Master Plan priorities and advise the ED of measures they see needed;
- A renewed Scientific Committee, whose membership will be drawn from an open call³², will support the SJU ED in assuring the scientific excellence of the SESAR2020 Programme. In particular this Committee will take a monitoring view (content and results) over the Exploratory Research activities of the SESAR2020 Programme and transition to industrial research and validation, while also providing the ED with scientific advice covering the whole range of SJU SESAR 2020 research activities. In order to foster transition between exploratory research and applied and industrial research an observer seat for a representative of the Programme Committee to the Scientific Committee can be assigned.

³² A summary of this open call procedure is included in Annex F

This revised working group structure is pictured below:

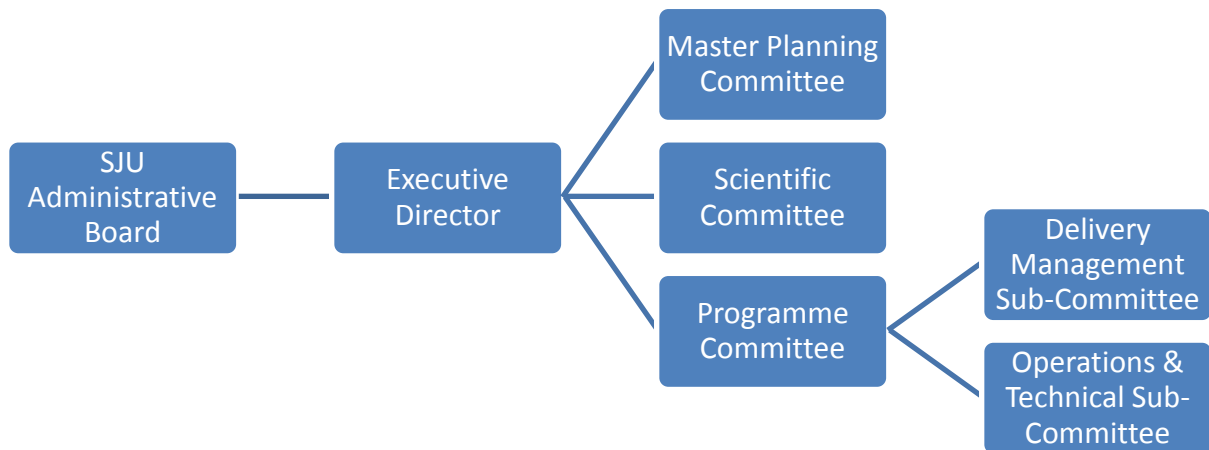


Figure 2: Proposed SESAR2020 SJU governance

This framework is in accordance with Article 11 of the SJU statutes and is necessary for the ED to exercise appropriate control over the implementation of the SESAR Development Phase (to which Article 5(1) (b) of the SJU statutes refers). It is also in full compliance with the governance arrangements outlined in the multi-annual work programme as adopted, to report to and support the Executive Director in the discharge of his duties as entrusted to him by Article 7 of the SJU Statutes and the Administrative Board.

6 Programme Reporting and Control

6.1 Annual Activity Report

The Annual Activity Report (AAR) will present the progress made by the SJU JU in each calendar year, in particular in relation to the Annual Work Programme for that year.

This AAR has several purposes. It seeks to evidence progress toward achieving the SJU's key objectives as defined in its annual work programme, taking into account resources used during the reporting period. It also seeks to outline management and oversight systems in place at the Agency, including defining progress toward implementation of the European Commission's Internal Control Standards.

Lastly, the AAR also includes a declaration of assurance in which the Executive Director, in his role as Authorising Officer, provides assurance as regards the true and fair view given by the report and pertaining to the legality and regularity and the sound financial management of all financial transactions under his responsibility.

The 2015 AAR, together with the annual accounts and balance sheets, will be presented in early 2016 to the Administrative Board by the Executive Director. Once approved and adopted by the Administrative Board, it will be published.

6.2 Management and Internal Control Procedures

6.2.1 Project Audit Assurance

The Project Audit Sector supports SJU Members to achieve the overarching result of maximising the benefit of the resources available for the Programme by raising awareness of best practice, guiding in the better implementation of the SJU Rules, MA, MFA and contributing to the proper, economic, efficient use of the resources. In strict cooperation with operational functions, the Project Auditors are responsible for checking the compliance with the principle of sound financial management.

The SJU started activities necessary to design, develop and implement Performance Audits to assess the effectiveness, efficiency and economy of the SESAR Project results. These activities are part of the SESAR 1 Project Audit Strategy.

The Project Audit Annual Plan will be established and submitted for approval to the Executive Director before 2016, so that some of the audits can be already finalised at the beginning of 2015 as a result of discussions with the ECA.

New arrangements for ex-post project audit relating to SESAR2020 projects, funded under H2020, will be put in place under the Common Audit Service. The implications for the change in the SJU ex-post audit strategy will be presented to the ADB in 2016.

6.2.2 Implementation of Internal Control Standards

The SJU applies Internal Control Standards for effective management derived from the Communication of the European Commission "Revision of the Internal Control Standards and Underlying Framework Strengthening Control Effectiveness" SEC (2007) 1341. This provides the SJU's management and staff with a clear set of standards to comply with in performing their activity. The SJU management and staff are effectively implementing the standards, by developing and applying internal control processes and procedures. During 2016 the SJU will continue to assess the level of compliance with ICS and identify areas for improvements.

6.2.3 Risk Management

SJU's risk management system developed is organised on different levels, from projects to program with a recurring process of risk identification, mitigating actions definition and results assessment. The related activities will continue in 2016 in line with the requirements of the European Commission concerning risk management contained in the Communication SEC (2005) 1327. A summary of the main risks and available mitigations available to SJU in 2016 is included in Annex D.

In following up on audit actions from 2014 and to address the recommendations on a) design and b) efficient operation regarding the bottom-up risk management approach of the SJU, the SJU has followed the advice of the auditors to streamline the process design and tooling requirements in order to focus on the most valuable and relevant elements and to avoid excessive detail. These new requirements will be implemented in time for the launch of SESAR 2020 and are expected to improve the way the reporting of risk management is supervised and monitored and the way bottom up risk reporting is performed at SJU level. The streamlining of the new process design has been completed in 2015 and will be implemented in the context of the SESAR2020 Programme.

6.2.4 Internal Audit and audit co-ordination

Following Administrative Board Decisions, the European Commission's internal auditor (IAS) undertakes the overall responsibility of being the SJU Internal Auditor. An Internal Audit Capability (IAC) has been established under the authority of the Executive Director to undertake audits planned in co-ordination with the Internal Audit Service of the European Commission.

The Internal Audit Work Programme of 2016 will be based on a risk assessment that will be carried out jointly by the IAS and the IAC in November 2015, using the coordinated IAS-IAC Strategic Audit Plan for a four year period 2015-2018. This plan will be presented to the Administrative Board for adoption.

6.2.5 Co-ordination and oversight of public audit functions

The SJU has recruited one full-time internal auditor in 2012 to fulfil the Internal Audit Capability (IAC) function. The IAS provides audit tools and guidance on methodology through its Auditnet for Agencies. The costs of the internal auditors from the IAS are borne by the General Budget of the European Union and not the SJU. Therefore resource requirements in 2016 are expected to be maintained at the level of previous years.

The SJU internal audit capability co-ordinates the activities of the audit and control functions of the SJU's Founding Members and advises the Administrative Board on audit related matters. The SJU IAC also participates in the Auditnet for Agencies established by the IAS to share tools and methodology and to co-ordinate the work of IACs in implementing the Coordinated IAS Strategic Plan.

Annex A: Specific Operational Objectives, Outputs and Performance Indicators

The SJU’s financial rules outline the following requirements to ensure the validity of its annual work programme. Article 31 (3) states that: “the annual work programme of the Union body shall comprise detailed objectives and expected results including performance indicators. It shall also contain a description of the action(s) to be financed and an indication of the amount of financial and human resource allocated to each action.”

The annual work programme of the SJU shall be equivalent to a financing decision for the activities it covers, provided that the elements set out in Article 31(3) are clearly identified.

The detail in the annex below is designed to comply with these reporting requirements and contains details of SJU’s objectives, those outputs specific to such objectives to be delivered within the reporting period and the activities which will deliver them in 2016. It also contains performance indicators for each activity from which SJU will quantitatively measure and report to its stakeholders about their implementation. The estimated total effort (FTEs³³) attached to the objectives of the work programme 2016 in this annex give a reasonable indication of the allocation of available human resources to the majority of tasks to be undertaken by SJU in 2016.

The provisional total FTE for all tasks contained within this annex is 64.9 (see Annex F for a full breakdown of SJU’s establishment totals as per the MSPP). However, the activity list is not entirely exhaustive as it does not include those FTEs relating to management tasks nor does it attempt to capture all horizontal/supporting activities. It should be noted that the FTE resource estimate in this annex contain the additional resource provided by Eurocontrol under its programme financial contributions (this provides an additional 19 FTE).

The Statement of Revenue and Expenditure of SESAR1 for 2016 gives an overall total of Commitment Appropriations of €36.2 million, from which Title 1 expenditure (staff expenditure) 6.2 million euros, Title 2 (infrastructure and operating expenditure) 3.3 million euros and Title 3 (operational expenditure) 26.7 million euros. The costs of the programme activities outlined below relating to Goal 1, 2 and 3 will be covered under Title 3 of the statements of SESAR1’s revenue and expenditure for 2016. The costs of the other tasks outlined below relating to Goals 4 and 5 will be covered largely under staff costs and running costs of the agency, shown in Annex B under Title 1 and Title 2 of the Statements of Revenue and Expenditure of SESAR1 for 2016. The CA budget forecast for SESAR2020 in 2016 relating to title 3 expenditure is €60 million.

The ‘owner’ column in the table below relates to the organisation structure of the SJU:

- AAF Administration Affairs
- ATM Air Traffic Management (Operations & Technical Experts)
- CAF Corporate Affairs
- D&D Development & Delivery
- EMP Economist & Master Planning
- IAC Internal Audit Capability
- MAF Military Affairs
- SEA Strategy & External Affairs

³³ Full-time equivalent (FTE), a unit of measurement indicating the number of working hours that represents one full-time employee during a fixed time period. FTE simplifies work measurement by converting workload hours into the number of people required to complete that work;

