

JUNE 2014
DG MOVE

Second mid-term evaluation of the SESAR Joint Undertaking

FINAL REPORT

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PROJECT NO. MOVE021
DOCUMENT NO. Final
VERSION 4
DATE OF ISSUE 30 June 2014
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1 Introduction

This report was prepared by COWI under the requirements of the "Second mid-term evaluation of the SESAR Joint Undertaking" assignment. The study was launched under the framework contract for Impact Assessments and Evaluations in the field of transport, referenced MOVE/A3/350-2010.

1.1 Purpose of the evaluation

Purpose of the evaluation

The purpose of this project was to undertake an evaluation study on the functioning of the SESAR Joint Undertaking (SJU) from January 2010 to December 2012. Art. 7 of the SJU Regulation establishes that the Commission shall, every three years,

“...carry out evaluations on the implementation of this Regulation, the results obtained by the Joint Undertaking and its working methods, as well as on the general financial situation of the Joint Undertaking.”

The evaluation had a fourfold objective:

Fourfold objective

I. The implementation of the Regulation: To assess whether the set-up of the SJU and the decisions it has adopted meet the requirements of the Regulation and the relevant Council Resolutions.

II. The SJU's working methods: To describe and evaluate the SJU's working methods, particularly in respect to working practices and procedures, functioning of the Administrative Board, financial rules and involvement of and relations with SJU members and other stakeholders.

III. Results obtained by the SJU: To evaluate the extent to which intended outputs, results and impacts have been achieved, notably in respect to progress towards SESAR programme objectives, but also to assess the extent to which the SJU has proved to be an effective and efficient coordination mechanism for the implementation of the European ATM Master Plan compared with alternative options.

IV. The general financial situation of the SJU: To assess the soundness of financial management principles employed as well as the timeliness and adequateness of financial contributions made to the SJU.

The final report that follows the structure requested in the Terms of Reference. It includes a description of the purpose of the evaluation and the approach and methodologies used. Findings, conclusions and recommendations are presented based on evidence from the analysis conducted during the previous stages of the study are presented in this report.

Structure

The research methodology is presented in the following Chapter 3, the context of the evaluation is described in Chapter 4. Findings are presented for each evaluation question in Chapters 5 to 9, in accordance with the four objects being evaluated:

- › Chapter 5 – Implementation of the SJU Regulation
- › Chapter 6 –The working methods of the SJU
- › Chapter 7 –The results obtained by the SJU
- › Chapter 8 – The general financial situation of the SJU

Conclusion and findings are presented in Chapter 9.

1.2 List of abbreviations

Table 1-1 presents a list of the main abbreviations used in the report.

Table 1-1: Abbreviations used in the report

Abbreviation	Full name
AAR	Annual Activity Report
ADB	Administrative Board
AIRE	Atlantic Interoperability Initiative to Reduce Emissions
ATM	Air Traffic Management
AWP	Annual Work Programme
BAFO	Best and Final Offer ... process by which projects are awarded to SJU members
CA	Contract Agent
CBA	Cost-Benefit Analysis
CoA	Court of Auditors
DG	Directorate General

Abbreviation	Full name
DG HR	DG Human Resources and Security
DG MOVE	DG Transport and Mobility
DG RTD	DG Research
EC	European Commission
eFDP	European Flight Data Processing
EU	European Union
EUR	Euro
FOC	Full Operating Capability ¹
FP7	Seventh Framework Programme
HR	Human Resources
IAC	Internal Audit Capability
IAS	Internal Audit Service
IOC	Initial Operating Capability ²
IPRs	Intellectual Property Rights
JTI	Joint Technology Initiative
JU	Joint Undertaking
MoM	Minutes of Meeting
NextGen	The <i>Next Generation</i> Air Transportation System
OFA	Operational Focus Area ³
OI	Operational Improvement ⁴
OPTIMI	Oceanic position tracking improvement and monitoring
SES	Single European Sky
SESAR	Single European Sky ATM (Air Traffic Management) Research

¹ Time when the deployment of an improvement is complete and full operational benefits are being realized.

² Time when an improvement can deliver first operational benefits.

