



Annual Activity Report 2010

29 March 2011

Table of Contents

1.	INTRODUCTION	4
3.	2010 RESULTS.....	6
4.	GOVERNANCE, MANAGEMENT AND INTERNAL CONTROL SYSTEM.....	40
5.	CRITERIA FOR ANNUAL DECLARATION OF ASSURANCE	47
6.	DECLARATION OF ASSURANCE	49
	ANNEXE 1	50
	ANNEXE 2	54
	ANNEXE 3	56
	ANNEXE 4	59
1.	DETAILED REPORT PER WORK PACKAGE	59
1.1.	THE STRUCTURE OF THE PROGRAMME AND GANTT CHARTS.....	59
1.2.	WP B – TARGET CONCEPT AND ARCHITECTURE MAINTENANCE.....	63
	Scope.....	63
	Objectives	63
	2010 Report	63
1.3.	WP C – MASTER PLAN MAINTENANCE.....	65
	Scope.....	65
	Objectives	65
	2010 Report	65
1.4.	WP 3 – VALIDATION INFRASTRUCTURE ADAPTATION AND INTEGRATION	67
	Scope.....	67
	Objectives	67
	2010 Report	67
1.5.	WP 4 – EN-ROUTE OPERATIONS.....	69
	Objectives and scope of the WP (within the Programme) remain unchanged since the Definition Phase. ...	69
	Scope.....	69
	Objectives	69
	2010 Report	69
1.6.	WP 5 – TMA OPERATIONS.....	71
	Objectives and scope of the WP (within the Programme) remain unchanged since the Definition Phase. ...	71
	Scope.....	71
	Objectives	71
	2010 Report	71
1.7.	WP 6 – AIRPORT OPERATIONS	73
	Scope.....	73
	Objectives	73
	2010 Report	73
1.8.	WP 7 – NETWORKING OPERATIONS.....	75
	Scope.....	75
	Objectives	75
	2010 Report	75
1.9.	WP 8 – INFORMATION MANAGEMENT.....	77
	Scope.....	77
	Objectives	77
	2010 Report	77
1.10.	WP 9 – AIRCRAFT SYSTEMS	79
	Scope.....	79
	Objectives	79
	2010 Report	80
1.11.	WP 10 - EN-ROUTE & APPROACH ATC SYSTEMS.....	81
	Objectives and scope of the WPs (within the Programme) remain unchanged since the Definition Phase. ...	81
	Scope.....	81
	Objectives	81
	2010 Report	81
1.12.	WP 11 - FLIGHT OPERATIONS CENTRE SYSTEM	83

Scope.....	83
Objectives	83
2010 Report	83
1.13. WP 12 - AIRPORT SYSTEMS	85
Scope.....	85
Objectives	85
2010 Report	85
1.14. WP 13 – NETWORK INFORMATION MANAGEMENT SYSTEM (NIMS).....	87
Scope.....	87
Objectives	87
2010 Report	87
1.15. WP 14 - SWIM TECHNICAL ARCHITECTURE	89
Scope.....	89
Objectives	89
2010 Report	89
1.16. WP 15 – NON AVIONIC CNS SYSTEM	91
Scope.....	91
Objectives	91
2010 Report	92
1.17. WP 16 – R&D TRANSVERSAL AREAS	93
Objectives	93
2010 Report	93
1.18. WP E – LONG TERM AND INNOVATIVE RESEARCH PROGRAMME	95
Objectives	95
2010 Report	95
ANNEXE 5	96
ANNEXE 6	102

1. Introduction

As a result of the General Agreement with the European Commission signed on 7 December 2009, the SESAR Joint Undertaking (SJU) is requested to draft an Annual Activity Report (AAR) in the format Annexed to the said Agreement.

The report is built on four sections:

1. Performance (Achievement of Objectives comparing actual results versus the Annual Work Plan 2010 and related use of resources);
2. Management and internal control system;
3. Reservations and their impact on the declaration of Assurance ;
4. The declaration of Assurance

2. The SJU

The SJU was established on 27 February 2007 by Council Regulation (EC) 219/2007, as last modified by Council Regulation (EC) 1361/2008 (SJU Regulation).

The mission of the SJU, created under Article 187 of the Treaty on the Functioning of the European Union and co-founded by the European Union and Eurocontrol, the founding members, is to ensure the modernisation of the European air traffic management system by coordinating and concentrating all relevant research and development efforts undertaken by its members and the related financing.

In particular, the SJU is responsible for the implementation of the European ATM Master Plan and for carrying out specific activities aiming at developing the new generation of air traffic management system capable of ensuring the safety and fluidity of air transport worldwide over the next thirty years.

A substantial part of the benefit of the SESAR Programme lays in the involvement of most of the European ATM stakeholders for the development of the operational and technical solutions which best meet the objectives set out in the European ATM Master Plan.

The SJU became operational, in the sense of Article 6 of the SJU Regulation, as a result of the European Council decision of 8 June 2007, in anticipation on the EU Council decision on the endorsement of the ATM Master Plan of March 2009. Furthermore, on 7 November 2008, Eurocontrol transferred to the SJU the right to use the SESAR Master Plan, together with the exclusive right to ensure its revision throughout the lifetime of the SJU.

Following the launch of the “call for expression of interest to become member of the SJU” by the European Commission on 27 June 2007 and the ensuing negotiation conducted by the Executive Director, the membership process was finalised with the selection of fifteen organisation representing industry and at large extent stakeholders of the European ATM. The signing of the Membership Agreement, the Agreement with Eurocontrol and the Multilateral Framework Agreement in summer 2009 formalised the rules concerning the participation of a Member to the SJU as well as the contribution and the rules governing the execution of and the commitment to the SESAR Programme.

In January 2010 the Administrative Board with its decision ADB 02-2010 approved the launching of the process for the creation of a new category of stakeholders in the SESAR Programme: the

“Associate Partners of an SJU Member” with the purpose of securing the additional input and added value of critical partners in the ATM research and development activities.

The arrangement between the Member and its Associate Partner(s) are formalised in a “subcontract for research assistance” which includes specific conditions on the maximum amount of work which could be assigned, Intellectual Property Rights and financial aspects. The Associate Partners are not represented in the Administrative Board and have not voting rights.

Two invitations to its Members to propose entities to become “Associate Partners” were launched by the SJU in the Spring and Autumn of 2010. The Administrative Board at its meetings of 12 July 2010 and 14 December 2010 accepted the proposals for 16 and then an additional 5 Associate Partners¹ of an SJU Member respectively.

2.1. The SESAR Programme

As part of the Membership process, work has been allocated to the selected Members on the basis of a Description of Work (DOW 4.0) and on the offers made through the IBAFO² 1 and IBAFO 2 which were finalised on 26 March 2009 and 14 December 2009 respectively.

The SESAR Programme consists of 304 projects organised in Work Packages as follows:

- WPB (Target Concept and Architecture Maintenance),
- WPC (Master Plan Maintenance),
- WP3 (Validation Infrastructure Adaptation Integration),
- WP4 (En-Route Operations),
- WP5 (TMA Operations),
- WP6 (Airport Operations),
- WP7 (Network Operations),
- WP8 (Information Management),
- WP9 (Aircraft),
- WP10 (En-Route & Approach ATC Systems),
- WP12 (Airport Systems),
- WP13 (Network Information Management System)
- WP14 (SWIM Technical Architecture),
- WP15 (Non Avionic CNS System),
- WP16 (R&D Transversal Areas)

The maximum amount of co-financing (up to a maximum of 50% of eligible costs) resulting from the IBAFO 1 and 2 and included in the Membership Agreements between the SJU and its Members amounts to EUR 594 million.

Details of the commitments per Work Package/Member, including pre-financing are available in Annex 3.

It should be noted that on the basis of the projects analysed at the end of the initiation phase and approved for execution, no material deviation from the amount budgeted in the Technical Schedule of the MFA have been identified.

¹ Two Associate Partners have been accepted by the Administrative Board with reservations. Work is ongoing to arrive to a full acceptance.

² IBAFO = Invitation to submit a binding and final offer

During 2010 was launched, through Eurocontrol, the procurement procedure relating to WP11 (Flight and Wing Operations Centres / Meteorological Services) and the assignment of work is expected beginning 2011. The amount of co-financing available is EUR 20 million.

Furthermore, the selection process of WPE (Research Projects) was finalised in October 2010 and the related projects concerning the first call will be launched in early 2011. These projects will be committed, initiated and then moved into execution during 2011. A further call within the scope of WPE is planned for 2011. The total amount of co-financing available for WP E is EUR 23 million, with a maximum co-financing level of 75%. The co-financing of these two WPs is part of the Eurocontrol cash contribution to the SJU.

Following the allocation of work to the Members and the launch of 93.8% of the Projects, in the last months of the year a first gap analysis was carried out by the SJU which resulted in the preparation of a call for the selection of “Associate Partners of the SJU³”. This call will be open to SMEs, research centres, universities, etc which will contribute to the SESAR Programme complementing the expertise of the SJU Members. Furthermore, it is expected that a more in depth gap analysis will be conducted by the SJU and its Members during the first half of 2011 in view of the launch of an IBAFO 3 to ensure the full coverage of the activities planned for the achievement of the SESAR Programme overarching objectives.

In addition to the activities aiming at the start of the SESAR Programme, the SJU Administrative Board mandated the organisation to launch specific activities in the field of environment with AIRE (Atlantic Interoperability Initiative to Reduce Emissions) and in the field of CNS with OPTIMI (Oceanic Position Tracking Improvement and Monitoring) and SAT-OPTIMI. More details are provided in sections 3.7 of this report.

3. 2010 Results

3.1. Summary of the Projects status

In 2010, going beyond the expectations of the AWP 2010, the SESAR Programme has substantially progressed to reach the level of having 80.9% of the Projects in execution phase, excluding those Projects cancelled or suspended. The SESAR Programme consists of 304 projects, including R&D and Management projects. In addition to the 171 projects initiated in 2009, 114 additional projects were launched in 2010. The figure below illustrates the total number of initiated projects per month:

³ See in this respect also ADB Decision on the “Associate Partners of the SJU” of 15 January 2010.

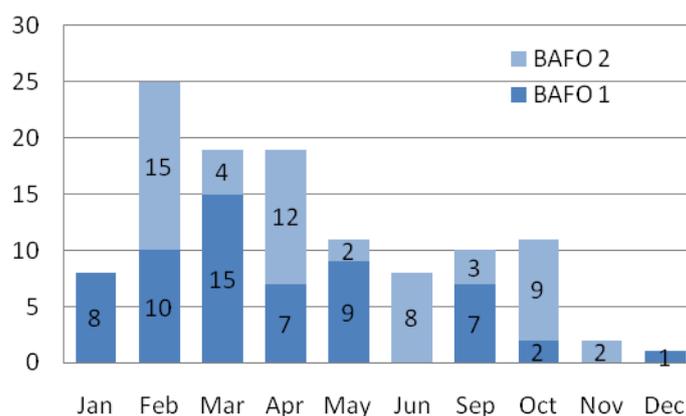


Fig.1

The Fig. 2 below provides a summary of the situation by project status at the end of 2010.

	As at 31.12.09	realized in 2010	As at 31.12.10	
Total number of Projects in the SESAR Programme	304		304	100%
<i>of which</i>				
• Projects initiated	171	114	285	93.8%
<i>cancelled projects</i>	0	2	2	0.7%
<i>suspended projects</i>	0	11	11	3.6%
<i>projects still under initiation</i>	157	(131)	26	8.6%
<i>projects in execution phase</i>	14	232	246	80.9%
• Projects to be initiated	133	(114)	19	6.2%

Fig.2

The in kind resources absorbed and recognised eligible for co-financing are capped by the MFA at 5% of the project's total eligible costs.

3.2. The 2010 objectives

The table below gives the list of AWP 2010 objectives and the related achievements.

Mid-Term Objectives (2012)	N.	2010 Objectives	Timeframe	Performance measurement	2010 Results
Initial 4D trajectory is validated in an operational environment supported by satellite-based technology,	01-10	4D trajectory project started and contain deliverables leading towards operational validation	Q4	80% of deliverables contributing to 4D trajectory on time	60% of deliverables already delivered, while the others on time compared to the new planning resulting from the Control Gate, see paragraph 3.2.1. ,
10,000 flights, including 500 military, are SESAR labelled,	02-10	Ensure that commercial flight trials are contributing to validation in addition to dedicated flight tests	Q3	Projects have identified opportunities for commercial flight trials	Approximately 1.500 trials performed on routinely commercial flights (see 3.2.2)
80% of SESAR projects have tested their output in a real life environment,	03-10	Verification & Validation activities shall be planned to be performed close to operations, on platforms representative of the operational environment and industrially based	Q3-Q4	SESAR Validation platforms are identified and agreed with Members	V&V Release 1 identified live trials, shadow mode, real time simulation and the related Validation platforms agreed with Members (see 3.2.3)
First SWIM pilots are in place to exchange data across at least 5 domains,	04-10	Usage of SWIM services is identified in operational validation activities on multiple domains	Q4	Draft specifications available for first SWIM pilots on 5 domains	SWIM multiple domains validation activities will be part of SESAR release 2 whose planning will start in March 2012 to be ready in Q2 2012 (see 3.2.4).

Mid-Term Objectives (2012)	N.	2010 Objectives	Timeframe	Performance measurement	2010 Results
The first remote tower is ready for operations,	05-10	Validation activities of remote towers are started and contribute to the set of cases required by NSAs	Q4	First validation reports ready and robust target concept defined with NSAs engaged	Operational Services Description (OSED) has been delivered with planning of the first validations underway, as part of Release 1. In addition, the OSED has been subjected to a review by NSA's as a pilot case, (see 3.2.5)
SESAR benefits are demonstrated on city pairs connecting 8 European airports,	06-10	WP4 to 7 projects establish validation plans including demonstration through city pairs	Q4	Draft validation plans available for projects involving at least 8 European airports	Validation plan for the SESAR release 1 include the need to perform demonstrations through city pairs (see 3.2.6)
Airspace users have signed up to the SESAR business case for time-based operations.	07-10	Business cases activities and contributions are clearly identified and apportioned across the programme	Q2-Q3	70% of projects are contributing through identified deliverables to the business cases	Business cases activities launched and progressed meeting the objective and constituting a solid basis to the successful continuation and progress already being made across all relevant Business Case activities in 2011. (see 3.2.7)
	08-10	On time assessment of the RCAs	Ongoing	Ensure compliance with the deadline for the revision of the RCAs and conclusion of the Project Initiation Phase	The activity has been performed ensuring timely decision on the conclusion of the Project Initiation Phase (see 3.2.8).

Mid-Term Objectives (2012)	N.	2010 Objectives	Timeframe	Performance measurement	2010 Results
	09-10	Ensure a sound management of SJU financial resources	Ongoing	Ensure adequate planning of the financial resources Ensure the payment of the pre-financing and co-financing and the collection of cash contribution in accordance with the MA-MFA	All transactions executed within contractual terms, Cash balance reduced by EUR 29.6 million (see 3.2.9)
	10-10	ABAC/SAP implementation	Q1 and 2	Ensure the proper implementation and functioning of ABAC and SAP systems	ABAC/SAP implemented in June, migration of accounting data seamless (see 3.2.10).
	11-10	ERM implementation	Q3	Co-ordinate the first ERM exercise and report the results to the ADB	ERM exercise performed, report of Risk Management submitted to ADB in December (see 3.2.11).
	12-10	Recruitment	2010	Ensure that all SJU staff positions are filled in by year end	Only four recruitments are on going to fill vacant positions two of them already selected will start in early 2011, and the others in the following months.

The following paragraphs gives details of the main achievements related to the above objectives.

3.2.1. Objective 01-10 - 4D trajectory project started and contain deliverables leading towards operational validation

The 4D trajectory is at the core of SESAR and will enable more direct flights with benefits for passengers, airlines and the environment. During 2010, taking into consideration the results of the respective initiation phases, all the projects focusing on the so called “initial” 4D Trajectory entered into their execution phase. The initial 4D trajectory projects are dealing with 4D functionalities that can be developed based on the current Flight Management Systems hardware capabilities. It must be noticed that 60% of the planned deliverables of those projects were already delivered to the SJU, while the remaining deliverables are on time compared to their schedule resulting from the Control Gate. It should be noted nevertheless that:

- the planning of a number of projects contributing to the initial 4D had to be revised compared to the initial forecast in particular to take into account the need to align schedule and content with other activities;
- two projects have experienced serious technical difficulties in the production of the required material;
- few deliverables planned for December 2010 have been rescheduled for the 1st Quarter 2011.

According to the Validation Roadmap, all SESAR Projects dealing with 4D Trajectory Management have been grouped in the “4D Trajectory Management” Operational Sub-package which is part of the Operational Package PAC03 “**Moving from Airspace to Trajectory Management**”(see fig. 7), within the Release concept (see section 3.2.3).

The “4D Trajectory Management” Operational Sub-package is itself sub divided into six operational focus areas:

- Authorisation & revision using datalink
- i4D
- *System interoperability and data sharing*
- *IOP +i4D*
- *SBT and RBT, with automated support*
- *Free Routing.*

The SESAR Projects which are part of the 4D Trajectory Management Operational Sub-package are identified in the figure 3.

The main projects that in 2011 are expected to provide results with respect to 4D Trajectory Management are: P4.3, P4.5 and P5.5.1. In 2010 these projects, except 9.2, have been defined, launched and they have planned to conduct several V3 Validation and Verification (V&V) activities based on shadow mode and operational flight trials.

In parallel, from an airborne perspective, the P9.1 is expected to progress on the airborne part of the technical definition and the system design of the initial 4D function, so that a cost effective and robust industrial development of aircraft systems can be launched.

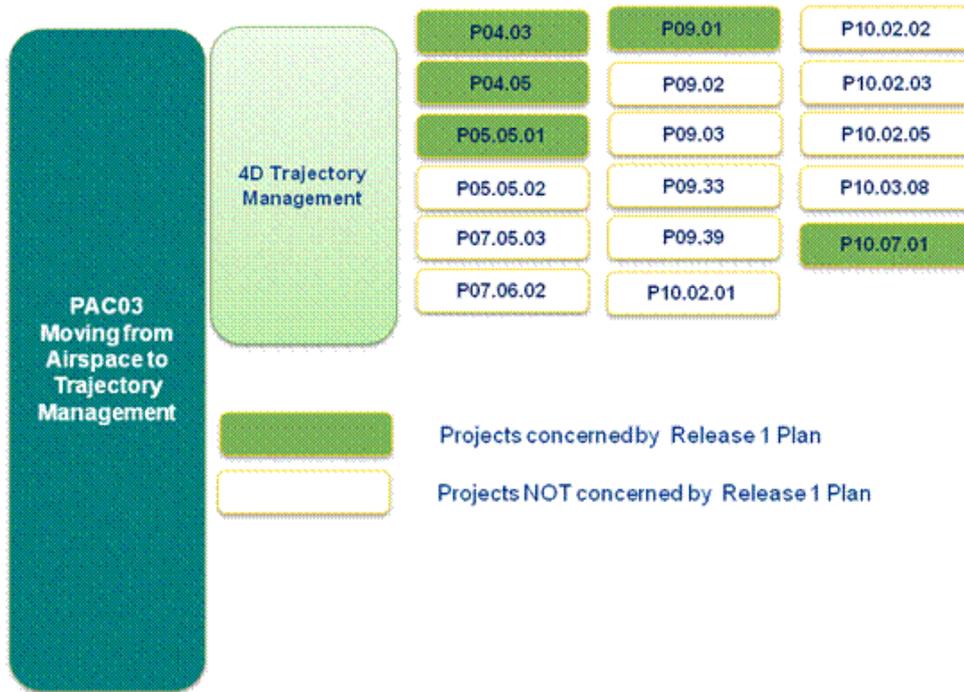


fig 3

3.2.2. Objective 02-10 - Ensure that commercial flight trials are contributing to validation in addition to dedicated flight tests

During 2010 partner airlines, using their commercial flights, have been testing some of the technical solutions being refined in the SESAR Projects, on the scope of the 2010/2011 expanded AIRE programme solutions related to the use of GDL/DMAN systems (pre departure sequencing system / Departure Manager). Trials have already been performed in Paris. Another example is the implementation of Continuous Descent Operations (CDOs) with the goal of achieving repeatability and predictability having in mind the introduction of 4D Trajectory based Operations (4DTBO) in Madrid and the Implementation of ADS-B surveillance on North Atlantic operations. AIRE accounts at the end of 2010 for approximately 1 500 trials performed on routinely commercial flights.

During 2010, two technical workshops have been organised to promote synergies between the AIRE activities and the rest of the SESAR Programme – this exchange will continue and in the future the plan is to use AIRE projects to participate more actively on validation exercises.

Regarding integration and use of military flights in specific military or civil/military integrated environments the projects of the Programme are in process of defining their respective validation needs. A parallel dialogue with military stakeholders started during 2010 is in order to find specific military validation areas and sites. With this, the anticipation is that programme content, stakeholder needs and possible sites will be integrated and finalised during 2011.

3.2.3. Objective 03-10 – Verification & Validation activities shall be planned to be performed close to operations, on platforms representative of the operational environment and industrially based

The activities for the first SESAR release for 2011 are committed to and the definition of those for release 2 will be finalised during Q2 2011. 38 physical sites on 42 platforms have been identified for the hosting of validation activities (see Annex 1).

Following the Programme Committee recommendation, the SJU defined and implemented an action plan, with the support of a dedicated Working Group, which led to the release, in October 2010, of the first baseline of the Step1 Validation and Verification Roadmap. This document provides a structured content and sequenced view of SESAR deliverables, validation exercises and associated prototypes as well as the development of associated Industry Based Platforms (IBP) that support the delivery of the SESAR concept and technology capabilities.

The document, which relates to the SESAR Programme Step1 activities, has been developed in agreement with the Members and has a strategic value insofar it:

- Is a vehicle that supports consensus building on content and scheduling of V&V activities;
- Is a baseline reference framework to coordinate Step1 activities with the related V&V objectives;
- Provides a sequenced view of validation exercises and associated prototypes linked to common programme deliverables;
- Engages the projects and the respective members on the commitment to deliver tangible results;
- Presents the agreed SESAR content deliveries for Step1 in 2011 and 2012.

The V&V Roadmap was instrumental to the identification of projects and relevant V&V activities grouped in Operational Families, which in the 2011 through the SESAR Programme Release 1 will achieve a level of maturity V3 meaning that a decision for industrialisation can be taken.

The Release 1 V&V activities identified include live trials, shadow modes, real time simulations with the objective to perform the validation in an environment as close as possible to actual operations. In this respect, live trials and shadow modes represent 46% of the planned activities; it should be considered that some additional real time simulation have been proposed by partners making reference to platforms representative of the operational environment and industrially based therefore respecting the strategy to be as close as possible to the deployment environment.

Air Navigation Service Providers, Industry and Eurocontrol will conduct the activities using Industry Based Platforms in line with the V&V Roadmap

3.2.4. Objective 04-10 – Usage of SWIM services is identified in operational validation activities on multiple domains

The use of SWIM services in operational validation activities requires a concerted development between the Operational and System threads together with the SWIM thread (WP08 and WP14) with WP-B assuring coherency with the overall concept and architecture. In 2010 the activities of the SWIM thread were primarily driven by the incorporation of pre-SESAR material into the Information and Service models as well as into the preliminary SWIM Technical Infrastructure development.

A preliminary ATM Information Reference Model was delivered in 2010, covering mainly the following information domains:

- Aeronautical information,
- Flight information,
- Airport information,
- Flow Demand and Capacity information,
- Meteorological information,

The service model was still being defined by the end of the year.

The technical infrastructure work focussed particularly on absorbing all relevant material from the EC FWP-6 project SWIM-SUIT and on identifying applicable technology standards for realising the SWIM technical infrastructure. By the end of 2010 the work was focussing on developing requirements for the first prototypes.

The interaction with the Operational and System threads, to start driving the developments from the SESAR target concept point of view, has shown in 2010 needs for improvement. This issue is being addressed with a practical action plan in the first half of 2011.

The usage of SWIM Services has been mapped out for step1 2011-2014 validation activities. However, the multiple domains validation activities will not be seen in the Release 1 validation activities for 2011. SWIM multiple domains validation activities will be part of Release 2 and planning for this will be ready in Q2 2011.

3.2.5. Objective 05-10 – Validation activities of remote towers are started and contribute to the set of cases required by NSAs

Validation planning of Remote Towers has been identified for Release 1 for 2011 and the first specifications have been circulated to feed the regulatory process. Five projects (see fig. 4) related to Remote Towers operational sub package have been launched (one operational and four technical). The scope of the initial development has also been extended beyond AFIS operations to address the remote provision of Air Traffic Control services, which will accelerate the realisation of potential benefits at the target airports.

An initial Operational Services Description (OSD) has been delivered with planning of the first validations (which include live trials) underway, as part of Release 1. In addition, the OSD has been subjected to a review by NSA's as a pilot case, with valuable feedback received.

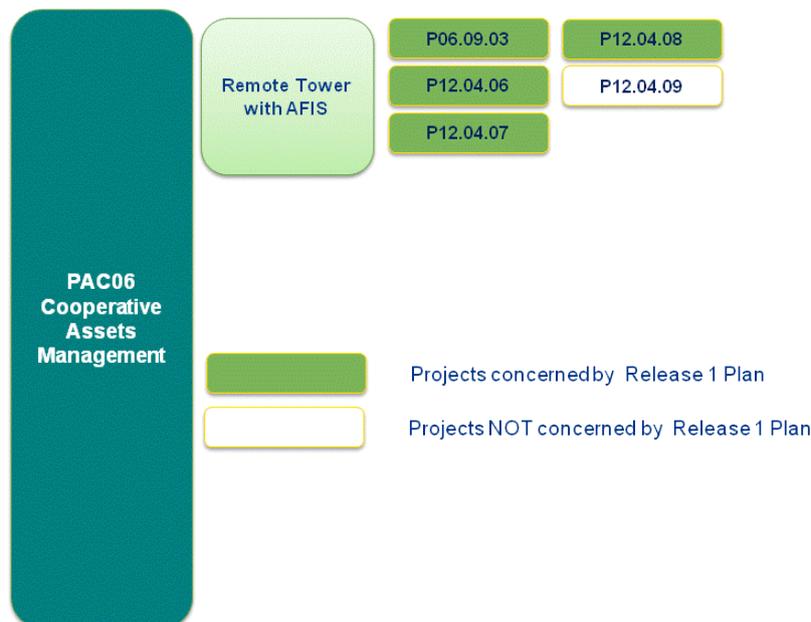


Fig.4

3.2.6. Objective 06-10 – WP4 to 7 projects establish validation plans including demonstration through city pairs

Validation plan for the Release 1 include the need to perform demonstrations through city pairs. The use of flight trials will be discussed further and aligned with the AIRE content and associated trials scheduled during Q1 2011. For the moment projects are being identified and work is in progress for alignment with 2011 validation activities

3.2.7. Objective 07-10 – Business cases activities and contributions are clearly identified and apportioned across the programme

During Q1 2010, the SJU worked with Eurocontrol on an early project to assess the SESAR Business Case for Airspace Users and ANSPs (civil stakeholders), as well as for the Military. For the civil stakeholders, an integrated Cost-Benefit Analysis (CBA) model was constructed for both Airlines and ANSPs, taking into account the basic assumptions from the Definition Phase and updating the analysis with the latest available data (traffic situation, oil price etc.). The main outcome was a confirmation of the conclusion reached during the Definition Phase, namely that there is a strong positive SESAR Business Case both for Airlines and ANSPs. A similar CBA was performed for the Military which again confirmed the main conclusion of the Definition Phase that SESAR could represent, albeit with some possible improvements, a negative Business Case for the Military. In particular, it was assessed that a negative case for the Military could be reduced, minimising implementation costs under certain SESAR adoption scenarios. The analysis was a significant step forward from the Definition Phase and prepared the ground for further Business Case work in the SESAR Programme.