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
1	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: Airport Operations Plan and AOP-NOP Seamless Integration	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
2	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: automated Assistance to Controller for Surface Movement Planning and Routing	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
3	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: departure Management integrating Surface Management constraints	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
4	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: D-TAXI service for CPDLC application	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
5	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: guidance assistance through airfield ground lighting	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
6	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: integrated and throughput-optimised sequence of arrivals and departures	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
7	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: remotely Provided Air Traffic Service for Contingency Situations at Aerodromes	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
8	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: single Remote Tower operations for medium traffic volumes	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
9	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: virtual block control in LVPs	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
10	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: runway status lights	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
11	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: airport safety nets for controllers: conformance monitoring alerts and detection of conflicting ATC clearances;	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	x	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
12	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	SESAR1 Solution: enhanced Traffic situational awareness and Airport Safety Nets for the vehicle drivers;	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
13	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Conformance monitoring safety net for Pilots	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
14	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Enhanced Airport Safety Nets for Controllers	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
15	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Enhanced Collaborative Airport Performance Management	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
16	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Enhanced Collaborative Airport Performance Planning and Monitoring	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
17	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Enhanced Guidance Assistance to Aircraft and Vehicles on the Airport Surface Combined with Routing	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
18	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Enhanced Runway Condition Awareness	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
19	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Enhanced Terminal Area for efficient curved operation	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
20	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Minimum-Pair separations based on RSP	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
21	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Remote Tower for multiple low density aerodromes	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
22	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Safety support tools for runway excursions	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
23	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Traffic alerts for pilots for airport operations	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
24	3.1.1	SESAR1 Key Feature 1: High Performing Airport Operations	Partial SESAR1 Solution: Traffic optimisation on single and multiple runway airports	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
25	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	SESAR1 Solution: automated support for traffic complexity detection and resolution	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
26	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	SESAR1 Solution: collaborative NOP for Step 1	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
27	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	SESAR1 Solution: CTOT and TTA	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
28	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	SESAR1 Solution: extended flight plan	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
29	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	SESAR1 Solution: variable profile military reserved areas and enhanced (further automated) civil-military collaboration	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
30	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	Partial SESAR1 Solution: AU Processes for Trajectory Definition	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
31	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	Partial SESAR1 Solution: AU Trajectory Execution from FOC perspective	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
32	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	Partial SESAR1 Solution: Collaborative Network Management Functions	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
33	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	Partial SESAR1 Solution: Integrated Local DCB Processes	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
34	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	Partial SESAR1 Solution: Mission Trajectory Driven Processes	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
35	3.1.2	SESAR1 Key Feature 2: Optimal ATM Network Services	Partial SESAR1 Solution: Network Prediction and Performance	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
36	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	SESAR Solution: arrival Management into Multiple Airports	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
37	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	SESAR Solution: ASAS Spacing applications remain behind and merge behind	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
38	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	SESAR Solution: controlled Time of Arrival (CTA) in Medium density / medium complexity environment	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
39	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	SESAR Solution: enhanced terminal operations with automatic RNP transition to ILS/GLS	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
40	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	SESAR Solution: free route through the use of direct routing	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
41	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	SESAR Solution: MTCDD and conformance monitoring controls	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
42	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	SESAR Solution: optimised Route Network using Advanced RNP	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
43	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	Partial SESAR Solution: Extended Arrival Management with overlapping AMAN operations and interaction with DCB and CTA	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
44	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	Partial SESAR Solution: High Productivity Controller Team Organisation	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
45	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	Partial SESAR Solution: Improved Performance in the Provision of Separation	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
46	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	Partial SESAR Solution: Management of Performance Based Free Routing in lower Airspace	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
47	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	Partial SESAR Solution: Optimized traffic management to enable Free Routing in high and very high complexity environments.	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
48	3.1.3	SESAR1 Key Feature 3: Advanced Air Traffic Services	Partial SESAR Solution: Use of Arrival and Departure Management Information for Traffic Optimisation within the TMA	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
49	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	SESAR Solution: automated assistance to controller for seamless coordination, transfer and dialogue through improved trajectory data sharing;	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
50	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	SESAR Solution: digital integrated briefing	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
51	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	SESAR Solution: MET Information Exchange	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	x	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
52	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Aeronautical Digital Map Service	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
53	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Alternative Position, Navigation and Timing (A-PNT)	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
54	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Data Centre Service for Virtual Centres	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
55	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Delay Sharing Service	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
56	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Integration of trajectory management processes in planning and execution	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
57	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Management and sharing of data used in trajectory (AIM, METEO)	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
58	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Mission Trajectories	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
59	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Multi Constellation / Multi Frequency (MC/MF) GNSS	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
60	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: New use and evolution of Cooperative and Non-Cooperative Surveillance	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
61	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Static Aeronautical Data Service	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
62	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Sub-regional Demand Capacity Balancing Service	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
63	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Surveillance Performance Monitoring	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
64	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: SWIM TI Common runtime registry	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
65	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: SWIM TI Federated Identity Management	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
66	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: SWIM TI Green profile for G/G Civil Military Information Sharing	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
67	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: SWIM TI Purple Profile for Air/Ground Advisory Information Sharing	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
68	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: SWIM TI Purple Profile for Air/Ground Safety-Critical Information Sharing	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
69	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Trajectory Prediction Service	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
70	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Work Station, Service Interface Definition & Virtual Centre Concept	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
71	3.1.4	SESAR1 Key Feature 4: Enabling Aviation Infrastructure	Partial SESAR solution: Workstation, Controller productivity	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	X	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
72	3.1.5	SESAR1 complementary activities concerning Remote Tower operations	SESAR Solution: single Remote Tower operations for medium traffic volumes	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	X	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
73	3.1.5	SESAR1 complementary activities concerning Remote Tower operations	SESAR Solution: remotely provided Air Traffic Service for contingency situations at aerodromes	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	x	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
74	3.1.5	SESAR1 complementary activities concerning Remote Tower operations	Partial SESAR Solution: Data Centre Service for Virtual Centres	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
75	3.1.5	SESAR1 complementary activities concerning Remote Tower operations	Partial SESAR Solution: Remote Tower for multiple low density aerodromes	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
76	3.1.5	SESAR1 complementary activities concerning CWP Airport	SESAR Solution: digital integrated briefing	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	x	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
77	3.1.5	SESAR1 complementary activities concerning AIM/MET	SESAR Solution: MET Information Exchange	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	x	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period
78	3.1.5	SESAR1 complementary activities concerning CWP Airport	Partial SESAR Solution: Work Station, Service Interface Definition & Virtual Centre Concept	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
79	3.1.5	SESAR1 complementary activities concerning CWP Airport	Partial SESAR Solution: Workstation, Controller productivity	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
80	3.1.5	SESAR1 complementary activities concerning CNS	Partial SESAR Solution: Alternative Position, Navigation and Timing (A-PNT)	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
81	3.1.5	SESAR1 complementary activities concerning CNS	Partial SESAR Solution: Multi Constellation / Multi Frequency (MC/MF) GNSS	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
82	3.1.5	SESAR1 complementary activities concerning CNS	Partial SESAR Solution: New use and evolution of Cooperative and Non-Cooperative Surveillance	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
83	3.1.5	SESAR1 complementary activities concerning CNS	Partial SESAR Solution: Surveillance Performance Monitoring	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
84	3.1.5	SESAR1 complementary activities concerning SWIM	SESAR Solution: Initial SWIM (#46)	SESAR Solution to be fully completed and delivered in 2016 and made available to support further take-up by industry.	x	x	x	x	x		0.15	D&D and ATM	Delivery and publication of full SESAR1 solution data pack within the reporting period

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
85	3.1.5	SESAR1 complementary activities concerning SWIM	Partial SESAR Solution: Aeronautical Digital Map Service	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
86	3.1.5	SESAR1 complementary activities concerning SWIM	Partial SESAR Solution: Static Aeronautical Data Service	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
87	3.1.5	SESAR1 complementary activities concerning SWIM	Partial SESAR Solution: SWIM TI Common runtime registry	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
88	3.1.5	SESAR1 complementary activities concerning SWIM	Partial SESAR Solution: SWIM TI Federated Identity Management	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
89	3.1.5	SESAR1 complementary activities concerning SWIM	Partial SESAR Solution: SWIM TI Green profile for G/G Civil Military Information Sharing	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
90	3.1.5	SESAR1 complementary activities concerning SWIM	Partial SESAR Solution: SWIM TI Purple Profile for Air/Ground Advisory Information Sharing	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
91	3.1.5	SESAR1 complementary activities concerning SWIM	Partial SESAR Solution: SWIM TI Purple Profile for Air / Ground Safety-Critical Information Sharing	Work on SESAR solution to continue in 2016 (but solution will reach less than v3 maturity at the end of 2016)	x	x	x	x	x		0.15	D&D and ATM	Managed delivery of identified elements of SESAR solution as per programme plan
92	3.1.6	SESAR 1 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	SESAR 1 ADD	x	x	x	x	x		0.15	D&D and ATM	Finalise SESAR1 ADD within SESAR1 programme lifespan
93	3.1.6	SESAR 1 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	Service Roadmap	x	x	x	x	x		0.15	D&D and ATM	Complete service roadmap within SESAR1 programme lifespan
94	3.1.6	SESAR1 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	AIRM	x	x	x	x	x		0.15	D&D and ATM	Complete AIRM transversal elements within SESAR1 programme

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
95	3.1.6	SESAR1 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	ISRМ	x	x	x	x	x		0.15	D&D and ATM	Complete ISRМ transversal elements within SESAR1 programme
96	3.1.6	SESAR1 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	Performance Assessment Report and Gap analysis	x	x	x	x	x		0.15	D&D and ATM	Complete PAR and GAP analysis within SESAR1 lifespan
97	3.1.6	SESAR1 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	Integrated Roadmap DS15 and DS16	x	x	x	x	x		0.15	D&D and ATM	Deliver Integrated Roadmap ATM Master Plan Level 2 DS15 and DS16 by 31 December 2016
98	3.1.7	SESAR1 Long Term and Innovative Research	Research Networks to continue to provide academic guidance to projects	Continue to provide coordination to research networks to build upon research knowledge acquired and provide expert guidance to specified projects	x	x	x	x	x		0.2	D&D and ATM	Continued effective support to relevant identified research networks throughout the reporting period
99	3.1.7	SESAR1 Long Term and Innovative Research	Research Projects: continuation of high-potential research projects	Continue to support delivery of targeted high-potential research projects and to provide a mechanism to communicate relevant research results to the wider ATM community	x	x	x	x	x		0.2	D&D and ATM	Continued effective support to relevant identified research projects throughout the reporting period
100	3.1.8	SESAR1 Programme Closure	Delivery of SESAR1 Programme Closure Plan	Full implementation of SESAR1 programme closure plan	x	x	x	x	x		0.2	D&D	SESAR1 closure plan executed on time and on budget
101	3.1.8	SESAR1 Programme Closure	Delivery of SESAR1 Programme Closure Plan	Make available relevant SESAR1 content to the SESAR deployment manager for use in the deployment programme	x	x	x	x	x		0.2	D&D	All identified content made available to DM within stipulated timescales
102	3.1.8	SESAR1 Programme Closure	Delivery of SESAR1 Programme Closure Plan	Enable the transfer of relevant elements of the SESAR1 programme to SESAR2020 for further development	x	x	x	x	x		0.2	D&D	Transfer of identified SESAR1 content to SESAR2020 completed within stipulated timescales
103	3.1.8	SESAR1 Programme Closure	Delivery of SESAR1 Programme Closure Plan	Complete archiving of identified SESAR1 material in line with legal requirements	x	x	x	x	x		0.2	D&D	Complete archiving process within stipulated timescale
104	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Organise work to develop, review and deliver subsequent releases of the SESAR 2020 Execution Framework	x	x					0.2	D&D	Deliver a SESAR2020 execution framework

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
105	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Organise work to develop, review & deliver subsequent versions of the SESAR 2020 PMP, Programme Execution Plan and further detailed guidance & develop 2 handbooks.	x	x	x				0.2	D&D	Deliver a SESAR2020 programme execution plan
106	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Define programme information model to include elements from different SESAR1 meta-models such as EATMA, ATM MP, SE, PIRM etc	x	x	x				0.2	D&D	Programme information model implemented
107	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Develop tool to measure whether SESAR2020 projects are compliant to the needs as defined in the execution guidance per domain	x	x	x				0.2	D&D	Implement compliance tool and provide regular compliance reports
108	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Adapt programme management processes to 2020 needs and constraints	x	x	x				0.2	D&D	Appropriate PM processes in place
109	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Define and launch the SESAR 2020 programme & release lifecycles	x	x	x				0.2	D&D	Finalise & adopt SEAR2020 programme & release lifecycles
110	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Prepare full set of policy and steering principles for SESAR2020	x	x	x				0.1	D&D	Steering principles to be adopted
111	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Develop annual European ATM Master Plan update process in agreement with all actors within the SESAR 2020 programme	x	x	x	x			0.15	D&D	Define and implement MP update process
112	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Develop transitional Concept of Operations ready for the start of the SESAR 2020 programme by July 2016	x	x	x	x			0.15	D&D	Develop updated CONOPS
113	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Develop 2020 Transition Architecture Description Document (ADD) to be further refined by P19 in collaboration with solution projects	x	x	x	x			0.15	D&D	ADD fully refined by end of Q3 2016
114	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Develop process for end-to-end ATM performance management from validation steering to assessment	x	x	x	x	x	x	0.1	D&D	Continue to develop end-to-end ATM performance throughout 2016
115	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Further embed the safety related practices in SESAR2020 and measure maturity and compliance	x	x					0.1	D&D	Relevant safety elements embedded in SESAR2020
116	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Further embed security related practices in SESAR2020	x	x	x				0.1	D&D	Relevant security elements embedded in SESAR2020