³ A limited set of dependent operational and technical improvements related to an Operational sub-package, comprising specific interrelated OIs designed to meet specific performance expectations of the ATM Performance Partnership.

⁴ An Operational Improvement is any operational measure or action taken through time in order to improve the current provision of ATM operations. Operational Improvements are not necessarily related exclusively to the effect of a change in technology, they can relate to procedures, working methods or routines and human factor aspects.

Abbreviation	Full name
SJU	SESAR Joint Undertaking
SLA	Service Level Agreement
TEN-T	Trans-European Transport Networks
ToR	Terms of Reference
WP	Work Package

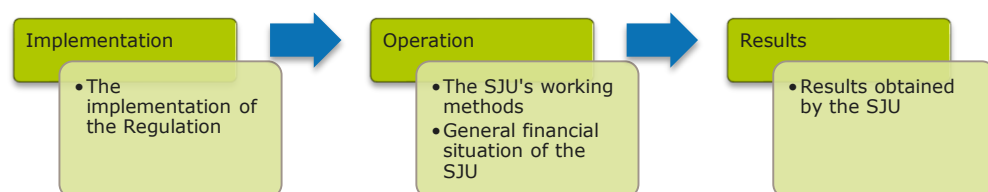
2 Evaluation methodology

2.1 Overall approach

The main evaluation objects

The task specifications identified four evaluation objectives. These are *implementation*, *working methods*, *results* and the *financial situation* of the SJU; they constitute the objects to be evaluated. In Figure 2-1, the four evaluation objects are organised according to three main evaluation themes, which correspond to phases in a process covering the *implementation*, *operation* and *results* of the SJU.

Figure 2-1 Evaluation objects: Three phases in the SJU process



During the evaluation, data were collected in order to assess the performance of the SJU against these overall objects. This led to the formulation of conclusions and recommendations drawing on the findings of the analysis.

2.2 Evaluation questions and criteria

The evaluation will answer 11 evaluation questions related to the 4 evaluation objects as summarised in Table 3-1.

Table 2-1 Summary of themes, evaluation criteria, evaluation questions

Theme	1 Implementation	2 Working methods	3 Results	4 Financial situation
Evaluation criteria	> Relevance	> Effectiveness > Efficiency > Coherence	> Effectiveness > Efficiency	> Efficiency
Evaluation questions	Q1	Q2-Q5	Q6-Q10	Q11

2.2.1 Implementation of the SJU regulation

Relevance

The section on the implementation of the SJU Regulation assesses whether the set-up of the SJU and the decisions it has taken follow the requirements established in the SJU Regulation.

In this evaluation, we understand **relevance** to be the extent to which the SJU is pertinent to the needs, problems and issues identifiable in the legal framework of the SJU. Relevance is therefore a measure for the coherence between the actual set-up and operation of the SJU and the intended set-up identifiable in the SJU Regulation.

- > Evaluation question 1. Is the SJU operating according to its Regulation and Statutes?

2.2.2 The working methods of the SJU

The section on the SJU working methods focuses on the management and operational structures of the SJU. The focus is on working practices and procedures, the functioning of the Administrative Board, financial rules and involvement of and relations with SJU members and other stakeholders.

Analysing effectiveness and efficiency

The **effectiveness** of the SJU relates to its actual achievements and operation compared with the intended objectives. Effectiveness is often closely connected to the evaluation criterion of **efficiency**, which addresses the extent to which the desired objectives/effects are achieved at a reasonable cost.⁵

When evaluating an organisation, efficiency often relates to the 'administrative cost' of effects or the efficiency of the administration understood as its competence. This concerns both the actual management of the SJU and the relationship between the members.

Evaluation questions

⁵ See e.g. "EVALUATING EU ACTIVITIES - A PRACTICAL GUIDE FOR THE COMMISSION SERVICES", European Commission, DG-BUDGET Evaluation unit, July 2004

- › Evaluation question 2. To what extent are the SJU's internal organisation, procedures and activities in line with the tasks entrusted to it?
- › Evaluation question 3. To what extent have the SJU's internal organisation, procedures and activities been conducive to its efficiency?
- › Evaluation question 4. To what extent is the coordination between the SJU, its members and its founding members working satisfactorily?
- › Evaluation question 5. To what extent is the SJU implementing the requirements of the European Union's FP7 and TEN-T Programmes?