WP16.6.6, leading the work on SESAR Business Cases was successfully launched following its Initiation Phase at the end of Q3 2010. Draft deliverables from 16.6.6 were submitted to the SJU by the end of 2010, including a Business Case and CBA Process Specification, a Cross-TA Management Plan and Business Case and CBA Reference Material.

Similarly, several non-transversal projects of the SESAR Programme already in the Execution Phase started working on identifying Cost, Benefit and other Business Case elements. The OPTIMI study addressing specific Business Case elements was also performed in the second half of 2010 and delivered results in December. Furthermore, an early project assessing Funding and Financing options for the deployment of SESAR, with implications on the SESAR Business Case, was executed in Q3 and Q4 2010. This followed the earlier joint work between the SJU and the Commission during Q1 and Q2 2010, to assess a broad spectrum of potential financial solutions for SESAR stakeholders.

Within the SJU, a concrete approach was defined and implemented in 2010, addressing inter alia the role of several projects of the SESAR Programme in contributing and/or consolidating Business Case contributions. As a result, appropriate guidelines were given in 2010 to several projects, in order to successfully progress the work and meet management expectations in relation to Business Case analyses.

Important transversal projects with a direct contributing role to Business Case activities, namely Work Packages C2 on Deployment Planning and B5 on Performance Assessment were also successfully kicked-off for execution by December 2010. Furthermore, the collaboration of several projects was instigated in various ways, including the formation of the “4 Performance” working group, comprising of the main “performance actors” (WP16.6.6, C2, B4.1 and B5).

Overall, the objective was successfully met in 2010 and constitutes a solid basis to the successful continuation and progress already being made across all relevant Business Case activities in 2011.

3.2.8. Objective 08-10 – On time assessment of the RCAs

During 2010 the Programme saw 236 projects entering into the Execution Phase. The decision to move a project into the Execution Phase comes at the end of the Initiation Phase which includes the assessment of the project's financials. The analysis of the RCAs (Revised Contribution Assessment) has been conducted on a weekly basis ensuring that the completed project initiation files, including financial recommendations, were timely available for the Programme Committee perusal / recommendation and for the Executive Director decision. It should be considered that for each project an RCA was produced by each Member contributing to the project, as on average the number of participants per project is 5, about 1.200 RCAs were analysed. The RCAs assessment followed the four eyes approach through the activities performed by the Financial Initiating Agent and the Financial Verifying Agent within the Directorate of Administration and Finance. The activity has been performed in a timely manner ensuring that decisions on the conclusion of the Initiation Phase were taken immediately. Early 2010 a new process to collect the advice of the Programme Committee was set up, reducing the decision making process by 15 days.

3.2.9. Objective 09-10 - Ensure a sound management of SJU financial resources

Ensuring availability of funds when needed is a crucial function of the Directorate Administration and Finance as well as that of managing the funds to reduce idle cash. The opening cash balance as of 1st January 2010 was EUR 86.4 million. During the year the SJU received cash contributions from the EU for an amount of EUR 41.0 million, from Eurocontrol for EUR 11.6 million and from the other members for EUR 3.6 million. Payments amounted to EUR 84.9 million and could be broken down in the budget titles as follows:

- Title 1 Staff cost EUR 3.6 million,
- Title 2 Administration EUR 3.6 million,
- Title 3 Operations EUR 77.7 million.

The cash balance as at 31 December was EUR 57.2 million (see paragraph 3.9). In total the SJU executed 1215 payments; EUR 55.7 were paid to the Members (EUR 53.2 million of pre-financing and EUR 2.4 million of co-financing). The cash surplus was reduced by EUR 29.2 million.

Furthermore it should be considered that EUR 41 million and EUR 2.8 million were granted respectively by the EU and Eurocontrol in the last weeks of the year to ensure the funding of the operations in the 2011 considering the risk of non approval of the EU budget by year end.

With some limited exceptions mostly due to the need to implement ABAC and SAP which required to freeze payments between April 26 and May 28, the payments have been executed within the contractual terms; no interests for late payment have been charged to the SJU in 2010.

The cash surplus has been invested in risk free short term deposit with the SJU's Banks, approved by the European Commission, at market rate.

3.2.10. Objective 10-10 – ABAC/SAP implementation

Following a preparatory phase at the end of 2009 beginning of 2010, the project for the adoption and implementation of ABAC at the SJU entered into its final phase in May 2010. With the support of the EC Directorate General for Budget, the switch from the BOB accounting system to the ABAC was seamless without significant disruption to the administrative support provided to the SJU's operations. Training of the staff and testing of the system's functionalities were performed in May as was the transfer of data.

The ABAC system went live in early June following the adaptation of the system to the specific SJU's requirements. The use of ABAC provides an improved control on the programme implementation allowing checks at level of project/Member for budget allocations, commitments and spending. As confirmation of the successful implementation of ABAC/SAP, the 2010 year end closing was timely accomplished without problems

Furthermore, based on the positive experience in implementing the ABAC workflow modules and SAP accounting systems, in 2011 the SJU will implement ABAC Contracts module and, as soon as available, SAM, the asset management SAP module.

3.2.11. Objective 11-10 – ERM implementation

This first ERM based exercise performed during 2010 supported the SJU Management to assess, evaluate, treat to the feasible extent, monitor and report on the main risks that the SJU faces in the realization of the SESAR Programme objectives (see annex 6).

The results have been presented to the Administrative Board of December 14, and following the comments of some of the SJU Members a new version of the report will be realized early 2011.

This exercise has been possible combining a top down and bottom up approaches and thanks to the commitment of the Project, Sub Work-Package and Work Package Members' Staff who captured the risks affecting their activities in the PIRs in collaboration with the SJU Programme Managers and Staff who channelled and examined the information through the SIR database escalating it when necessary up to the SJU Management attention.

The results of this first exercise highlighted the criticality of some risks, triggering, in some cases, immediate actions by the SJU management in coordination with the Members, and in other cases, the planning of intervention to be implemented in the coming months.

Processes have been agreed upon to monitor the evolution of risks overtime at the periodical project control gate as well as at strategic level integrating the strategic risk review with the Annual Work Plan.

The actions to be implemented in order to properly manage risks are part of the AWP 2011.

3.2.12. Objective 12-10 - Recruitment

Total staff including secondments was 35 out of 39 budgetary posts; the distribution by nationality, gender and category as in the following tables

The SJU recruitment process is almost completed as only four recruitments are on going to fill vacant positions two of them already selected will start in early 2011 (see annex 2).

Eleven new staff were hired, (5 in the operational areas, 4 in the administration and 2 in the Executive Director office) of which 5 were seconded by SJU Members.

Nationality/Gender

	Total	Of which women
Austria	2	2
Belgium	6	3
Bulgaria	1	1
France	4	2
Greece	2	1
Germany	2	
Italy	4	
Ireland	1	1
Poland	1	1
Portugal	2	2
Spain	3	1
Sweden	2	1
United Kingdom	5	
Total	35	15

Category/Gender	Male	Female	Total
AD	19	11	30
AST	1	4	5
Total	20	15	35

The 39 positions in the SJU Staff Establishment Plan provide the SJU with the required competences to successfully carry forward the SESAR Programme.

In addition to the above, a unit of Eurocontrol which consists of 15 staff is currently working within the SJU. The “Eurocontrol Programme Support Office of the SJU” agreement is part of the contribution in kind of Eurocontrol to the SJU.

3.2.13. Programme overview and planning: achievements 2010

The situation of the progressing of the Programme and its Projects is presented in section 3.1 of this report.

In the previous sections, in different occasions reference is made to the concept of “Release” and the grouping together of Projects deliverables in “Operational Packages”.

During 2010 a comprehensive review of the SESAR Programme implementation approach was conducted and included the V&V roadmap as well as the lessons learnt from the System Engineering process. The conclusions of the review highlighted the need to breakdown the Programme high level objectives into a more technical and operational level defining in detail what has to be done, by whom and when, and thus to clearly identify the SESAR validated deliverables which will contribute to the SESAR Development Phase objectives as well as to the specific 2012 Strategic Objectives.

The Programme review identified critical project dependencies as well as the first common deliveries to be completed in 2011 and 2012. Furthermore, the lessons learnt from the first application of the System Engineering processes suggested that a more efficient approach was required.

As a result of this comprehensive exercise, in 2010 the SJU and the Members, requesting the SJU to keep traceability of the new work structure towards the Operational Improvements of the ATM Master Plan, agreed that the most appropriate way to deliver consisted in articulating the Programme Plan through SESAR Releases contributing to the development of the SESAR Storyboard Steps. A SESAR Release embeds groups of projects delivering, in a determined timeframe, R&D results that can support decision to move related activities to the industrialisation stage (end of V3).

The reorganisation of the Programme towards releases is also a direct consequence of making sure that the work programme, bearing in mind the impact of lesser than expected IP1 deployments, can and will deliver according to the Master Plan. Traceability towards the Operational Improvements of the Master Plan is therefore inevitably and completely secured.

The link with the SES II pillar of FAB's is already established as SESAR is the technical component and FABs the organisational operational component of SES II. The SJU sees the FABs as one of the customers of the validated solutions of the work programme. Direct coordination/consultation with a few FAB initiatives as such is in place. The main interface, however, sits with the ANSP Members of the SJU who continuously secure how to best take into account SESAR results as well as to mitigate against any potential duplication of work.

Each Release is developed through 3 phases (see figure below):

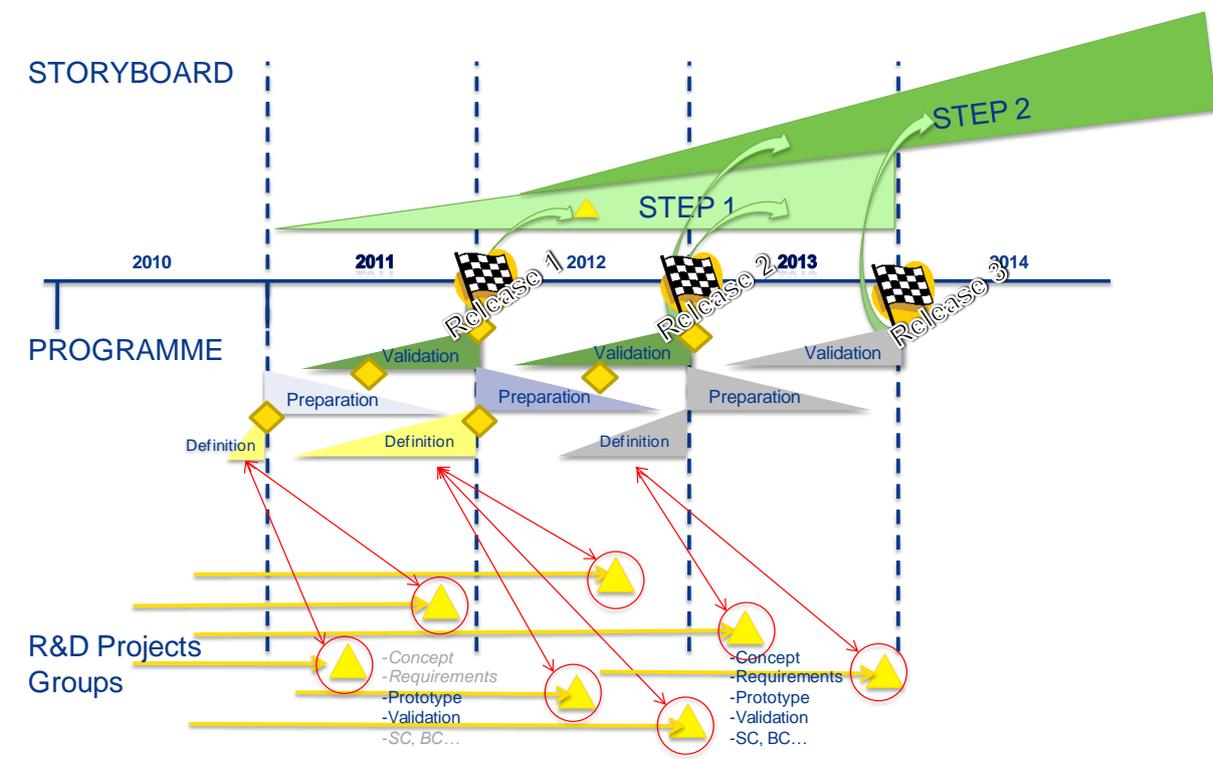


Fig.6

- Definition: this phase aims at defining the Release scope and at getting the commitment of all the involved SESAR members to the Release plan. Defining a Release is a continuous process assessing the project ability to deliver for the considered deadline. This assessment is based upon

the projects plans and projects inputs and, later, on the validation reports from previous Releases. At the end of this phase:

- projects included in the release have clarified their objectives and demonstrated through a realistic & achievable plan their ability to deliver within the following period,
 - assessment of the Release coherence has been performed with regards to project dependencies and high level operational and technical objectives,
 - all projects participating to the Release have committed upon the Release plan.
- Preparation: this phase aims at preparing the V&V Exercise execution, i.e. developing the pieces of concept description and solution (system and/or procedures) that are due for the on-going release. At the end of this phase:
 - requirements have been captured,
 - prototypes have been developed and verified by the project in charge of their development,
 - prototypes are integrated to the IBPs (Industry Based Platforms) on the validation site,
 - integration platforms have been qualified for the execution of integrated validation activities,
 - V&V exercises are defined and planned.
 - Validation: this phase aims at validating the pieces of solution developed for the Release and assessing their maturity in order to determine whether it is possible to move to the following phases of the European Operational Concept Validation Methodology (E-OCVM) (V4). During this phase:
 - V&V Exercises are executed,
 - Operational concept and technical solutions are documented.

The progress towards the delivery of the SESAR Release is controlled at Programme level through System Engineering (SE) Reviews. These SE Reviews take place:

- at the end of the Release Definition Phase,
- at the end of the Release Preparation Phase,
- at the end of the Release Validation Phase.

Even though it is acknowledged that not all activities progress at the same pace, for efficiency reasons, SE Reviews are organised at a fixed time of the year.

In parallel to the current Release execution activities, Primary projects which are not considered for the current Release:

- follow their project plan aligned with the E-OCVM methodology and are controlled through the project gates,
- contribute to the definition of further releases.

Progressively, projects will be making the necessary steps towards the validation of the SESAR concept of operation: establishment of the operational requirements, development and verification of the prototypes and ultimately the conduct of validation activities.

The Release delivery process has been structured around a set of 6 Operational Packages and associated Sub-Packages clustering projects and activities based on their outputs and ensuring an operational and performance focus.

Two technical packages have been defined to structure technology that has a wide operational coverage; CNS and SWIM (see figure below).

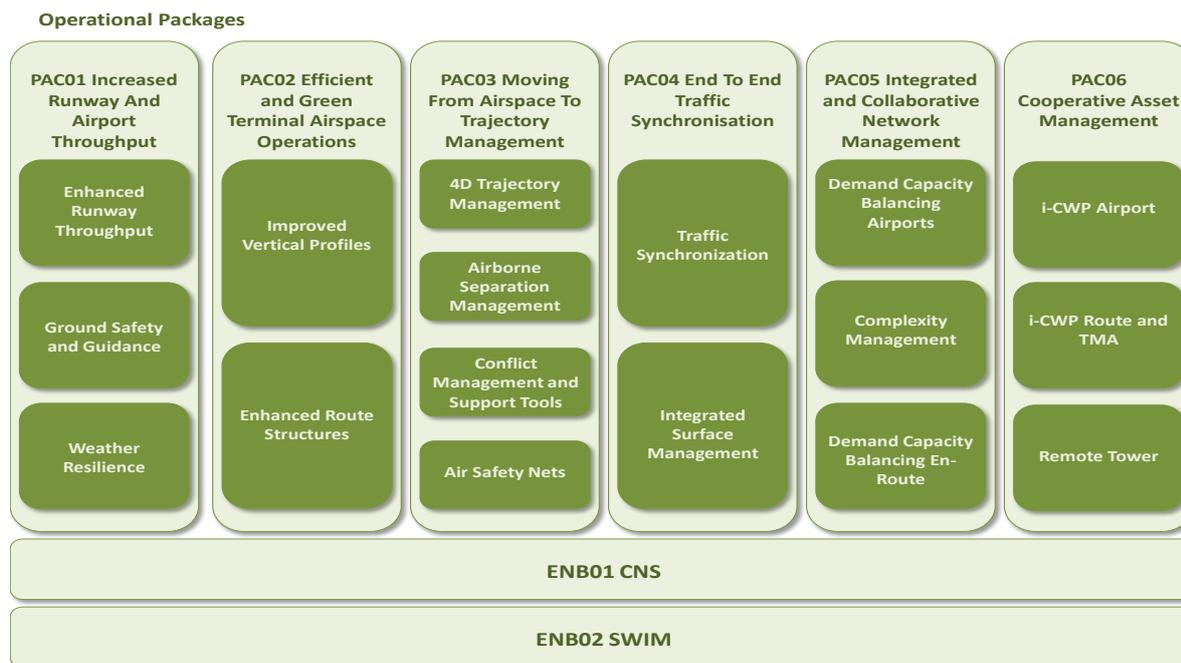


Fig. 7

An **Operational Package** is a deployment focused grouping of operational changes and associated technical and procedural enablers.

An **Operational Sub-Package** is a sub-grouping of connected operational and technical improvements related to the Operational Package and comprising a sub-set of Operational Improvements (OIs) with closely related operational focus, designed to meet performance expectations of the ATM Master Plan.

To ensure that both Operational and Technical projects are structured in a way that dependencies are respected and that common work areas lead to coherent and integrated set of validation results, a third grouping based on common focus and linked to the Operational Sub-Packages was defined as Operational Focus Area

In this respect, an **Operational Focus Area** is a limited set of dependent operational and technical improvements sitting within an Operational Sub-Package, comprising specific interrelated OIs designed to meet specific performance expectations of the ATM Performance Partnership.

The establishment of the Release concept and the preparatory activities undertaken during 2010 with the concerned Projects (see table below) constitute a key step toward the achievements of the SESAR Programme concrete results.

Operational Package	Operational Sub-package	Operational Focus Area	Projects which will contribute to Release 1 in 2011
PAC01 Increased	Weather Resilience	LVPs using GBAS Pilot synthetic vision	

Operational Package	Operational Sub-package	Operational Focus Area	Projects which will contribute to Release 1 in 2011
Runway and Airport Throughput	Ground Safety and Guidance	Ground safety nets Enhanced situational awareness Runway Status Lights (RWSL) Guidance assistance to aircraft and vehicles	
	Enhanced Runway Throughput	Time Based Spacing Dynamic Vortex Spacing Brake to Vacate	
PAC02 Efficient and Green Terminal Airspace Operations	Enhanced Route Structures	Optimised RNP Structures Point Merge in Complex TMA	5.7.4 5.7.4
	Improved Vertical Profiles	i4D + CDA + AMAN in Medium Complex TMA A-CDA A-CCD Arrival Procedure with Vertical Guidance	5.6.3
PAC03 Moving from Airspace to Trajectory Management	4D Trajectory Management	i4D IOP + i4D Free Routing SBT and RBT, with automated support OAT trajectories Authorisation & revision using data link Cruise climb System interoperability and data sharing	4.5-5.5.1 4.5
	Airborne Separation Management	ASPA S&M ASPA S&M integrated with AMAN ATSA-ITP	
	Conflict Management and Support Tools	Conflict detection and trajectory conformance monitoring Conflict resolution Enhanced Decision Support Tools and Performance Based Navigation Sector team operations Generic controller validations MSP (Multi Sector Planning)	4.3 4.7.8
	Air Safety Nets	Enhanced STCA ACAS	4.8.1-10.4.3 4.8.2
PAC04 End to End Traffic Synchronisation	Traffic Synchronization	Integrated AMAN DMAN Extended AMAN horizon AMAN + Point Merge in Complex TMA DMAN Multiple Airports i4D + CTA AMAN	6.8.4 4.5; 5.5.1; 5.6.1; 5.6.4; 12.4.1 4.3-9.1-10.7.1
	Integrated Surface Management	Surface Routing Surface movement and planning	

Operational Package	Operational Sub-package	Operational Focus Area	Projects which will contribute to Release 1 in 2011
		Surface management Integrated with Arrival & Departure Management	
PAC05 Integrated and Collaborative Network Management	Demand Capacity Balancing Airports	Airport Operations Plan (AOP) Airport CDM	
	Complexity Management	Complexity Assessment and Initial Complexity Resolution	4.7.1 - 10.8.1
	Demand Capacity Balancing En-Route	AFUA/ ASM Military and Civil Interoperability Dynamic sectorisation and Constraint management Enhanced DCB and dynamic DCB processes Digital NOP UDPP NOP	7.6.5; 13.1.1; 13.2.3
PAC06 Cooperative Asset Management	iCWP Airport	iCWP Airport	12.4.1
	iCWP Route and TMA	iCWP Route and TMA	
	Remote Tower	Remote Tower	6.9.3
ENB01 CNS	CNS	CNS AeroMACs	
ENB02 Information Management	SWIM	TBD	

3.2.14. Operational Concept storyboard: achievements 2010

During 2010, further work on defining the dependencies between the Releases and the operational strategy/storyboard resulted in the finalised Release 1 definition.

3.2.15. Validation Strategy: achievements 2010

During 2010, a pervasive review of the SESAR Programme implementation approach, including V&V roadmap and the lessons learnt from the System Engineering process, was conducted. The Validation Strategy was developed by the SJU and its Members and submitted to the PC and in October to the ADB.

The V&V roadmap full integration into the SJU Programme was performed resulting in a validation roadmap for step1 2011-2014 and in a finalised Release 1 definition.

3.2.16. Architecture and Technology Strategy: achievements 2010

In the Programme, Architecture is mainly dealt with by WPB, which has been subject to a substantial review of the first deliverables as agreed at the conclusion of the Initiation Phase. This review highlighted the need to take critical actions to further align the work of WPB to the rest of the

Programme. The final decisions will be taken during Q1 2011. This work will result in an updated version of the SESAR Architecture Strategy accordingly.

A critical review of communication technologies was conducted for the ground-based segment and the results were fed into the Programme (15.2.4 Future Mobile data link system definition and 15.2.6 Future Mobile Satellite Communication). Furthermore, an investigation has begun into different communication options and evolution for the satellite segment in collaboration with ESA. Results will be available by end of Q1 2011.

3.2.17. Programme Management: achievements 2010

At the end of 2009, it was decided to establish a common SESAR execution framework to enable adequate programme/project management through streamlined monitoring and control activities.

At the end of 2010, the execution framework has been completely defined and for about 85% implemented and deployed, including the necessary training and coaching facilities. The framework is based on best practices from industry (CMMI & PMI) and it has been defined and deployed in a collaborative manner with the Programme participants. It covers:

- Planning and dependency management;
- Programme monitoring and control;
- Risk, issue and opportunity management;
- Quality management;
 - Quality of deliverables;
 - Quality of processes;
 - Information sharing and documentation management;
- Project Control Gates;
- Change management;
- Airspace Users contract management.

3.2.18. Programme Execution: achievements 2010

Details on the status of progressing of Programme execution are provided in section 3.1 of this report and the Annexes which provide details per Work Package.

3.2.19. Engineering Methodology: achievements 2010

The SESAR Programme is facing a number of challenges common to large scale integration programmes:

- System elements tend to operate independently;
- System elements have different life cycles. Some of the system elements are possibly in their development life cycle while others are ready to be deployed;
- Adaptability of organisations and behaviors to the change depends of up-front preparation and information management;
- The various Systems requirements are likely to be at different maturity levels;
- Complexity is the major issue. As system elements are added, the complexity of system interaction grows in a non-linear fashion.

To face those challenges and manage the overall complexity of the Programme, the System Engineering deployed in 2010 focuses on:

- Building the right system: meeting the performances targets,

- Building the system right: control and deal with inherent technical complexity.

The key principles of the performance approach in the Programme are the following:

- Performance is firstly set at System level and then progress toward its achievement is monitored through the performance management process of WP B using its performance framework. The performance management process of WP B interfaces with the engineering process in the initial setting and allocation of performances requirements to System components and in the monitoring of the performance by consolidating the results up to the level of the Operational Focus Areas.
- Performance is expressed in term of requirements in order to ensure complete traceability from high level targets (KPAs) cascading down to a lower level to the System components and their allocated performance requirements.
- Performance monitoring is then implemented through the V&V activities which include Verification of the achieved performance towards requirements. Performance consolidation is achieved through the WPB using the Performance Framework.
- Gaps between required and expected performance reveal assumptions or design inconsistencies.

The Engineering Methodology is articulated around a number of Review Session aiming at assessing the maturity of projects and supporting the decision making within the Programme. In June 2010, the first Engineering Review Session was performed. The Review assessed the compliance of the projects with the Story Board steps and the first Maturity Target (V3 Step1 by end of 2011) as well as assisted with the identification of the critical dependencies within the Programme. In particular, the review highlighted how the critical dependencies have been established and contribute to the coherent progressing of the projects towards the Targets as well as the need for some corrective actions to align schedules, content, and engineering methodology. The review highlighted the need to reinforce the link between projects and performance requirements; in this sense it should be noted the progress being made in the projects management to move towards a more performance driven approach

Based on the results of the Engineering Review and their analysis by the Programme Control Group and Programme Committee, a new date-driven 'release plan' methodology and content of Release 1 were finalised (see section 3.2.13), along with the corresponding updates to the Project Management Plan and System Engineering Management Plan documents.

The total cost of the Industrial Support contract in charge of the Engineering Methodology for 2010 amounts to EUR 11.2 million.

3.2.20. Scheduling: achievements 2010

The schedule of the various projects are elaborated and delivered to the SJU during their Initiation Phase.

In 2010, 114 new projects have connected their schedule to the rest of the Programme allowing to build the overall Programme schedule detailing when task are performed and deliverables available. The way the schedules are structured and integrated in the Support System allow to build rolled-up views at Programme level but as well at Work Package, Member or Operational Focus area levels.

Once a project receives the authorisation to move into the Execution phase, its schedule is made available on the Extranet and shared as a reference with the rest of the contributors. It allows creating visibility and facilitates the alignment of the time dependencies within the Programme. The

schedules are constantly monitored and quarterly reports are provided by the Project Managers in terms of percentage complete and milestones achievements.

3.2.21. Programme Risk Management: achievements 2010

The Risk Management approach followed by the SJU is inspired by the SJU Regulation – Council Regulation (EC) 219/2007, Article 1.5 – where it is established that the SJU is responsible for the execution of the ATM Master Plan; thus risk management is crucial to the successful execution of the ATM Master Plan.

During 2010, the SJU implemented the risk management methodology which is built upon an integrated approach:

- an initial **bottom-up approach** which provided the SJU with an initial risk map, through the information contained in the Project Initiation Reports, for the Programme activities, or the work performed at the internal organization level, for the administrative and financial services. At the Programme level, this work was performed during the period March 2010 and October 2010 by an SJU staff Member assisted by external support.
- the **top-down approach**, conducted through a) the review of the key documentation resulting from the bottom-up approach and b) the evaluation conducted at Programme and SJU levels, through which major risks are evaluated, mitigating measures decided and actions put in place. This work was realized during the final months of the year in view of the submission of a report to the Administrative Board.

With particular regard to the Programme related risks, these two approaches found a synthesis at the level of the SJU risk register where Project/Work Package risks were grouped together by families and eventually related to SJU strategic objectives. Feedback has been provided to the Projects/WPs to assist in the future development of Risk Management.

Albeit risks have all the same origin related to the execution of the ATM Master Plan, in order to ensure their efficient and effective management at the most appropriate level, risks are escalated only when they cannot be managed at a lower level, such as:

Project	Manage risks related to objectives and performances of individual project. The Project Manager is responsible for risk management within the project and for escalating at the WP level when required i.e. when the risk seems more likely to occur or when mitigating / treatment actions can be taken at the WP level. Furthermore, reporting of risks and opportunities on a regular basis is needed to ensure their visibility throughout the Programme and their supervision by the upper levels.
Work Package	Manage risks pertaining to the WP objectives and performances, including Project risks which cannot be treated at that level (magnitude, cross-impact, etc).
Programme	Manage risks which because of their criticality may affect the effective execution of the Programme. Considering the high interdependencies among Work Packages, focus is on those risks which albeit related to a specific Work Package may have an impact throughout the Programme.