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
117	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Further embed human performance related practices in SESAR2020	x	x	x				0.1	D&D	Relevant human performance elements embedded in SESAR2020
118	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Further embed relevant environmental practices in SESAR2020	x	x	x				0.1	D&D	Relevant environmental elements embedded in SESAR2020
119	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Define & implement a content & framework change management process & define interface with governance processes	x	x	x				0.1	D&D	SESAR2020 CM processes implemented and integrated with governance processes
120	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Adapt EATMA framework ad process to the needs of SESAR 2020 & implement existing relevant modelling into appropriate EATMA releases	x	x	x	x			0.1	D&D	EATMA framework process fully adapted to SESAR2020 requirements
121	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Define and implement SE Data management	x	x	x	x	x		0.1	D&D	SE Data management implemented
122	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	Define, document & implement a SESAR2020 solution validation process	x	x	x				0.1	D&D	SESAR2020 solution validation process in place
123	3.2.1	SESAR2020 Programme Ramp-Up	Provide a robust PM framework to ramp-up to the new programme	adapt and extend the project control gate and process to the needs of SESAR 2020	x	x	x				0.1	D&D	Project control gate process adapted to meet SESAR2020 requirements
124	3.2.2	SESAR 2020 ER: ATM Application Oriented Research: high performing airport operations	Launch of SESAR 2020 exploratory research activities to deliver high performing airport operations	Call for proposals issued for 'Improved Visualisation and Awareness' (REF: ER-06-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
125	3.2.2	SESAR 2020 IRV Wave 1: High performing airport operations	Launch of SESAR 2020 industrial research and validation activities relating to increased runway and airport throughput	SESAR 2020 IRV Wave 1 projects scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
126	3.2.2	SESAR 2020 IRV Wave 1: High performing airport operations	Launch of SESAR 2020 industrial research and validation activities relating to integrated surface management	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
127	3.2.2	SESAR 2020 IRV Wave 1: High performing airport operations	Launch of SESAR 2020 industrial research and validation activities relating to airport safety nets	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
128	3.2.2	SESAR 2020 IRV Wave 1: High performing airport operations	Launch of SESAR 2020 industrial research and validation activities relating to total airport management	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
129	3.2.2	SESAR 2020 IRV Wave 1: High performing airport operations	Launch of SESAR 2020 industrial research and validation activities relating to remote towers for multiple airports	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
130	3.2.2	SESAR 2020 Demonstration Activities Wave 1: High performing airport operations	Launch of S2020 very large demonstration activities relating to integrated airport operations	SESAR 2020 VLD Wave 1 integrated airport operations project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
131	3.2.3	SESAR 2020 IRV Wave 1: Optimised ATM network services	Launch of SESAR 2020 industrial research and validation activities relating to optimised airspace user operations	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
132	3.2.3	SESAR 2020 IRV Wave 1: Optimised ATM network services	Launch of SESAR 2020 industrial research and validation activities relating to advanced demand and capacity balancing	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
133	3.2.3	SESAR 2020 IRV Wave 1: Optimised ATM network services	Launch of SESAR 2020 industrial research and validation activities relating to advanced airspace management	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
134	3.2.3	SESAR 2020 Demonstration Activities Wave 1: Optimised ATM network services	Launch of S2020 very large demonstration activities relating to network collaborative management	SESAR 2020 VLD Wave 1 network collaboration project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
135	3.2.3	SESAR 2020 ER: ATM Application Oriented Research: Advanced air traffic services	Launch of SESAR 2020 exploratory research activities enabling advanced air traffic services	Call for proposals issued for 'Separation Management and Separation Standards' (REF: ER-07-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	X	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
136	3.2.4	SESAR 2020 IRV Wave 1: Advanced air traffic services	Launch of SESAR 2020 industrial research and validation activities relating to enhanced arrivals and departures	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
137	3.2.4	SESAR 2020 IRV Wave 1: Advanced air traffic services	Launch of SESAR 2020 industrial research and validation activities relating to trajectory based free routing	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
138	3.2.4	SESAR 2020 IRV Wave 1: Advanced air traffic services	Launch of SESAR 2020 industrial research and validation activities relating to separation management en-route and TMA	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
139	3.2.4	SESAR 2020 IRV Wave 1: Advanced air traffic services	Launch of SESAR 2020 industrial research and validation activities relating to enhanced air and ground safety nets	SESAR 2020 IRV Wave 1 project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
140	3.2.4	SESAR 2020 Demonstration Activities Wave 1: Advanced air traffic services	Launch of S2020 very large demonstration activities relating to flexible airspace management & free route	SESAR 2020 VLD Wave 1 flexible airspace management project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
141	3.2.4	SESAR 2020 Demonstration Activities Wave 1: Advanced air traffic services	Launch of S2020 very large demonstration activities relating to arrival management extended to en-route airspace	SESAR 2020 VLD Wave 1 arrival management project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
142	3.2.4	SESAR 2020 Demonstration Activities Wave 1: Advanced air traffic services	Launch of S2020 very large demonstration activities relating to enhanced terminal airspace using RNP based operations	SESAR 2020 VLD Wave 1 enhanced terminal airspace project scheduled to be launched in Q3 2016 (SJU Members)			X	X	X	X	0.15	AAF and D&D	Deliverables confirmed and projects launched
143	3.2.5	SESAR 2020 ER: ATM Application Oriented Research: Enabling aviation infrastructure	Launch of SESAR 2020 exploratory research activities enabling Aviation Infrastructure	Call for proposals issued for 'Communication, Navigation and Surveillance' (REF: ER-08-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		X	X	X	X	X	0.15	AAF and D&D	Deliverables confirmed and projects launched
144	3.2.5	SESAR 2020 IRV Wave 1: Enabling aviation infrastructure	Launch of SESAR 2020 industrial research and validation activities relating to air vehicle systems	SESAR 2020 IRV Wave 1 AVS validation project scheduled to be launched in Q3 2016 (SJU Members)			X	X	X	X	0.15	AAF and D&D	Deliverables confirmed and projects launched
145	3.2.5	SESAR 2020 IRV Wave 1: Enabling aviation infrastructure	Launch of SESAR 2020 industrial research and validation activities relating to CNS	SESAR 2020 IRV Wave 1 CNS validation project scheduled to be launched in Q3 2016 (SJU Members)			X	X	X	X	0.15	AAF and D&D	Deliverables confirmed and projects launched
146	3.2.5	SESAR 2020 IRV Wave 1: Enabling aviation infrastructure	Launch of SESAR 2020 industrial research and validation activities relating to common services	SESAR 2020 IRV Wave 1 validation activities project scheduled to be launched in Q3 2016 (SJU Members)			X	X	X	X	0.15	AAF and D&D	Deliverables confirmed and projects launched
147	3.2.5	SESAR 2020 IRV Wave 1: Enabling aviation infrastructure	Launch of SESAR 2020 industrial research and validation activities relating to controller working position/human machine interface (CWP/HMI)	SESAR 2020 IRV Wave 1 CWP/HMI project scheduled to be launched in Q3 2016 (SJU Members)			X	X	X	X	0.15	AAF and D&D	Deliverables confirmed and projects launched
148	3.2.5	SESAR 2020 IRV Wave 1: Enabling aviation infrastructure	Launch of SESAR 2020 industrial research and validation activities relating to SWIM infrastructures	SESAR 2020 IRV Wave 1 SWIM infrastructures project scheduled to be launched in Q3 2016 (SJU Members)			X	X	X	X	0.15	AAF and D&D	Deliverables confirmed and projects launched

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
149	3.2.5	SESAR 2020 IRV Wave 1: Enabling aviation infrastructure	Launch of SESAR 2020 industrial research and validation activities relating to 4D trajectory management	SESAR 2020 IRV Wave 1 4D trajectory management project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
150	3.2.5	SESAR 2020 Demonstration Activities Wave 1: Enabling aviation infrastructure	Launch of S2020 very large demonstration activities relating to initial trajectory information sharing	SESAR 2020 VLD Wave 1 initial trajectory information sharing project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
151	3.2.5	SESAR 2020 Demonstration Activities Wave 1: Enabling aviation infrastructure	Launch of S2020 very large demonstration activities relating to flight information exchange	SESAR 2020 VLD Wave 1 flight information exchange project scheduled to be launched in Q3 2016 (SJU Members)			x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
152	3.2.6	SESAR 2020 ER: ATM Application Oriented Research: enabling ATM Operations, Architecture, Performance & Validation	Launch of SESAR 2020 exploratory research activities enabling ATM Operations, Architecture, Performance & Validation	Call for proposals issued for 'Trajectory Based Operations' (REF: ER-09-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
153	3.2.6	SESAR 2020 ER: ATM Application Oriented Research: enabling ATM Operations, Architecture, Performance & Validation	Launch of SESAR 2020 exploratory research activities enabling ATM Operations, Architecture, Performance & Validation	Call for proposals issued for 'ATM Architecture' (REF: ER-10-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
154	3.2.6	SESAR 2020 ER: ATM Application Oriented Research: enabling ATM Operations, Architecture, Performance & Validation	Launch of SESAR 2020 exploratory research activities enabling ATM Operations, Architecture, Performance & Validation	Call for proposals issued for 'ATM Performance' (REF: ER-11-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
155	3.2.7	SESAR 2020 ER: ATM Excellent Science and Outreach:	Launch of SESAR 2020 exploratory research projects designed to deliver higher levels of automation, robotics & autonomy within ATM	Call for proposals issued for 'Automation in ATM' (REF: ER-01-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
156	3.2.8	SESAR 2020 ER: ATM Excellent Science and Outreach:	Launch of SESAR 2020 exploratory research activities dealing with complexity, data science & information management	Call for proposals issued for 'Data Science in ATM' (REF: ER-02-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
157	3.2.8	SESAR 2020 ER: ATM Excellent Science and Outreach:	Launch of SESAR 2020 exploratory research activities dealing with complexity, data science & information management	Call for proposals issued for 'Information Management in ATM' (REF: ER-03-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	x	x	0.15	AAF and D&D	Deliverables confirmed and projects launched
158	3.2.9	SESAR 2020 ER: ATM Excellent Science and Outreach:	Launch of SESAR 2020 exploratory research activities dealing environment and meteorology for ATM	Call for proposals issued for 'Environment & Meteorology for ATM' (REF: ER-04-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	x	x	0.3	AAF and D&D	Deliverables confirmed and projects launched
159	3.2.10	S2020 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	Transition Concept of Operations (CONOPS) for supporting SESAR2020 programme (it will be done by SESAR 1 projects with the intention to support the kick-off of SESAR2020)	x	x	x	x	x		0.15	D&D and ATM	Finalise revised CONOPS within SESAR1 programme lifespan
160	3.2.10	S2020 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	Project Handbooks for supporting SESAR2020 programme including Transversal Areas (Safety, Environment, Human Performance, Security)	x	x	x	x	x		0.15	D&D and ATM	Complete project handbooks for supporting SESAR2020 programme within SESAR1 lifespan
161	3.2.10	S2020 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	Performance Framework for supporting SESAR2020 programme	x	x	x	x	x		0.15	D&D and ATM	Complete performance framework for supporting SESAR2020 programme within SESAR1 lifespan
162	3.2.10	S2020 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	Validation Targets for supporting SESAR2020 programme	x	x	x	x	x		0.15	D&D and ATM	Set validation targets for supporting SESAR2020 programme within SESAR1 lifespan