2.2.3 Results obtained by the SJU

The section on results obtained by the SJU focuses on the intended outputs, results and impacts, notably with respect to the progress made towards achieving SESAR programme objectives. The section also explores to which extent the SJU has proved to be an effective and efficient coordination mechanism for implementing the European ATM Master Plan.

To evaluate the results obtained by the SJU, needs, problems, issues and intended effects are identified and compared with the actual impact of the SJU.

- | | |
|----------------------|---|
| Evaluation questions | <ul style="list-style-type: none"> › Evaluation question 6. To what extent has the SJU achieved its objectives over the reference period? › Evaluation question 7. To what extent has the SJU as a private-public partnership led to an improved management of the ATM related research and validation activities? › Evaluation question 8. How the activities and actions of the SJU contribute to implementing the SES and allow for a quicker realisation of its objectives? › Evaluation question 9. To what extent is SJU the most efficient solution for the management of the SESAR project's development phase? › Evaluation question 10. To what extent have the activities of the SJU resulted in unintended effects (both desirable and undesirable)? |
|----------------------|---|

2.2.4 The general financial situation of the SJU

The section on general financial situation of the SJU addresses the soundness of financial management principles as well as the timeliness and adequateness of financial contributions made to the SJU.

- | | |
|----------------------|---|
| Evaluation questions | <ul style="list-style-type: none"> › Evaluation question 11. To what extent does the SJU comply with the principles of sound financial management? |
|----------------------|---|

2.3 Analytical framework and tools

2.3.1 Analytical framework

The analytical framework for this evaluation was developed with four levels of analysis, arranged in a logical hierarchy. This enables the evaluation team to make detailed assessments covering all issues mentioned in the scope of this assignment, and on this basis, to aggregate the assessments.

- › Level 1 includes the **overall assessment** providing the condensed assessment of the performance of the SJU and its working practices. The assessment includes an analysis of the SJU's ability to meet its performance targets.
- › Level 2 focuses on the assessment of **main evaluation criteria**. Relevance, effectiveness, cost-effectiveness and operational efficiency and benefits and disadvantages are addressed to get an overall assessment of these areas.
- › Level 3 addresses the **judgement criteria** clearly formulating how judgements will be made.
- › Level 4 deals with the **indicators** formulated in the inception phase for each group of judgement criteria. The data collected on indicators were used to validate (or negate) the judgement criteria, which will feed into the analysis of the evaluation questions and the formulation of conclusions and recommendations.

Triangulation approach

In order to answer the evaluation questions, the triangulation approach was used. The process of triangulation consists of three steps:

- 1 Identifying trends across the data sets and information gathered and consolidating these observations.
- 2 Checking these hypotheses for consistency using different sources of information in order to find contradictions.
- 3 If necessary, approaching the various information sources to obtain additional data in order to analyse and explain possible contradictions and/or differences in the findings.

More than one method

The advantage of using more than one method is that evaluation conclusions are strengthened after a process of triangulation where specific findings are compared and assessed against findings from other information sources to establish the extent to which the findings can be considered general and valid.

2.3.2 Analytical tools

The analytical tools used in the evaluation comprise interviews with Commission staff and SJU staff as well as a survey of SJU members, EU Member States and other stakeholders. The desk study focused on collecting and systemising existing data from available sources, whereas the stakeholder survey and interviews aimed to collect new data by consulting actors and stakeholders involved.

Desk study

The purpose of the desk study was twofold. First, it was a very important analytical tool for systematic collection and analysis of data, which could help answer the evaluation questions. Second, the desk study provided in-depth understanding of the SJU operations.

Document review

For easy access and reference, the documents were collected and organised in a document archive available to all team members. Documents were reviewed systematically during the implementation phase of the evaluation. Availability and information gaps were established early on, and additional information requested during interviews or directly to DG MOVE. The list of documents reviewed is presented in Appendix B.