These risks, where they would request the attention at senior Management level, are reported to the Executive Director and, eventually, to the Administrative Board in this document.

SJU Corporate The focus is on risks related to the achievement of the Strategic Objectives. At these level are treated major risks whose occurrence may impact the ability of the SJU to deliver its Strategic Objectives Tables 2 and 3 hereafter contain the SESAR Programme “Corporate risks” and “Additional risks”, and the SJU Administrative and Financial risks.

For each of the level identified, the table below shows the responsible risk manager with its supporting group, as well as the frequency of the review and the distribution of the report.

Level	Risk Manager	Supporting Group	Frequency of review	Report
Project	Project Manager	Project Members	As necessary but at least quarterly	WP Leader and SJU Programme Manager
Work Package	WP Leader	Programme Manager(s)	As necessary but at least quarterly	Chief Programme Officer
Programme	Chief Programme Officer	Programme Control Group	Quarterly	Executive Director and PC
SJU Corporate	Executive Director	Executive Team	Quarterly	On an annual basis to the Administrative Board

An SJU Risk Management Coordinator and the Programme Risk Manager provide support activity at the different levels.

The results of the Risk Management exercise are provided in the following Annex 5.

3.2.22. Quality Management: achievements 2010

In close collaboration with the SJU Members, the Programme Support Team of the SJU has continued to develop the quality management system that clarifies the roles and responsibilities of the various actors and the business processes to enable the running of the programme. This quality management system is part of the SESAR Programme Management Plan (2nd edition) which is expected to be approved and promulgated early 2011.

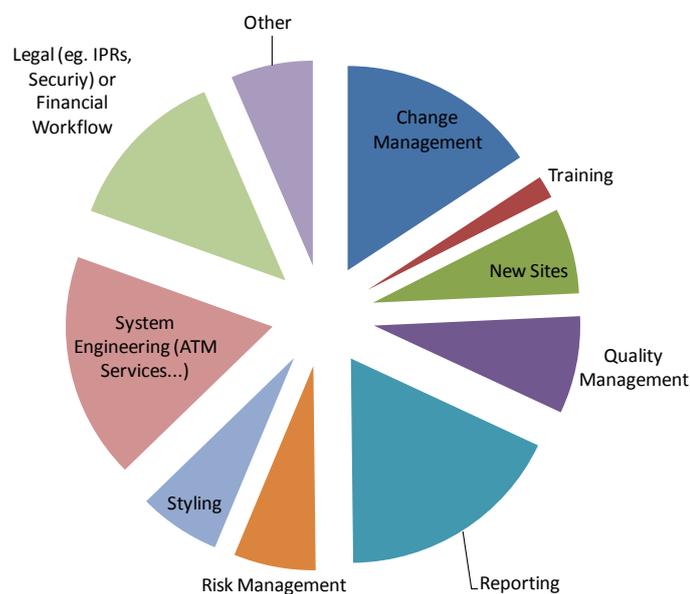
The deployment of the quality processes enable the SJU to execute projects and the programme ensuring that the quality of the content produced (“doing the right thing”) and processes (“doing the thing right”) are monitored and controlled. The working methods applied are based on industry standards and best practices (i.e. PMI and CMMI).

3.2.23. Programme Management System (PMS) : achievements 2010

The SJU has continued to develop and enhance the IT applications and adapt them to the way the SESAR Programme is executed. The Programme Management System is composed of the following three components:

- A collaboration component that ensures that all Members and partners in the programme can work together and exchange information within the partnership;
- A central repository that collects and consolidates all information necessary to successful run the programme by monitoring and controlling progress, quality, costs and risks;
- A central schedule management system that enables to consolidate individual project plans and inter-project related dependencies and consolidate the information at programme and release level.

The investment to develop the system in 2010 was EUR 0.4 million and the work has been performed by an external provider as part of the cash contribution of Eurocontrol. The figure below shows the proportion of budget used for the main domains of processes.



In Q4 an external audit was performed to assess the value for money of this system and concluded that the system is fit for purpose and is actively and widely used by the SESAR community. The same audit concluded as well that that the system security was adequate with some recommendations to improve the access management.

3.3. WP11 Flight/Wing Operations Centre: achievements 2010

Considering that this Work Package is part of the core SESAR Programme, the relative 2010 achievements are detailed in Annexe 3.

3.4. WP E: achievements 2010

Considering that this Work Package is part of the core SESAR Programme, the relative 2010 achievements are detailed in Annexe 3.

3.5. Programme Awareness: achievements 2010

During 2010, 763 persons of the SJU Members have used the E-learning modules to become acquainted with the SESAR Programme content, processes and procedures. An update of the E-Learning modules was launched at year end and will be available to the SJU Members early 2011.

3.6. Stakeholders involvement & Buy-in

3.6.1. Involvement of the Civil and Military Airspace Users: achievements 2010

Airspace users: at the end of 2009, 10 contracts were signed with major airlines, while during the first months of 2010 an additional contract was signed to add “low cost” expertise. In front of a global commitment of EUR 2.0 million, individual commitments for EUR 1.5 million were made, while payments are estimated at EUR 0.3 million by year end. The estimated amount of Airspace Users resources consumed during 2010 to provide advice to the Projects during the initiation and, in some cases the execution, phases amounts to EUR 0.9 million.

During 2010, the SJU Senior Military Advisor has worked together with Eurocontrol as well as with the European Defence Agency (EDA) to further progress in the involvement of the Military community in the activities of the SESAR Programme. In 2011, the Military Engagement Plan for SESAR (MEPS), drafted by Eurocontrol and endorsed by the SJU, is expected to be put in place and become fully operational. The MEPS will enable the full participation of national military experts in all relevant aspects of the work programme, via a structured organisation including the formation of specific panels to collate all military input in specific technical or operational domains.

3.6.2. Involvement of the Professional Staff Organizations: achievements 2010

The involvement of the Professional Staff Associations has been assured through the signature by Eurocontrol on behalf of the SJU of 5 contracts, one for each of the associations. During 2010, 4 meetings took place to ensure coordination among the work orders allocated to each of them. The full integration of staff associations’ representatives into the Programme at different levels is ongoing and the creation of an International Validation Team to exploit the experience and skills of Staff Associations’ representatives was initiated for completion during Q1 of 2011.

3.6.3. Relations with the Member States: achievements 2010

The SJU has continued report systematically on the progress of the SESAR Programme to the Single Sky Committee as well as to the Provisional Council of Eurocontrol. Furthermore, during the year, bilateral meetings or SESAR workshops took place at the request of the specific EU or Eurocontrol Member States.

The SJU will continue to support Member States in particular for the organisation and conduct of National events which aim at informing national stakeholders on the Programme, its institutional set up, and relevant activities. This was done in particular in Spain, UK, Ukraine, Turkey and Norway in the course of 2010.

3.6.4. Relations with Civil and Military NSAs and EASA: achievements 2010

The SJU has continued to be active in the relevant forum in which Regulatory Authorities coordinate and take decisions, such as:

- The Single Sky Committee,
- The Eurocontrol Safety Regulatory Commission,
- The Regulatory Interface and Coordination Board – Area Northwest (RICBAN).

NSAs, Civil and Military, are involved on a regular basis to provide advice on the progress of the SESAR Programme to facilitate the future implementation of the results and anticipate possible issues stemming from it. A Memorandum of Understanding for the provision of expertise has been signed by seven Authorities, covering a comprehensive pan-European geographical scope. During 2010 experts received a detailed picture of the SESAR Programme and as a launch of their advisory activity, they were also asked to provide their views on a Test Case.

The SJU interacts with the National Supervisory Authorities through the National Supervisory Authorities Coordination Platform, under the umbrella of the Single Sky Committee. The participation of the SJU in this forum on an ad hoc basis aims at consulting the National Supervisory Authorities on the deliverables of different SJU WPs, which could have relevance for the activity of the National Supervisory Authorities during the deployment phase (safety cases, security analysis, cost-benefit analysis, environmental studies...).

On 10 November 2010, the SJU and EASA's Executive Directors signed a Letter of Agreement to secure EASA's provision of safety advice regarding the implementation of the SESAR Programme results. The participation of Eurocontrol's safety experts is foreseen to support EASA in this activity and will be considered as Eurocontrol in-kind contribution to the SJU (with a maximum accumulated contribution of EUR 5 million over the lifetime of the SJU).

3.6.5. ATM Performance Partnership (ATMPP): achievements 2010

In 2010, the SESAR Operational Performance Partnership (SPP) group met twice. In addition a Webex session was held to update SPP members of the current status of the SESAR Programme. The focus has been on the ATM Master Plan update, identification of Quick Wins, discussion of Intermediate Performance Targets and of the Best Equipped / Best served principle.

Overall during the year, and in line with its Term of Reference, the SPP group provided significant guidance and advice across several areas of the SESAR work programme. The SPP will continue its activity and the first meeting has already been planned for April 2011.

3.6.6. Scientific Committee: achievements 2010

The Scientific Committee have met twice during 2010, in May and December. At least one member of the scientific committee now follows each of the WP-E Research Networks that have been launched, providing advice and support to the network as well as an effective feedback link to the wider Committee.

The Scientific Committee provided inputs and guidance for the preparation of the first call for WP-E Research Projects. Additionally members without a conflict of interest have participated in the evaluation and selection of PhD projects managed by each Research Network.

The Scientific Committee members have represented SESAR in research conferences, developed papers at the request of the Executive Director and presented papers at conferences with the support of the SJU.

During 2010 the Scientific Committee adopted updated Terms of Reference developed by a committee task force to ensure that a healthy blend of both continuity and rotation of membership occurs over the life of the SJU along with maintaining the optimum skill-set to continue to provide best-in-class scientific advice to the SJU and its Executive Director.

3.7. Specific Activities

3.7.1. AIRE: achievements 2010

In 2010 the SJU, in alignment with the 2008 Administrative Board's mandate, continued to manage the activities related to the Atlantic Interoperability Initiative to Reduce Emissions By taking advantage of air traffic management best practices and using existing technologies, AIRE expects to accelerate the implementation of environmentally friendly procedures for all phases of flight, and to validate the benefits of these improvements. Under this initiative, airlines, air navigation service providers (ANSP), the manufacturing industry, and airports work collaboratively to perform integrated flight trials and demonstrations validating solutions for the reduction of CO₂ emissions.

In March 2010, six successful co-financed projects launched in 2009, were closed. AIRE achievements so far include:

- 6 efficient consortiums comprising 18 partners of which 5 airlines and 5 ANSPs;
- 1152 trials performed;
- CO₂ savings per flight ranged from 90 to 1,250kg and the accumulated savings during trials were equivalent to 400 tons of CO₂;
- Awareness raising and crews and controllers motivation boosting to carry out more environmental friendly activities;
- Attracted international attention and high interest in the initiative.

Furthermore, eighteen new projects were selected for co-funding during 2010 following a call for tender according to pre-established criteria - always projects entailing significant environmental benefits and strongly linked to implementation - resulting in a significant enlargement of the programme's geographical coverage and partners. These projects have a maximum duration of 15 months with the majority of them extending to the end of 2011.

Two projects cover surface trials, five relate to terminal operations, four focus en-route/oceanic, and seven relate to gate-to-gate.

In total, some 40⁴ partners involving 11 airlines, 7 airports and/or airport authorities, 14 air navigation service providers, and 10 industrial partners will demonstrate that significant efficiency gains can be achieved through new procedures using existing technology. The FAA is effectively contributing to three projects with technical and operational support.

The projects have two mandatory contractual deliverables including a Phase 1 report which includes a detailed definition of the project validation subject to formal approval and authorisation to proceed with Phase 2, by the end of the year half of the projects had delivered the Phase 1 report and received the green light to proceed to Phase 2. More than 5000 trials are expected and other airlines will voluntarily join existing trials.

⁴ Some partners are at the same time ANSPs and Airport authorities

Synergies between the AIRE activities and those of the SESAR Programme have been identified and two technical workshops have been organized to promote information sharing, to discuss data assessment and reporting aspects, trials planning and to derive recommendations for the way forward ensuring transition of results to daily operations. The main objective is the capitalisation of the testing opportunities of AIRE to validate some of the technical concepts being developed in SESAR.

Furthermore, four projects dealing exclusively with environmental matters were initiated within the Programme:

- Project 16.6.3 Environment support and coordination functions;
- Project 16.3.1 Development of the SESAR environmental validation framework;
- Project 16.3.2 Support to development of performance indicators;
- Project 16.3.7 Future regulatory scenarios and impacts.

These projects, in particular 16.6.3 will develop the SESAR Environmental Reference Material encompassing: assessment tools, models and methodology, setting the common approach to conduct environmental impact assessments> These tools will applied throughout the programme to assess the environmental benefits resulting from WPs 4 to 15 specifically reporting on the work being carried out to attain the 10% fuel efficiency per flight Master Plan target. Work Package B is also working in parallel on the refinement of the environmental targets of the Master Plan.

3.7.2. OPTIMI: achievements 2010

In 2010, 13 ANSPs, Airlines, Engineering and manufacturing companies and an Air Transport Communications provider (SITA) have been involved in OPTIMI studies. In December 2010, OPTIMI delivered a set of recommendations which could result in concrete benefits for a number of subjects, including Search and Rescue services, accident and incident investigation services, Air Navigation Service Providers and airspace users. Among those recommendations, it was advised to extend OPTIMI tests to other FIRs in the SAT and to conduct further research into the Medium Term solutions identified, that is to say “Central repository of FANS-1/A and AOC messages” and “Flight Data Recorder Down Linking Systems”.

To complement those results, the SJU signed a contract on SAT-OPTIMI, after an open call for tenders.

SAT-OPTIMI is a study that uses the output from OPTIMI to present the feasibility and options for the best use of satellite infrastructure and technology to ensure full deployment of oceanic and remote tracking services. The study will report by April 2011 and will include, among other things, the timing, investment and operations cost estimates, as well as a business and service model for tracking services, giving a clear direction on a deployment path for aircraft tracking services over oceanic, remote continental and polar regions.

3.7.3. European ATM Master Plan update: achievements 2010

On June 2009, the SJU Administrative Board adopted the European ATM Master plan endorsed by the Council of the EU on 30 March 2009. At the same time, the Administrative Board tasked the SJU with presenting a proposal for the first update of the European ATM Master Plan to the Board by the end of March 2010.

In September 2009, the SJU obtained support from its Administrative Board to set up a specific working group, composed of representatives of the SJU Members, airspace users, staff, and military, to work on this topic.

This working group analysed the European ATM Master Plan in its component focusing in particular on the IP1, Regulatory Roadmap, Standardisation Roadmap, Risk Management aspects. The proposed updates, of technical nature and having no substantial impact on the overall SESAR budget, performance or timescale, were presented to and adopted by the Administrative Board at its meeting of April 30th.

The SJU informed the Single Sky Committee about this non-significant update, with no objections from the Member States.

The maintenance of the ATM master Plan is an ongoing process that does not stop with this first update. Among other topics, the next versions will cover the assessment of the military needs and costs associated to SESAR deployment, and the update of the Risk Management Plan with the related mitigation actions and allocation of responsibilities. In that sense, a Master Plan update campaign will be launched by WP C1 after summer 2011. The objective of the Campaign is to prepare a proposal for a comprehensive update of the European ATM Master Plan that will take in consideration the results achieved by the WP component C2 focusing on building deployment scenarios. Wide consultation will support the process involving Airspace Users, National authorities, the Military and stakeholders from non European States.

3.7.4. Wireless Communication Study: achievements 2010

Since the launch of this study in January 2010 the two consortia, awarded Lots 1 and 2 respectively, have had their contracted deliverables reviewed and accepted. In addition both consortia presented at an information day in June 2010 to brief SESAR Members involved in the receiving projects 15.2.4 (Future Mobile data link system definition) and 15.2.6 (Future Mobile Satellite Communication). Since the information day all contractual deliverables have been updated by the consortia, received by the SJU and approved.

Since Lot 1 was limited to the investigation of the technology choice ground segment (LDACS1 & LDACS2) and the consortium had demonstrated competence and quality it was decided to extend the work of this consortium to report on the possible satellite link technology choices, hence a new Work-package (WP5) was awarded to them for this work. This work started in Q4 2010 and is planned to complete in Q1 2011.

3.8. Coordination with External Stakeholders

3.8.1. Nextgen and other similar activities: achievements 2010

During 2010, the EC on behalf of the EU have reached an initialled version of a Memorandum of Cooperation with the US currently addressing interoperability between SESAR and NextGen. While the memorandum is in this state of informal agreement the EC have requested the SJU to begin cooperation on high priority technical areas. This activity started in 2010 with the first 'informal' coordination meeting with the FAA taking place during September and agreement on a plan of action for the development of coordination plans for the high priority areas.

During Q4 meetings and teleconferences have taken place resulting in a number of the coordination plans being agreed between SJU and the FAA. SESAR Project and SJU Member involvement in cooperation activities is scheduled to begin during 2011, although formalising of the memorandum is a dependency

3.8.2. Clean Sky: achievements 2010

Coordination with Clean Sky focused on specific areas of common interest with the start of project level discussion and alignment, these are:

- AIRE & WP16 (SESAR Gate to gate aircraft operation improvement for fuel and environmental savings, environment metrics and modelling and the Clean Sky Technology Evaluator work),
- WP9 (Aircraft Systems in support of SESAR Trajectory based Operations and Clean Sky Trajectories for Green Operations),
- WP11 (SESAR MET for ATM and the Clean Sky COMET and other activities).

During 2010, the exchange of information was hindered by the lack of a legal confidentiality agreement between SESAR and Clean Sky, this was resolved by the Executive Directors signature of agreement during December. Consequently a closer means of working in the areas listed above and appropriate visibility of the content of respective projects are expected to enable a meaningful and beneficial project level coordination during 2011.

3.8.3. Framework Programme (FP): achievements 2010

Regular coordination meetings between the SJU, DG MOVE and DG RTD representatives have taken place during 2010. There is now a consolidated list of both SESAR and EC Research activities maintained jointly, including a mapping of related projects.

A consequence of this joint view is the opportunity of triggering project level information exchange and work sharing. This has been realised between the SJU and the SANDRA EC project under the provisions of a specific agreement.

Other opportunities will be progressed where there is benefit to SESAR as well as the monitoring of EC research calls for potential synergies and responding to requests for information from new EC funded research projects in 2011.

3.8.4. Communication Plan: achievements 2010

See paragraph 4.2 communication below.

3.9. Main expenditure related to outputs.

The 2010 marked an accelerated ramp up of the Programme (see 3.1) which was supported by the usage of the available financial resources through the pre-financing of the initiated projects and the co-financing of those entered into the execution phase. The operating expenses totalled EUR 77.7 million showing an increase of 24% over the previous year. The acquisition of goods and services has gone through the procurement process according to the SJU Financial Rules ensuring fair competition among the potential suppliers and efficient use of the SJU funds. The co-financing relates to the deliverables accepted in 2009 whose costs were reported into the Members' Interim Financial Statements and referred to the production of the Project Initiation Report (PIR) and

Management Initiation Report (MIR). Considering that 242 projects were in the execution phase at the end of 2010, it can be expected for the next year a significant increase of the amount requested for co-financing. Furthermore, an amendment of the MFA makes it possible, starting from 2011, the co-financing of the costs relating to work in progress.

Appropriate measures have been taken in this respect, including a call for a financing from the EC for EUR 19 million cashed in December. The amount of operating expenses reported above includes EUR 1.2 million co-financing of the AIRE. Staff expenditure amounted to EUR 3.6 million in line with the previous year whereas Administrative expenditure totalled EUR 3.6 million.

The resources made available by the SJU Members, in particular the cash resources made from FP7, TEN-T and Eurocontrol, were used overall in accordance with the SJU Financial Rules and, consequently, in line with the principles of the European Union Programmes providing the funds. With particular regard to the estimated eligible costs of the SESAR Programme, the provisions of section 9 of the SJU Financial Rules were applied, considering that these provisions are derived from the principles of FP7 and TEN-T funding system.

With regard to the use of TEN-T funds and FP7 funds during the execution phase this will primarily depend on their availability with a strategy to allocate them to Work Packages with a spending profile which ensure the timely and balance use of the commitment and payment resources. The revenue commitments available have been used in accordance with this strategy.

In 2010:

Staff and Administrative expenditure (Running Costs) funded 100% from EUROCONTROL cash contribution;

Studies and Development conducted by the SJU funded 100% from TEN-T contribution;

Studies and Development conducted by EUROCONTROL funded 100% by EUROCONTROL;

Studies and Developments conducted by other Members EUR 9 Mio (WPs C,7, 13 and 16) funded from EUROCONTROL cash contribution and EUR 46.6 Mio from TEN-T contribution.

Provisional Annual Accounts 2010 of 1 March 2011 – Budget Accounting

<i>all figures in EUR</i>	2010	2009
<u>REVENUE RECEIVED FOR THE YEAR</u>		
Contribution from the European Union	41.000.000	27.688.789
Contribution from Eurocontrol	11.625.884	9.000.000
Contributions from other Members	3.631.366	0
Other sources of contribution and revenue	(642.211)	2.085.936
TOTAL REVENUE (1)	55.615.039	38.774.725
<u>PAYMENTS MADE FOR THE YEAR</u>		
Staff Expenditure	(3.597.831)	(3.404.568)
Administrative Expenditure	(3.561.624)	(1.978.752)
Operating Expenditure	(77.740.814)	(62.556.644)
TOTAL EXPENDITURE (2)	(84.900.269)	(67.939.964)
<i>BUDGET SURPLUS of the year (3)=(1)-(2)</i>	<i>(29.285.230)</i>	<i>(29.165.239)</i>
Total Budget Surplus previous year (4)	86.468.261	115.633.500
<i>NEW TOTAL BUDGET SURPLUS (5)=(3)+(4)</i>	<i>57.183.031</i>	<i>86.468.261</i>
<u>COMMITMENTS STILL TO BE PAID (6)</u> <i>(RAL 2010 Title 1&2 only)</i>	<i>(3.713.549)</i>	<i>(2.518.328)</i>
TOTAL BUDGET OUTTURN (7)=(5)+(6)	53.469.482	83.949.933

Provisional Annual Accounts 2010 of 1 March 2011 – Budget Accounting - Revenues

<i>all figures in EUR</i>	1	2	3=2/1	4	5	6=5/4	7
<u>Type of revenue</u>	<u>Commitment appropriations</u>	<u>Actual Revenues established</u>	<u>% of budget</u>	<u>Payment appropriations</u>	<u>Actual Revenues received</u>	<u>% of budget</u>	<u>Outstanding (from 2010 only)</u>
Contribution from the European Union	105.000.000	105.000.000	100,0%	41.000.000	41.000.000	100,0%	64.000.000
<i>Of which FP7</i>	55.000.000	55.000.000		22.000.000	22.000.000		33.000.000
<i>TEN-T</i>	50.000.000	50.000.000		19.000.000	19.000.000		31.000.000
Contribution from Eurocontrol	11.450.000	6.166.373	53,9%	11.450.000	11.625.884	101,5%	2.619.681
Contributions from other Members	3.649.998	3.649.998	100,0%	3.649.998	3.631.366	99,5%	18.632
Other sources of contribution and revenue	182.973	352.488	192,6%	182.973	-642.211	351,0%	0
Budget surplus previous year	14.372.359	14.372.359		86.468.421	86.468.261		
TOTAL REVENUE	134.655.330	129.541.218	96,2%	142.751.392	142.083.300	99,5%	66.638.313

Provisional Annual Accounts 2010 of 1 March 2011 – Budget Accounting - Expenditure

<i>all figures in EUR</i>	1	2	3=2/1	4	5	6=5/4	7	8
<u>Type of expenditure</u>	<u>Commitment appropriations (Final budget)</u>	<u>Actual Commitments</u>	<u>% of budget</u>	<u>Payment appropriations (Final budget)</u>	<u>Actual Payments</u>	<u>% of budget</u>	<u>Commitments still to be paid (RAL 2010 only)</u>	<u>Commitments still to be paid (TOTAL)</u>
Staff Expenditure	5.459.269	4.958.018	90,8%	5.459.269	3.597.831	65,9%	1.959.331	1.959.331
Administrative Expenditure	3.214.730	3.008.379	93,6%	3.214.730	3.561.624	110,8%	1.754.218	1.794.454
Operating Expenditure	112.355.400	109.806.944	97,7%	94.570.124	77.740.814	82,2%		284.041.207
1. Studies/Development conducted by the SJU	15.830.000	13.881.544		14.532.496	15.855.910			60.377.479
2. Studies/Development conducted by Eurocontrol	600.000	0		6.897.147	6.297.147			702.853
3. Studies/Development conducted by other Members	95.925.400	95.925.400		73.140.481	55.587.757			222.960.875
TOTAL EXPENDITURE	121.029.399	117.773.341	97,3%	103.244.123	84.900.269	82,2%	3.713.549	287.794.992
TOTAL REVENUE		129.541.218			142.083.300			
BUDGET SURPLUS		11.767.877			57.183.031			

Provisional Annual Accounts 2010 of 1 March 2011 – Budget Accounting

In-Kind Revenue (*Annexe I of the Budget in accordance with the SJU Financial Rules*)

<i>all figures in EUR</i>			
	1	2	3=2/1
<u>Type of revenue</u>	<u>Commitment appropriations</u>	<u>Actual Revenues established</u>	<u>% of budget</u>
Contribution from the European Union	0	0	
Contribution from Eurocontrol to be recognized	52.250.000	52.250.000	100,0%
Contributions from other Members to be recognized	95.925.400	95.925.400	100,0%
Other sources of contribution and revenue	0	0	
Budget surplus previous year	0	0	
TOTAL REVENUE	148.175.400	148.175.400	100,0%

In-Kind Expenditure (*Annexe I of the Budget in accordance with the SJU Financial Rules*)

<i>all figures in EUR</i>			
	1	2	3=2/1
<u>Type of expenditure</u>	<u>Commitment appropriations (Final budget)</u>	<u>Actual Commitments</u>	<u>% of budget</u>
Staff Expenditure	0	0	
Administrative Expenditure*	0		
Operating Expenditure	148.175.400	148.175.400	100,0%
1. Studies/Development conducted by the SJU**	0		
2. Studies/Development conducted by Eurocontrol**	52.250.000	52.250.000	
3. Studies/Development conducted by other Members	95.925.400	95.925.400	
TOTAL EXPENDITURE	148.175.400	148.175.400	100,0%
TOTAL REVENUE		148.175.400	
BUDGET SURPLUS		0	

4. Governance, Management and internal control system

During 2010, the Administrative Board met 4 times providing governance and steering the activity of the SJU. Key decisions were taken in particular concerning the internal control framework, the ex post projects' audit strategy, the acceptance of Associate Partner to the SJU Members and Internal Auditor set up.

Considering the SJU nature of Public Private Partnership - where public and private resources are used to finance the Programme execution and its mission as described in Article 5 of the SJU Regulation - the Administrative Board at its meeting of October 19th adopted the Decision ADB(D) 13-2010 on the Internal Control Framework providing the legal basis for developing and maintaining an effective and efficient system of internal control with procedures applicable at all level of management.

The system is designed to provide the authorising officer, the Executive Director, with reasonable assurance of achieving the following objectives:

- Effectiveness, efficiency and economy of operations;
- Reliability of reporting;
- Safeguarding of assets and information;
- Prevention and detection of fraud and irregularities;
- Adequate management of the risks relating to the legality and regularity of the underlying transactions, taking into account the multiannual character of the programmes as well as the nature of the payments concerned.

At the meetings of July 12 and December 14 the Administrative Board adopted respectively Decisions ADB(D) 08-2010 and ADB(D) 18-2010 concerning the acceptance of 21 Associate Partner of SJU Members and the related amendment of the MFA.