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
163	3.2.10	S2020 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	Transition Validation Strategy (VALS) for supporting SESAR2020 programme	x	x	x	x	x		0.15	D&D and ATM	Finalise VALS within SESAR1 programme lifespan
164	3.2.10	S2020 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	Transition ADD for supporting SESAR2020 programme	x	x	x	x	x		0.15	D&D and ATM	Transition ADD within SESAR1 programme lifespan
165	3.2.10	S2020 Transversal Activities	Delivery of key federating / transversal elements for the SESAR project in 2016	EATMA Version 7.0 and 8.0 including guidance material	x	x	x	x	x		0.25	D&D and ATM	Deliver EATMA Version 7.0 and 8.0 including guidance material by 31 December 2016
166	3.2.11	SESAR 2020 ER: ATM Excellent Science and Outreach:	Launch of SESAR 2020 exploratory research activities relating to performance, economics, legal and regulatory matters	Call for proposals issued for 'Economics and Legal Change in ATM' (REF: ER-05-2015). Project proposals to be confirmed following tender awards in Q3/Q4 2015 and launched Q1 2016		x	x	x	x	x	0.25	D&D	Deliverables confirmed and projects launched
167	3.2.11	European ATM Master Plan maintenance and update	European ATM Master Plan Maintenance	Deliver updates to ATM Master Plan Level 2 and 3 to the ADB, consider any corrective actions related to the ATM Master Plan Edition 2015 decision making	x			x	x	x	1.0	EMP	Maintain MP and report regularly on execution
168	3.2.11	European ATM Master Plan maintenance and update	European ATM Master Plan Maintenance	Put in place the necessary arrangements to handle a possible transition process for SESAR Deployment reporting mechanisms (ESSIP/LSSIP vs. SESAR Deployment reporting through the Deployment Manager).			x	x	x	x	0.25	EMP	Recommendations to be provided to ADB in a timely manner
169	3.2.11	European ATM Master Plan maintenance and update	European ATM Master Plan Update	Prepare for the deployment of mature SESAR 1 results not included in the PCP (business cases, impact assessments, future common projects when appropriate)			x	x	x		0.5	EMP	Report regularly on progress toward the delivery of an SES Deployment plan
170	3.2.11	European ATM Master Plan maintenance and update	European ATM Master Plan Update	Perform RPAS Market Outlook Study	x	x	x				0,5	EMP	Finalise the definition phase of RPAS integration

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
171	3.2.11	European ATM Master Plan maintenance and update	Maintain European ATM Master Plan	Maintain the overall standards and regulatory roadmap from the capture of needs to the definition, development and validation of standards and rules, including the roadmap for regulatory enablers.	x	x	x	x	x	x	0.5	EMP	Maintain MP and report regularly on execution
172	3.3.1.2	External Affairs	Continue to ensure harmonised or joint positions on relevant standards and their respective implementation timetables with the US Federal Aviation Administration (FAA):	Increased formal and informal cooperation with the FAA in the areas of Annex 1 of the U.S. – EU MoC. Coordination of ATM European ATM Master Plan/SESAR Deployment Programme and the U.S. NextGen R&D and Implementation Plans, ATM Architecture, 4D Trajectory Based Operations, SWIM, Data communications, RPAS ATM integration and Cybersecurity and collaborative demonstrations Projects are amongst others the foreseen key focus areas during 2016	x	x	x	x	x	x	0.15	SEA	MoC Coordination Plans with deliverables confirmed and results agreed at the Coordination Committee meeting in February, June and September
173	3.3.1.2	External Affairs	Improve coordination with the Clean Sky programme, particularly in relation to areas of technological overlap	Improved coordination in the airborne flight management and 4D Trajectory Based Operations elements between the 2 programmes	x	x	x	x	x	x	0.15	SEA	Revised MoC agreed and technical deliverables agreed and confirmed. Follow-up at annual Steering Committee meetings
174	3.3.1.2	External Affairs	Improve coordination with the Clean Sky programme, particularly in relation to areas of technological overlap	Improved coordination in the environmental modelling elements between the 2 programmes	x	x	x	x	x	x	0.15	SEA	MoC content and deliverables confirmed and agreed at the Annual Steering Committee meeting.
175	3.3.1.2	External Affairs	Use the ACARE forum to align SJU's work with the wider EC role in developing and delivering SESAR 2020	Full and regular participation in the relevant ACARE governance bodies in 2016.	x	x	x	x	x	x	0.15	SEA	Participation agreed and confirmed with reports delivered from respective governance meetings

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
176	3.3.1.3	External Affairs	ICAO: continuously work with key partners on promoting and supporting key priorities and topics into ICAO's programme of work.	Ensure continued alignment of the European ATM Master Plan with ICAO's Global Air Navigation Capacity and Efficiency Plan (GANP towards the GANP update 2016 and 2019.	x	x	x	x	x	x	0.15	STA	Actions agreed and results delivered as part of the European Coordination Group meetings on International and ICAO affairs.
177	3.3.1.3	External Affairs	ICAO: continuously work with key partners on promoting and supporting key priorities and topics into ICAO's programme of work.	Contribute with SESAR key global demonstration activities like SWIM and i4D as global interoperability demonstration activities to promote and prepare for next update of the ICAO GANP at ICAO GA39 and towards the GANP 2019 update.	x	x	x	x	x	x	0.15	SEA	Actions and results delivered according the SESAR work programme deliverables and external communication activities. Actions agreed and results delivered as part of the European Coordination Group meetings on International and ICAO affairs..
178	3.3.1.3	External Affairs	Continued close coordination with EUROCAE	Continued active participation in EUROCAE standardisation bodies in 2016 (particularly the technical committee and Council)	x	x	x	x	x	x	0.15	SEA	MoC in place. Process agreed and results delivered through SESAR members. Strategic directions confirmed through the Technical Advisory Committee participation, The Council meetings and confirmed incorporated in the EUROCAE Work programme.
179	3.3.1.3	External Affairs	Continued and strengthened cooperation with EASA in areas outlined in the updated Letter of Agreement	Encourage greater involvement of EASA in areas outlined in the revised Letter of Agreement signed in 2015.	x	x	x	x	x	x	0.15	SEA	Progress confirmed and deliveries agreed and captured in a MoC between the SJU and EASA.
180	3.3.1.3	External Affairs	Continued technical, financial and organisation cooperation with ESA in 2016.	Continued collaboration with ESA staff complementing the SESAR SatCom with IRIS programme elements in 201..To be described in an agreement between ESA and the SJU	x	x	x	x	x	x	0.15	SEA	MoU agreed and technical deliveries confirmed and agreed in the MoU follow-up meetings between SJU and ESA. To be further agreed in a MoC between the SJU and ESA during 2016.

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
181	3.3.1.3	External Affairs	Continue to improve cooperation with EDA on military aspects of the SESAR project.	EDA to continue to provide input via the 'SESAR cell' to provide relevant military input into the SESAR project and European ATM Master Plan updates. Agreement between SJU and EDA to be updated accordingly	x	x	x	x	x	x	0.15	SEA	MoU agreed and technical deliveries confirmed and agreed in the MoU follow-up meetings between SJU and EDA. A revised MoC will be developed for agreement in 2016.
182	3.3.1.3	External Affairs	Cooperative arrangement with GSA	Explore cooperative agreement with GSA	X	x	x	x	x	x	0.15	SEA	Evolution of use of GNSS in SESAR
183	3.3.1.3	External Affairs	Continue to strengthen informal and formal cooperative arrangements with the SESAR Deployment Manager as outlined in the MoU signed in March 2015	Continue to ensure alignment between the mandated tasks of the SJU and the SDM referring to the SESAR1 and 2020 programme. The European ATM Master Plan, Global Interoperability and Standards, External relations and Communications	x	x	x	x	x	x	0.15	SEA	MoC agreed Annexes activities deliverables confirmed and agreed in the MoC Steering Committee meetings between SJU and SDM
184	3.3.1.3	External Affairs	Continued integration of Airspace Users' contributions to the SESAR project, enabling better planning and more efficient resource allocation	Ensure continued AU involvement in SESAR project and the validation activities in 2016 and to set up the relevant arrangements for SESAR2020.	x	x	x	x	x	x	0.15	SEA	Deliverables agreed and delivered as described in the SESAR 1 arrangements and followed-up in the Quarterly meetings. Revised third Party arrangements for SESAR2020 in place for signing in 2016. Expertise for Enhanced relations in 2020 programme and situational awareness with AUs.
185	3.3.1.3	External Affairs	Continued integration of Aviation Authorities' contributions to the SESAR project, enabling better planning and more efficient resource allocation.	Ensure the continued involvement of Aviation Authorities in SESAR project and the validation activities in 2016 and to set up the relevant arrangements for SESAR2020.	x	x	x	x	x	x	0.15	SEA	Deliverables agreed and delivered as described in the SESAR 1 arrangements and followed-up in the Quarterly meetings. Revised third Party arrangements for SESAR2020 in place and signing revised of cooperative arrangements is foreseen in 2016.

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
186	3.3.1.3	External Affairs	Continued integration of Professional Staff Associations' contributions to the SESAR project, enabling better planning and more efficient resource allocation.	Continued engagement with the Professional Staff Organisation's in the SESAR project and to set up the relevant arrangements for SESAR2020. Secure the International Validation Team in SESAR project validation activities in 2016.	x	x	x	x	x		0.15	SEA	Deliverables agreed and delivered as described in the SESAR 1 arrangements and followed-up in the Quarterly meetings. Revised third Party arrangements for SESAR2020 in place for signing in 2016.
187	3.3.1.3	External Affairs	Continued integration of Airport contributions to the SESAR project, enabling better planning and more efficient resource allocation	Ensure continued Airport involvement in SESAR project and the validation activities in 2016 and set up the relevant arrangements for SESAR2020.	x	x	x	x	x	x	0.15	SEA	One year contract to ensure continuation of the framework relations in the 'bridge year' to the 2020 programme, and ensure 2020 cooperative arrangements are defined. Cooperative arrangements foreseen to be agreed in 2016.
188	3.3.1.3	External Affairs	Continued integration of the military's contributions to the SESAR project, enabling better planning and more efficient resource allocation.	Continued engagement with relevant military stakeholders through Eurocontrol's MEPS framework agreement and cooperation with EDA. Set up the relevant arrangements for military engagement with EDA in SESAR2020.	x	x	x	x	x		0.15	SEA	Deliverables agreed and delivered as described in the SESAR 1 arrangements and followed-up in the Quarterly meetings. Revised third Party arrangements for SESAR2020 in place which foresees a revised MoC to be agreed between the SJU and EDA during 2016.
189	3.3.1.3	External Affairs	Continued integration of SJU's Associate Partners' contributions to the SESAR project, enabling better planning and more efficient resource allocation.	Continue to work with SJU's Associate Partners in the field of Information Management (Lot 1) to provide complimentary support to SESAR1 programme	x	x	x	x	x		0.15	SEA	Deliverables as agreed in respective contracts received and approved.

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
190	3.3.1.3	External Affairs	Continued integration of SJU's Associate Partners' contributions to the SESAR project, enabling better planning and more efficient resource allocation.	Continue to work with SJU's Associate Partners in the field of Networks and Airport Collaboration (Lot 2) to provide complimentary support to SESAR1 programme	x	x	x	x	x		0.15	SEA	Deliverables as agreed in respective contracts received and approved.
191	3.3.1.3	External Affairs	Continued integration of SJU's Associate Partners' contributions to the SESAR project, enabling better planning and more efficient resource allocation.	Continue to work with SJU's Associate Partners in the field of Airborne & CNS systems (Lot 4) to provide complimentary support to SESAR1 programme	x	x	x	x	x		0.15	SEA	Deliverables as agreed in respective contracts received and approved.
192	3.3.1.3	External Affairs	Continued integration of SJU's Associate Partners' contributions to the SESAR project, enabling better planning and more efficient resource allocation.	Continue to work with SJU's Associate Partners in the field of Modelling Support to Validation (Lot 5) to provide complimentary support to SESAR1 programme	x	x	x	x	x		0.2	SEA	Deliverables as agreed in respective contracts received and approved.
193	3.3.1.3	External Affairs	Continued integration of SJU's Associate Partners' contributions to the SESAR project, enabling better planning and more efficient resource allocation.	Continue to work with SJU's Associate Partners in the field of UAV/UAS Integration (Lot 6) to provide complimentary support to SESAR1 programme	x	x	x	x	x		0.2	SEA	Deliverables as agreed in respective contracts received and approved.
194	3.3.1.3	External Affairs	Continue to ensure harmonised or joint positions on relevant standards and their respective implementation timetables with several third countries and organisations under the EU international policies.	Continue to work with international countries and organisations under the EU framework on policies with the aim of concluding ATM/SESAR MP MoCs to the benefit of SESAR. Coordination's with the SESAR DM will follow the arrangements between the SJU and the SDM to complete the MoCs with all phases of SESAR	x	x	x	x	x	x	0.2	SEA	Template for MoCs and coordination process and timeline agreed with EU/EC and will be continuously updated pending the evolution of coordination's and bilateral agreements.