Answering relevance of research projects

The data sources used to undertake the desk study and document screening included Internet research of relevant websites and various documents. A number of these sources were mentioned in the task specifications provided at the kick-off meeting. Further relevant data sources and documents were identified and obtained also through the interview process.

Interviews

Interviews constituted a major data collection method in this evaluation. They followed a semi-structured interview guide (presented in Appendix C). Interviews were conducted face-to-face, and follow-up interviews were conducted over the phone. All interviewees identified in the list agreed on with DG MOVE were approached. The majority responded positively, however, some did not have the required availability. Appendix A presents the list of interviewees.

Stakeholder survey

An important parameter for measuring SJU performance was the stakeholder survey. The stakeholder survey aimed to address the satisfaction and views on SJU operations and the collaboration with the SJU as well as the achievements of the SJU. To capture the attitudes of stakeholders, a survey was circulated to all stakeholders (SJU members and Member States). The list and status of the stakeholders targeted by the survey are presented in Appendix A, whereas the survey questions are presented in Appendix D.

3 Background of the SESAR Joint Undertaking

3.1 SESAR Project

In its 2011 White Paper⁶, the Commission identified the completion of the Single European Sky (SES) among its main initiatives in creating an efficient and integrated mobility system. SESAR (*Single European Sky ATM (Air Traffic Management) Research and Development*) is the technology pillar of the *Single European Sky initiative*, which aims at ensuring the modernisation of the European air traffic management systems by means of joining and streamlining relevant Research and Development (R&D) and associated resources available in the European Union⁷.

Three phases

The SESAR programme can be broken down in three interrelated phases. The first “definition” phase took place between 2004 and 2008 and focused at defining the content, the development and deployment plans of the next generation of ATM systems and led to the delivery of the European ATM Master Plan (described further in section 3.2). The second “development” phase run from 2008 to 2013 aiming at developing and validating the technologies required in reaching the overall SES performance goals:

- › Increasing air traffic capacity levels in order to handle three times more traffic in the coming years
- › Improving safety by a factor of 10
- › Reducing environmental effects by 10% per flight

⁶ EC. 2011, White Paper 2011, Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, COM(2011) 144.

⁷ The Single European Sky (SES) has been a European Union competence since 2004. Two legislative packages SES and SES II, with a goal to enhance air safety standards, contribute to a sustainable air transport system and improve ATM performance. A third package, SES2+, has been recently proposed in COM (2013) 408.

- › Reducing ATM costs to airspace users by 50%.

In 2014, SESAR entered the third “deployment” phase, which will result in the modernisation of the ATM infrastructure, with harmonised and interoperable components. According to the EC: *“Deployment comprises the activities and processes related to the industrialisation and implementation of technologies and procedures developed and validated by the SESAR Joint Undertaking (SJU)”*⁸.

New concept of operation

SESAR contributions to the overall Single Sky objectives will materialise as the result of a new approach to air traffic management known as the SESAR concept of operation. Key features are:

- › **Moving from airspace to trajectory based operations**, so that each aircraft achieves its preferred route and time of arrival.
- › **Collaborative planning** so that all parties involved in flight management from departure gate to arrival gate can plan their activities based on the performance the system will deliver.
- › **Dynamic airspace management** through enhanced coordination between civil and military authorities.
- › **New technologies** providing more accurate airborne navigation and optimised spacing between aircraft to maximise airspace and airport capacity. New technologies will be embedded in a harmonised and interoperable technical architecture whilst supporting the needs of all European regions.
- › **Central role for the human**, widely supported by advanced tools to work safely and without undue pressure.

3.2 European ATM Master Plan

The European ATM Master Plan

A main output from the first phase of the SESAR project was the European ATM Master Plan. Constituting the main basis for the second phase of the project, the plan defines the technologies (techniques, management and operations) to be developed during this phase. It is in effect the main roadmap linking SESAR research with deployment.