In order to ensure equal treatment and transparency the selection procedure was based on the following steps in accordance with the aforementioned Board Decision:

- Invitation to the Members to indicate Associate Partner(s);
- Submission of the proposal;
- Assessment of the answer to the invitation with the intervention of different independent experts;
- Administrative Board decision;
- Signature of the subcontract between the Member and its Associate Partner.

The assessment of the proposals included administrative and technical aspects and focused as well on the exclusion criteria and on the legal, economic and financial capacity of the proposed candidates.

The decision on the Internal Audit set up was taken at the meeting of October 19th ADB(D) 11-2010, reflecting the position of the EC's internal auditor stating that the EC Internal Audit Service (IAS) is empowered to exercise the role of Internal Auditor in Joint Undertakings under the provision of the General Financial regulations of the EU.

The decision acknowledges the role of the IAS as the SJU's Internal Auditor, and the need to establish, under the provision of art. 38.4 of the SJU's Financial Regulation an Internal Audit Capability (IAC), reporting to the Executive Director.

The Internal Auditor supports the Chairman of the Board in assessing and managing potential conflict of interests which may arise or declared during the discussions and deliberations of the Board.

4.1. Programme Management and Risk Management.

During 2010 the “SESAR Programme Management Plan” (SESAR PMP) detailing how the Programme is organised and how the various R&D projects will be conducted, has been reviewed and improved in collaboration with the Members (see par. 3.2.17). The Programme is managed following basic principles of full transparency, timely and comprehensive communication, efficient reporting and escalating procedures which ensure participation and collaboration between Members and the SJU at different levels. The Members contribute to the Programme decision making process through the Programme Committee (PC) and at a more operational level through the Program Control Group (PCG), which met bimonthly in 2010.

The complexity of the Work Programme calls for a management structure which provides the Project Manager with some flexibility in the development of the projects and enables steering and control mechanisms to ensure overall coherence. Programme Governance and escalating procedures are defined in schedule 3 and 4 of the Multilateral Framework Agreement (see Annexe 5).

The SJU’s Risk Management Policy has been approved by the Executive Director with the decision ED 64 on March 25th. The policy builds on the following principles:

- Risk Management is a continuous process which develops at different levels of responsibility to ensure SJU’s activities execution and objectives delivery,
- Risk Management is linked to the SJU’s strategy and the risk policy is part of it,
- Risk Management is a process that identifying potential events affecting the ability of the SJU to reach its objectives, allows the management to take actions and define mitigating measures giving them reasonable assurance on the achievement of the objectives maintaining the residual risk at an acceptable level. In that sense, Risk Management covers both risks (potential events that may affect the SJU negatively) and opportunities (potential events that may affect the SJU positively),
- When an event or issue actually occurs it is managed outside the scope of this policy.

The decision defines also the functions of the SJU’s Risk Coordinator and the Programme Risk Manager monitoring compliance with the risk policy and ensuring the implementation of the risk management process.

A pervasive analysis of the SJU risks, including operational and administrative/financial risks has been conducted in 2010 and the results reported to the ADB (see 3.2.11). Risk assessment is embedded into the Annual Work Plan definition process.

4.2. The Internal Control System

The Internal Control System provides generic management principles and set out the minimum requirements for the internal control activities. It is articulated in six building blocks each of them has been developed at different degrees by the SJU, in line with the system in place at the European Commission.

- **Mission and Values.**

The mission of the SJU is clearly stated in Article 5.1 of the SJU Regulation.

In 2009, the SJU management established a SJU Vision which is included in the Annual Work Programme and communicated outside through the SJU Web site. It is summarised as follows: *“by 2012 we have created the change in European ATM that demonstrates to the world our ability to deliver benefits to the community”*.

The vision has been further detailed in medium term strategic objectives to be achieved by the end of 2012 (see 3.2), to ensure there is an effective monitoring towards the achievement of the SJU Mission at the end of the Programme.

A set of ethical values have been developed by the SJU Executive Team which constitutes a reference for the SJU staff and set the tone at the top of the SJU.

In house training are organised for new staff members.

- **Human Resources**

The SJU is an EU body and therefore its staff is subjects to the EU Staff Regulations.

The SJU recruitment process is almost finalised (see 3.2.12), however, the SJU Management continuously assess the HR needs and priorities, to match the available competencies with the developments of the SESAR Programme. The possibilities for mobility within the SJU are limited considering the staffing numbers (39 FTE) and the fact that most of the positions require highly specialised competencies and built up experience in the technical fields.

An internal Staff Satisfaction Survey indicated a high level of satisfaction for the content of the work and for the challenges related to the implementation of the Programme; however some remarks were made in respect to the limited possibilities of career progression and the absence of performance based rewards/penalties scheme. As result the staff performance assessment process will be reinforced. The draft Decisions related to the establishment of the SJU Staff Committee were submitted to the ADB on 14 December and are currently at the EC in order to receive their agreement in accordance with Article 110 of the EU Staff Regulations.

In 2010, the Administrative Board also approved the procedure for the assessment of the performance of the Executive Director.

- **Planning and Risk Management Processes**

The AWP 2011 was presented to the Administrative Board at its December meeting and approved by correspondence in February 2011 (the draft Budget 2011 was already submitted by the 30 September). The document identifies through the SESAR Programme Release 1 short term objectives contributing to the achievement of the medium term strategic objectives (see 3.2) and overall of the European ATM Master Plan. The progress of each project is monitored on yearly basis through the Control Gate where actual results are compared with the planned as defined in the Project Initiation Report (PIR) and necessary actions for the re-alignment are identified or decision for discontinuing the activities taken.

With regard to risk management, section 4.1 and Annex 5 provide further information

- **Operations and control activities**

The operational structure of the SJU is composed by the Programme Support Office (PSO) focusing on coordinating and supervising the execution of the projects and by “Chiefs” who ensure the consistency of programme in respect to the objectives set in their relevant area of responsibility. These cover:

- Programmes,
- Air Traffic Management,
- Technology and Innovation,
- Economics and Environment,
- Regulatory Affairs.

The combination of the two approaches supports effective and efficient decision making.

In 2010, the PSO made an extraordinary effort to support Project Managers in moving their project from the initiation phase to the execution phase by assessing and reviewing the technical documentation prepared and expressing an opinion on whether or not authorisation should be given by the Executive Director. 232 projects entered in the execution phase representing 76% of the Programme (see 3.1). In parallel, the Directorate Administration and Finance performed the financial assessments (see 3.2.8).

The financial circuits have been formalised and consistently applied ensuring segregation of duties as required by the SJU Financial Rules of 28 July 2009. The Implementing rules have been drafted and after presentation to the ADB have been submitted to the EC services for comments before final approval (expected in 2011).

In accordance with the Financial Rules, the SJU follows the four eyes principle ensuring that, before an operation is authorised, all aspects (both operational and financial) have been verified by a staff member other than the one who initiated the operation. The verification aims at ensuring compliance with rules and sound financial management and supports decision by the authorising officer.

Besides the ex ante control, the SJU has set up capability for ex post controls, by recruiting two project auditors and by awarding a contract for audit service to E&Y.

The Ex-post Project Audit Strategy has been presented to ADB of 14 December and, with some improvements proposed by stakeholders, approved by correspondence on 31 December allowing the start of Members’ audits related to the first set of Interim Financial Statements. The strategy has been conceived having in mind that through its implementation a twofold objective should be achieved:

- it should provide the Authorising Officer with assurance on the regularity, legality and sound financial management of the organisation’s operating expenditure, and
- it should provide the SJU’s stakeholders with an instrument to further support the partnership to achieve its overarching results by raising awareness of best practice, guiding the Members in the better implementation of the SJU’s Rules, MA and MFA and contributing to the proper , economic, efficient and effective use of resources.

Business Continuity measures have been planned to mitigate the risk from a pandemic flu both through prevention activities and by identifying the minimum staff required to guarantee the continuation of some activities in case of pandemic occurrence.

On the IT point of view, the services provided by Eurocontrol have been reviewed within the context of the Agreement signed with them. The same standards followed by Eurocontrol are applied to the SJU applications and data. An important project was launched in the final part of 2010 to set up hosting facilities for the SJU IT, in order to reduce risks and costs related to its management. The IT hosting facility is expected to be operational by the end of Q1 2011.

- **Information and Financial Reporting**

Communication

Effective communication is crucial to the success of SESAR; the SJU implements its communication strategy through a multiannual Communication Plan. The strategy is based on a two pronged approach: internal communication addressed to SJU's staff and to all SESAR dedicated staff at the Members; external communication addressed to all stakeholders and citizens having interest in SESAR. In order to reinforce and harmonise communications activities, the SJU set up a Coordinated Communication Team involving the Members aiming at sharing and adopting common guidelines on how to communicate progresses and milestones, reached within the programme. This Committee met twice in 2010, at the last meeting in November communication experts from the Associate Partner of the Members also participated.

A focus has been put on the internal communication as well as on e-learning possibilities for the growing SESAR family (+- 2.000 people). E-modules on seven different topics were produced and made available on the extranet to offer a flexible way to the project managers to be fully informed and trained about the SESAR programme and rules (see par.3.5). Moreover, a dedicated communication on the SESAR 2012 vision and its seven strategic objectives was planned and developed with the involvement of the members. Videos, web messages, on-line modules are attractive and efficient ways to reach the goals defined in the Communication Plan.

In 2010 the website, being the SJU's main communication channel, attracted a record of 135.000 visitors with an average of 11.000 per month. Moreover, the database of contacts to which the monthly e-newsletter is delivered was extended to 17.000 valid contacts supporting this boost in terms of information dissemination to the stakeholders.

For the first time, in 2010 the SESAR Joint Undertaking was actively present at ATC Global in Amsterdam, the worldwide exhibition about Air Traffic Management welcoming 5.000 experts from around the globe. The SJU organised four conferences: one large internal meeting with all project managers, one public forum targeting all our stakeholders, one symposium together with the FAA on the AIRE programme and one press briefing. The SESAR Forum is the yearly information appointment for all stakeholders looking for some detailed updates on SESAR from the founding members, the members and the SJU executive management. During the AIRE conference, the SJU and the FAA released the results of the first AIRE trials. The SJU's presence at the fair via a SESAR branded booth supported the objective of transparent and pro-active information.

In 2010, the SJU communicated directly to passengers for the first time explaining to them the SESAR programme and its ambition. A targeted, pro-active campaign in seven of Europe's main airports was developed including the distribution of a special leaflet.

Financial Reporting and Information

The SJU has developed its own internal reporting system covering Budget and Finance, follow-up of the Work Programme, Human Resources, reviewed at Management Level and submitted for discussion

to the Executive Director. In June the ABAC/SAP system was introduced providing support for financial transactions and accounting and aligning the SJU to the standard of the European Commission.

In order to streamline the Programme's operational and financial reporting, the SJU, in agreement with the Members, introduced some amendments to the MFA. On request by the SJU and at least once a year the Project Manager prepares the Interim Project Report comprising an overview of the work towards the objectives of the project with a detailed status of the deliverables in the reporting period, risks and opportunities with related recommendations, and activities planned for the next reporting period.

The Report includes, *inter alia*, an estimate of the efforts consumption including direct labour and subcontracting efforts related to the project's deliverables within the reporting period. The Interim Project Report is discussed at the project's Control Gate when the decision on the continuation of the project is taken.

The financial reporting is based on the annual Interim Financial Statements per Member, which includes the detail of the eligible costs incurred by a Member broken down by Projects identifying costs related to accepted deliverables and work in progress. This report, accompanied by the audit certificate is the basis of the financial assessment which upon coherence check with the operational reports leads to the granting of the co-financing. The criteria to identify eligible costs are clearly defined in the MFA (Schedule 2 – Financial Provisions) whereas the methodology followed for the assessment reflects the four eyes principle with Initiation and Verification for both the operational and financial aspects. Furthermore, in accordance with the Project Audit Strategy, the SJU has the intention to perform *ex-post* audits focused on the value for money.

- **Evaluation and audit**

In 2010 the Administrative Board modified the structure of the SJU Internal Audit function to comply with an observation by the European Court of Auditors in its Opinion No. 2/2010 on the SJU Financial Rules. Taking into account the views of the European Commission services, and in particular the views of the European Commission's Internal Auditor, Director General of the Internal Audit Service (DG IAS), the Board formally appointed the European Commission's Internal Auditor (DG IAS) as the SJU Internal Auditor and requested the Executive Director to establish an Internal Audit Capability (IAC) within the SJU (see chapter 4).

At the end of 2010 the Executive Director established the IAC, appointed the former SJU Internal Auditor to assume the IAC role, and approved the IAC audit work programme for 2011. This work programme provides the Executive Director with advice and audit assurance on the systems and procedures adopted by the SJU in the context of his Authorising Officer responsibilities. Taken together, the Decisions of the Board and the Executive Director put in place the "dual system" of internal audit that operates in the European Commission, Agencies and other bodies of the European Union.

In accordance with the Internal Audit Capability charter, the IAC submits to the Administrative Board an annual activity report setting out, *inter alia*, the number and type of internal audits conducted, the recommendations made and the action taken on these recommendations. The audit activity in 2010 will be reported to the Board at its 17th meeting in March 2011. In summary, the following audit assurance reports were submitted to the Executive Director and/or the Board in 2010:

- Mission Expenditure.

- Opinion on the 2009 Annual Activity Report of the Authorising Officer.
- Internal Audit Annual Activity Report 2009.
- Audit Inspection to observe the evaluation of WP 'E' proposals.
- Report to the Executive Director and Board Chairperson on changes to the Internal Audit structure.
- IT system network security and value for money.

The European Court of Auditors audits the SJU on an annual basis, in particular the annual accounts and assesses the respect of the principle of sound financial management, legality and regularity of the underlying transactions.

In order to ensure the co-ordination of the work of the different SJU auditors, the Administrative Board of the SJU established in 2008 an Audit Panel. The Audit Panel, which is constituted by

- the SJU Internal Auditor,
- representatives of
 - DG MOVE External Audit Unit,
 - DG MOVE Internal Audit Capability,
 - the Internal Auditor of Eurocontrol,
 - the Audit Board of Eurocontrol,
 - the Internal Audit Service of the European Commission,
 - the European Court of Auditors
- the SJU Director Administration and Finance,

The Permanent Audit Panel met on four occasions in 2010 to co-ordinate audit matters.

As required by the SJU Regulation, the European Commission has carried out a first intermediate evaluation of the SJU in 2010 and presents the results in a report to the European Parliament and the Council (COM(2011)14). By focussing research and development activities and steering them towards deployment and actively involving the stakeholders, the SJU provides an optimal response to the needs of the airspace users and service providers. The public-private partnership approach at EU level ensures that the SES objectives of high societal relevance such as safety and decarbonisation are integrated and internalised in the Programme. This approach has allowed leveraging and pooling funding and know-how and reducing fragmentation created by similar national and regional projects and harness the skills and innovation capacity of the private sector within appropriate risk sharing arrangements.

From an international perspective, the SJU has become the EU's "technological ambassador" for promoting global ATM interoperability. A major step has been taken in this domain through the negotiation of a Memorandum of Cooperation between the EU and the USA. The Memorandum contains a specific Annex on cooperative actions in the field of SESAR-NextGen interoperability, which will be carried out, for the EU side, by the SJU.

5. Criteria for Annual declaration of Assurance

5.1. Building blocks towards reasonable assurance of the Executive Director (AOD) for the legality and regularity of underlying transactions

The 2010 saw the progressive start of the programme operations with almost 90% of the projects being in the execution phase or being initiated (see 3.1); the volume and the value of the transactions analysed, assessed and processed by the SJU increased significantly requiring well tested and formalised financial circuits to support operational activities. Acquisition of the necessary resources for the smooth functioning of the joint undertaking continued through the procurement in strict compliance with the provisions of the Financial Regulation, and in case of human resources through recruitment in compliance with the Staff Regulation.

5.1.1. Assessment by management

Section 4 provides a clear description on the current status of the management systems put in place to provide assurance on the functioning of the organization.

In order to ensure the sound financial management, legality and regularity of the underlying transactions, all transactions are submitted to the four eyes principle in the preparation phase as well as in the deliverable acceptance/payment phase. The ex-ante control function is exercised at operational level, to verify the work performed during the initiation of the transaction to ensure that the required results are achieved, and at financial level to verify the application of the rules. Considering the status of advancement of the Programme as described in the previous section of this document, no ex-post controls have been executed yet. The project audit team is operational since the second half of 2010 and following the approval at year end of the Ex-Post Project Audit Strategy will perform the first batch of audits starting in the first quarter of 2011. It works will be complemented by Ernst & Young, with whom a framework contract has been signed following a selection process.

The extensive ex-ante controls allowed for avoidance of material errors and formal errors, detected at different level of the authorization process (initiation, verification, authorization and payment). The Accounting Officer performs a final control on each payment made, finally verifying that the authorization process has been complied with and no issues highlighted in the acceptance of the deliverables.

The SJU has established an “exceptions’ register” to manage and monitor possible exceptions to rules, and all exceptions are submitted to the AOD with a justification for endorsement. Exceptions recorded during the year are not material in value.

The introduction of ABAC/SAP made in June and the seamless migration of data from the existing accounting system, has added significant assurance to the management on the level of control and in particular on the cycle appropriation, commitment, expenditure which is performed at Member/Project level. The implementation of the Ex-Post Audit Strategy will provide assurance on the eligibility of the costs co-financed as well as on the value for money.

Substantial progress has been achieved however work has still to be done to reach the highest standards for management and control systems requiring continuous and focused activity by all the SJU’s staff..

5.1.2. Results from independents audits during the reporting year

Internal Audit

In execution of the Work Plan agreed with the Executive Director, the Internal Audit performed a numbers of audits focusing on specific areas identified by the internal audit risk assessment for planning purposes (see 4.2). Recommendations arising from audits performed in 2010 identified scope for improvement in the SJU internal control system.

In 2010 follow-up audits from previous years have been performed, in particular:

- Mission expenditure
- Recommendations from ECA

The results, together with the assessment of the actions taken following the audit recommendations have been reported to the Executive Director. Consistent with the SJU vision and mission statement, each audit recommendation has received prompt attention from management.

European Court of Auditors

The European Court of Auditors audited the 2009 Annual Accounts during three missions 2010, and issued the final report on October 20th 2010 together with the auditee comments. The report cleared the 2009 account with no qualifications. However some observations for improvement were formulated by the ECA on some aspects of the SJU internal control system.

The SJU has taken actions in this respect and has presented amendments to the SJU Financial Rules, together with changes to the structure of internal audit arrangements, that were approved by the Administrative Board on December 14th 2010. The decision taken by the Administrative Board are a step in the direction of full alignment with the Court observations.

Internal Audit Service of the European Commission and other auditors

Following the appointment of the Internal Auditor of the European Commission as the SJU Internal Auditor, the SJU took the first steps to prepare to facilitate risk assessment and planning activities by the Commission's Internal Audit Service.

During 2010, in accordance with the terms of Contract SJU/0006-CTR to provide industrial support activities, the Airbus Chief Compliance Officer provided the SJU with a report on the effectiveness of the measures contained in the contract to identify and manage conflict of interest and to ensure confidentiality in information management. The report contained recommendations to improve the measures put in place and provided reasonable assurance overall to the Executive Director on these matters, consistent with the EU ethic & integrity principles and the principles of confidentiality, commitment and management of conflict of interest established by Administrative Board Decision ADB(D) 10-2008.

5.2. Reservations and their impact on the declaration of assurance

No reservations are made.

6. Declaration of Assurance

I, the undersigned, Patrick Ky, Executive Director of the SESAR Joint Undertaking, in my capacity as authorising officer

- Declare** that the information contained in this report gives a true and fair view,
State that I have reasonable assurance that the resources assigned to the activities described in this report have been used for their intended purpose and in accordance with the principles of sound financial management, and that the control procedures put in place give the necessary guarantees concerning the legality and regularity of the underlying transactions. This reasonable assurance is based on my own judgement and on the information at my disposal, such as the results of the self-assessment, ex-post controls, the work of the SJU Internal Auditor and the lessons learnt from the report of the European Court of Auditors for years prior to the year of this declaration.
Confirm that I am not aware of anything not reported here which could harm the interests of the SJU.

Brussels,

Signed on 29.03.2011

Patrick Ky
Executive Director

Annexe 1

Sites and Platforms

SESAR partners undertake Step 1 V3 validation on **38 different physical sites using 42 platforms**. This covers Real Time, Shadow Mode and Live Trials to provide mature V3 evidence to support SESAR deployment decision making. The table below consolidates SESAR platforms, sites and operational domain.

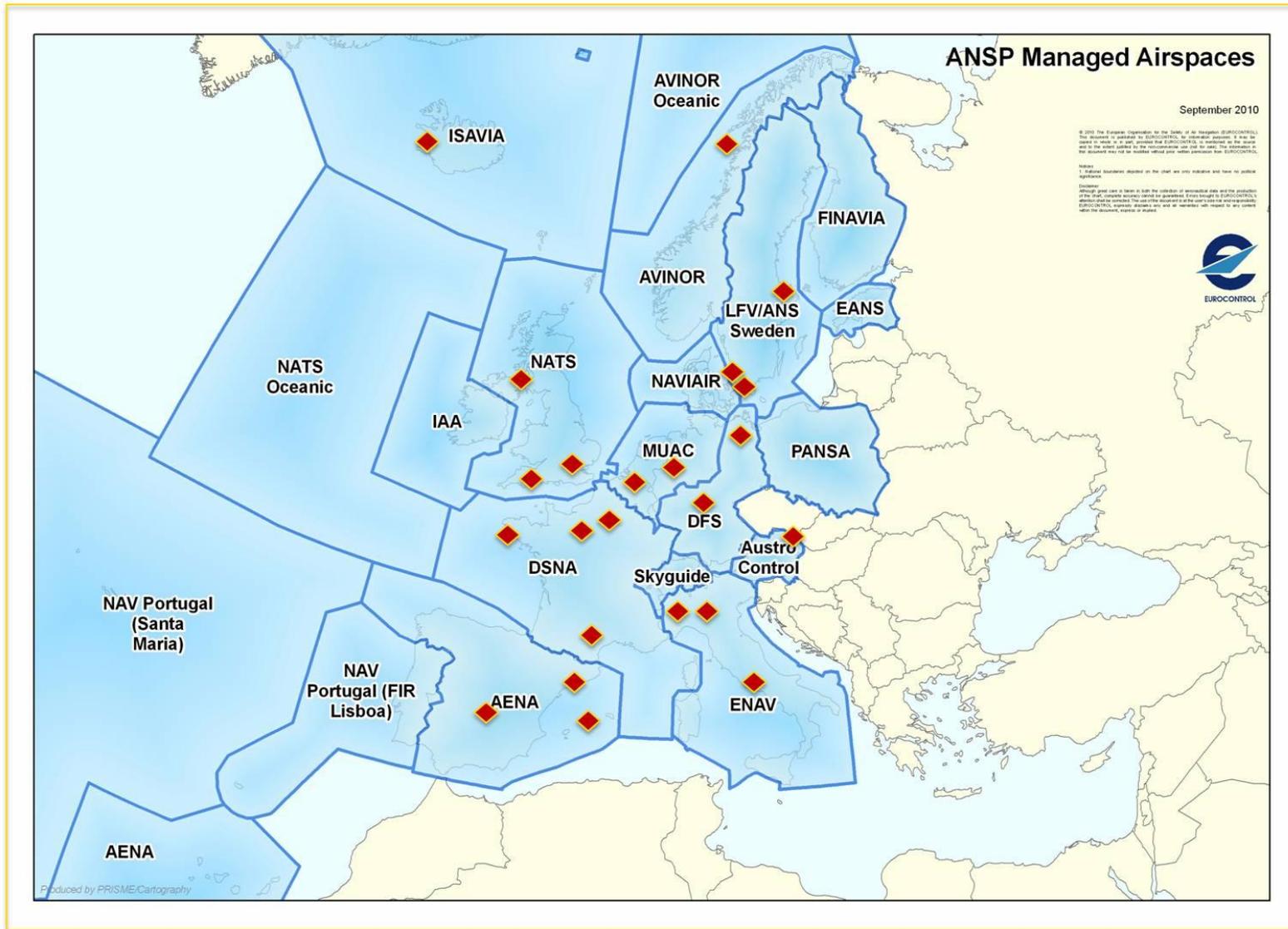
	Network	En-Route	TMA	En-Route/TMA	Airport & TMA	Airport System	Airport ATC	Oceanic
AENA		AENA Madrid ACC	Aena HQ Pre-operational IBP* AENA Barcelona ACC AENA Palma ACC	Aena HQ Pre-operational IBP			Aena HQ Pre-operational IBP	
DFS		DFS ENR IBP Langen 1					DFS TWR IBP Hamburg DFS TWR IBP Langen	
DSNA		DSNA En-route TMA IBP Reims DSNA Toulouse DSNA En-Route IBP Brest	DSNA En route TMA IBP Athis* DSNA Toulouse DSNA Blagnac*	DSNA En Route TMA IBP Reims DSNA Toulouse	DSNA CDG IBP+ DSNA En route TMA IBP Athis		DSNA Blagnac DSNA CDG IBP	
ENAV			ENAV IBP Milan TMA ENAV IBP Rome	ENAV IBP Rome ENAV iCWP Platform*			ENAV IBP Malpensa	
ECTRL	ECTRL EEC ECTRL MUAC ECTRL ENMVP BR	ECTRL MUAC		ECTRL MUAC	ECTRL EEC*		ECTRL EEC*	
NATS		NATS London ACC	NATS London TC NATS Southampton APT		NATS Gatwick Airport	NATS Southampton APT	NATS London TC NATS Heathrow Airport NATS Southampton APT	NATS Shanwick ACC

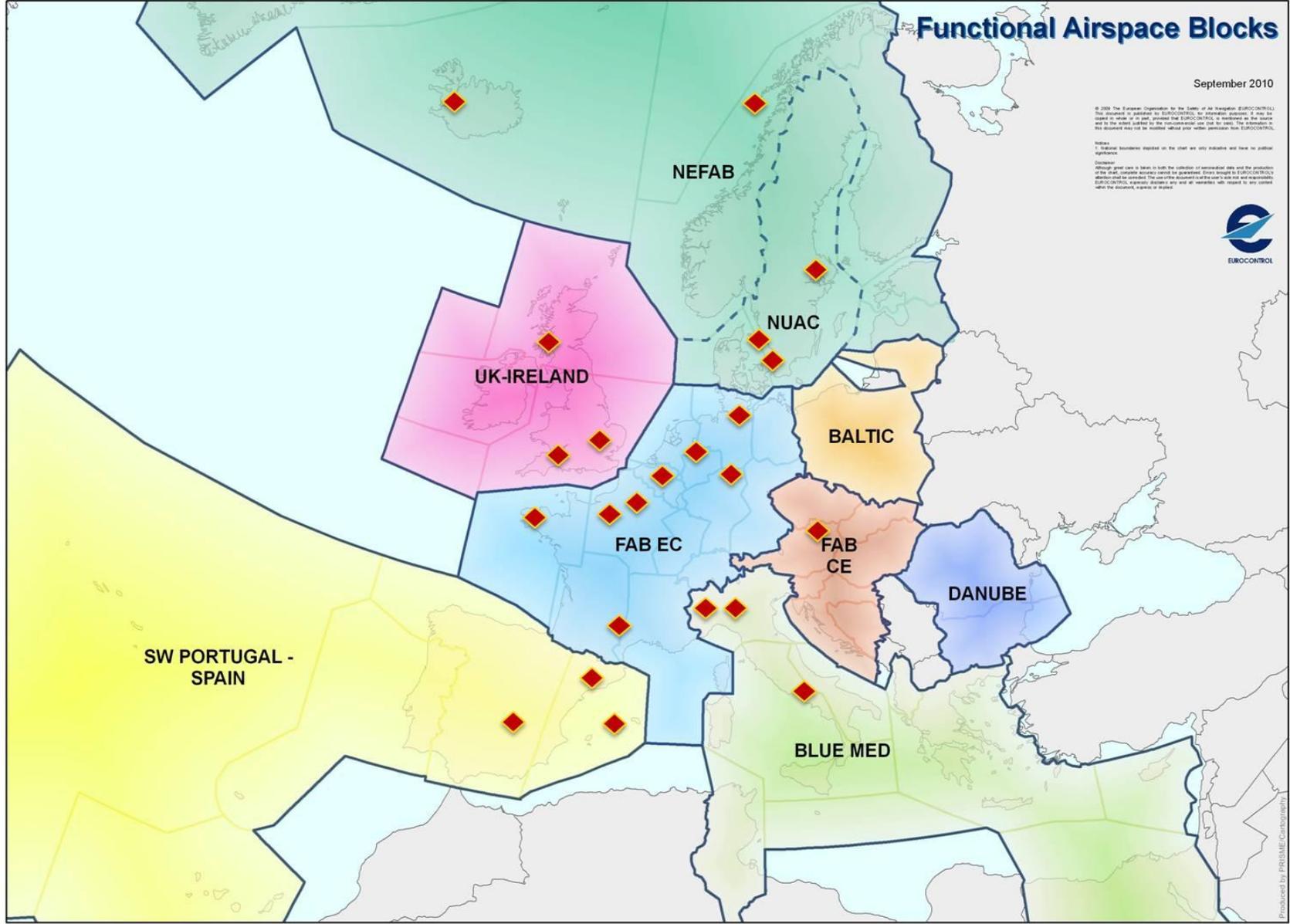
	Network	En-Route	TMA	En-Route/TMA	Airport & TMA	Airport System	Airport ATC	Oceanic
NORACON	NORACON (TBD)		NORACON Malmö	NORACON Malmö NORACON Stockholm	NORACON Malmö		NORACON Rost NORACON Malmö NORACON Ängelholm Airport NORACON Stockholm	
FREQUENTIS	FREQUENTIS Vienna							
AIRBUS		AIRBUS Aircraft Integration Simulator	AIRBUS Flight Test Aircraft AIRBUS Aircraft Integration Simulator	AIRBUS Flight Test Aircraft AIRBUS Aircraft Integration Simulator	AIRBUS Flight Test Aircraft* AIRBUS Aircraft Integration Simulator*		AIRBUS Flight Test Aircraft AIRBUS Aircraft Integration Simulator	
Alenia			Alenia ATR-Aircraft Research Simulator	Alenia ATR-Aircraft Research Simulator* Alenia C27J-Aircraft Integration Simulator* Alenia C27J Flight Test Aircraft*	ATR Flight Test Aircraft*		ALENIA ATR-Aircraft Research Simulator	
Honeywell					Honeywell test aircraft*			
THALES					Thales cockpit simulator*			

Note: some partner platforms/sites are also used for operational contingency which may present a risk to their availability and extent to which they may be modified. Some airport activities will be undertaken on **SEAC** sites by ANSPs.