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
195	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Preparation and participation in European Transport Forum (organised by Dutch Ministry)	x	x					0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
196	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Organise & deliver European ATM Master Plan Launch	x	x					0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
197	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Participate in World ATM Congress	x	x					0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
198	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Organise & deliver TEN-T Days		x	x				0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
199	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Organise & deliver SESAR 1 Closure Event	x	x	x				0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
200	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Organise DEMO Workshop		x	x				0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
201	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Organise and deliver SWIM Global Demo			x	x	x		0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
202	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Organise and deliver SWIM Master Class			x	x			0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
203	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Organise and deliver SESAR Solution Workshop			x	x			0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
204	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Prepare for and participate in ICAO 39 th General Assembly				x	x		0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
205	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Prepare for and participate in EU-US Relations Workshop				x	x		0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
206	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Prepare for and participate in ATC Global event				x	x		0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
207	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Prepare for and participate in ACI Exchange event				x	x		0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
208	3.3.2	Communications	Promotion of SESAR brand and results of programme at international fora at dedicated SESAR events.	Organise and deliver SESAR Innovation Days				x	x		0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
209	3.3.2	Communications	Update visual corporate identity & publish relevant written material incl. statutory reports	Update SESAR's visual identity	x	x	x				0.2	SEA	Revised visual identity in place by end of Q2 2016
210	3.3.2	Communications	Update visual corporate identity & publish relevant written material incl. statutory reports	Produce joint SJU/SDM publications	x	x					0.2	SEA	Production of quality SJU/SDM publications by end of Q1 2016

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
211	3.3.2	Communications	Update visual corporate identity & publish relevant written material incl. statutory reports	Produce 2015 SJU Annual Report	x	x	x				0.2	SEA	Production of SJU annual report by end of Q2 2016
212	3.3.2	Communications	Update visual corporate identity & publish relevant written material incl. statutory reports	Publish Release 5 results		x	x	x	x		0.2	SEA	Production and issue of Release 5 results in q3/q4 2016
213	3.3.2	Communications	Update visual corporate identity & publish relevant written material incl. statutory reports	Produce State of Harmonisation documentation		x	x	x			0.2	SEA	Production of SoH documentation by end of Q2 2016
214	3.3.2	Communications	Update visual corporate identity & publish relevant written material incl. statutory reports	Produce appropriate promotional material for SESAR1 closure	x	x	x				0.2	SEA	Production of SESAR1 closure material by end of Q2 2016
215	3.3.2	Communications	Update visual corporate identity & publish relevant written material incl. statutory reports	Continue to produce general SESAR promotional material (fact sheets, brochures, etc)		x	x	x	x		0.2	SEA	Production of quality corporate publications to meet requirements throughout reporting period
216	3.3.2	Communications	Preparation of short solution animations, as well as e-news and audio-visuals to support events.	Preparation of short solution animations, as well as e-news and audio-visuals to support events.	x	x	x	x	x	x	0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
217	3.3.2	Communications	Targeted press and media outreach through optimised use of media monitoring tool and organisation of press-specific activities	Targeted press and media outreach through optimised use of media monitoring tool and organisation of press-specific activities	x	x	x	x	x	x	0.2	SEA	Full Implementation of 2015-2020 SJU Communications Strategy
218	3.3.2	Communications	Stakeholder engagement review	Undertake a stakeholder engagement and mapping exercise		x	x	x			0.2	SEA	Complete stakeholder mapping exercise

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
219	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Execution of VLD of free routing operations (Lot 1)	x	x	x	x	x		0.15	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
220	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Integrated SESAR Trials for Enhanced Arrival Management (iStream) VLD (Lot 1)	x	x	x	x	x		0.15	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
221	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Design & validate cross-border arrival management procedures using Optimised or Continuous Descent Operations (CDO) VLD (Lot 1)	x	x	x	x	x		0.2	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
222	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Providing effective ground & Air data Sharing via EPP (PEGASE) VLD (Lot 1)	x	x	x	x	x		0.15	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
223	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	TOPLINK - L1 : demonstrate the benefits of the deployment of SWIM based services (Lot 1)	x	x	x	x	x		0.2	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
224	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Augmented approaches to land (AAL): develop and demonstrate several augmented approach procedures for small / medium airports (Lot 2)	x	x	x	x	x		0.2	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
225	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Budapest 2.0 :project to demonstrate SESAR solutions improving operational efficiency at small and medium-sized airports (Lot 2)	x	x	x	x	x		0.2	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
226	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	European - Connected Regional Airport (ECRA): Project to demonstrate A-CDM systems can be deployed at small/medium airports for a reduced cost using a pre-existing enhanced simulation platform (Lot 2)	x	x	x	x	x		0.15	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
227	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Electronic Visibility via ADS?B (EVA): project to evaluate the feasibility & benefits of automatic dependent surveillance - broadcast (ADS-B) in a live environment (Lot 2).	x	x	x	x	x		0.15	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
228	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	PBN Rotorcraft Operations under Demonstration (PROuD): demonstrate how the use of satellite-based procedures can enhance helicopter operations (Lot 2)	x	x	x	x	x		0.2	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
229	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Remote Airport Concept of Operation (RACOON): demonstrate the viability and cost effectiveness of providing Remote Tower Services to multiple airports (Lot 2)	x	x	x	x	x		0.2	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
230	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Remote Towers (Shannon & Cork) from Dublin: enable the provision of Remote Tower Services at Shannon & Cork from a remote facility in Dublin (Lot 2)	x	x	x	x	x		0.15	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
231	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Remote Tower Operations (RTO) : demonstrate Remote Tower Services (AFIS and ATC) at single tower locations in NL, SW & DE using live & shadow mode operations (Lot 2)	x	x	x	x	x		0.2	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
232	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	RNP Implementation Synchronisation in Europe (RISE) : validate several PBN/RNP procedures by conducting 160+ flight trials between 10 European small/medium airports (Lot 2)	x	x	x	x	x		0.15	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
233	3.3.3	SESAR1 Demonstration Activities in 2016	Continue to test SESAR1 solutions in operational environments	Toplink 2 : demonstrate the provision to general aviation users of network business-to-business information services (Lot 2)	x	x	x	x	x		0.2	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
234	3.3.3	SESAR1 Demonstration Activities in 2016	SESAR1 RPAS Demonstrations:	Pre-operational RPAS flight trials related to safety, capacity, efficiency, airport integration airspace throughput and security.	x	x	x	x	x		0.15	D&D and ATM	SESAR1 demonstration completed / closed & relevant conclusions made available to support the industrialisation & deployment of SESAR Solutions
235	3.4.1	SES Tech. Pillar Supporting Tasks: Provision of Data Link Services	Datalink recovery actions assigned on time	Continue to follow up in 2016 as directed by COM on EASA's DLS action plan	x	x	x	x	x		0.2	ATM	Contribute to DLS action plan and report regularly on progress
236	3.4.1	SES Tech. Pillar Supporting Tasks: Provision of Data Link Services	Datalink recovery actions assigned on time	Continue to implement VDL/2 ATN datalink studies in 2016 (validations, equipment testing and flight campaigns)	x	x	x	x	x		0.2	ATM	Implementation of VDL/2 ATN datalink studies as per plan
237	3.4.1	SES Tech. Pillar Supporting Tasks: Provision of Data Link Services	Datalink recovery actions assigned on time	Update SESAR mobile communications strategy	x	x	x	x	x		0.2	ATM	Mobile comms strategy to be updated
238	3.4.2	SES Tech. Pillar Supporting Tasks: Cyber-Security	Implement outcomes of the 'SESAR strategy and management framework study for information cyber-security'	Impact assessment of the application of outcome of SESAR cyber-security study to governance in System Wide Information Management (SWIM) environments:	x	x	x	x	x	x	0.2	ATM	Complete impact assessment within reporting period
239	3.4.3	SES Tech. Pillar Supporting Tasks: RPAS	Implement relevant provisions of RPAS Roadmap in order to integrate RPAS into non-segregated ATM environments from 2016	Finalise the Definition Phase of RPAS integration into non-segregated airspace	x	x	x				0.2	ATM	Finalise definition phase within reporting period
240	3.4.3	SES Tech. Pillar Supporting Tasks: RPAS	Implement relevant provisions of RPAS Roadmap in order to integrate RPAS into non-segregated ATM environments from 2016	Launch and oversee the delivery of study to analyse economic impact of RPAS for the manufacturing and service sectors		x	x	x	x		0.2	ATM	Oversee study of economic elements of RPAS

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
241	3.4.4	SES Tech. Pillar Supporting Tasks: SPI	Support EASA in progressing SPI Implementing Rules	provide support during 2016 in the form of modelling relevant spectrum use	x	x	x	x	x	x	0.25	ATM	Provision of appropriate ad-hoc support to EASA on SPI IR
242	4.1	Corporate Planning	Production, adoption and distribution of Agency's multi-annual strategic reporting, annual work programme and other reporting obligations	Production & publication of SJU's 2015 annual activity report	x	x	x				0.35	CAF	Document finalised, adopted and transmitted to COM & the relevant budgetary authorities as per agreed timetable
243	4.1	Corporate Planning	Production, adoption and distribution of Agency's multi-annual strategic reporting, annual work programme and other reporting obligations	Production, approval and adoption of SJU's Annual Work programme for 2017 / single programming document	x	x	x				0.35	CAF	Document finalised and adopted as per agreed timetable in place
244	4.1	Corporate Planning	Production, adoption and distribution of Agency's multi-annual strategic reporting, annual work programme and other reporting obligations	Production of Agency's Annual Work programme for 2018 or single programming document				x	x	x	0.15	CAF	Commence AWP 2018 production as per agreed timetable. Prepare v1 draft of AWP2018 for review by end of Q4 2016
245	4.1	Corporate Planning	Production, adoption and distribution of Agency's multi-annual strategic reporting, annual work programme and other reporting obligations	Production of SJU's 2016 annual activity report					x	x	0.15	CAF	Ensure adherence to SJU's corporate & regulatory reporting deadlines.
246	4.1	Corporate Planning	Production, adoption and distribution of Agency's multi-annual strategic reporting, annual work programme and other reporting obligations	Production of SJU's periodic implementation reports for the 2016 work programme.		x	x	x	x		0.15	CAF	Production and delivery of implementation reports to the ADB within 4 weeks of reporting period's end

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
247	4.1	Corporate Planning	Refine & strengthen Agency's strategic planning & embed strategic planning processes within annual Agency reporting cycle	Develop & implement a clear & well-communicated timetable for all required staff input for the production and adoption of the annual activity report, annual work programme, multi-annual planning & quarterly AWP implementation reports	x	x	x	x	x	x	0.15	CAF	Ensure reporting timetable with dates and required inputs of all Agency staff is circulated to all in Q1 2016 & recirculate updates during each quarter
248	4.2	Financial Management	Continued effective financial support of SESAR project implementation through effective and efficient resource allocation and the provision of effective internal controls to ensure the legality of the underlying transactions	SESAR1 programme closure: close liaison with operations throughout 2016 to ensure effective financial and accounting procedures are in place for the closure of SESAR1 projects	x	x	x	x	x	x	0.5	AAF	Provide effective financial and accounting support to enable timely SESAR1 programme closure
249	4.2	Financial Management	Undertake appropriate ex-post audits of completed projects	Multiple ex-post audits of final beneficiaries participating in SESAR1 projects to be carried out throughout the reporting period	x	x	x	x	x	x	1.0	AAF	Successfully complete all scheduled ex-post audits during the reporting period
250	4.2	Financial Management	Continued effective financial support of SESAR project implementation through effective and efficient resource allocation and the provision of effective internal controls to ensure the legality of the underlying transactions	SESAR2020: SESAR2020: signature of SJU membership agreements in accordance with H2020 general principles	x	x					0.5	AAF	Provide effective financial and accounting support to enable timely signature of SJU membership agreements