The first edition of the European ATM Master Plan was endorsed by the European Council on 30 March 2009 and thus formally laid the basis for the second phase of the SESAR project. The European ATM Master Plan is to be regarded as an

⁸ Commission Staff Working Document SWD (2013) 262 final of 10 July 2013 revising the Council Regulation (EC) No 2019/2007 of 27 February 2007 on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR)

evolving document, with its most recent edition being published in 2012⁹. Compared with the first edition, the second edition proposes a number of changes giving priority to:

- › performance benefits and prerequisites for the implementation phase
- › preparing the deployment phase
- › promoting interoperability at international level.

The European ATM Master Plan defines the “Essential Operational Changes” needed for full deployment of the SESAR concept by 2030, which will be implemented in three main steps:

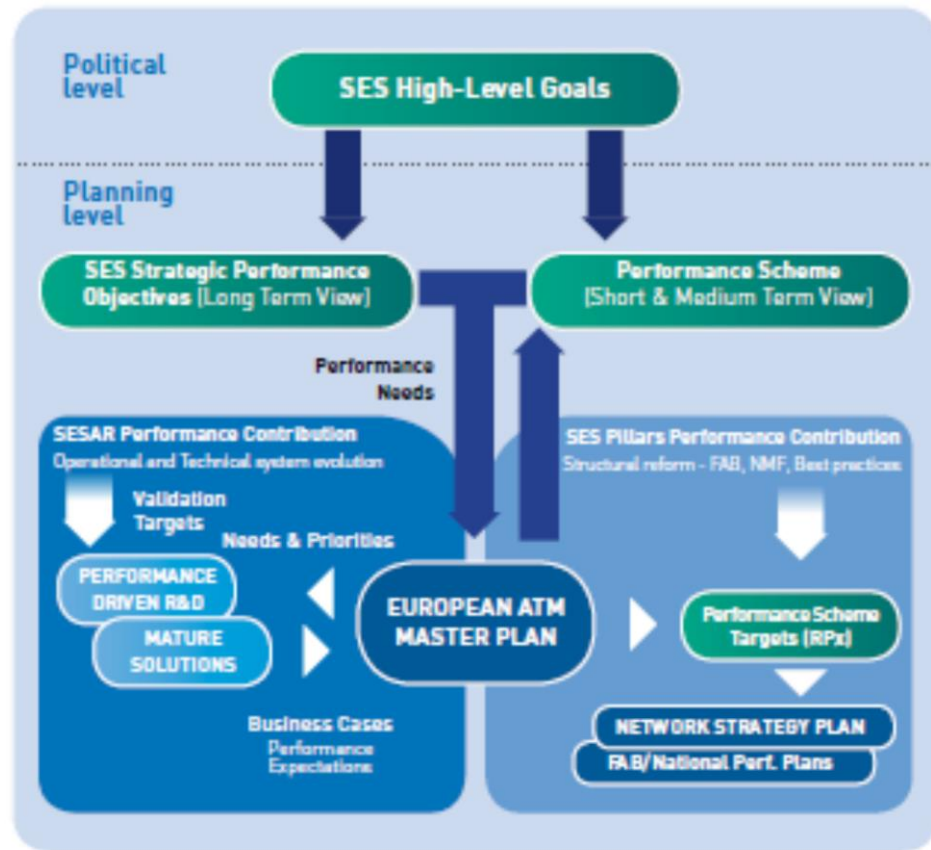
- 1 Time based operations aiming to improve information sharing and optimise networks, thus increasing capacity
- 2 Trajectory based operations aiming to increase efficiency through the development of the System Wide Information Management (SWIM) and initial trajectory management concepts
- 3 Performance based improvements introducing a full and integrated system thus achieving the SES long-term goals.

The European ATM Master Plan lays down the roadmap for the implementation of the operational improvements into a coherent SJU work programme and is defined in work packages.

The relationship between SES, SESAR and the European ATM Master Plan and their targets and performance can be seen in Figure 3-1.

⁹ SJU, 2012, The Roadmap for Sustainable Air Traffic Management Updated with SESAR’s first developments European Union European ATM Master Plan edition 2

Figure 3-1: SES, SESAR and Performance Scheme Relationship



Source: European ATM Master Plan (2012)

3.3 The SESAR Joint undertaking

SESAR is the project for supporting the creation of a single European sky by modernising air traffic management. The SJU is the legal entity responsible for managing the funds and resources allocated to the development phase project¹⁰.