* V&V Platforms already declared by partners but not yet present in the analysed validation exercises.

The graphic presents the geographical location of SESAR Validation Sites per ANSP and per FABs.





Annexe 2

The tables below summarize the situation of the SJU contracts.

Category and grade	SJU Establishment plan 2010		Post actually filled at 31.12.2009		Posts filled in by external publication in 2010		Post actually filled at 31.12.2010	
	perm	temp	perm	temp	perm	Temp	perm	Temp
AD 16								
AD 15								
AD 14		1		1				1
AD 13								
AD 12		4		4				4
AD 11		1		1				1
AD 10		3		1		2		3
AD 9								
AD 8		6		2				2
AD 7		4		2		2		4
AD 6		4		1				0*
AD 5		10		2		1		3
Total AD		33		14		5		18*
AST 11								
AST 10								
AST 9								
AST 8								
AST 7		1		1				1
AST 6								
AST 5		1				1		1
AST 4								
AST 3		2		1				1
AST 2								
AST 1		2		2				2
Total AST		6		4		1		5
Total		39		18		6		23*

* one staff (AD 6) left the SJU in 2010

	ACTUAL 2010									Total	Budget 2011						Total		
	GRADE	Name	Contract	Start Date	Temporary Ag.	Contr. Agent	Secondment	END	PSO ECTRL		GRADE	Staff Plan	Tempo Ag	Contr. Agent	Secondment	ENDS	PSO ECTRL		
SJU STAFF																			
Executive Director	AD14	Ky	Indefinite	01/11/07	1					1	AD14	1	1					1	
Director Administration and Finance	AD12	Borghini	Indefinite	16/06/08	1					1	AD12	1	1					1	
Chief Technology and Innovation	AD12	Hotham	Indefinite	01/06/08	1					1	AD12	1	1					1	
Chief ATM	AD12	Standar	Indefinite	01/07/08	1					1	AD12	1	1					1	
Chief Regulatory Affairs	AD12	Calvo Fresno	TA	01/06/09	1					1	AD12	1	1					1	
Chief Communication	AD11	Platteau	Indefinite	16/08/08	1					1	AD11	1	1					1	
Chief Economics and Environment	AD10	Siebert	Indefinite	16/04/08	1					1	AD10	1	1					1	
Advisor to the Executive Director	AD10	Mac Fadden	TA	16/02/10	1					1	AD10	1	1					1	
Senior Advisor for Military Affairs	AD10	Koehi	TA	16/05/10	1					1	AD10	1	1					1	
Head Legal affairs and contracts sector	AD8	Friman	Secondment*	01/04/10			1			1	AD8	1			1			1	
Head of budget, financial resources and accounting	AD8	Dedic	Indefinite	01/02/08	1					1	AD8	1	1					1	
Hd ConOps	AD8	Graham	Eurocontrol*	01/01/09			1			1	AD8	1			1			1	
Hd Validation/Verification	AD8	Ferrara	Secondment*	01/11/09			1			1	AD8	1			1			1	
Hd ATM Systems	AD8	Bowen	TA	01/06/09	1					1	AD8	1	1					1	
Architecture & Systems Engineer	AD8		TA							0	AD8	1	1					1	
Legal & contract Adviser	AD7	da Silva	Indefinite	01/02/08	1					1	AD7	1	1					1	
Finance and accounting Officer	AD7	Jeanfils	Indefinite	15/09/08	1					1	AD7	1	1					1	
Environment Officer	AD7	Alves Rodrigues	TA	01/02/10	1					1	AD7	1	1					1	
Project Auditor	AD7	Van Maldergem	TA	01/09/10	1					1	AD7	1	1					1	
Advisor Validation / Verification	AD6	Gagea	Secondment*	01/04/10			1			1	AD6	1			1			1	
Advisor ConOps	AD6	Gomez Segura	Secondment*	16/04/10			1			1	AD6	1			1			1	
ATM Systems Engineer	AD6	Cortes Camino	Secondment*	01/06/10			1			1	AD6	1			1			1	
Financial Officer	AD6	Atanasov	TA	01/02/11						0	AD6	1	1					1	
Communication Associate	AD5	Schoeffmann	TA	01/09/09	1					1	AD5	1	1					1	
Economist	AD5	Vartis	TA	01/10/09	1					1	AD5	1	1					1	
HR Legal Officer	AD5	Pavkovic	CA	01/03/09			1			1	AD5	1			1			1	
Project Auditor	AD5	Christodouli	TA	01/08/10	1					1	AD5	1	1					1	
Principal Advisor Finance	AD5	Fusco	Eurocontrol	01/07/09			1			1	AD5	1			1			1	
Internal Auditor	AD5	Walton	Eurocontrol	19/01/09			1			1	AD5	1			1			1	
Legal Officer	AD5	Ilkova	CA	16/08/09			1			1	AD5	1			1			1	
Senior Programme Management & Quality Expert	AD5	Ritchie	Secondment*	01/01/10			1			1	AD5	1			1			1	
Programme Management & Quality Expert	AD5	Gobbi	Secondment*	01/09/09			1			1	AD5	1			1			1	
ATM Programme Expert	AD5	Ramos	Secondment*	01/01/11						0	AD5	1			1			1	
Human resources Officer	AST7	Courtois	Indefinite	01/02/08	1					1	AST7	1	1					1	
Financial accountant	AST5	Hancq	TA	01/07/10	1					1	AST5	1	1					1	
Administrative Assistant	AST3	Feugier	Indefinite	01/04/08	1					1	AST3	1	1					1	
Administrative Assistant	AST3		TA							0	AST3	1	1					1	
Secretary - Programme Director	AST1	De Boeck	Indefinite	01/04/08	1					1	AST1	1	1					1	
Secretary to the executive Director	AST1	Kielbowicz	Indefinite	01/08/08	1					1	AST1	1	1					1	
TOTAL					23	2	10		0	35		39	26	2	11		0	39	
END										0								0	
Programme Manager WP-C										0		1				1		1	
Advisor Regulatory Affairs		Nemec	END	16/06/10					1	1		1				1		1	
Advisor Institutional Affairs		Lhuissier	END	01/10/09					1	1		1				1		1	
TOTAL					0	0	0	2	0	2	0	3	0	0	0	3	0	3	

Annexe 3

Projects Suspended and Cancelled

Cancelled Projects

Wbs Number	SJU final decision	Sju Decided On	Reason for suspension/cancellation	Corrective actions undertaken
07.07 PROJECT NOT KICKED OFF	Red - Cancelled	25/08/2010	During the Initiation Phase, has been demonstrated that the objectives of the P 07.07 would be better addressed within the scope of the P 07.02 (Co-ordination & consolidation of the Concept and validation).	Scope of the Project 07.07 has been merged with the Project 07.02 scope. The initial contributions allocated to P 07.02 have been kept as such without transfer of contributions from P 07.07.
12.04.10	Red - Cancelled	28/10/2010	Some of the foreseen tasks are planned in other projects and can bring in this way duplication.	The remaining tasks which were aimed to fill the missing gap for remote tower operated iCWP, shall be moved to 12.04.07 project.
15.03.05	Red - Cancelled	22/12/2010	Internal and external issues have questioned the project with regard to: - Original scope (i.e. complementing EGNOS by a Ground Integrity Channel broadcasted through the ERIS signal supposed to be implemented on Galileo MEO satellites); - Objectives (i.e. provide reliable SBAS services whatever the considered ECAC area and independently of the aircraft attitude); - Plan (i.e. assess the feasibility of achieving the required performances, propose to Galileo	Re-open project Objective, Scope and way forward considering the evolution of the external context (Galileo) following below steps: 1) Cancel the project under its current objective and scope, 2) Establish a new Description Of Work (DOW) based on the consultation of Airspace Users, SESAR projects which have dependences with SBAS, and the EGNOS/Galileo community,

Suspended Projects

Wbs Number	SJU final decision	Sju Decided On	Reason for suspension/cancellation	Corrective actions undertaken
12.06.08	Red - Suspended	15/01/2010	Objective and scope of the project are vague, without substantial justification for the development approach proposed.	Reassess the suspended project in order to decide whether the project should be approved.
12.06.09	Red - Suspended	15/01/2010	Project Members recommended that the start of the execution be delayed until the dependent SESAR projects have delivered solutions that are mature enough to ensure a successful outcome.	Start the project in Step 2, with Step 3 depending upon the maturity of SWIM and related CDM products.
14.02.01	Red - Suspended	13/04/2010	1) Unclear approach to technology transition plan. 2) Lack of preliminary analysis in the proposed approach to AGDLGMS. 3) Unclear approach and effort allocation.	1) Assess whether the complete technology selection cannot be done more efficiently in a single project (i.e. 14.01.02). 2) Perform some preliminary technical analyses to help identify the best way to integrate aircraft in the SWIM network.
05.07.03	Red - Suspended	20/07/2010	1) Synchronisation with relevant projects in the programme 2) Unclear Inputs expected from other projects 3) Insufficient alignments among tasks, deliverables descriptions and timing in PIR Part 2 and descriptions provided in PIR Part 1.	Projects suspension should be revisited, when evidence is provided that the blocking issues have been sufficiently addressed. The project is required to update its PIR 2 months prior to the project gate in 2012; the updated PIR will be reviewed at the ga
04.07.05	Red - Suspended	06/07/2010	1) Project is closing only V2. V3 is only partly addressed namely in the OSED and ASAS roadmap; 2) Unlikely feasibility of producing a V3 Final OCD in 05/2012; 3) Project should capture more mature requirements as baseline.	Projects suspension should be revisited, when evidence is provided that the blocking issues have been sufficiently addressed. Project is required to restart end 2011 with a short update of the PIR .
04.08.04	Red - Suspended	03/08/2010	1) Definition and validation of General Aviation services is not effectively achieved without the involvement of industry with experience in general aviation avionics. 2) A lack of 'flight trial' opportunities is another issue which should be addressed	New approach to this project is needed, to ensure wider buy-in and a more complete project scope covering both operational and technical elements and defined validation activities including flight trials.
04.07.04.a	Red - Suspended	01/10/2010	1) Absence of a suitable pre-industrial prototype to complete V3 validation and produce associated deliverables. This is due to lack of an effective link with technical project 10.3.3. leading to 4.7.4.a inability to use the 10.3.3. prototype in operation	
10.03.03	Red - Suspended	01/10/2010	1) Current 10.3.3 PIR describes the development of a V3 pre-industrial prototype based on an en-route CWP HMI adapted to support the oceanic requirements, CPDLC update and possibly an adapted MTCD. 2) The integration of this prototype in the SAATS FDP o	Projects suspension should be revisited, when evidence is provided that the blocking issues have been sufficiently addressed.
05.04.01/05.04.02*	Red - Suspended	08/10/2010	1) No industrial prototype to support V3 validation is planned to be developed within the Programme. Relationship with federating projects is either incomplete (i.e. X2) or missing (i.e. X3). 2) V3 validation approach is uncertain both in terms of ava	Projects suspension should be revisited, when evidence is provided that the blocking issues have been sufficiently addressed.
05.06.05	Red - Suspended	08/10/2010	1) No system project has been identified to develop a prototype and enable achievement of V3 maturity. Relationship with x2 is incomplete and not adequately described. 2) Project scope is not clear in terms of phase(s) of flight to be addressed as well	Projects suspension should be revisited, when evidence is provided that the blocking issues have been sufficiently addressed. 5.6.5 project suspension should be revisited after the approval of 5.2 and 5.3 work plan revisions for Step 2 activities at thei

The overall impact of the projects suspension is described below:

- About 60% of the currently suspended projects are related to activities that require other projects to deliver first mature results before being re-started. They are typically expected to deliver results for Step 3 which have to be built upon Step 1 and Step 2 achievements (e.g. UDPP, full 4D related projects).
- About 20% is related to projects which have not a reliable coupling with other programme activities, their outputs do not significantly contribute to other projects and therefore their suspension does not affect other parts of the programme.
- Finally the remaining projects have been suspended because a lack of clear link with the future concept of operations or because the lack of connection with the Master Plan. The need for such activities will be re-assessed at a later stage of the programme implementation

Annexe 4

1. Detailed Report per Work Package

1.1. The structure of the Programme and Gantt charts

The Programme defines all projects and activities to be undertaken in the 2008-2016 timeframe under the supervision of the SJU.

The Programme is divided into WPs addressing ATM domains, themselves organised into Sub-WPs and Projects dealing with a specific issue. Through the most appropriate tender procedure, for each Project the SJU has selected the best partners.

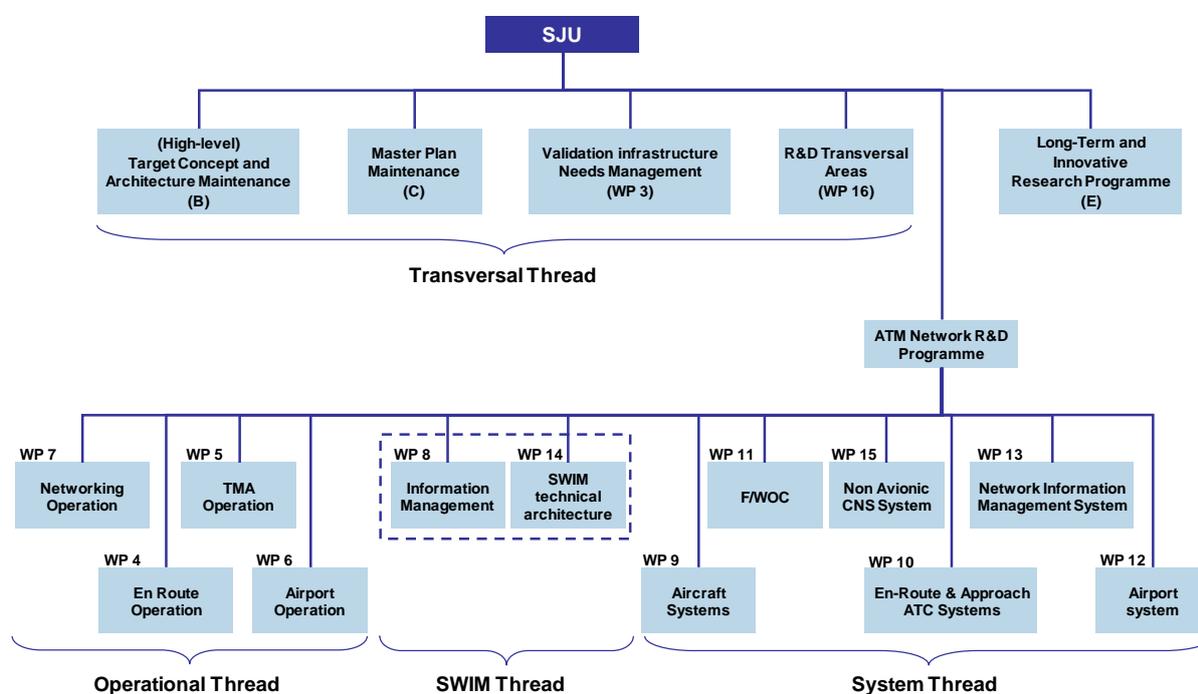


Figure: Work Breakdown Structure high-level overview

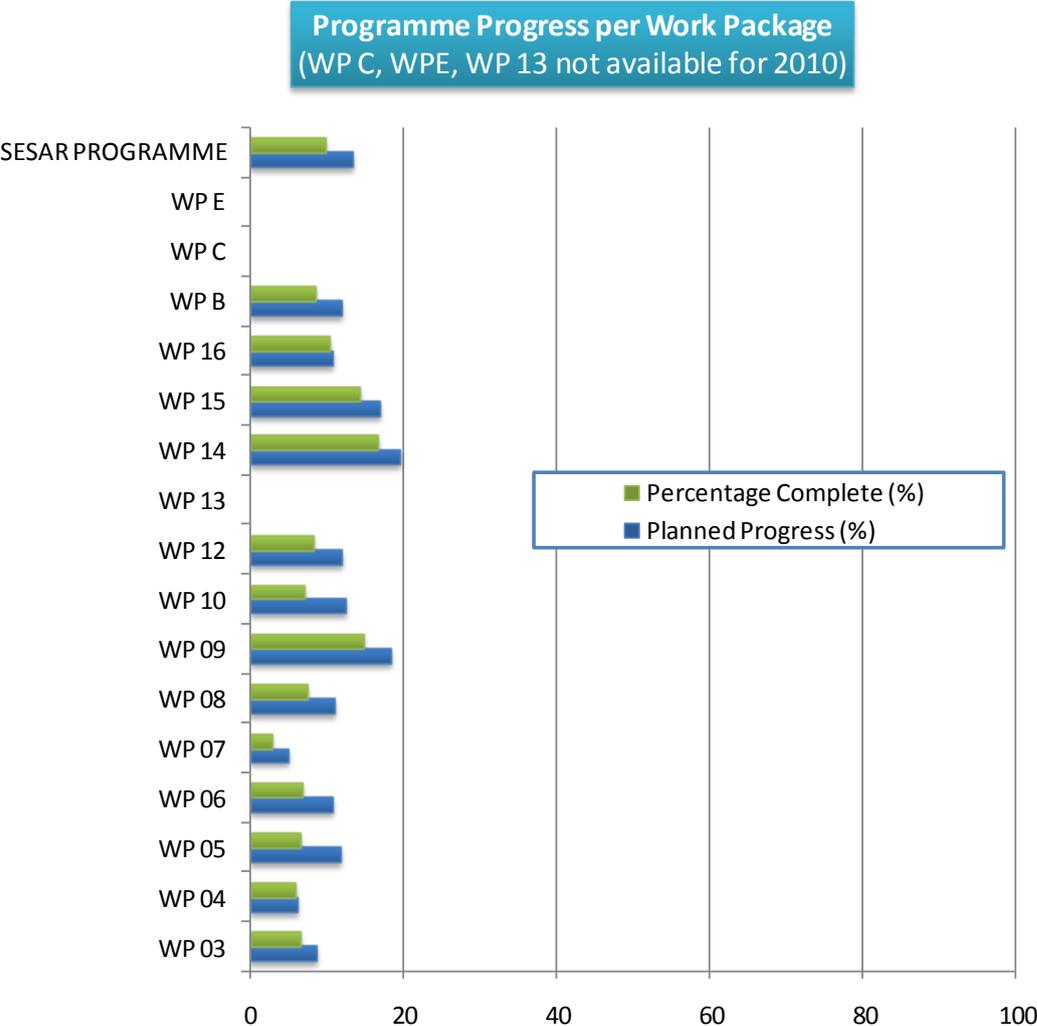
The Programme is split in 4 different threads:

- Operational considerations are addressed under WPs 4, 5, 6 and 7,
- System considerations are addressed under WPs 9, 10, 11, 12, 13 and 15,
- System Wide Information Management considerations are addressed under WPs 8 and 14,
- “Transverse” activities”, such as validation infrastructure, development of safety, security, environment and human performance cases, European ATM Master Plan, Target concept and architecture maintenance, are dealt by a number of additional WPs (i.e. B, C, 3, 16).
- It is expected that benefits provided by these transverse WPs will manifest themselves through their application through other operational and system WPs, and thus will contribute to maximising benefits of those WPs.

The R&D Programme is further divided into a total of about 304 projects or transversal activities. The following sections describe in details the different WPs in terms of scope, objectives and benefits.

The ramp-up phase of the Programme and the projects' initiation were driven with a top down approach based on 3 Maturity Targets (end of 2011, 2013 and 2015) to ensure that the future SESAR components would be ready well in advance of the Initial Operational Capabilities as described in the Master Plan. These targets have been defined leaving a period of 3 to 4 years for the completion of the V3 verification level and the start of deployment. The initial planning of a considerable number of projects was very aggressive and sometimes too optimistic; this clearly emerges when considering that the actual average time to finalise the project initiation phase was 5 months as opposed to the 3 initially foreseen. As a result projects schedules are currently being updated on the basis of the actual starting date and with a more realistic planning considering the risk related to the management of programme's dependencies

The chart below refers to the advancement status of Work Packages as of 31/12/2010 and does not include a significant part of the projects' new schedules which would show a more correct alignment of actual compared to plan. Considering the margins taken in the initial plan in relation to the Initial Operational Capabilities, it is too early at this stage to assess whether the current situation may have an impact on the Master Plan milestones. The Programme progress status is regularly monitored at the level of the Programme Control Group and Programme Committee ensuring that assessments are conducted at due time and corrective actions taken.



Projects pertaining to WP C, WP E and WP 13 finalised their initiation phase at the very end of 2010; therefore no report was made by year end on advancement status.

2010 was mainly dedicated to the final step of the Programme ramp-up. Most of the projects started their technical activities in the course of the year and the very first deliverables were handed over to the SJU in September 2010. The first assessment of the deliverables as well as the first projects' Control Gates showed a reasonable progress of the technical work (see below a list with some of the most significant deliverables, the final list will be available by the end of March 2011).

It provided assurance that the 2010 has paved the way to the first tangible results that will be delivered in 2011 as part of the SESAR Release 1.

The gates and deliverables highlighted as well the need to strengthen the common management of dependent projects from a content point of view and led to the definition and implementation of the Operational Packages and associated Focus Areas.

Project number	Deliverable number	Title
6.5.1	D08	AOP Scope definition
12.4.1	D10	Concept of Operations for the "Baseline for Airport Controller Tools"
6.8.1	D03	High level CONOPS for the flexible and dynamic use of wake vortex separations
12.2.2	D01	Preliminary System requirements for runway wake vortex detection, prediction and decision support tools
08.01.03	D03	Initial AIRM
08.03.02	D2	Registry Concepts
14.01.02	D2	Pre-SWIM Inventory
9.1		Aircraft and System Performance and Functional requirements
9.1	D2	Aircraft ATC systems_ Interface
9.05	D2	Aircraft ATC systems_ Interface
9.05		ASAS High Level Architecture
9.13	D01	Airport Surface Taxi Clearance Functional Requirement Document
9.14	D04	Airport surface alerts High Level Architecture Definition Assumptions
9.21		ADS-B transmission technique assessment
9.27	D02	MCR definition document for mainline and regional aviation v1.0
9.27	D04	MCR definition document for business and general aviation version 1.0
15.2.7	D01	AeroMACS_Functional_Architecture_Definition_v1.0
15.2.7	D01	Profile_Analysis v1.1
15.2.8	D01	Concept Definition of Military Data link Usage in SESAR
15.03.01	D03	Navigation Performanc_Requirements

The table below shows the assignment of work to the Members and the value of the In-kind contribution as well as the commitments at the end of 2010 and the pre-financing and co-financing executed at that date.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibaf0	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibaf0
Total	aena	72,82	72,82	0,30	36,41	20,26	7,13	Direct Labour Costs	932,2
	dfs	71,93	69,73	0,34	35,97	19,39	6,77	Other Direct Costs	117,0
	dsna	67,36	66,87	0,33	33,68	18,41	4,96	Subcontract	158,3
	enav	70,95	70,75	0,21	35,48	20,20	7,17	Use of Facilities	21,8
	nats	71,06	70,48	0,17	35,53	19,95	6,14	Direct Costs	1.229,23
	noracon	64,69	63,06	0,14	32,34	18,20	2,08	Indirect Costs	423,9
	seac	16,77	17,38	0,08	8,38	4,76		Total	1.653,17
	frequentis	31,32	27,94	0,11	15,66	10,07	3,16	Deductions	(2,5)
	indra	135,59	133,15	0,32	67,79	37,34	12,71	Total Eligible Costs	1.650,67
	natmig	39,84	40,47	0,05	19,92	11,10	2,88		
	selex	102,33	100,81	0,28	51,16	28,34	10,47		
	thales	256,25	251,75	1,04	128,12	71,60	27,59		
	airbus	108,83	106,12	0,85	54,41	30,64	10,25		
	alenia	38,62	36,04	0,06	19,31	10,87	3,12		
	honeywell	40,62	40,24	0,62	20,31	11,53	2,84		
	Sub Total	1.188,98	1.167,61	4,89	594,49	332,67	107,26		
		eurocontrol	461,69	409,13	9,48				
	Total	1.650,67	1.576,74	14,36					
11.	eurocontrol			0,00					
WP E	eurocontrol			0,34					
EP cash	eurocontrol			6,30					
PSO	eurocontrol			1,76					
Total	eurocontrol	461,69	409,13	17,87					
	Total	1.650,67	1.576,74	22,76					

Legenda:

IBAF0 (Invitation to submit the Best and Final Offer) is the amount of the Total Contribution submitted by a Member and accepted by the SJU Administrative Board as a result of the Invitation.

RCA (Revised Contribution Assessment) is the amount presented as part of the Project Initiation phase and approved by the SJU Executive Director, in accordance with Article 8.2.1 of the MFA.

IFS 09 (**Interim Financial Statement for 2009**) is the amounts of costs incurred by members in 2009 and recognised as eligible for co-financing by the SJU.

Max Co-financing is the maximum amount which can be granted to a Member in relation to its contribution in accordance with each MA and overall the MFA.

Commitment Is the amount legally reserved in the SJU Budget in order to co-finance eligible costs incurred by Members.

Pre-financing is an advance payment to Members in accordance with Article 11.1 of the MFA.

1.2. WP B – Target Concept and Architecture Maintenance

Scope

The scope of the Target Concept and Architecture Maintenance Work Package covers the maintenance and refinement of the high-level ATM Performance Target and Architecture including the Concept of Operations (CONOPS). It defines and ensures the consistency of the ATM Service architecture for all SESAR WPs. WPB will also conduct a performance analysis of the ATM Target Concept throughout SESAR development phase.