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
251	4.2	Financial Management	Continued effective financial support of SESAR project implementation through effective and efficient resource allocation and the provision of effective internal controls to ensure the legality of the underlying transactions	Ensure that the financial management of both SESAR1 and SESAR2020 programmes ensures the clear segregation of their respective financial and accounting data in SJU's systems.	x	x	x	x	x		0.20	AAF	Ensure financial and accounting data of respective programmes remains clearly delineated
252	4.2	Financial Management	Continued effective financial support of SESAR project implementation through effective and efficient resource allocation and the provision of effective internal controls to ensure the legality of the underlying transactions	In line with SJU's financial rules, preparation of SJU's 2017 draft budget and its submission to the ADB by 30 September 2016	x	x	x	x			0.20	AAF	Ensure adherence to SJU Regulation & SJU Financial Rules reporting deadlines
253	4.2	Financial Management	Continued effective financial support of SESAR project implementation through effective and efficient resource allocation and the provision of effective internal controls to ensure the legality of the underlying transactions	In compliance with SJU's financial rules, preparation of SJU's 2015 provisional accounts and their presentation to the ADB by 30 March 2016	x	x					0.50	AAF	Ensure adherence to SJU Regulation & SJU Financial Rules reporting deadlines
254	4.2	Financial Management	Further consolidate and streamline Finance procedures to maintain a high level of ex-ante control.	Reduction in the number of reported errors and rejections in ABAC procedures	x	x	x	x	x	x	0.15	AAF	Number of finance related exceptions registered.
255	4.2	Financial Management	Further improvement in SJU's IT financial reporting capabilities, allowing more accurate reporting of spend/commitments against budget	Greater reporting functionality during 2016 i.e. detailed budget implementation report for 2016	x	x	x	x	x	x	0.1	AAF	Regular financial reports provided on time

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
256	4.2	Financial Management	Improve upon SJU's budget utilisation figures for 2016	To improve upon the total amount of budget utilised compared to the previous reporting period		x	x	x	x		0.1	AAF	Target of 100% budget utilisation rate in 2016
257	4.3	Corporate Support	To provide effective and timely services in the field of building management, facilities management and logistics to SJU premises.	Effective management & delivery of routine infrastructure and logistics work at SJU offices.	x	x	x	x	x	x	1.5	CAF	Scheduled building work and maintenance delivered on time and within the budget;
258	4.3	Corporate Support	To provide effective and timely ICT support tools and services to all SJU staff.	Timely provision of ICT support services to SJU throughout the reporting period	x	x	x	x	x	x	0.4	CAF	Meet SLAs in place for ICT support services throughout the reporting period
259	4.3	Corporate Support	To provide effective and timely ICT support tools and services to all SJU staff.	Complete tender for renewal of services for External Hosting and Firewall support	X	x	x	x	X		0.4	CAF	Complete tender process within stipulated deadline
260	4.3	Corporate Support	To provide effective and timely ICT support tools and services to all SJU staff.	Complete tender for renewal of services for on-site support and the provision of an ICT coordinator (contractor)	X	x	x	x	x		0.4	CAF	Complete tender process within stipulated deadline
261	4.3	Corporate Support	To provide effective and timely ICT support tools and services to all SJU staff.	Complete tender for renewal of services for maintenance support of hardware	X	x	x	x	x		0.4	CAF	Complete tender process within stipulated deadline
262	4.3	Corporate Support	To provide effective and timely ICT support tools and services to all SJU staff.	Complete tender for renewal of services for maintenance support of software and provision of relevant licences	X	x	x	x	X		0.4	CAF	Complete tender process within stipulated deadline
263	4.3	Corporate Support	To provide effective and timely ICT support tools and services to all SJU staff.	Initiate tenders for continuity/renewal of ICT services for the SJU	X	x	x	x	X		0.4	CAF	
264	4.3	Corporate Support	Delivery of new Document, Quality and Business Management systems	Delivery of completed Document Management and Business Management system	x	x	x	x	X		0.4	CAF	
265	4.3	Corporate Support	To provide effective and timely ICT support tools and services to all SJU staff.	Complete tender for renewal of services for unified communications provision	x	x	x	x	x		0.4	CAF	Complete tender process within stipulated deadline

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
266	4.3	Corporate Support	To provide effective and timely services in the field of expert coordination support	Timely provision of expert coordination support services to SJU throughout the reporting period	x	x	x	x	x	x	0.4	CAF	Services delivered as per defined and agreed SLAs
267	4.3	Corporate Support	To provide effective and timely services in the field of missions coordination support	Timely provision of mission coordination support services to SJU throughout the reporting period	x	x	x	x	x	x	0.4	CAF	Services delivered as per defined and agreed SLAs
268	4.3	Corporate Support	To provide effective and timely services in the field of insurance coordination support	Timely provision of insurance coordination support services to SJU throughout the reporting period	x	x	x	x	x	x	0.4	CAF	Services delivered as per defined and agreed SLAs
269	4.4	Human Resources Management	Provide an effective and efficient personnel administration service	Leave administration and work time management (verification of presence absence, flexi time, teleworking etc.)	x	x	x	x	x	x	0.2	AAF	Monthly leave cards to be issued to staff on time
270	4.4	Human Resources Management	Provide an effective and efficient personnel administration service	Personnel administration (verification of entitlements and social allowances, facilitation of their receipt, transmissions and coordination of communication between the employees and the PMO)	x	x	x	x	x	x	0.2	AAF	Changes to personnel details to be processed by SJU within two calendar months
271	4.4	Human Resources Management	Provide an effective and efficient personnel administration service	Administration of employees' allocated welfare benefits (nurseries & schools for employees' children, medical examination etc)	x	x	x	x	x	x	0.2	AAF	Timely update of individual staff records
272	4.4	Human Resources Management	Effective HR policy, case administration and Human Resources management	Preparation, negotiation, introduction and implementation of all relevant Implementing Rules (IRs)	x	x	x	x	x	x	0.2	AAF	Number of Relevant implementing rules adopted
273	4.4	Human Resources Management	Effective HR policy, case administration and Human Resources management	Preparation of the Multiannual Staff Policy Plan (MSPP)	x	x	x	x	x	x	0.25	AAF	MSPP delivered to ED and Admin Board as per SJU FR
274	4.4	Human Resources Management	Continue to develop transparent and fair staff appraisal system for SJU	Launch and monitoring of annual appraisal exercise	x	x	x			x	0.25	AAF	100% of staff CDRs and objectives completed within deadlines set

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
275	4.4	Human Resources Management	Recruitment & retention to meet organisational targets set	Launching and organising selection and recruitment processes to meet the organisational requirements of SJU that are compliant with the Implementing Rules	x	x	x	x	x	x	0.1	AAF	Recruitment & retention processes compliant with relevant IRs
276	4.5	Internal Audit	At least 90% of audit engagements are carried out as outlined in the Internal Audit Plan	Draft and submit the Internal Audit Plan for approval by the Executive Director and Admin. Board	x	x					0.1	IAC	Internal Audit Plan adopted by the end of January 2016.
277	4.5	Internal Audit	At least 90% of audit engagements are carried out as approved in the Internal Audit Plan	Plan, execute and communicate each audit engagement (outsourced or in-house) according to standard operating procedures.		x	x	x	x		0.8	IAC	All audit engagements in 2016 carried out as per the plan.
278	4.5	Internal Audit	At least 90% of audit engagements are carried out as approved in the Internal Audit Plan	Prepare quarterly interim reports on the implementation of Internal Audit Plan		x	x	x	x		0.2	IAC	Quarterly implementation report sent to Exec. Director & Admin. Board
279	4.5	Internal Audit	SJU Anti-Fraud Strategy	Ensure full SJU implementation of its anti-fraud strategy	x	x	x	x	x	x	0.1	IAC	Anti-fraud strategy full implemented and regularly reported on
280	4.6	Legal Affairs	Maintain & develop the framework for providing legal advice where necessary for the internal operations of SJU	Timely provision of legal advice for the purposes of internal decision-making.	x	x	x	x	x	x	2.0	AAF	Requested legal advice to be provided within the deadlines set.
281	4.6	Legal Affairs	Consolidation of financial and procurement procedures	Consolidation of existing internal procedures and their periodic review based on internal/external auditors' recommendations as well as changes in any applicable rules and regulations.	x	x	x	x	x	x	0.15	AAF	Refinement of internal workflow (i.e. relationship between operational initiators and procurement) and interface with internal financial systems
282	4.6	Legal Affairs	Consolidation of financial and procurement procedures	Coordination of all phases of the procurement cycle and regular provision of feedback on the status of all procurement activity to SJU management	x	x	x	x	x	x	2	AAF	number of successful procurement procedures completed in time measured against deadlines stipulated in the procurement acquisition plan

REF	WP 2016 Section REF	2016 Objective Description	2016 Output	2016 Activity	2016 Delivery Timeframe						SJU FTE	Owner	2016 Performance Indicator
					<	Q1	Q2	Q3	Q4	>			
283	4.6	Legal Affairs	Further consolidate financial and procurement procedures	Regular in-house training and on demand coaching to staff involved in the implementation of the procurement acquisition plan and wider procurement cycle.	x	x	x	x	x	x	0.15	AAF	Greater overall staff awareness of legal and financial implications of procurement & associated timelines
284	4.6	Legal Affairs	Prepare, implement & monitor a procurement acquisition plan for SJU	Prepare an SJU procurement acquisition plan for 2016	x	x					0.25	AAF	SJU procurement plan in place for reporting period by Q1 2016
285	4.6	Legal Affairs	Put in place effective grant management procedures	Grant Management: payment schedules and procedures for grants in place	x	x	x	x	x	x	0.25	AAF	Time to pay indicators met
286	4.6	Legal Affairs	Put in place effective grant management procedures	Grant Management: time to inform schedules for grants in place	x	x	x	x	x	x	0.25	AAF	Time to inform indicators met
287	4.6	Legal Affairs	Put in place effective grant management procedures	Grant Management: grant issuance schedules and procedures met	x	x	x	x	x	x	0.25	AAF	Time to grant indicators met
288	4.7	Quality Management	Further improve and refine SJU's quality culture and QMS	Introduce and maintain interactive quality manual		x	x	x	x		0.3	CAF	Fully implement Interactive QM
289	4.7	Quality Management	Further improve and refine SJU's quality culture and QMS	Capture and document SJU business processes		x	x	x			0.4	CAF	Majority of SJU's business-critical processes captured

Annex B: SESAR project Budget Forecast 2016 (Income & Expenditure) Commitments

Annex B.1: SESAR1 Budget Forecast 2016 (Income) Commitment (CA) & Payment (PA) Appropriations

<i>Description</i>	CA 2014	CA 2015 Rev. Budget	CA 2016 Amended Budget	PA 2014	PA 2015 Rev. Budget	PA 2016 Amended Budget
1. European Union Contribution				€94,753,384	€82,800,000	€75,000,000
1.1 7 th Research and Dev. Framework Programme				€41,008,643	€43,800,000	€52,500,000
1.2 Trans-European Network Programme				€53,744,741	€39,000,000	€22,500,000
2. Contribution from Eurocontrol (Cash)	€3,236,920	€20,558,736	€22,033,264	€14,279,914	€18,018,148	€15,134,605
3. Contributions from Other Members (Cash)	€4,246,362	€4,246,361	€2,345,919	€4,246,362	€4,246,361	
4. Other Revenue	€21,649	€100,000	€3,347,346	(€37,077)	€100,000	€100,000
<i>Budget Outturn Previous Year</i>	€20,074,906	€14,533,412	€9,209,232	€5,523,016	€21,436,603	€10,398,808
TOTAL REVENUE	€27,579,837	€39,438,509	€36,935,761	€118,765,599	€126,601,112	€100,633,413

Annex B.2: SESAR1 Budget Forecast 2016 (Expenditure) Commitment Appropriations (CA) & Payment (PA) Appropriations

Description	CA 2014	CA 2015 Rev. Budget	CA 2016 Amended Budget	PA 2014	PA 2015 Rev. Budget	PA 2016 Amended Budget
Title 1: Staff Expenditure	€6,181,609	€5,980,000	€6,191,500	€5,146,061	€5,980,000	€6,191,500
Title 2: Administrative Expenditure	€3,187,216	€3,258,500	€4,058,500	€2,474,909	€3,258,500	€4,058,500
2.1 - Building Rental & Associated Costs	€931,716	€950,000	€978,500	€804,682	€950,000	€978,500
2.2 - Moveable Property & Associated Costs	€54,000	€128,000	€100,000	€14,158	€128,000	€100,000
2.3 - PR & Events	€394,500	€330,000	€365,000	€403,940	€330,000	€365,000
2.4 - Postage & Telecoms	€141,000	€175,500	€195,000	€93,724	€175,500	€195,000
2.5 - Administrative Board Expenditure	€20,000	€20,000	€20,000	€4,205	€20,000	€20,000
2.6 – Current Administrative Expenditure	€311,000	€291,000	€285,000	€117,341	€291,000	€285,000
2.7 - IT Expenditure & Technical Facilities	€1,290,000	€1,270,000	€2,021,000	€1,012,513	€1,270,000	€2,021,000
2.8 - Administrative Support Services	€45,000	€94,000	€94,000	€24,346	€94,000	€94,000
Title 3: Operating Expenditure	€3,677,600	€20,991,274	€26,685,761	€89,708,026	€117,362,612	€90,383,413
3.1 - Studies/Development Conducted by the SJU ³⁴	€3,677,600	€20,991,274	€26,685,761	€24,119,075	€49,219,222	€38,026,072
3.2 - Studies/Development Conducted by Eurocontrol						
3.3 - Studies/Development Conducted by the Members				€65,588,951	€68,143,390	€52,357,341
TOTAL EXPENDITURE	€13,046,425	€30,229,774	€36,935,761	€97,328,996	€126,601,112	€100,633,413