Origins

The SJU was created under European Union law on 27 February 2007. It is a public private partnership with the European Union and Eurocontrol as founding members and an additional 15 members from the aviation community. As some of the members are made up of consortia, this leads to some 70 public and private actors participating in SESAR. The Administrative Board governing the SJU counts all members and includes representatives of the military, relevant interest organisations and the scientific community¹¹.

¹⁰ SJU's legal framework and hence mandate and its organisational setup (see below) are specified in (EC) Regulation No 219/2007, amended by (EC) Regulations 1361/2008 and 1336/2008. In the text referred to as "SJU Regulation".

¹¹ <http://www.sesarju.eu/players/partnership>

The founding members and the stakeholders have committed to providing their contributions to the SESAR development phase in equal parts totalling EUR 2.1 billion, i.e. the Commission, Eurocontrol and the industry are providing EUR 700 million each. Contributions may be in cash and in kind.

Initially, the SJU was planned to be operational until 2016. Recently, the Commission adopted a proposal¹² to extend its duration until 2024. This is considered necessary in order to continue ATM research beyond the current time limitation and to follow through the implementation of the “Essential Operational Changes” identified in the 2012 European ATM Master Plan.

Key Features of the SJU

A number of key features of the SJU are particularly important to consider for this second mid-term evaluation.

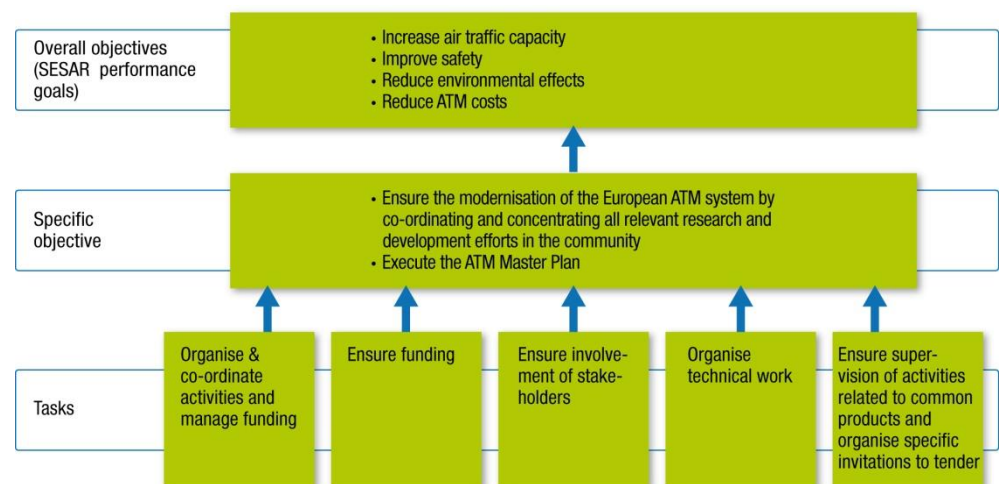
Performance oriented with strong focus on coordination and rationalisation

It is evident from the SJU Regulation that a strong rationale for establishing the SJU was to ensure coordination and rationalisation of the R&D activities to be implemented under the European ATM Master Plan to avoid fragmentation and to achieve economies of scale. The SJU Regulation thus reads:

"The aim of the Joint Undertaking shall be to ensure the modernisation of the European air traffic management system by coordinating and concentrating all relevant research and development efforts in the Community." (Art. 1, 5).

Furthermore, although the focus is on research and development, the framework of the SESAR project and the European Single Sky Initiative puts the SJU in a highly performance oriented environment. The key objectives of the SJU are illustrated in Figure 3-2.

Figure 3-2: Key objectives of the SJU



¹² COM (2013) 503, currently following the legislative process

Multitasking and multi-stakeholder set-up

Tasks

The SJU Regulation formulates a number of tasks (Text box 3-1), which centre on the management and implementation of the European ATM Master Plan. These tasks are broken down into a work programme of 19 work packages, implemented through a complex set of R&D and validation projects and activities to be coordinated by SJU.