Objectives

The objectives of WP B are to:

- Refine (add more details, make it more concrete) the high level ATM Target Concept (including Concept of Operations (CONOPS), System Architecture and Technology) up to the necessary level of maturity needed by the other WPs in order to enable technical development,
- Develop & maintain the European ATM Enterprise Architecture & associated ATM business model
- Update and maintain the CONOPS & Associated ATM Services based on the outcome of the Operational and System WPs,
- Develop and maintain the high level logical architecture (Service Oriented Architecture - SoA) and the technical (System of Systems – SoS) including a logical break-down of expected performance requirements,
- Ensure the consistency and stability of the ATM Target Concept (preventing a “moving target”),
- Conduct a performance analysis of ATM Target Concept

2010 Report

During 2010 the focus has been upon continuing the launch of projects, progressing them through initiation and into execution. At the end of 2010, out of 5 projects, 5 had moved into execution: 4 in March, 1 in December (B.5 being part of BAFO II).

The initiation phase of 4 WP B projects conducted in 2009 led to a revision of the PIRs and a start of WP B activities in March 2010.

The gates of projects B.1, B.4.1, B.4.2 and B.4.3 took place in November 2010. To prepare for the gates, the SJU tasked six independent experts to review the WP B deliverables after the first 6 months of the project execution phase. This review aimed at assessing the content of the WPB deliverables and concluded to a number of issues with the Enterprise Architecture and CONOPS approaches but as well to some positive achievements related to the performance framework and the technical architecture. The independent review report and the assessment of the deliverables were used as the primary input to the projects Control Gate. Based on the control gates outcome, a revision proposal will be presented to the Programme Committee early 2011 in order to prepare a recommendation to the Executive Director.

WPB chaired the Step1 Preliminary Design Review (PDR) in June 2010 and were involved in the pilot activities in order to test the applicability and suitability of their deliverables.

WPB also chaired the System Engineering Review 1 for Release1 in November 2010.

The work package and project management were successfully integrating the SESAR methodologies and practices into their activities (e.g. risk management). Airspace User and Staff Association support to projects had also commenced.

2011 will see a decision about the revision proposal and its subsequent implementation. Material related to performance, operations and technical architecture to support Release 2 as well as on-going Step2&3 related activities will be developed.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibafo	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibafo
B.0	aena	3,81	3,81		1,90	1,00	0,40	Direct Labour Costs	56,8
	dfs	9,13	9,25	0,27	4,57	2,41	0,78	Other Direct Costs	5,2
	dsna	2,07	2,09		1,03	0,54	0,22	Subcontract	4,1
	enav	2,30	2,34		1,15	0,61	0,21	Use of Facilities	0,5
	nats	6,21	6,13		3,10	1,64	0,56	Direct Costs	66,65
	noracon	3,79	3,79		1,89	1,00	0,19	Indirect Costs	15,0
	seac	0,42	0,48		0,21	0,11		Total	81,64
	frequentis	0,80	0,80		0,40	0,21	0,08	Deductions	(0,2)
	indra	1,60	1,60		0,80	0,42	0,17	Total Eligible Costs	81,41
	natmig								
	selex	2,67	2,69		1,33	0,70	0,24		
	thales	4,37	4,41		2,18	1,15	0,37		
	airbus	4,26	3,72		2,13	1,12	0,37		
	alenia	0,43	0,41		0,21	0,11	0,02		
	honeywell								
	Sub Total	41,84	41,51	0,27	20,92	11,03	3,59		
		eurocontrol	39,56	31,97	0,56				
	Total	81,41	73,48	0,83					

1.3. WP C – Master Plan Maintenance

Scope

The scope of the Master Plan Maintenance Work Package is to administrate the up-to-date maintenance of the European ATM Master Plan to monitor the progress of development and of implementation. It also maintains the standard and regulatory roadmaps as well as the SESAR business cases.

Objectives

The Objectives of WP C are to:

- Maintain Master Plan information up to date and monitor the progress of development and of implementation of the Master Plan by reference to the baseline,
- Administrate the overall process to keep the Master Plan up-to-date, and propose amendments to the SJU Administrative Board,
- Include a renewed process that delivers the Single European Sky Deployment plan and provides input for development of local/regional performance based implementation plans and targets;
- Monitor and report on the achievement of these local/regional plans and derive the impact on system wide performance too,
- 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. WPC has no responsibility on the contents of the standards and regulations,
- Maintain all SESAR business cases and underlying methods, tools, data and models.

2010 Report

WPC was part of IBAFO 2. The Leadership of WP C was awarded to EUROCONTROL.

The Project Initiation Phase for Work Package C started in February 2010 for the WPC management activities and in June for the first projects. The sequence of the project initiations was defined by the SJU in consultation with its Members. During the Project Initiation Phase, the project descriptions were refined and a recommendation to the SJU Executive Director has been made to proceed with the project execution. The first Project executions started in December 2010.

In 2011, WPC will have to start the execution of all its projects. C.2 will have to initiate the relationships with other Projects in order to initiate the realignment of the various levels of the ATM Master Plan. WPC (C.3) will have to support the ICAO standardisation process with the initial SESAR needs. WP (C.2) will have to develop the deployment planning and monitoring process as well as the initial Deployment Packages and Scenarios for Step1. An initial campaign for ATM-MP update will be launched by the end of 2011, but will be completed by 2012.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibaf0	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibaf0
C.0	aena	2,05	2,00		1,02	0,54	0,21	Direct Labour Costs	42,1
	dfs	2,05	2,05		1,02	0,54	0,19	Other Direct Costs	3,3
	dsna	2,05	2,05		1,02	0,54	0,15	Subcontract	4,3
	enav	2,05	2,04		1,02	0,54	0,21	Use of Facilities	
	nats	2,05	2,11		1,02	0,54	0,21	Direct Costs	49,66
	noracon	2,05	1,99		1,02	0,54		Indirect Costs	8,6
	seac	0,53	0,65		0,26	0,14		Total	58,21
	frequentis							Deductions	(0,1)
	indra	2,80	2,80		1,40	0,74	0,29	Total Eligible Costs	58,14
	natmig								
	selex								
	thales	3,11	3,04		1,55	0,82	0,32		
	airbus	4,14	3,22		2,07	1,09	0,43		
	alenia	0,65	0,46		0,32	0,17			
	honeywell	0,16	0,16		0,08	0,04			
	Sub Total	23,66	22,56		11,83	6,24	2,04		
		eurocontrol	34,48	27,19	2,18				
	Total	34,48	27,19	2,18					

1.4. WP 3 – Validation Infrastructure Adaptation and Integration

Scope

The scope of WP03 is defined by the evolution of required Industry Based/Pre-Operational Verification and Validation Platforms that include simulation, shadow mode and/or live trials capabilities. Combined with the connection/integration of the necessary test tools this allows these platforms to be used for verification and validation activities.

WP03 also has the responsibility of the so called SESAR Verification and Validation Infrastructure (V&VI) that includes the set of preparation/analysis tools, Validation and Verification facilities, and test equipments that WP03 has proposed for supporting SESAR V2 and V3 Validation and Verification activities.

WP03 should also be considered as the provider of additional tools and/or prototypes not proposed/provided by System projects but required for Industry Based/Pre-Operational Validation Verification Platforms use by the operational projects.

Objectives

The objective of WP03 is to support the SESAR Partners and the Operational and Technical Threads to properly define and coordinate the timely evolution and setting up of Verification and Validation Platforms along with the required support to adaptation and integration of the relevant tools and prototypes focusing on V2 and V3 maturity phases.

2010 Report

As a consequence of multiple interpretations within the programme of the role of WP03 as originally defined, the initiation work of most of the WP03 projects was put on hold in the first half of 2010 in order to allow a revision framework to be agreed. This WP03 revision framework was approved by the Programme Committee early June and was subsequently used as the basis for completing the initiation process of the WP03 projects. In November 2010, WP03 was one of the first work packages that completed the initiation of all its projects.

An early activity on the collection of information about the roadmap of validation exercises in SESAR was allocated to WP03 in the spring. This task was completed successfully. During the summer the validation roadmap work was continued by a task force set-up by the Programme Committee. Eventually the roadmap material was the basis of the definition of the first SESAR Release.

In the last quarter of 2010 all projects in WP03 have started putting in place their processes and systems that will allow them to respond to validation and verification needs from the operational and system threads.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibafo	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibafo
03.	aena	8,90	8,90	0,02	4,45	2,35	0,93	Direct Labour Costs	48,5
	dfs	5,51	5,31		2,75	1,45	0,58	Other Direct Costs	6,8
	dsna	2,49	2,62		1,25	0,66	0,22	Subcontract	18,3
	enav	12,13	12,07	0,18	6,07	3,20	1,17	Use of Facilities	1,0
	nats	4,45	4,32		2,22	1,17	0,41	Direct Costs	74,63
	noracon	6,56	6,56		3,28	1,73	0,34	Indirect Costs	24,2
	seac							Total	98,85
	frequentis							Deductions	(0,2)
	indra	5,00	5,07		2,50	1,32	0,50	Total Eligible Costs	98,69
	natmig								
	selex	4,95	4,83		2,48	1,31	0,50		
	thales	12,56	12,63		6,28	3,31	1,22		
	airbus	4,99	4,80		2,49	1,31	0,48		
	alenia	2,14	2,21		1,07	0,56	0,12		
	honeywell								
	Sub Total	69,69	69,32	0,19	34,85	18,37	6,46		
		eurocontrol	29,00	24,54	1,26				
	Total	98,69	93,85	1,46					

1.5. WP 4 – En-Route Operations

Objectives and scope of the WP (within the Programme) remain unchanged since the Definition Phase.
Scope

Work Package (WP) 4 is to provide the operational concept description for the En Route Operations and perform its validation. The term En Route includes both ‘continental’ and ‘oceanic’ applications. Also, the applications of 4D, performance-based operations are seen as a cornerstone of future En-route operations.

Objectives

The objectives of WP4 are to:

- Refine the concept of En Route Operations;
- Define and perform the necessary validation activities including operability, safety & performance assessment at all levels;
- Demonstrate the operational feasibility of the En Route Operations concept in a complete ATM environment (including systems).

2010 Report

During 2010 the WP4 focus has been on progressing the 16 R&D projects through initiation and into execution:

- Passing the BAFO2 procedures for 5 projects in relation to specific contributions; this was successful for all these projects, which moved into Initiation subsequently; the sequence of the project initiations had been defined by the SJU in consultation with its Members since 2009, to allow a fast progress;
- Continuing / finishing the Initiation phase for all 16 projects. In general, Initiation was 4-6 months longer than originally envisaged for all projects, essentially due the blocking or significant issues identified in the initial PIRs that had to be addressed before the Execution could start;
- some projects were approved to start execution only for Step 1 related activities; the remaining activities are due for review at the 2011 gates in order to receive approval for the start of execution, pending resolution of a number of issues identified during Initiation phase;
- Moving into execution for 13 projects; 3 projects were suspended;
- Supporting definition of Release 1 plan; about 4 projects in WP4 are involved in several Release 1 exercises;
- 7 deliverables were submitted to SJU for acceptance; these are a project baseline definition (supporting the start of requirements identification), an OSED, an SPR, and 3 Validation plans.

The WP and SWP management activities were approved at beginning of 2010, thus allowing their effective support to projects initiation within the WP, by enabling the integration of the SESAR methodologies and practices into their activities. WPs 4 and 5 worked jointly to achieve their corresponding WP objectives, therefore their activities were similar and focused on:

- progressing the projects through initiation and into execution (as detailed above per WP);
- ensuring development of CIAs for all WP4 projects in Initiation phase to assist with PIR evaluations;
- supporting Step 1 PDR review in June 2010;
- supporting the definition of Release 1 Scope in Oct-Nov 2010;
- adapting the internal work structure to the evolving needs of the Programme, establishing jointly a “federation” structure, enabling the integration of the V&V Roadmap Operational Packages and Sub-Packages approach;

- started to address co-ordination of delivery from operational projects to system projects;
- coordinating Airspace User and Staff Association activities in support of WP4 projects.

The WP and SWP management activities passed the first Gate review end November 2010, piloting the Gate process for management activities on this occasion, as being the first WPs to have such a review.

2011 will see all projects in execution and the first set of validation exercises performed, as part of Release 1 but also work to progress concept elements up to end V2 maturity and beyond, preparing for next Releases. The definition of Release 2, including the careful identification and planning of candidate exercises, will also be completed.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibafo	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibafo
04.	aena	9,43	9,43	0,03	4,71	2,48	0,87	Direct Labour Costs	76,8
	dfs	12,17	11,81		6,09	3,21	1,13	Other Direct Costs	7,9
	dsna	22,79	22,84	0,28	11,40	6,01	2,09	Subcontract	14,8
	enav	8,35	8,38		4,18	2,20	0,86	Use of Facilities	2,0
	nats	16,66	16,38		8,33	4,39	1,67	Direct Costs	101,47
	noracon	4,46	4,46		2,23	1,18		Indirect Costs	29,7
	seac							Total	131,17
	frequentis							Deductions	(0,6)
	indra	2,43	2,43		1,22	0,64	0,19	Total Eligible Costs	130,58
	natmig								
	selex	2,66	2,59		1,33	0,70	0,25		
	thales	8,38	8,38		4,19	2,21	0,89		
	airbus	9,10	8,96		4,55	2,40	0,80		
	alenia	2,62	2,62		1,31	0,69	0,11		
	honeywell	2,30	2,30		1,15	0,60	0,17		
	Sub Total	101,34	100,57	0,32	50,67	26,71	9,04		
	eurocontrol	29,24	28,42	0,32					
Total	130,58	128,99	0,63						

1.6. WP 5 – TMA Operations

Objectives and scope of the WP (within the Programme) remain unchanged since the Definition Phase.

Scope

Work Package (WP) 5 is to manage and perform all Research, Development and Validation activities required to define the TMA ATM Target Concept (i.e. Concept of Operations, System Architecture & enabling technologies). This covers all phases of planning and execution of flights/trajectories and the identification of supporting technical systems/functions necessary for TMA Operations. TMA Operations are considered as those from 'top-of-descent' until landing and from take-off until 'top-of-climb'. Also, the applications of 4D, time-based operations are seen as a cornerstone of future TMA and En-route operations

Objectives

The objectives of WP5 are to:

- Refine the concept definition at TMA operational context level and for co-ordinating and consolidating the various projects and sub work packages that encompasses Terminal Airspace Operations;
- Define and perform the necessary validation activities including operability, safety & performance assessment at all levels;
- Demonstrate the operational feasibility of the TMA Operations concept in a complete ATM environment (including systems);
- consider the potential for operational trials and the early introduction of SESAR Concepts in a TMA environment

2010 Report

During 2010 the WP5 focus has been on progressing the 17 R&D projects through initiation and into execution:

- Passing the BAFO2 procedures for 4 projects in relation to specific contributions; this was successful for all these projects, which moved into Initiation subsequently; the sequence of the project initiations had been defined by the SJU in consultation with its Members since 2009, to allow a fast progress;
- Continuing / finishing the Initiation phase for all 17 projects; in general, Initiation was 4-6 months longer than originally envisaged for all projects, essentially due the blocking or significant issues identified in the initial PIRs that had to be addressed before the Execution could start;
- some projects were approved to start execution only for Step 1 related activities; the remaining activities are due for review at the 2011 gates in order to receive the approval for the start of execution, pending resolution of a number of issues identified during Initiation phase;
- 1 project had an exceptionally long Initiation, due to disagreements between Project members which lead to escalation at WP level;
- Moving into execution for 13 projects; 4 projects were suspended;
- Supporting definition of Release 1 plan; about 6 projects in WP5 are involved in several Release 1 exercises;
- 6 deliverables were submitted to SJU for acceptance; these are: the TMA Roadmap (supporting the DOD development), an OCD, a BC, 3 baseline definitions providing input to an OSED.

The WP and SWP management activities were approved at beginning of 2010, thus allowing their effective support to initiation the projects within the WP, by enabling the integration of the SESAR methodologies and practices into their activities. WPs 4 and 5 worked jointly to achieve their corresponding WP objectives, therefore their activities were similar and focused on:

- progressing the projects through initiation and into execution (as detailed above per WP);
- ensuring development of CIAs for all WP4 projects in Initiation phase to assist with PIR evaluations;
- supporting Step 1 PDR review in June 2010;
- supporting the definition of Release 1 Scope in Oct-Nov 2010;
- adapting the internal work structure to the evolving needs of the Programme, establishing jointly a “federation” structure, enabling the integration of the V&V Roadmap Operational Packages and Sub-Packages approach;
- started to address co-ordination of delivery from operational projects to system projects;
- coordinating Airspace Users and Staff Association activities in support of WP5 projects.

The WP and SWP management activities passed the first Gate review end November 2010, piloting the Gate process for management activities on this occasion, as being the first WPs to have such a review.

2011 will see all projects in execution and the first set of validation exercises performed, as part of Release 1 but also work to progress concept elements up to end V2 maturity and beyond, preparing for next Releases. Also, the definition of Release 2, including the careful identification and planning of candidate exercises, will be completed.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibafo	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibafo
05.	aena	16,58	16,58		8,29	5,18	1,64	Direct Labour Costs	93,8
	dfs	6,80	6,80	0,04	3,40	1,79	0,37	Other Direct Costs	10,8
	dsna	5,63	5,70	0,01	2,81	1,82	0,43	Subcontract	10,6
	enav	15,21	15,33		7,61	5,26	1,83	Use of Facilities	1,6
	nats	27,39	27,10	0,17	13,69	8,32	1,96	Direct Costs	116,82
	noracon	13,57	13,57		6,78	4,32	0,59	Indirect Costs	29,5
	seac							Total	146,34
	frequentis	1,12	1,13		0,56	0,30	0,12	Deductions	(0,9)
	indra	3,19	3,19		1,60	0,84	0,33	Total Eligible Costs	145,42
	natmig	0,60	0,60		0,30	0,16			
	selex	2,83	2,65		1,42	0,75	0,27		
	thales	7,87	7,38		3,94	2,96	1,00		
	airbus	4,56	4,55		2,28	1,50	0,51		
	alenia	1,49	1,49		0,74	0,46	0,08		
	honeywell								
	Sub Total	106,84	106,07	0,22	53,42	33,65	9,13		
		eurocontrol	38,58	33,33	0,22				
	Total	145,42	139,41	0,44					

1.7. WP 6 – Airport Operations

Scope

The Airport Operations Work Package is addressing developments associated with the ‘airside’ elements of airport operations. However, to ensure effective planning and management, ‘landside’ elements (such as passenger and baggage handling) are also being taken into consideration, but with any associated developments being undertaken outside SESAR.

Objectives

The objectives of WP6 are to:

- Develop, refine and update the Airport Operations concept, based upon the SESAR CONOPS and ensure consistency with other elements of the work programme,
- Develop collaborative airport planning, including development of the Airport Operations Plan (AOP) and of the Airport Operations Centre (APOC), as well as improvements to Airport CDM,
- Improve the management of airport surface traffic (which includes aircraft and vehicle traffic) through the definition of safety nets to prevent conflicts and collisions, as well as the better routing, guidance and tactical planning of traffic movements under all weather conditions,
- Improve runway management through enhanced procedures, dynamic separations (including wake vortex) and the definition of associated system operational requirements (both ground and airborne). The focus is on improving runway throughput at all times, whilst preventing runway incursions and reducing queuing,
- Improve the provision of aerodrome control services at remote or small airports through the development of concepts for ‘remote and virtual towers’

2010 Report

During 2010 the focus has been upon continuing the launch of projects, progressing them through initiation and into execution. At the end of 2010, out of 22 R&D projects:

- 17 had moved into execution,
- Four were in Initiation and expecting to move to execution during early 2011,
- One (addressing the final integrated validations) was still to be launched (foreseen for September 2011).

During the final quarter of 2010 the first batch of 4 project Gates were hosted. The outcome of these important review and decision making events was positive, with all projects having progressed, resulting in the first wave of deliverables being accepted by the SJU. The work package and project management were successfully integrating the SESAR methodologies and practices into their activities (e.g. risk management). Airspace User and Staff Association support to projects had also commenced. Finally, projects were progressing with the alignment of schedules with those of dependent projects (through the OFA).

2011 will see all projects in execution and the first set of validation exercises, in particular, as part of Release 1, live trials associated with remote tower operations. Other validation activities concerning the Airport Operations Plan (AOP), surface operations (safety nets, routing etc.) and time based separations are foreseen. Also, the definition of Release 2, including the careful identification and planning of candidate exercises, will be completed.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibaf0	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibaf0
06.	aena	13,39	13,39	0,23	6,69	3,64	1,34	Direct Labour Costs	79,6
	dfs	4,62	4,51	0,02	2,31	1,22	0,50	Other Direct Costs	8,9
	dsna	9,97	10,03	0,02	4,99	2,63	0,58	Subcontract	12,0
	enav	10,44	10,52	0,03	5,22	2,75	0,96	Use of Facilities	0,6
	nats	2,96	2,96		1,48	0,83	0,28	Direct Costs	101,10
	noracon	8,12	8,11		4,06	2,19	0,24	Indirect Costs	23,3
	seac	13,79	14,22	0,08	6,89	3,98		Total	124,42
	frequentis	0,54	0,54		0,27	0,14	0,06	Deductions	(0,1)
	indra	3,18	3,04		1,59	0,90	0,33	Total Eligible Costs	124,32
	natmig	1,14	1,14		0,57	0,30	0,12		
	selex	2,91	1,91		1,45	0,77	0,22		
	thales	6,30	6,38		3,15	1,71	0,71		
	airbus	5,48	4,92	0,04	2,74	1,44	0,51		
	alenia	0,89	0,85		0,45	0,24	0,02		
	honeywell	0,29	0,29		0,15	0,08			
	Sub Total	84,02	82,81	0,43	42,01	22,79	5,88		
		eurocontrol	40,30	35,96	0,71				
	Total	124,32	118,77	1,14					

1.8. WP 7 – Networking Operations

Scope

The scope of the Network Operations Work Package covers the evolution of services taking place in the business development and planning phases to prepare and support trajectory-based operations including airspace management, collaborative flight planning and Network Operations Plan (NOP). It encompasses the services included in the execution phase to facilitate trajectory-based operations in case of capacity issues.

Objectives

The objectives of WP 7 are to:

- Develop, refine and update the Network Operations concept, based upon the SESAR CONOPS and ensure consistency with other elements of the work programme,
- Develop the methodologies for airspace management and organisation, including processes for an improved flexible use of airspace, the accommodation of user preferred routes and dynamic airspace configurations,
- Develop the Business/Mission Trajectory management (including the shared business trajectory, used for advanced planning and the required Business trajectory, which is the final and agreed trajectory),
- Further develop the Network Operations Plan (NOP), a dynamic rolling plan providing a detailed overview (past, current and forecast) of the European ATM environment to those concerned,
- Improve Demand Capacity Balancing (DCB) process to ensure that the ATM network is able to meet the demands of all users, taking into account the 4D trajectories, described through Reference Business Trajectories (RBT),
- Define and develop the User Driven Prioritisation Process (UDPP), whereby operators can apply their own priorities during periods of capacity shortfall, based upon a CDM approach.

2010 Report

Following the formal launch of the BAFO2 project initiation phase in February 2010, 10 WP7 R&D projects have been “kicked-off” of which 7 have now entered project execution. Thanks to a proactive project initiation phase, WP7 has now largely caught-up with the BAFO1 projects. The Short-Term AFCM Measures (STAM) exercise, led by project 7.6.5, is a confirmed exercise for Release 1 in 2011.

Looking forward to 2011, WP7 activities will be largely focussed on project execution and this will raise some important challenges: definition of a large number of exercises for SESAR Release 2 in 2012; supporting a pragmatic application of the SJU processes; ensuring effective contributions from all partners working on WP7.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibaf0	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibaf0
07.	aena	4,92	4,92		2,46	1,30	0,45	Direct Labour Costs	64,8
	dfs	3,36	3,21		1,68	0,88	0,34	Other Direct Costs	4,8
	dsna	2,79	2,79		1,40	0,74		Subcontract	6,0
	enav	3,75	3,75		1,88	0,99	0,39	Use of Facilities	
	nats	4,46	4,46		2,23	1,18	0,38	Direct Costs	75,62
	noracon	1,64	1,64		0,82	0,43		Indirect Costs	11,0
	seac	0,60	0,60		0,30	0,16		Total	86,66
	frequentis							Deductions	(0,2)
	indra	2,47	2,47		1,23	0,65	0,26	Total Eligible Costs	86,50
	natmig								
	selex								
	thales	1,87	1,87		0,94	0,49	0,13		
	airbus	0,50	0,50		0,25	0,13	0,05		
	alenia								
	honeywell								
	Sub Total	26,36	26,21		13,18	6,95	1,99		
		eurocontrol	60,14	56,73	0,94				
	Total	86,50	82,94	0,94					

1.9. WP 8 – Information Management

Scope

In order to realise the concept of SWIM (System Wide Information Management) for ATM, which is needed to achieve interoperability and inter-system seamless operations, WP08 primarily defines the ATM Information Reference Model (AIRM) and the Information Service Model (ISRM) to be used by the various ATM services and necessary to develop the SWIM specifications and test platforms.

Objectives

The Objectives of WP 8 are to:

- Describe the performance and operational requirements of ATM wide information sharing,
- Strongly contribute to the definition of the Information View of the European ATM Architectural Framework and the ATM Information Model,
- Develop and document the European ATM Information Reference Model (AIRM),
- Support the standardisation of ATM Information,
- Secure semantic and syntactic interoperability within ATM for Europe and support to an overall global commitment in the same field,
- Be responsible for ensuring the effectiveness and integrity of the functional architecture for Information Management,
- Integrate the ATM world in the information sense, a necessary step towards the realisation of Service Oriented Approach (SoA),
- Produce and document (ATM) Information Service in the support to a variety of system WPs or other Industry segments,
- Directly drive the operational requirements for the technical system architecture of Information Management to be developed in the SWIM Work Package (WP 14),
- Validate deliverables from various Operational WPs in order to align, harmonise and structure the different levels of ATM Information Services.

2010 Report

Over 2010 practically all WP08 projects have completed their initiation phase and moved into execution mode. One project is remaining to be initiated in 2011.

Most of the projects in sub-work package 08.01 are working on contributions to the AIRM for different information domains. Their main goal for 2010 was to absorb existing models, like AIXM, the ED133 flight object model, the weather exchange model (WXXM), etceteras, in what is called the 'initial load' of the AIRM. This initial version was delivered to the SJU in August. Work continued in identifying specific needs for subsequent evolution of this material (i.e. filling gaps, aligning between domains,..).

The projects in sub-work package 08.03 have generally started later than in 08.01 because of more time required for the initiation phase. As a consequence the initial cycle of information service model developments was skipped so as to remain overall synchronised with the AIRM delivery schedule. The identification and definition of a first set of information services was targeted for end Q1 2011. A number of challenges were being faced:

- Discussions on the definition and application of a service definition framework within the overall enterprise architecture approach were not conclusive in 2010.
- The expression of clear requirements for SWIM information services from the operational projects did not materialise.

- WP08 projects were insufficiently closely positioned between the operational and system projects.