³⁴ See Annex C for breakdown per activity/study

Annex B.3: SESAR2020 Budget Forecast 2016 (Income) Commitment (CA) & Payment (PA) Appropriations

<i>Description</i>	CA 2014	CA 2015 Rev. Budget	CA 2016 Amended Budget	PA 2014	PA 2015 Rev. Budget	PA 2016 Amended Budget
1. European Union Contribution	€20,600,000	€51,470,000	€62,138,000³⁵		€10,300,000	€42,001,500
1.1 - 7 th Research and Dev. Framework Programme						
1.2 - Trans-European Network Programme						
1.3 - Horizon 2020 Programme	€20,600,000	€51,470,000	€61,638,000		€10,300,000	€42,001,500
1.4 - Commission/EP contribution to Very Large Scale Demonstrations (Assigned Revenue)			€500,000			
TOTAL REVENUE	€20,600,000	€51,470,000	€62,138,000		€10,300,000	€42,001,500

³⁵ EU contributions in the 2016 budget are entirely reserved for non-member related activity.

Annex B.4: SESAR2020 Budget Forecast 2016 (Expenditure) Commitment Appropriations (CA) & Payment (PA)

Appropriations

<i>Description</i>	CA 2014	CA 2015 Rev. Budget	CA 2016 Amended Budget	PA 2014	PA 2015 Rev. Budget	PA 2016 Amended Budget
<i>Title 1: Staff expenditure</i>						
<i>Title 2: Infrastructure and Operating Expenditure</i>						
<i>Title 3: Operational Expenditure</i>	€20,600,000	€51,470,000	€62,138,000		€10,300,000	€42,001,500
3.1 - Studies/Development Conducted by the SJU	€20,600,000		€62,138,000		€10,300,000	€9,700,000
3.2 - Studies/Development Conducted by Eurocontrol						
3.3 - Studies/Development Conducted by the Members		€51,470,000				€32,301,500
TOTAL EXPENDITURE	€20,600,000	€51,470,000	€62,138,000		€10,300,000	€42,001,500

Annex C: Details of Expenditure Related to Studies/Developments to be Carried out by SJU in 2016 that Support or are Complementary to the Members Programme (Title 3, Chapter 3.1)

Annex C.1: SESAR1 Expenditure on Studies & Developments carried out by the SJU

<i>REF</i>	<i>AWP Section REF</i>	<i>Study/Activity</i>	<i>Budget 2015 CA (Rounded)</i>	<i>Budget 2016 CA (Rounded)</i>	<i>Budget 2016 Total PA (Rounded)</i>
1	3.1	<i>ACAS modelling study</i>	€250,000		€250,000
2	3.1	<i>Ad-hoc studies that complement the core programme</i>	€750,000	€50,000	€350,000
3	3.3	<i>Airport Expertise (ACI)</i>		€220,000	€220,000
4	3.3	<i>Associate Partners of the SJU</i>			€1,000,000
5	5	<i>ATM PP Strategic Performance Partnership</i>		€50,000	€50,000
6	3.4	<i>Cyber-security</i>		€40,000	€40,000
7	3.4	<i>Datalink VDL study</i>			€1,725,000
8	3.4	<i>Definition Phase RPAS</i>			€700,000
9	3.3.4	<i>Demonstration Activities (from 2012 call)</i>			€842,000
10	3.3.4	<i>Demonstration Activities (from 2013 call)</i>			€1,493,000
11	3.3.4	<i>Demonstration Activities (from 2014 call)</i>			€10,000,000
12	4.3/Annex A	<i>Document Management System</i>			€130,000
13	4.3	<i>Independent Experts</i>	€300,000	€500,000	€730,000

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REF	AWP Section REF	Study/Activity	Budget 2015 CA (Rounded)	Budget 2016 CA (Rounded)	Budget 2016 Total PA (Rounded)
14	3.1/Annex E	Industrial Support		€5,000,000 ³⁶	€5,000,000
15	3.3	NSA Advisory Group			€82,000
16	3.1	Programme Support	€998,000	€1,000,000	€1,380,000
17	6.2.1	Programme Audit Services (ex-post project audit)	€200,000	€1,500,000 ³⁷	€750,000
18	4.6	Programme Legal Services	€100,000	€100,000	€100,000
19	3.2.11	Programme Strategy Advice	€750,000	€750,000	€750,000
20	5	Scientific Committee	€47,000		€50,000
21	3.3	Airspace Users	€3,500,000	€10,938,000	€2,500,000
22	3.3	Military and Professional Staff Associations	€630,000	€397,000	€643,000
23	3.1.4	WP11	€8,711,000		€4,656,000
24	3.1.7	WPE	€4,736,000	€6,140,000	€4,586,000
TOTAL			€20,972,000	€26,685,000³⁸	€38,026,000

³⁶ Relates to a final extension of the Industrial Support contract to cover the closure of SESAR1.

³⁷ Relates to commitments required to provide for an additional three years of ex-post programme audits (as per the SJU Audit Strategy).

³⁸ Out of the total €26.7 million CA, €17.5 million (Items 22-24) relates to contracts managed by Eurocontrol on behalf of the SJU and is considered as Eurocontrol cash contribution.

Annex C.2: SESAR2020 Expenditure on Studies & Developments carried out by the SJU

REF	AWP Section REF	Study/Activity	Commitments carried forward from previous years	Budget 2016 CA	Budget 2016 Total PA
1	3.2	Exploratory Research (Core ATM)	€20,600,000	€10,000,000	€5,000,000
2	3.2	Exploratory Research (RPAS)		€9,000,000	€4,500,000 ³⁹
3	3.2	Very large Scale Demonstration Activities (Wave 1) ⁴⁰		€18,500,000	
4	Annex F	Industrial Support		€15,000,000	
5	3.3	Airspace Users		€4,500,000	
6	3.3	Professional Staff Associations		€500,000	
7	3.3	Airports Expertise		€400,000	
8	N/A ⁴¹	Programme Support, Strategy advice and Experts		2,500,000	
9	3.4	Ad-Hoc Studies (in complement to the core work programme)		€1,738,000	€200,000
TOTAL			€20,600,000	€62,138,000	€9,700,000

³⁹ Despite the delays, it remains likely that resulting Grants are still signed in 2016. Therefore, payment appropriations for Pre-Financing payments are maintained as initially budgeted for 2016.

⁴⁰ The amount of Assigned Revenue included in this line in accordance with Article 22.2 (b) of the SJU Financial Rules is estimated at EUR 500,000 for Commitment Appropriations.

⁴¹ The activities related to these commitment appropriations will start only in 2017, however, the procurement activities will start in late 2016 and the funds will be globally committed and carried forward to 2017.

Annex D: Overview of Business Critical Risks and Mitigations

SJU considers its Risk Management framework and processes as one of the key enablers of the smooth and effective implementation of its work programme. SJU has developed and implemented an organisation-wide risk management process which is fully integrated into the annual planning and reporting cycle (in compliance with Internal Control Standard (ICS) N° 6 of the European Commission). The risk register contains identified risks and appropriate risk responses. It also defines the ownership for each risk within SJU. Action plans are then defined that outline relevant mitigation measures to be undertaken in each case.

A risk should be considered significant and reported in the work programme and subsequent annual Activity Report if it falls within one of the following impact categories:

- jeopardises the achievement of strategic goals or effective implementation of the mandate of SJU;
- causes serious damage to SJU's stakeholders or partners;
- results in critical intervention at political level (e.g. Council/Parliament) regarding the SJU's performance;
- results in the infringement of laws and regulations;
- results in significant material and/or financial loss;
- jeopardises the safety of staff or;
- seriously damages the Joint Undertaking's image and reputation.

The below table outlines SJU's identified risks. These risks are periodically reviewed and may be further amended or re-categorised during the course of the reporting period as a result.

<i>REF</i>	<i>Risk Description</i>	<i>Type of Risk</i>	<i>Risk Linked to Work programme Goal(s)?</i>	<i>Risk Owner?</i>	<i>Summary of Mitigation/Response Actions Proposed for 2016</i>
1	The R&D Programme does not deliver solutions that are ready for the preparation of deployment	R&D	1 & 2	SJU	Ensure consistency between the expectations outlined in the European ATM Master Plan and the delivery of SESAR solutions in time and scope. Deliver and publish SESAR Solutions Packs to prepare the deployment of first R&D results.
2	The transition from SESAR 1 to SESAR 2020 causes delays and discontinuation of R&D activities.	R&D	1 & 2	EC, SJU	Ensure a good transition plan from SESAR 1 to SESAR 2020 in order to guarantee the seamless continuation of all activities required for the modernisation of European ATM. Ensure the adequate documentation of all relevant R&D output and the identification and storage of all results, necessary to ensure continuity of ATM research and development and deployment planning activities supporting the execution of the European ATM Master Plan.
3	R&D activities do not meet target maturity dates	R&D	1 & 2	SJU	Ensure delivery of PCP R&D objectives with Release 5

<i>REF</i>	<i>Risk Description</i>	<i>Type of Risk</i>	<i>Risk Linked to Work programme Goal(s)?</i>	<i>Risk Owner?</i>	<i>Summary of Mitigation/Response Actions Proposed for 2016</i>
4	Ineffective bridging between development and deployment activities may put industrialisation at risk and delay deployment	European ATM Master Plan Execution	1 & 2	EC, SJU, SDM, Standardisation Bodies	Launch first wave of Very Large Scale Demonstration activities to bridge R&D with deployment in the context of SESAR 2020. Strengthen cooperation arrangements with Standardisation Bodies to ensure alignment of their respective work programmes with the needs identified in the European ATM Master Plan. Strengthen current engagement of regulatory activities in the development phase to prepare for deployment.
5	Delays in the implementation of the Pilot Common Project (PCP)	European ATM Master Plan Execution	3	EC, SDM, All Stakeholders	Synchronization and coordination by SDM. Ensure a strong promotion of the Deployment Programme. Identify, stabilise and ensure implementation of elements that are prerequisites for SESAR deployment and/or essential for contributing to the performance ambition. Implement the pre-SESAR changes and the PCP precursors according to Stakeholder roadmaps.
6	Interoperability and global harmonisation are not ensured	European ATM Master Plan Execution	3	EC, SJU	Work towards global interoperability in the framework of ICAO working arrangements. Continue to strengthen SESAR/NextGen coordination under the EU/US MoC with a particular focus on securing further alignment between the European ATM Master Plan and the NextGen Implementation Plan.
7	Deployment of SESAR Solutions leads to unaddressed cyber-security vulnerabilities	European ATM Master Plan Execution	3	EC, SJU	Ensure efforts on ATM cyber-security are coordinated, and assess policy options for strengthening cyber-security and resilience. Establish principles and processes for ensuring cyber-security and resilience is included appropriately within the SESAR work programme.
8	Investments to support deployment beyond 2020 is not secured	European ATM Master Plan Execution	3	EC, SJU, SDM	Prepare for the deployment of SESAR R&D results (business cases, impact assessments, future common projects when appropriate). Ensure that financial and operational incentive mechanisms are defined and implemented in a timely manner in order to facilitate the deployment of SESAR. Ensure consistency between the stakeholder's roadmaps in the European ATM Master Plan and stakeholder's investment plans.