Text box 3-1 SJU tasks

- Organising and coordinating the activities of the development phase of the SESAR project, in accordance with the European ATM Master Plan, resulting from the definition phase of the project managed by Eurocontrol, by combining and managing under a single structure public and private sector funding
- Ensuring the necessary funding for the activities of the development phase of the SESAR project in accordance with the European ATM Master Plan
- Ensuring the involvement of the stakeholders of the air traffic management sector in Europe, in particular: air navigation service providers, airspace users professional staff associations, airports, and manufacturing industry; as well as the relevant scientific institutions or the relevant scientific community
- Organising the technical work of research and development, validation and study, to be carried out under its authority while avoiding fragmentation of such activities
- Ensuring the supervision of activities related to the development of common products duly identified in the European ATM Master Plan and if necessary, to organise specific invitations to tender.

Organisation of the SJU

The SJU is a public-private partnership whose members are the European Union, Eurocontrol and the ATM industry. The stakeholders are directly involved in the implementation of activities as leaders and contributors to work packages. The SJU therefore plays an important role as coordinator and facilitator of the process of implementation.

There are a number of additional stakeholders with interests in the work of the SJU, many of whom will be directly affected once the systems and operations to be developed are deployed. This underlines the importance of involvement, communication and information, where the SJU plays a key role.

3.3.1 SJU Developments in the period 2010-2012

SESAR Annual Release

The first project deliverables were produced already in 2010. This, in conjunction with the establishment of the SESAR release structure in 2010, allowed the SJU to publish the first Release in 2011. Each annual Release includes a selection of solutions that have been validated through the SESAR projects and which are ready for deployment by the industry. The SJU has just proceeded with its fourth Release (2014) with six key features:

- Traffic synchronisation
- Airport integration and throughput

- › Moving from airspace to 4d trajectory management
- › Network collaborative management and dynamic capacity balancing
- › Conflict management and automation
- › System-wide information management.

During this period, the SJU kicked off and completed the update of the European ATM Master Plan and expanded the Joint Undertaking by including 8 “Associate Partners of the SJU” and 13 “Associate Partners of an SJU member” (a list of the SJU membership structure is provided in Appendix G). These two new forms provide a more flexible association with the SJU and the relevant partners were selected through open calls.

International activities

In the period 2010-2012, the SJU established, improved and furthered its international cooperation, with the International Civil Aviation Organisation (ICAO), the Federal Aviation Administration (FAA) and other aviation authorities around the world (Japan, Mexico, and Singapore) in order to ensure that its projects are interoperable with other systems. In 2010, a plan of action for the development of coordination plans for the high priority areas was agreed with the FAA. The SJU had meetings with delegations from non-EU countries (Brazil and India) where information was exchanged. Year 2011 saw the formal initiation of coordination with the FAA covering five standardization and technology activities.

The SJU played a key role in the European coordination of ICAO’s Air Navigation Conference in 2012 along with the EU, Eurocontrol, EASA, ECAC and EUROCAE. This was also an opportunity to coordinate with the FAA on ICAO standards and provisions required for the development phase. The SJU also contributed with some of its experts in the works of ICAO (in particular in the definition of the initiative on Aviation System Block Upgrades). Meetings with non-EU countries that year included Japan, Mexico and Singapore. In 2012, coordination with FAA was further enhanced and culminated with the joint submission of two papers in the ICAO Navigation Conference. In parallel, in order to focus on the interoperability between the SESAR and NextGen development activities a procedure to avoid duplication of work under the Eurocontrol-FAA Action plans was developed.

Aiming at research

3.3.2 Joint Technology Initiatives and Joint Undertakings

In its 2010 Communication presenting the Europe 2020 strategy¹³, the European Commission identified research and innovation as a key element in dealing with sustainability and improving the economy. Within the context of the Innovation Union flagship initiative the Commission recognised that a combination of efforts

¹³ EC, 2010, Communication from the Commission EUROPE 2020 A strategy for smart, sustainable and inclusive growth, COM(2010) 2020.

from the EU, the Member States and the private sector can help achieve objectives that individual actors may not be able to fulfil on their own¹⁴.