In addition to the aforementioned work on information models and information services, there was also progress on defining the information management function (primarily governance aspects), the supervision aspect of SWIM and the operational requirements concerning Registry services.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibafo	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibafo
08.	aena	0,63	0,63		0,32	0,17	0,07	Direct Labour Costs	37,1
	dfs	7,26	7,06		3,63	1,91	0,68	Other Direct Costs	5,1
	dsna	3,08	3,05		1,54	0,89	0,31	Subcontract	7,2
	enav	2,11	2,14		1,05	0,56	0,24	Use of Facilities	0,7
	nats							Direct Costs	50,04
	noracon	11,69	11,68	0,14	5,84	3,08	0,59	Indirect Costs	10,5
	seac	0,18	0,17		0,09	0,05		Total	60,53
	frequentis	2,29	2,32		1,15	0,63	0,24	Deductions	
	indra	2,33	2,37		1,16	0,61	0,24	Total Eligible Costs	60,53
	natmig	2,82	2,82		1,41	0,74	0,18		
	selex	1,80	1,80		0,90	0,48	0,17		
	thales	2,96	2,52		1,48	0,78	0,28		
	airbus								
	alenia								
	honeywell								
	Sub Total	37,14	36,56	0,14	18,57	9,90	2,99		
	eurocontrol	23,39	20,80	0,37					
Total	60,53	57,36	0,51						

1.10. WP 9 – Aircraft Systems

Scope

The scope of the Aircraft System Work Package covers the required evolutions of the aircraft platform, in particular to progressively introduce 4D Trajectory management functions in mainline, regional and business aircraft to provide 4D trajectory management capabilities (3 spatial dimensions + time). The work will address as well the progressive development of Aircraft Separation Assurance and the aircraft components required for the improvement of surface movement operations.

Objectives

The objectives of WP9 are to:

- Achieve a greater integration of the aircraft in heart of the performance-based European ATM system allowing an optimum exploitation of the increasing aircraft capabilities,
- Introduce progressively the 4D Trajectory management functions. Initial 4D Trajectory capabilities will require first the downlink airborne computed predictions on the ground to establish a sequence on a merging point, and second improved time constraints management capabilities both contributing to first generalise Continuous Descent Approaches from Top to Descent in mid and high density areas. A further step will allow the full exploitation of 4D Trajectory through ensuring that the aircraft is able compute and share reliable gate to gate 4D trajectory predictions with the ground and execute the agreed reference trajectory with possibly imposed times constraints,
- Develop a gradual evolution of Airborne Separation Assurance services allowing first to an aircraft to establish and maintain a time spacing from a target aircraft designated by the Air Traffic Controller (ASAS-Spacing). On-board functions will be further validated to gradually introduce ASAS Separation Crossing and Passing (C&P) manoeuvres with the aim to help controllers in resolving conflicts between aircraft by temporarily delegating to the Pilots the responsibility to do the requested manoeuvre (e.g. vertical or lateral C&P) and maintaining separation during that manoeuvre, and to introduce ASAS-Self-Separation in low density areas,
- Enhance On-board approach functionalities and validate them to provide improved and all weather operations. This will allow initial CAT II/III GBAS L1 approach for new aircraft, providing rapid benefits under low visibility conditions. A second step will address the implementation of full multi-constellation (GPS, GALILEO) GBAS Cat II/III in the airborne equipments,
- Develop future on-board surveillance systems including dedicated wake encounter and significant weather (e.g. clear air turbulence) avoidance functions to reduce the risk of severe upsets due to atmospheric disturbances,
- Address environmental impact through Steeper Approach Airborne Capability aiming at minimising fuel burning and emissions, and decreasing noise,
- Improve surface movement operations through the introduction of functions to initially provide guidance and then alerting on traffic,
- Ensure interoperability between civil “Business trajectories” and military “Mission Trajectories” to allow the conformance of military aircraft with new operational concepts and to enable military aircraft to fly with the same performance level than civil aircraft to better exploit airspace resource avoiding restricting part of it for military use only,
- Provide a globally compatible avionics transition roadmap supporting the different SESAR Steps, to be used as a reference by avionics and airframe manufacturers for development planning, hence minimising the number of transition steps for a better cost efficiency.

In order to support the above evolutions, enhancement and additions to the CNS Technologies are foreseen, including updates to ADS-B, a new air-ground datalink and improved navigation positioning technologies while addressing the different types of airborne platforms.

2010 Report

During 2010 the focus has been upon continuing the launch of projects progressing them through initiation and into execution. At the end of 2010, out of 30 R&D projects:

- 22 had moved into execution,
- Two were in Initiation and expecting to move to execution during early 2011,
- Six was still to be launched (up to 2013).

Major projects have already started to deliver first outcome such as functional requirement documents or architecture elements.

Most of the projects are progressing according to their original schedule, few of them have adapted their schedule to keep synchronised with operational projects which started later than originally foreseen or to manage internal constraints. However, none of these few evolutions is creating dependency issues or resources.

During the final quarter of 2010 the first batch of project Gates were hosted. The work package and project management were successfully integrating the SESAR methodologies and practices into their activities (e.g. risk management). Airspace User support to projects had also commenced. Finally, projects were progressing with the alignment of schedules with those of dependent projects (through the OFA).

2011 will see the first set of validation exercises, in particular, as part of Release 1, live trials associated with Initial 4D trajectories. Also, the definition of Release 2, including the careful identification and planning of candidate exercises, will be completed.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibafo	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibafo
09.	aena							Direct Labour Costs	69,2
	dfs							Other Direct Costs	11,2
	dsna	0,39	0,39		0,20	0,10		Subcontract	32,6
	enav							Use of Facilities	6,1
	nats							Direct Costs	119,11
	noracon	0,27	0,27		0,14	0,07		Indirect Costs	70,7
	seac							Total	189,81
	frequentis							Deductions	
	indra	0,11	0,11		0,05	0,03	0,01	Total Eligible Costs	189,81
	natmig								
	selex	5,76	5,73		2,88	1,85	0,97		
	thales	52,32	52,76	0,65	26,16	14,68	5,65		
	airbus	58,57	58,28	0,80	29,29	16,95	5,49		
	alenia	24,89	24,57	0,06	12,44	6,76	2,40		
	honeywell	36,68	36,68	0,62	18,34	10,35	2,66		
Sub Total	178,98	178,78	2,12	89,49	50,80	17,18			
eurocontrol	10,83	10,46	0,76						
Total	189,81	189,23	2,88						

1.11. WP 10 - En-Route & Approach ATC Systems

Objectives and scope of the WPs (within the Programme) remain unchanged since the Definition Phase.

Scope

The scope of this Work Package covers En-Route & TMA ATC System systems' changes, and related technical activities of phases V1-V3 of the development lifecycle reference model (i.e. up to the validation of system performance using pre-industrial prototypes). It addresses system/technical aspects such as functional and technical architecture, technical performance & safety requirements, technical interoperability requirements, associated specifications, models/simulation platforms and prototypes, technical validation and the development of inputs /proposals to technical standards groups.

Objectives

The objectives of WP 10 are:

- ATC system impact analysis of the operational improvements and identification of the induced system requirement to implement the evolution;
- Technical feasibility assessment of the operational changes from an architecture and technology point of view;
- define, design, specify and validate the En-route & TMA ATC Systems needed to support the SESAR ATM target concept;
- Prototype development for system and operational validation

2010 Report

During 2010 the focus has been on launching projects, progressing them through initiation and into execution:

- Passing the BAFO2 procedures for 1 SWP and 2 projects in relation to specific contributions; this was successful for 1 SWP and 1 project, which moved into Initiation phase subsequently; remaining project 10.12.1 was cancelled due to limited interest from Programme Members (only 1 offer received) and inadequate quality of the received offer; the sequence of the project initiations had been defined by the SJU in consultation with its Members since 2009, to allow a fast progress;
- Continuing / finishing the Initiation phase for all 22 projects; in general, Initiation was 4-6 months longer than originally envisaged for all projects, essentially due the blocking or significant issues identified in the initial PIRs that had to be addressed before the Execution could start; 1 project has an exceptionally long Initiation, due to Project Manager unavailability for 3 months (due to sickness) and no replacement possible by the Member; some projects were approved to start execution only for Step 1 related activities; the remaining activities are due for review at the 2011 gates in order to receive the approval for the start of execution, pending resolution of a number of issues identified during Initiation phase;
- Moving into execution for 21 projects; 1 project was suspended;
- Of the 21 projects approved for Execution in 2010, 7 have not started effectively yet (on 15 Dec 2010) and are expected to start early 2011.
- 13 projects started Execution in 2010 and 4 projects passed the first Gate reviews in Dec 2010; the gate outcome showed good progress in the projects work; three projects identified some scope changes which are being refined before submitting their request to SJU for approval.
- 6 deliverables were submitted to SJU for acceptance; these are: 3 baseline definitions providing input to Technical Specifications, a Verification plan, 2 internal project inputs to Requirements definition.

The WP and SWP management activities were approved at beginning of 2010, thus allowing their effective support to initiation the projects within the WP, by enabling the integration of the SESAR methodologies and practices into their activities. The management activities were similar to those of WPs 4 & 5 and focused on:

- progressing the projects through initiation and into execution (as detailed above per WP);
- provided support to resolve issues in project teams or propose arbitration;
- liaised with the SJU and escalated project issues that could not be solved at WP-level when necessary;
- ensuring development of CIAs for all WP22 projects in Initiation phase to assist with PIR evaluations;
- supporting Step 1 PDR review in June 2010;
- supporting the definition of Release 1 Scope in Oct-Nov 2010; some 6 WP10 projects are involved in Release 1 exercises;
- started to address co-ordination of delivery from operational projects to system projects;
- coordinating activities with WPs 4&5 as well as WP12 as well as with Airspace Users and Staff Association in support of WP10 projects.

All projects are required to submit schedule updates that would enable a realistic assessment of future achievements, identification of deviations and mitigation actions.

2011 will see all projects in execution and the first set of verification exercises performed, in particular as part of Release 1. Also, the definition of Release 2, including the careful identification and planning of candidate exercises, will be completed.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibaf0	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibaf0
10.	aena	3,04	3,04		1,52	0,88	0,32	Direct Labour Costs	75,0
	dfs	3,30	3,32		1,65	0,94	0,38	Other Direct Costs	13,5
	dsna	4,64	4,61		2,32	1,22	0,45	Subcontract	6,9
	enav	5,17	4,98		2,58	1,45	0,53	Use of Facilities	3,9
	nats	0,97	0,97		0,49	0,28	0,12	Direct Costs	99,34
	noracon	3,83	3,83		1,92	1,04		Indirect Costs	55,5
	seac							Total	154,84
	frequentis	1,48	1,49	0,04	0,74	0,55	0,15	Deductions	(0,0)
	indra	36,58	35,49	0,13	18,29	9,86	3,73	Total Eligible Costs	154,81
	natmig	6,85	6,52		3,42	1,80	0,63		
	selex	23,51	23,41	0,05	11,76	6,49	2,46		
	thales	50,81	51,16	0,12	25,41	13,65	5,66		
	airbus	0,48	0,48		0,24	0,13	0,05		
	alenia								
	honeywell								
	Sub Total	140,66	139,28	0,35	70,33	38,29	14,48		
eurocontrol	14,15	13,48	0,07						
Total	154,81	152,76	0,42						

1.12. WP 11 - Flight Operations Centre System

Scope

The scope of the Flight and Wing Operations Centres / Meteorological Services Work Package covers the definition of the Airspace Users operations and the development of the systems required to support the implementation of the various SESAR components (e.g. adaptation to the 4D trajectory) and will also address the meteorological service component in increasing ATM Performance seen from a transversal perspective throughout the SESAR Programme.

The scope has been separated out into two stand-alone Sub-Work-Packages, the first SWP (11.1) addressing Flight and Wing Operations Centres and the second SWP (11.2) addressing Meteorological Services. Each SWP will be managed separately, with Work-Package Leader and Sub-Work-Package Manager roles combined per SWP.

Objectives

The objective of SWP11.1 is to define and validate the requirements for the Business/Mission trajectory planning and execution processes seen from a Flight and Wing Operation Centres perspective

All consequent system development activities must be driven by defined operational requirements and interactions with related work in other WPs of the SESAR Programme. Activities foreseen in WP11 include the development of technology and system prototyping solutions for input to validation. It will be necessary to address the needs and solutions for airspace users not operating Operations Control Centres (e.g. Business Aviation, General Aviation). The military part of this WP will be to ensure that State Airspace users can get the appropriate ground system support, from Wing Operation Centres or Command and Control (C2) Centres, in order to implement the Military Mission Trajectory Concept.

The objective of SWP11.2 is to address the meteorological service component in increasing ATM Performance seen from a transversal perspective throughout the SESAR Work Programme.

2010 Report

The Competitive Dialogue process for WP 11 was successfully completed in July 2010 and a Call for tender published by EUROCONTROL on behalf of the SJU on the 2nd August 2010.

The WP 11 Description of Works v2.0, as published on the Extranet in August 2010, addresses the two independent Sub-Work Packages as follows:

- SWP11.1 Flight and Wing Operations Centres
 - P11.1.0 Coordination and Management (Combines WPL and SWPM roles)
 - P11.1.1 Transversal Consistency of Business/Mission Trajectory Requirements (Federating project across WPs)
 - Concept Consolidation & Gap Analysis
 - Support to Standardisation
 - P11.1.2 FOC/WOC Operational Requirements Definition (Federating Project)
 - FOC Ops Requirements (incl. MET & Interoperability)
 - WOC Ops Requirements (incl. MET & Interoperability)
 - P11.1.3 System Specification & Architecture
 - FOC/WOC System Specification
 - FOC/WOC Architecture
 - P11.1.4 Prototype(s) Specification, development & Verification

- Aircraft/Mission Scheduling
 - Flight Planning
 - Operations Control
 - Post Flight Performance Analysis & Reporting
- P 11.1.5 Pre-Operational Validation
 - Validation Plan Definition
 - Pre-Operational Validation (FOC/WOC stand-alone)
 - Integrated Pre-Operational Validation (across WPs)
- SWP11.2 Meteorological Services
 - P11.2.0 Coordination and Management (Combines WPL and SWPM roles)
 - P11.2.1 Requirements for MET Information (Federating Project)
 - Utilisation of MET Information
 - Operational Requirements Definition for MET Info Services
 - System Integration – Definition of Met Info services
 - P11.2.2 MET Information Systems Development, Verification & Validation
 - Prototype Specifications, Development & Verifications
 - Integration with SWIM Technical Infrastructure
 - Support to Pre-Operational Validation

Evaluations were held in November 2010 with the recommendations of the Proposals Analysis Board currently with EUROCONTROL. The decisions will be published in January 2011. The amount of contributions of SWP11.1 is estimated at €30 million with a level of co-financing of €15 million. The amount of contributions of SWP11.2 is estimated at €10 million with a level of co-financing of €5 million.

1.13. WP 12 - Airport Systems

Scope

The scope of the Airport Systems Work Package encompasses all Research & Development activities to define, design, specify and validate the airport systems needed to support the SESAR ATM target concept. It also addresses system/technical aspects such as functional and technical architecture, technical performance & safety requirements, technical interoperability requirements, associated specifications, models/simulation platforms and prototypes, technical validation and the development of inputs/proposals to technical standards groups.

WP 12 will undertake technical developments and validation/verification, providing the ground-based system support to the new concepts, procedures and practices described by WP 6.

Objectives

The objectives of WP 12 are to:

- Support collaborative airport planning, including decision support and sequencing tools, meteorological observation and forecasting systems, all of which will be Integrated into an Airport Operations Centre (which will also be developed by WP 12),
- Improve airport surface management, including advanced surveillance techniques, ground-based safety nets, ground-based routing and guidance systems as well as sequencing tools (e.g. SMAN and integrated AMAN/DMAN),
- Define and develop new runway management tools and systems supporting the dynamic application of wake vortex separations (i.e. wake vortex detection and prediction systems).
- Improve safety through the definition and development of ground-based safety nets, with a priority upon detecting runway incursions and preventing collisions,
- Define and develop the technical systems associated with the 'remote and virtual' towers, which will include appropriate surveillance systems.

All of these developments will be brought together so that they support the controller in his tasks by the prototyping of an advanced controller working position (i.e. the iCWP), through which a set of core HMI principles will be established.

2010 Report

During 2010 the focus has been upon continuing the launch of projects, progressing them through initiation and into execution. At the end of 2010, out of 29 R&D projects:

- 22 had moved into execution;
- Four were in Initiation and expecting to move into execution during early 2011;
- One (addressing a specific aspect of remote tower operations) had been cancelled, with the associated tasks being transferred and addressed within other projects of WP.12;
- Two remained suspended, but would be considered for re-launch during the early 2011.

During the final quarter of 2010 the first batch of 4 project Gates were hosted. The outcome of these important review and decision making events was positive, with all projects having progressed well, resulting in the first wave of Deliverables being accepted by the SJU. The work package and project management were successfully integrating the SESAR methodologies and practices into their activities (e.g. risk management). In particular, projects were progressing with the alignment of schedules with those of dependent projects (through the OFA).

2011 will see all projects in execution and the first set of verification exercises performed. In particular as part of Release 1, live trials associated with the improved link between small/medium Airports and the CFMU will take place. Other verification activities concerning surface operations (safety nets, routing etc.) and wake vortex separations are foreseen. Also, the definition of Release 2, including the careful identification and planning of candidate exercises, will be completed.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibaf0	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibaf0
12.	aena	0,83	0,83		0,41	0,22	0,08	Direct Labour Costs	64,5
	dfs	7,69	7,69		3,85	2,03	0,81	Other Direct Costs	14,5
	dsna	6,02	5,86		3,01	1,59	0,24	Subcontract	12,4
	enav	1,19	1,00		0,59	0,31	0,14	Use of Facilities	2,4
	nats	0,47	0,47		0,23	0,17	0,05	Direct Costs	93,75
	noracon	2,27	2,40		1,14	0,60		Indirect Costs	45,5
	seac	0,67	0,66		0,34	0,18		Total	139,21
	frequentis	5,80	6,10	0,04	2,90	1,53	0,58	Deductions	(0,0)
	indra	31,68	31,85	0,13	15,84	8,35	2,98	Total Eligible Costs	139,19
	natmig	12,19	13,12		6,10	3,40	0,80		
	selex	25,24	25,18	0,06	12,62	6,69	2,72		
	thales	32,54	32,37	0,07	16,27	8,58	3,15		
	airbus								
	alenia	0,56	0,56		0,28	0,15			
	honeywell								
	Sub Total	127,14	128,08	0,30	63,57	33,78	11,54		
		eurocontrol	12,05	9,23					
	Total	139,19	137,31	0,30					

1.14. WP 13 – Network Information Management System (NIMS)

Scope

The scope of the Network Information Management System Work Package covers the System and Technical R&D tasks related to the Network Information Management System (NIMS), the Advanced Airspace Management System (AAMS) and the Aeronautical Information management System (AIMS). It addresses the NIMS system-level definition and architecture concentrating on interoperability with other systems, further decomposes it into sub-systems from logical down to physical layers. It addresses the impact of new roles & responsibilities on local/sub-regional/regional systems considering the mapping of system functions on the various local/sub-regional/regional systems (namely NIMS, AOC, Airport, en-route/approach ATC).

The WP will then undertake the NIMS sub-systems definition and verification, addressing interoperability and connection between sub-systems and coordinate the management of common components between sub-systems.

Objectives

The objectives of WP 13 are to:

- Coordinate and map capabilities (services) on sub-systems and on their components,
- Define and develop network planning sub-system (Airspace Design, Capacity planning, ASM & ATFM scenario management and demand data management) which all aim at building and refining incrementally the NOP,
- Define and develop Aeronautical Information Management sub-system in relation to aeronautical, terrain, airport and aircraft data and in particular addressing the evolution of current European AIS Database studying the implementation at network level of the basic services and of added value services (e.g. flight briefing service),
- Define and develop Network Operations & monitoring sub-system related to Network operations and monitoring, in particular addressing the evolution of current IFPS (Initial/integrated Flight Plan) and ETFMS (Tactical Flow Management) sub-systems which all aim at executing & monitoring the NOP.

The WP will also define and verify the technical supervision of the NIMS necessary for maintaining the quality of service (e.g. in case of failures).

2010 Report

Following the formal launch of the BAFO2 project initiation phase in February 2010, 6 WP13 R&D projects have been “kicked-off” of which 5 have been approved for project execution by year end. Thanks to a proactive project initiation phase, WP13 has now largely caught-up with the BAFO1 projects.

Looking forward to 2011, WP13 activities will be largely focussed on project execution and this will raise some important challenges: the provision of the Network Manager Validation Platform in mid-2011; ensuring an effective contribution from all industry partners, possibly requiring any shortfalls to be addressed by BAFO3; supporting a pragmatic application of SJU processes; the need for strong project management to handle what are extremely large and complex projects.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibafo	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibafo
13.	aena	0,17	0,21		0,08	0,04	0,02	Direct Labour Costs	35,3
	dfs	0,36	0,41		0,18	0,09	0,03	Other Direct Costs	3,1
	dsna							Subcontract	3,2
	enav	0,66	0,67		0,33	0,17	0,07	Use of Facilities	0,2
	nats	0,85	0,98		0,43	0,22	0,09	Direct Costs	41,87
	noracon	0,14	0,14		0,07	0,04		Indirect Costs	8,5
	seac							Total	50,36
	frequentis	2,62	2,85		1,31	0,69	0,27	Deductions	(0,0)
	indra	6,22	7,45		3,11	1,64	0,65	Total Eligible Costs	50,33
	natmig								
	selex	3,15	3,54		1,58	0,83	0,33		
	thales	3,55	3,55		1,78	0,94	0,35		
	airbus								
	alenia								
	honeywell								
	Sub Total	17,72	19,80		8,86	4,67	1,81		
		eurocontrol	32,61	34,45	0,26				
	Total	50,33	54,25	0,26					

1.15. WP 14 - SWIM technical architecture

Scope

The SWIM technical architecture Work Package is the follow-up in the context of SESAR of the SWIM-SUIT European Commission FP6 project. It uses as an input the SWIM-SUIT deliverables and adapts them and/or further develops them to cope with the SESAR Work Programme components.

Objectives

The primary objectives of WP14 are to define and validate the infrastructure solution for SWIM addressing the requirement received from WP08. The SWIM technical architecture work package has to interface with all other System WPs (9-15), while using the results of the European Commission's SWIM-SUIT project to develop an architectural description, technological options and system solutions. WP14 will also provide adequate support for SWIM exploitation to the other System WPs in order to ensure that system WPs will develop appropriate interfaces with SWIM.

WP14 will:

- Define and validate the infrastructure solution for SWIM addressing the requirement received from Information Management (WP8). The SWIM WP will have to interface with all other System WPs (9-15),
- Further develop the 'Intranet for ATM concept' by:
 - Performing an assessment of the Information Management needs of the SESAR CONOPS, as scoped by WP 8, to define the SWIM technical services that will be required,
 - Using the SWIM-SUIT results, to translate the results of the assessment into an architectural description, technological options and system solutions,
- Develop SWIM test platforms to support the operational and technical aspects of the SWIM validation and to provide regularly demonstrations,
- Provide adequate support for SWIM exploitation to the other System WPs in order to ensure that system WPs will develop appropriate interface with SWIM (via its IOP-middleware) and avoid system WPs assessing their impact on SWIM.

2010 Report

At the end of 2010 there were six projects in execution mode, one project was suspended till early 2011 and the last project was about to be approved to start its execution in 2011 under certain conditions. One of the projects in execution has principally completed its work and will formally close out in Q1 2011.

The assessment and where possible the uptake of results from the SWIM-SUIT project in WP14 was successfully completed in 2010. At the same time a good start was made describing the existing technology landscape and identifying suitable technology options for initial SWIM middleware implementation. The design and interface specification for the first version of SWIM middleware was delayed due to the need to find agreement between all the contributing members. This delay also affected the actual start date of one of the projects.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibafo	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibafo
14.	aena							Direct Labour Costs	43,1
	dfs	0,27	0,27		0,13	0,13	0,04	Other Direct Costs	6,1
	dsna	0,53	0,43		0,26	0,14	0,05	Subcontract	4,4
	enav	0,27	0,28		0,14	0,07	0,03	Use of Facilities	1,8
	nats							Direct Costs	55,38
	noracon	1,73	1,72		0,86	0,45		Indirect Costs	24,2
	seac							Total	79,57
	frequentis	8,55	8,26	0,03	4,27	2,53	0,83	Deductions	
	indra	15,87	15,75	0,02	7,93	4,49	1,50	Total Eligible Costs	79,57
	natmig	2,75	2,52	0,02	1,38	1,13	0,29		
	selex	3,55	3,55	0,05	1,78	0,94	0,35		
	thales	25,63	25,24	0,13	12,82	7,30	2,51		
	airbus	0,32	0,32		0,16	0,08	0,04		
	alenia								
	honeywell	0,39	0,39		0,20	0,10			
	Sub Total	59,85	58,73	0,25	29,93	17,37	5,63		
		eurocontrol	19,72	16,67	0,14				
	Total	79,57	75,41	0,39					

1.16. WP 15 – Non Avionic CNS System

Scope

The Non Avionic CNS System Work Package addresses CNS technologies development and validation also considering their compatibility with the Military and General Aviation user needs. It identifies and defines the future mobile datalink systems to serve communication and surveillance services, the ground SWIM backbone system. It addresses the best combination of GNSS and non-GNSS Navigation technologies to support Performance Based Navigation and precision approach requirements. It proceeds to the enhancements of the ground Surveillance systems, the introduction of new Surveillance systems as well as the use of future Surveillance applications including ADS-B applications beyond Initial operational capabilities.

Objectives

The objectives of WP15 are to:

- Address subjects concerning Spectrum Management for using the spectrum in the most efficient manner and for promoting CNS spectrum allocation at ITU allowing the future CNS SESAR Concept enablers to operate properly as well as undertaking the appropriate actions to minimise the impact on aeronautical spectrum from non aeronautical systems,
- Define the future Mobile communication system supporting the SESAR Concept, capable to provide to all the types of users the required functions and quality of service, and to support Air/Ground and Air/Air services. It will be composed of a new ground-station-based system associated to two complementary systems (a satellite communication system in close cooperation with and benefiting from a related activity at the European Space Agency and an aircraft communication system in the airport). This set of systems will constitute the mobile part of the SWIM backbone. Interconnection of military aircraft through their specific datalink is also addressed. Enhancement of the Ground/Ground communications PENS infrastructure will also be progressed in order that it becomes the ground SWIM backbone ,
- Define from a sub-system perspective, the best combination of GNSS and non-GNSS Navigation technologies to support Performance Based Navigation and precision approach requirements in a roadmap perspective as well as to enable transition from current terminal and en route operations (with a mixture of B-RNAV, P-RNAV and conventional) to a total RNAV environment with no conventional reversion. In addition the refinement and validation of GNSS based precision approaches, in line with the evolution of the SESAR ATM capability levels will be performed based in a first step on GBAS Cat II/III GPS L1 and in a further step on GBAS Multi GNSS Cat II/III allowing rationalisation of the infrastructure and optimisation of the runway capacity under low visibility conditions.
- Consider the decommissioning of conventional terrestrial navigation aids,
- Proceed with enhancements to the ground Surveillance systems and introduction of new Surveillance systems and services (e.g. WAM, ADS-B applications beyond initial operational capabilities). Considering these enhancements and new means, the surveillance infrastructure will be rationalised by considering decommissioning legacy technologies (e.g. SSR) thus decreasing operating costs while balancing the necessary non-cooperative requirements in TMA and for military purposes,
- Decrease delays due to weather, prevent accidents, and help to improve long-term airport operation, relevant sensors matching airport category needs for detecting weather and weather related hazards as well as the integration of their complementary characteristics will be realised.

2010 Report

During 2010 the focus has been upon continuing the launch of projects, progressing them through initiation and into execution. At the end of 2010, out of 19 R&D projects:

- 15 had moved into execution;
- One (addressing SBAS) has been cancelled, with the view of scope and objective redefinition for consideration in the framework of BAFO 3;
- 3 was still to be launched (up to 2012).

Major projects have already started to deliver first outcome.

Most of the projects are progressing according to their original schedule.

During the final quarter of 2010 the first batch of project Gates were hosted. The outcome of these important review and decision making events was positive, with all projects having progressed well, resulting in the first wave of deliverables being accepted by the SJU. The work package and project management were successfully integrating the SESAR methodologies and practices into their activities (e.g. risk management).