<i>REF</i>	<i>Risk Description</i>	<i>Type of Risk</i>	<i>Risk Linked to Work programme Goal(s)?</i>	<i>Risk Owner?</i>	<i>Summary of Mitigation/Response Actions Proposed for 2016</i>
9	Failure to manage Human Performance (Human Factors, Competency and Change Management) issues in the development and implementation of the ATM Target Concept	European ATM Master Plan Execution	3	SJU, All Stakeholders	Ensure that operational staffs are included in development and validation activities. Issue regular recommendations and activity plans for Human Performance in the area of R&D, regulation, standards and management at industry level. Monitor all SESAR oriented R&D and validation phases regarding Human Performance standards, methods and requirements. Examine Staffing implications of all deployment activities for all groups of operational aviation staff and publish results and related recommendations. Ensure appropriate coordination between all stakeholders concerned to ensure consistency between initiatives related to Human Factors, Competency and Social Dialogue.
10	Governance structure is not capable of ensuring successful deployment	European ATM Master Plan Execution	3	EC, SDM, SJU, All Stakeholders	Define and implement an appropriate Deployment Governance mechanism and efficient interaction of all parties involved in order to ensure an effective execution of the Deployment Programme consistently with the European ATM Master Plan and the Network Strategy Plan. Governance has to ensure that the required resources are available for the timely local and synchronized deployment.
11	Information is not managed properly, affecting the SJU's reputation and potentially resulting in lost opportunities for the industry with regard to the transition towards Deployment	Administrative	All	SJU	Ensure implementation of an effective Programme management framework complementing the mandatory H2020 tools in the Programme 2020 as part of an overall BMS implementation
12	A lack of connection between the SJU strategic objectives, the IT strategy and the IT project management framework might cause decreased effectiveness and efficiency of delivering SJU2020	Administrative	2 & 4	SJU	Put in place the ICT action plan to ensure the transition towards SJU 2020

Annex E: Provisional 2016 Timetable for Major Programme Events, Proposal Calls, Grants & Prize

Annex E.1: List of Major Grant Calls, Prize and Award Timing

REF	Programme	Wave	Event Description	Milestone	Provisional Timings	Comment
1	SESAR2020	n/a	First Exploratory Research Call	1 st ER call grants awarded and projects launched	Q1 2016 (January)	
2	SESAR2020	1	First Industrial Research & Validation (IRV) call	1 st IRV call grants awarded and projects launched	Q4 2016	
3	SESAR2020	n/a	Exploratory Research and Very Large Demonstration (VLD) call	Call launched	Q4 2016 (December)	
4	SESAR2020	n/a	RPAS Exploratory Research Call	Dedicated call for RPAS launched	Q2 2016 (June)	
5	n/a	n/a	Scientific Committee	Open Call for Scientific Committee Membership launched	Q1 2016 (January)	Call launch date TBC
6	n/a	n/a	SJU membership accession process completed with signature of Membership Agreement	Renewed membership accession process concluded	Q1 2016 (March)	
7	n/a	n/a	Young Scientist Award confirmed	Annual prize of €5k awarded in Q4 in recognition of young scientific excellence in ATM.	Q4 2016 (November)	Prize to be awarded Q4 2016

Annex E.2: Call Planning of Major Grant Calls and Prize

REF	Initiator / Owner	Budget Section Ref.	Description	Explanation / Rationale	Target Launch Date	Target Signature Date	Total Est. Budget (€)	Type of Procedure	Comments
1	D&D	3.1 (S2020)	RPAS Exploratory Research	This call for proposals will focus on key issues such as RPAS 'sense and avoid', identification & surveillance, command & control and geo-fencing.	01/03/2016	01/09/2016	9,000,000	Open	Grant Agreement(s)
2	ATM	3.1	Young Scientist Award	As part of the ER development of scientific excellence a prize is awarded to the most promising research undertaken by a young scientist in the field of SESAR	01/09/2016	03/12/2016	5,000	Open	Prize
3	D&D	3.1 (S2020)	Exploratory Research 3 (Core ATM) & VLD Activities (open)	The total budget (approx. €80M) allocated to Exploratory Research in SESAR2020 has been split into a number of separate calls. The 2016 call will focus on transversal aspects of research, in particular relating to the establishment of research networks, as well as certain specific research topics that were not mature enough at the time for inclusion in the 2015 call. In addition this call includes the SESAR 2020 very large demonstrations, wave 1.	01/12/2016	01/04/2017	10,000,000 (ER) 18,500,000 (VLD)	Open	Grant Agreement(s).

Annex F: Summary Table of SJU’s Major Procurement Exercises Planned for 2016⁴²

REF	Initiator / Owner	Budget Section Ref.	Procurement Description	Explanation / Rationale	Target Launch Date	Target Signature Date	Total Est. Budget (€)	Type of Procedure	Comments
1	D&D	3.1	Industrial Support SESAR ₁	Support to the SJU to execute SESAR ₁ activities in terms of system engineering processes and procedures. Also supports SJU for the closure of SESAR ₁ & the knowledge transfer of IS processes to the Industrial Support element of SESAR 2020.	14/12/2015	29/01/2016	5,000,000	Restricted	Extension of existing service contract that will expire in December 2016. Extension is conditional to budgetary approval and financing decision.
2	D&D	3.1 (S2020)	Industrial Support SESAR 2020	Support the SJU & SESAR 2020 Programmes Members in the implementation and execution of the processes and procedures required to guarantee consistency in the programmes lifecycles. It will also support SJU in the ramp up of SESAR 2020 and the launch of the SESAR 2020 projects.	06/01/2016	29/04/2016	15,000,000	Open	Direct service contract. This contract is scheduled to continue until December 2020.
3	ATM	3.1 (S2020)	Scientific Committee SESAR2020	Call to renew Scientific Committee and to complement the new appointments to be made via the ADB.	20/02/2016	31/05/2016	50,000	Open	Expert contract after call for Expression of Interest.
4	CAF	2.4	Unified Communication Services and supplies	telephony, video conferencing, desktop sharing, instant messaging, data sharing, call control etc	01/03/2016	01/06/2016	60,000	Open	Framework contract

⁴² In order to constitute a financing decision within the meaning of Article 84 of the FFR, procurements/contracts scheduled within the reporting period must show (i) the global budgetary envelope reserved for procurements during the year; (ii) the indicative number and type of contracts envisaged and if possible their subject in generic terms and; (iii) the indicative time-frame for launching the procurement procedures;

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REF	Initiator / Owner	Budget Section Ref.	Procurement Description	Explanation / Rationale	Target Launch Date	Target Signature Date	Total Est. Budget (€)	Type of Procedure	Comments
5	ATM	3.1	Spectrum strategy - expert support	Support contract to enable the SJU to more closely follow and guide the use and protection of aeronautical spectrum.	01/04/2016	01/08/2016	50,000	Open	Expert contract
6	SEA	3.1 (S2020)	3PRM - Airspace Users	3PRM contract for provision of experts for SESAR2020 programme	30/01/2016	30/09/2016	6,000,000	Open	
7	SEA	3.1 (S2020)	3PRM - Generic support	3PRM contract for provision of generic support for SESAR2020 programme	Q1/Q2 TBD	Q1/Q2 TBD	p.m.	Restricted	
8	SEA	3.1 (S2020)	3PRM - Professional Staff	Continuation of 3PRM contract for provision of professional staff services for SESAR2020 programme	Q1/Q2 TBD	Q1/Q2 TBD	500,000	Restricted	
9	SEA	3.1	Air Space Users	Gap Analysis on Air Space user market organisation followed by enhancement of AU SESAR awareness through preparation and elaboration of a SESAR 2020 information event for the users.	Q1/2016	Q1/2016	25,000	Expert Contract	
10	SEA	3.1	Resilience	Bridging of WP16.6.1 SRM approach/methodologies to SESAR2020 and deployment	Q1/2016	Q4/2015	100,000	Expert Contract	
11	SEA	3.1	Airports	ACI/SJU Cooperation Contract to continue Roadshows, elaborate on certain key concepts and bridge and prepare for SESAR 2020 airports work.	Q1/2016	Q4/2015	1,020,000	Restricted	Framework contract
12	SEA	2.3	WAC 2017	Tender related to SJU participation at WAC 2017 event	Q1/Q2 TBD	Q1/Q2 TBD	90,000	Open	
13	SEA	2.3	SESAR 1 Closure Event	Tender related to closure event in Amsterdam for SESAR1 programme	Q1/Q2 TBD	Q1/Q2 TBD	70,000	Open	
14	SEA	2.3	ATC Global 2016	Tender related to SJU participation at ATC Global event	Q1/Q2 TBD	Q1/Q2 TBD	15,000	Open	

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REF	Initiator / Owner	Budget Section Ref.	Procurement Description	Explanation / Rationale	Target Launch Date	Target Signature Date	Total Est. Budget (€)	Type of Procedure	Comments
15	SEA	2.3	Solutions workshop 2016	Tender related to services to support SJU delivery of solutions workshop planned for Q2 2016	Q1/Q2 TBD	Q2/Q3 TBD	10,000	Open	
16	SEA	2.3	Other EU events	Participation and branding in other EU events	Q1/Q2 TBD	Q2/Q3 TBD	10,000	Open	
17	SEA	2.3	Digital Comms	websites, video, audio, text, animated multimedia etc	Q1/Q2 TBD	Q2/Q3 TBD	100,000	Open	
18	SEA	2.3	Publications	Layout, design etc	Q1/Q2 TBD	Q2/Q3 TBD	50,000	Open	
19	SEA	2.3	Press	Press services in 2016	Q1/Q2 TBD	Q2/Q3 TBD	50,000	Open	
20	SEA	2.3	Communications Small Procurement	Ad-hoc Communications services			15,000		
21	SEA	2.3	Communication General Support	Framework contract for Communications support until 2020	03/11/2015	01/03/2016	800,000	Open	Framework contract
22	CAF	2.1	Security Services & Maintenance of Security Systems	Renewal	01/07/2016	01/10/2016	60,000	Open	Framework contract
23	CAF	2.6	Group Insurance	Renewal	01/10/2016	01/12/2016	60,000	Open	
24	CAF	2.7	ICT Hosting	Renewal	Q2/Q3 TBD	Q2/Q3 TBD	60,000	Open	
25	CAF	2.7	ICT Hardware	Call for tender to replace hardware elements such as computers, servers, network components, UPS and Air-conditioning etc	Q2/Q3 TBD	Q2/Q3 TBD	60,000	Open	
26	CAF	2.7	ICT Coordination Services	Renewal	Q2/Q3 TBD	Q3/Q4 TBD	60,000	Open	
27	CAF	2.7	Web-meeting solution	Tender to provide SJU with video conference facility to allow meetings to take place online via a web browser	Q1 2016	Q2/Q3 2016	60,000	Low value	Direct service. To be re-launched in 2016

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<i>REF</i>	<i>Initiator / Owner</i>	<i>Budget Section Ref.</i>	<i>Procurement Description</i>	<i>Explanation / Rationale</i>	<i>Target Launch Date</i>	<i>Target Signature Date</i>	<i>Total Est. Budget (€)</i>	<i>Type of Procedure</i>	<i>Comments</i>
28	CAF	2.1 & 2.2	Facilities Improvement & Maintenance	Tender to provide SJU with replacement of worn-out fixtures and fittings with associated handyman services.	Q2 2016	Q3 2016	250,000	Open	Framework contract
29	CAF	2.7	Catering services	Catering services for meetings at SJU premises	01/12/2015	16/05/2016	60,000	Open	Framework contract
30	IAC	2.7	Audit Services (2016-18)	Provision of audit services to support ex-post project review [confirm rationale]	Q4 2016	Q4 2016	1,500,000	Open	Framework contract
31	CAF	2.7	Document Management System	Document management & SESAR1 archiving	Q1 2016	Q2/Q3 2016	600,000	Open	Framework contract

Annex G: Staff Resourcing Summary for 2016⁴³

Staff Type	Number of Staff	Operational / Policy Staff	Administrative Staff
Temporary Agents AD	33	23	10
Temporary Agents AST	6	0	6
Contract Agents	2	0	2
Seconded National Experts	3	3	0
TOTAL	44	26 (59%)	18 (41%)

⁴³ SJU personnel data drawn from SJU's Multiannual Staff Policy Plan (MSPP) 2016 - 2018