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibaf0	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibaf0
15.	aena	4,41	4,41	0,02	2,20	1,23	0,33	Direct Labour Costs	74,8
	dfs	3,76	3,24	0,01	1,88	1,29	0,35	Other Direct Costs	9,8
	dsna	3,87	3,37	0,01	1,94	1,27	0,20	Subcontract	11,5
	enav	3,13	3,15		1,56	0,99	0,15	Use of Facilities	1,0
	nats	0,62	0,62		0,31	0,16	0,08	Direct Costs	97,08
	noracon	3,01	1,33		1,51	1,13	0,14	Indirect Costs	49,3
	seac							Total	146,42
	frequentis	6,30	2,66		3,15	3,01	0,66		
	indra	18,79	16,18	0,03	9,39	5,98	1,28		
	natmig	11,21	11,48	0,03	5,60	2,95	0,76	Deductions	(0,0)
	selex	21,69	21,33	0,11	10,85	6,42	1,85	Total Eligible Costs	146,40
	thales	38,37	34,56	0,08	19,19	11,53	4,84		
	airbus	2,40	2,38	0,01	1,20	0,72	0,36		
	alenia	4,39	2,46		2,20	1,58	0,38		
	honeywell	0,81	0,43		0,40	0,35			
	Sub Total	122,76	107,59	0,30	61,38	38,61	11,36		
		eurocontrol	23,64	18,20	0,63				
	Total	146,40	125,80	0,93					

1.17. WP 16 – R&D Transversal Areas

The scope of the R&D Transversal Areas Work Package covers the improvements needed to adapt the Transversal Area (TA) (safety, security, environment, contingency (service continuity) and human performance) management system practices to SESAR as well as towards an integrated management system. WP16 also provides support and coordination for the consistent and coherent application of the already existing as well as newly developed TA-related practices to SESAR operational and system Work Packages.

Objectives

The Objectives of WP16 are to:

- TA R&D: Describe the activities, deliverables and dependencies between the Transversal Areas (Safety, Security, Environment, Human Performance (HP), Contingency) and the Operational Improvements (OI), and their needs for intrinsic improvements, so called Transversal Improvements (TI),
- TA Support & Coordination Function (Safety, Security, Environment, HP): Ensure coordination & consistent approach of TA aspects and application of TA practices throughout SESAR Development Phase, including a contribution to validation acceptance for TA aspects,
 - Pro-actively provide SESAR projects with the best TA-related practices, guidelines, tools, methods, models and techniques (TA Reference Material) as well as coaching to support production of evidence on the acceptability of a cluster of OIs from a TA perspective,
 - Manage the overall SESAR Case per TA and TA assessment processes to identify and mitigate TA-related issues in projects.

2010 Report

WP16 was part of IBAFO 2. The leadership of WP16 was awarded to EUROCONTROL.

The Project Initiation Phase for Work Package 16 started in February 2010 management activities and in April for the first projects. The sequence of the project initiations was defined by the SJU in consultation with its Members. During the Project Initiation Phase, the project descriptions were refined and a decision on whether to proceed to project execution has been made by the SJU Executive Director. The first Project executions started from September 2010 onwards as planned.

During 2010 the focus has been upon launching projects, progressing them through initiation and into execution. At the end of 2010, out of 27 R&D projects:

- 8 had moved into execution;
- 3 received the authorisation to start the execution phase and will actually start beginning of January 2011;
- 10 were in Initiation and expecting to move to execution during early 2011;
- 6 were still to be initiated (foreseen for January 2011).

Projects 16.6.X participated to the Step1 Preliminary Design Review (PDR) in June 2010 and were involved in the pilot activities in order to test the applicability and suitability of their respective Reference Material for Transversal Area assessments.

The work package and project management were successfully integrating the SESAR methodologies and practices into their activities (e.g. risk management). Airspace User and Staff Association support to projects had also commenced.

2011 will see all projects in execution phase. WP16 will define the initial methodologies to develop Transversal Areas (TA) and Business Cases (BC). The initial BC for Step1 will be developed. WP 16 will

participate to the System Engineering Reviews for Release1 (Review 3) and Release2 (Review1). WP16 will also support the initiation of working methods with EASA and National Supervisory Authorities for cases acceptability. Some initial improvements of TA assessment practices will be proposed for validation before being integrated into the updated TA Reference Material.

WP16 will support and provide coaching to WP4-15 projects for conducting their TA assessments.

PROGRAMME FINANCIALS 31 DECEMBER 2010

WP	Member	Ibafo	RCA	IFS 09	Max Co-financing	Commitment 2008 - 2010	Pre-financing 31.12.2010	Cost by nature	Ibafo
16.	aena	4,68	4,68		2,34	1,23	0,48	Direct Labour Costs	70,7
	dfs	5,67	4,80		2,83	1,49	0,57	Other Direct Costs	6,0
	dsna	1,04	1,04		0,52	0,27		Subcontract	9,9
	enav	4,20	4,12		2,10	1,11	0,37	Use of Facilities	0,1
	nats	3,98	3,98		1,99	1,05	0,35	Direct Costs	86,70
	noracon	1,57	1,57		0,78	0,41		Indirect Costs	18,4
	seac	0,59	0,59		0,30	0,16		Total	105,13
	frequentis	1,82	1,80		0,91	0,48	0,17	Deductions	(0,1)
	indra	3,35	3,35		1,67	0,88	0,25	Total Eligible Costs	104,98
	natmig	2,29	2,29		1,14	0,61	0,12		
	selex	1,60	1,60		0,80	0,42	0,14		
	thales	5,60	5,49		2,80	1,49	0,52		
	airbus	14,02	14,00		7,01	3,76	1,18		
	alenia	0,57	0,43		0,28	0,15			
	honeywell								
	Sub Total	50,97	49,75		25,48	13,52	4,15		
	eurocontrol	54,01	47,68	1,06					
Total	104,98	97,43	1,06						

1.18. WP E – Long Term and Innovative Research Programme

The ATM community recognises the need to stimulate long-term research, creativity and innovation to develop the scientific knowledge aimed at extending the SESAR vision and also to complement SESAR activities. Consequently long term/innovative research addressing knowledge and breakthrough technologies/concept elements beyond the current SESAR vision or not in the main stream of SESAR work programme has been launched in the framework of WP E to accompany advanced research in aeronautics. This would assure the continuity in implementations beyond the existing horizons (both in time and scope).

Objectives

The objectives of WPE will be exploring several topics (concept element and/or technology) extending the SESAR vision without any predefined time frame.

SESAR Long Term and Innovative research themes have been defined with the advice of the Scientific Committee. These research themes are felt to be relevant for ensuring the incubation of ideas towards the evolution of the ATM Target Concept and beyond. Research themes include:

- Legal and institutional framework;
- Automation;
- Complexity and safety;
- Economics and performance.

These long term/innovative researches are contributing to progressing knowledge over time, potentially identifying innovative technologies/concepts elements improving the efficiency of the ATM system. It is establishing the foundation upon which Europe's Industries will remain competitive and efficient in the global market.

2010 Report

The first WP-E call for proposals for ATM Research **Networks** WP-E first was issued in February. All four research themes were open. The evaluations were made in April by independent experts and led to the launch of two Networks, one in the Automation theme and one in the Complexity theme. A second call was subsequently open in July for the Economic theme only but no proposal passed the selection criteria.

Both selected Networks (ComplexWorld and Hala!) became operational in July and September respectively and have already taken actions to organise the think tank process in their domain. They produced deliverables like the communication and animation tools and published their first Domain Strategy papers. In addition, they both completed the selection of their first set of PhD subjects (half a dozen PhDs each) as the result of Calls for Proposals.

The first WP-E call for proposals for ATM Research **projects** was opened in July and closed in October covering the two themes relating to the two networks and additionally the theme "Legal and Institutional Framework" for which projects were felt more appropriate than a network. Seventeen projects have been recommended by independent experts for SESAR funding with a reserve list of four projects. They will start early 2011 and will be linked to the relevant network and also to the relevant SESAR projects to ensure beneficial exchange of results for SESAR.

The Scientific Committee has met twice in May and December. They provided advice to the SJU on the best strategy to adopt for the coverage of the unsuccessful Research Themes for the Networks. Members of the Committee were appointed Correspondent to the launched Networks and took an active part in the PhDs selection. They conducted a scientific analysis of the Ash cloud crisis and made suggestions on scientific requirement for managing such events, a paper was presented at the 1st HEC Paris workshop on regulation in November.

Annexe 5

Schedule 3 of the MFA – Governance

1. Basic Programme Management Principles

The Programme shall be managed according to the following basic principles:

- Participation of all the Members to achieve the goals as described in the Programme,
- Collaboration between the Members and the SJU,
- Duty of care and duty to mitigate damages in R&D activities,
- Transparency and communication of issues between Members,
- Progress and risk tracking at each level, in order to anticipate and prevent critical issues and disputes,
- Management and resolution of issues by the Members at their own level first, avoiding to the extent practicable recourse to the escalation process (see Schedule 4 “Escalation process”),
- Involvement of all the Members participating in a Project in the discussions held to find a remedy, and agreement of all of them on the remedy adopted,
- Proper and timely reporting of information to the upper level in accordance with the processes determined at each level of the Programme structure.

The management of the Programme will be performed through the following structures:

2. WORK PROGRAMME MANAGEMENT STRUCTURE

2.1 PROJECT MANAGERS

Each Project Manager shall:

- Be accountable to the Work Package Leader for comprehensive oversight of the Project it has been entrusted with and for senior management of the operational relationship between the Members involved at Project level,
- Implement the SJU Engineering Methodologies within its Project,
- Structure the Project by designing the work plan in such a way that the Project may be properly and timely refined and implemented, following the guidelines provided by the Work Package Leader, including:
 - implementing and, where necessary, elaborating the SJU Engineering Methodologies and agreed processes (e.g. appropriate reporting, meetings, etc.),
 - coordinating the Initiation of the Project and submitting the initiation Report to the SJU in accordance with Article 8, developing a Project management plan conforming to the overall Programme plan, with a copy submitted to the SJU Executive Director,
- Lead and coordinate the activities within the Project and monitor the work progress within the Project as defined during the Initiation phase,
- Ensure the proper and timely communication of information, in particular:
 - within the Project, by setting regular meetings with all the Project Members,

- to the upper levels, by periodically providing reports to the Sub-Work Package Manager, in particular on:
 - progress (status of completion planning, Deliverables, Gates, resource consumption) including information on progress against the agreed description of the Project contained in the applicable Technical Schedule, with particular emphasis on resource consumption,
 - risks of Default and Defaults, in particular those requiring remedies, with the appropriate assessment form,
- to the SJU upon request, by providing the periodic reports submitted to the Sub-Work Package Manager,
- to the SJU, by drawing up and providing the Interim and Final Reports on its Project.
- Track risks of Default and Defaults, by identifying and assessing their impacts and criticality on the Project and/or on other Projects (within the same Work Package or within another Work Package),
- Secure a consensus and when necessary make decisions in order to:
 - anticipate negative impacts of Defaults and disagreements internal to the Project by solving them on a timely basis,
 - consider and resolve disagreements internal to the Project in the first instance,
 - escalate the disagreements in accordance with Schedule 4 (“Escalation Process”) in case it cannot be or has not been remedied at Project level,
- Answer Audit requests and collaborate with Independent Auditors,
- Be involved in cross-Work Packages working groups and reports.

2.2 SUB-WORK PACKAGE MANAGERS

Each Sub Work Package Manager shall:

- Ensure the overall consistency of the work plan of the Projects within its scope of supervision,
- Contribute to the overall consistency of the Programme in accordance with the SJU Engineering Methodologies and established cross-Work Packages technical coordination,
- Follow up, collect and manage the information reported by the Project Managers and periodically report to the Work Package Leader, following guidelines provided by the latter, in particular on:
 - Progress (status of completion planning, Deliverables, Gates, resource consumption),
 - Risks of Default and Defaults,
- Report to the SJU upon any reasonable request relating to its activities as Sub Work Package Manager,
- Act as an intermediary at Sub-Work Package level in accordance with Schedule 4 (“Escalation Process”), looking to the extent possible for a consensus, in particular in order to:
 - anticipate negative impacts of Defaults and disagreements internal to the Sub Work Package by solving them on a timely basis,
 - consider and resolve disagreements internal to the Sub Work Package in the first instance,
 - escalate disagreements in accordance with Schedule 4 (“Escalation Process”) in case it cannot be or has not been remedied at Sub Work Package level,
- Answer Audit requests and collaborate with Independent Auditors.

2.3 WORK PACKAGE LEADERS

Each Work Package Leader shall:

- Be accountable to the SJU for comprehensive oversight of its Work Package and for senior management of the operational relationship between the Members involved at Work Package level;
- Refine the SJU guidelines as appropriate for its Work Package in order to enable the implementation of the common SJU Engineering Methodologies at Project level,
- Design the work plan for proper and timely execution of its Work Package, following the guidelines provided by the SJU, e.g.:
 - refine the methodology and processes (e.g. appropriate reporting, meetings, etc.),
 - define the schedule, milestone plan and detailed planning to achieve the delivery of its Work Package in accordance with the Programme planning,
- Coordinate the activities and monitor the work progress within its Work Package, in particular by providing the impact assessment within the framework of the initiation process defined in Article 8, Ensure the proper and timely communication of information, in particular:
 - within its Work Package, by setting regular meetings with all the Sub Work Package Managers and Project Managers,
 - to the SJU, by periodically providing it with reports or answering requests from it, in particular on:
 - progress (status of completion planning, Deliverables, Gates, resource consumption) including information on progress against the agreed description of the Work Package contained in the applicable Technical Schedule,
 - risks of Default and Defaults, in particular those requiring remedies, with the appropriate assessment form,
- Track risks of Default and Defaults:
 - by identifying risks of Default and Defaults that arise at Work Package level and assessing their impacts and criticality on the Work Package and/or the overall Programme,
 - by reviewing the impact assessment established by the Project Managers for risks of Default and Defaults arising at Project level;
- Act as a referee at Work Package level, looking to the extent possible for a consensus, in particular in order to:
 - anticipate negative impacts of Defaults and disagreements internal to the Work Package,
 - ensure a timely resolution of disagreements within the Work Package in the first instance,
 - when necessary, escalate the disagreements in accordance with Schedule 4 (“Escalation Process”),
- Answer Audit requests and collaborate with Independent Auditors.

2.4 SJU EXECUTIVE DIRECTOR

The SJU Executive Director is responsible for the management of the Programme.

In this respect, the SJU Executive Director shall consult the Programme Committee, which is defined below.

The SJU Executive Director shall:

- Steer the Programme, by:
 - Organising and coordinating the activities of the Programme, in accordance with the ATM Master Plan, e.g. organising technical research and development work, studies and validations with a view to achieving the objectives of the Programme,
 - Setting up, maintaining and, if needed, updating the Programme management plans and associated methodologies, which includes defining and supervising the implementation of quality standards,
 - Managing the design and progress of the Programme, and consequently maintaining the Programme, in accordance with a commonly shared planning,
 - Ensuring the coordination of the Work Packages,
 - Ensuring the overall consistency of the Programme by providing SJU Engineering Methodologies, establishing cross-Work Packages technical coordination and ensuring their implementation,
- Supervise the initiation process, in accordance with the provisions of Article 8
- ,Accept or reject the Project Deliverables and/or Reports,
- Manage risks of Default and Defaults:
 - At Programme level, by identifying and assessing risks of Default and Defaults arising at Programme level, and by defining mitigating actions for these risks of Default and Defaults,
 - At Project, Sub-Work Package and Work Package levels, as the case may be,
- Act as a referee at Programme level, looking to the extent possible for a consensus, in particular in order to:
 - anticipate negative impacts of Defaults and disagreements,
 - participate in the Escalation Process.
- Ensure a proper and timely flow of information:
 - Within the Programme, by setting regular meetings with Work Package Leaders,
 - To the SJU Administrative Board as required by the SJU Statutes,
- Answer Audit requests and collaborate with Independent Auditors,
- Without prejudice to the Founding Members' roles and responsibilities, represent and coordinate the Programme activities with external stakeholders, in order to ensure buy-in of the SESAR outputs,
- Without prejudice to the Founding Members' roles and responsibilities, ensure coordination and communication with international organisations,
- Recommend standards to be developed.

2.5 THE PROGRAMME COMMITTEE

- The Programme Committee will be composed of one representative per Member. The representative thus appointed by each organisation must be duly empowered by the latter to conclude amendments to the Technical Schedules.
- The Programme Committee will be chaired by the SJU Executive Director, who may invite external support on an ad-hoc basis.
- The Programme Committee's role will be to participate in the steering of the Programme and to support the SJU Executive Director in:
 - Monitoring the progress, risks of Default and opportunities and Defaults and budget at Programme level,
 - Identifying the impact of Defaults and the related mitigating actions to be implemented, at Programme level,
 - Providing strategic guidance and making recommendations with regard to the management of the Programme,
 - Ensuring that the SESAR strategy for the Development Phase is fully applied during the activities performed under the SJU.

During 2010, the aforementioned Governance model has worked as established ensuring the progress of the Programme and the adequate allocation of responsibilities. In no cases the remedial process has been used.

Schedule 4 of the MFA – Escalation Process

The escalation process applies when no decision can be made at the expected level according to the usual decision-making process described in Schedule 3 (“Governance”).

- If a disagreement occurs between the Members within a Project:
 - the Members shall attempt to solve the disagreement under the supervision of the Project Manager;
 - If the disagreement is not solved within thirty (30) calendar days under the supervision of the Project Manager, the disagreement shall be escalated to the Sub-Work Package Manager;
 - If the disagreement is not solved within fifteen (15) calendar days under the supervision of the Sub-Work Package Manager, the disagreement shall be escalated to the Work Package Leader;
 - If the disagreement is not solved within fifteen (15) calendar days under the supervision of the Work Package Leader, the disagreement shall be escalated to the SJU Executive Director;

- If a disagreement occurs between the Members of different Projects within the same Sub-Work Package:
 - the Members shall attempt to solve the disagreement between the Project Managers under the supervision of the Sub-Work Package Manager;
 - If the disagreement is not solved within thirty (30) calendar days under the supervision of the Sub-Work Package Manager, the disagreement shall be escalated to the Work Package Leader;
 - If the disagreement is not solved within fifteen (15) calendar days under the supervision of the Work Package Leader, the disagreement shall be escalated to the SJU Executive Director;

- If a disagreement occurs between the Members of different Sub-Work Packages within the same Work Package:
 - the Members shall attempt to solve the disagreement under the supervision of the Work Package Leader;
 - If the disagreement is not solved within thirty (30) calendar days under the supervision of the Work Package Leader, the disagreement shall be escalated to the SJU Executive Director;

- If a disagreement occurs between the Members within different Work Packages:
 - the Work Package Leaders shall first attempt to solve the disagreement;
 - If the disagreement is not solved within thirty (30) calendar days, the disagreement shall be escalated to the SJU Executive Director;

Any Party, considering that a decision of the SJU under this Schedule is not in compliance with the MFA, may launch the dispute resolution procedure in accordance with the provisions of Article 26 of the MFA (“Settlement of disputes”).

Annexe 6

SJU Risk Management (extract from the report)

In accordance with the SJU Internal Control Standard for Effective Operations⁵ as well as the Council of Ministers resolution requesting the SJU to report on risk management of the organization, the Executive Director established the SJU Risk Policy⁶ which provides the legal basis for the SJU Annual Risk Management exercise and is aligned to the ERM⁷ approach. The SJU's Risk policy covers the following aspects:

- Purpose and objectives,
- Risk management Principles,
- Risk management governance rules,
- Alignment with EC policy.

The Risk Management process is integrated within the Annual Work Plan process and allows the SJU's management to assess the level of risk pertaining to the achievement of the SJU short and medium/long term objectives, as well as to make an informed decision on the level of risk which could be accepted.

This Risk Management Report builds on this logic and covers the full spectrum of risks concerning which may affect the capacity of the SJU to achieve its objectives. In the following Risk management exercise further consideration will be given to the overall risk related to the evolution of the ATM environment, in particular to assess risks that albeit not directly related to the operations, will affect the EU ATM Master Plan.

The SJU Risk Profile

In line with the Annual Wok Plan, during 2010 the SJU moved from a high level Risk Management process to the ERM (Enterprise Risk Management) based approach, taking into account the specific features of the organization.

Following the process described in Section 2, which

- started with the submission of the individual PIRs by the Projects where risks were assessed (bottom-up approach),
- continued during the year with the assessment and evaluation of the risks there reported by the SJU Programme Risk Manager (top-down approach). In particular, the risks assessed at Project/Work Package level were grouped together in different coherent *families* which constitute the basis for the SJU Management evaluation, and
- was complemented by a specific exercise covering the administrative and financial aspects of the SJU functioning,

⁵ Adopted in its final version by the Administrative Board on 19 October 2010, replacing the SJU Internal Control Standard for Effective Operations adopted on a provisional basis by the Executive Director on 25 March 2010, SJU/ED/64.

⁶ SJU/ED/64 of 25 March 2010

⁷ Enterprise Risk Management, developed by Committee of Sponsoring Organizations of the Treadway Commission (COSO), USA

the Risk Management exercise resulted in bringing to the attention of the SJU Management the following risks with the associated Gross Criticality:

- 8 risks with a *very high criticality* (12 or more points),
- 8 risks with *high criticality* (8 – 9 points),
- 13 risks with *medium criticality* (4 – 6 points), and
- 1 risk with *low criticality*.

After examination of each risk, the SJU Management has identified the mitigating measures which contribute to the substantial reduction of the SJU risk profile, resulting in the following Net Criticality:

- 3 risks with a *very high criticality* (12 or more points),
- 8 risks with *high criticality* (8 – 9 points),
- 18 risks with *medium criticality* (4 – 6 points), and
- 1 risk with *low criticality*.

The mathematical average of the Net Criticality is at 6.73 points, while the standard deviation is at 2.43, showing a high concentration around the mean, and a limited number of risks with very high or low criticality. The SJU Management considers that the mitigating actions put in place shall assist in the sound management of these risks, but in two cases external elements will be critical in the capacity of the SJU to manage the related risks.

During 2011, the SJU Management will monitor and review the implementation of the measures and their effects on the treatment of the risks taking into account their cost-effectiveness. This process, which will be carried out at least on quarterly basis, is also conducted as part of the ATM Master Plan Review and the Annual Work Plan and Report processes.

The specific risks, gross criticality, mitigating measures and net criticality are detailed in the following section.

The SJU Main Risks

Considering their nature and in order to ensure a coherent approach to and clear ownership of the treatment of the 30 main risks which were escalated at SJU Management level, these risks are grouped in the following four categories:

- **Corporate risks (11 risks):**
 - risks related to the achievement of the four Programme Strategic Objectives and early delivery (**SG**);
 - risks related to the Key Performance Areas (KPA) defined in the ATM Master Plan (**KG**);
- **SESAR Programme R&D risks (12 risks):**
 - risks related to Enablers (**E**) required for the Programme implementation (SWIM, Institutional evolution [legislation/regulation/standardisation], safety, security, environment, HR performance);
 - risks related to the operational management of the Programme by the SJU (**P**);
- **Wide SESAR scope risks (2 risks):**
 - risks which albeit not directly manageable by the SJU, may have a significant impact on the Programme implementation and/or the subsequent deployment (**C**);

- **Administrative/Financial risks (5 risks):**

- risks related to the compliance and sound financial management of the Programme (**AD**).

The SJU Management has a clear responsibility for the overall management of the risks here highlighted. Nevertheless, while for the risks related to the operational management of the Programme (P) and Administrative/Financial aspects (AD) the implementation of the mitigating actions is under its sole and direct responsibility, for the others risks, such as the Corporate Risks, the success of the agreed risk response is shared with the SJU's Members and, in some cases, with the SESAR Programme Stakeholders. In fact, while Programme risks should be managed and directed by the SJU, direct responsibilities and tasks need to be allocated at the most appropriate level – eg concerned Members active in Work Packages and Projects – where mitigating action are more effective.

The following table presents the SJU main risks ranked by gross criticality, with information on their net criticality as at end 2010:

Ref.	Risk	Likelihood	Severity	Gross criticality	Net criticality end 2010
------	------	------------	----------	-------------------	--------------------------

Corporate Risks					
SG2	The Cost Effectiveness objective is not reached	3	4	12	12
SG5	The R&D Programme does not deliver early results or not sufficiently	3	4	12	8
SG1	The Capacity objective is not reached	3	3	9	9
KG4	The Security objective is not reached	2	4	8	8
SG3	The Safety objective is not reached	2	3	6	6
SG4	The Environmental Sustainability objective is not reached	2	3	6	6
KG1	The Efficiency objectives is not reached	2	3	6	6
KG2	The Flexibility objective is not reached	2	3	6	6
KG3	The Predictability objective is not reached	2	3	6	6
KG6	The Interoperability objective is not reached	2	3	6	6
KG5	The Access and Equity objective is not reached	1	3	3	3

SESAR Programme R&D Risks					
P9	The definition of the main milestones of the Programme does not enable to steer the Programme effectively	4	4	16	8
P10	The System Engineering approach does not enable the Programme to ensure the overall coherence of the future ATM System	4	4	16	8
E2	SWIM is not adequately developed	3	4	12	9
P3	The R&D activities do not deliver results	3	4	12	9

Ref.	Risk	Likelihood	Severity	Gross criticality	Net criticality end 2010
E3	The investment of the stakeholders, necessary to support the development activities, is not secured	2	4	8	8
P1	The governance of the R&D Programme does not provide contributors with sufficient guidance	2	3	6	6
P2	Lack of buy-in and support from stakeholders during the Development Phase	2	3	6	6
P4	The Programme does not adapt to external changes	2	3	6	6
P5	Planning issues cause delays	2	3	6	6
P6	Inefficient or unrealistic resource management	2	3	6	6
P7	The delivery of the Programme shows performance / quality issues	2	3	6	6
E1	Regulatory arrangements and standards implementation are unable to support the Deployment of the programme	1	4	4	4

Wide SESAR scope Risks					
C1	Investment to support deployment not secured	3	4	12	12
C2	Delays in the implementation of short-term initiatives (IP1)	3	4	12	12

Administrative/Financial Risks					
AD1	Rejection or delay by the Members to accept amendments make the MFA a constraints to the efficient running of the Programme	2	4	8	4
AD2	ECA major observation on the SJU's accounts	2	4	8	4
AD3	Inefficient implementation of the financial circuits through ABAC/SAP due to system rigidity and lack of resources	2	4	8	4
AD4	Non respect of the value for money principle	2	4	8	4
AD5	Lack of motivation and increased staff turnover	2	4	8	4

Specific mitigating actions concentrate on the risks with a gross criticality score above 6 whereas those below this threshold will be continuously tracked to ensure their critically does not increase overtime. Priority is given to the implementation of those actions which have a positive impact on a large number of risks.

Each risk has been assigned to an Owner who is responsible for the evolution of the risk and for the coordination and monitoring of the mitigating actions.

Appendices A to C contain detailed tables on the status for each of the SJU main risks with a Net Criticality above 6 at the end of 2010.

Conclusion

This first ERM based exercise performed during 2010 supported the SJU Management to assess, evaluate, treat to the feasible extent, monitor and report on the main risks that the SJU faces in the realization of the SESAR Programme objectives.

This constitutes a Management instrument which will be embedded more and more in the daily work of the SJU and spread in the most cost-effective manner within the Programme.

This overall exercise has been possible thanks to the commitment of the Project, Sub Work-Package and Work Package Members' Staff who captured the risks affecting their activities in the PIRs in collaboration with the SJU Programme Managers and Staff who channelled and examined the information through the SIR database escalating it when necessary up to the SJU Management attention.

Some risks carried a high criticality which has triggered immediate actions from the SJU Management in coordination with the Members in order to bring their criticality within a level considered acceptable. The SJU is endeavouring to implement in strict cooperation with the Members at different level of responsibility (Programme Committee, Work Packages leaders and Project Managers) all the necessary actions to reduce the likelihood of occurrence and the impact of risks.

Processes have been agreed upon to monitor the evolution of risks overtime at the periodical project control gate as well as at strategic level integrating the strategic risk review with the Annual Work Plan.

The SJU management is aware of the criticality of some risks as reported in the previous chapters but remains confident that the necessary actions are being implemented to adequately manage them.