These combined efforts can be introduced at EU level through the Joint Technology Initiatives – Joint Undertakings (JTIs JUs), which were first introduced with the 7th research Framework Programme (FP7). JTIs JUs are legal entities established through Council Regulations based on Article 187 of the Treaty on the Functioning of the European Union (TFEU).

Five JTIs

Five JTIs have been established under the FP7, relating to aeronautics (Clean Sky), pharmaceutical research (Innovative Medicines Initiative), fuel cells and hydrogen (FCH), embedded systems (Advanced Research and Technology for Embedded Intelligence and Systems - ARTEMIS) and nanoelectronics (European Nanoelectronics Initiative Advisory Council - ENIAC). Under FP7, the funding allocated to these JTIs represented a total European Union contribution of EUR 3.12 billion, matched by an industry investment of EUR 4.66 billion. The funding continues under the Horizon 2020 programme by mobilising an investment of over EUR 17 billion, of which the EU budget contribution will be up to EUR 6.4 billion¹⁵.

The SJU compared with the JTIs

The five JTIs aim to support the Lisbon Growth and Jobs Agenda¹⁶ and have a research focus in that they aim to increase research in their respective fields. On the other hand, the SJU as explained earlier has a clearly defined role as the technology pillar of a specific transport policy (the SES initiative). Unlike the other JTIs, which have as their main aim the increase in research in the EU, the SJU has a specific aim of modernisation of the ATM, and the way to attain this aim is through coordinating and concentrating all relevant research and development. This was clearly stated in the 2013 Communication of the Commission¹⁷, which states that the SJU was not set up as a JTI “... *due to its specific policy-oriented activities*”.

The membership structure of JTIs (with the exception of Clean Sky) is partnership of the EU represented by the Commission and the industry¹⁸. For ENIAC and ARTEMIS, Member States form the third member category. In all cases, the founding Regulation of the JTI had determined the exact initial membership composition. The SJU membership structure (besides the two founding members) was completed through a public procurement process, and the members come from the industry.

¹⁴ EC, 2013, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Public-private partnerships in Horizon 2020: a powerful tool to deliver on innovation and growth in Europe, COM(2013) 494.

¹⁵ Same reference as in footnote 14.

¹⁶ Council Decision of 19 December 2006 concerning the Specific Programme Cooperation implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013 2006/971/EC.

¹⁷ Same reference as in footnote 14.

¹⁸ Provisions do exist for other legal entities to become members.

4 Implementation of the SJU Regulation

The aim of this Chapter is to assess whether the SJU set-up and the decisions it has taken follow the requirements established in the SJU Regulation¹⁹.

Relevance

In this evaluation, relevance is understood as the extent to which SJU is pertinent to needs, problems and issues identifiable in the legal framework of the SJU. Relevance is therefore a measure of the coherence between the actual set-up and operation of the SJU and the intended set-up identifiable in the SJU Regulation.

4.1 The SJU Regulation

Evaluation question 1. Is the SJU operating according to its Regulation and Statutes?

The information examined confirms that the SJU is operating in line with the Regulation and the Statutes

4.1.1 Introduction

The evaluation question is answered using the following judgment criteria:

- › Does the SJU comply with its Regulation?
- › Does the SJU comply with its Statutes?

¹⁹ Regulation 219/2007

4.1.2 Evidence

Judgment criterion: Does the SJU comply with its Regulation?

Answer: The information examined confirms that the SJU complies with the SJU Regulation.

The evidence to answer the judgement criterion follows the structure and Articles of the SJU Regulation.

Compliance with Art. 1 of the SJU Regulation

Art. 1 of the SJU Regulation sets out the establishment requirements for the SJU, along with its aims. The SJU was established before the reference period of this evaluation. The first interim evaluation of the SJU²⁰, found that the SJU had been established according to the SJU Regulation, as amended²¹ giving the SJU the status of an EU body.

As regards compliance with the provisions of Art. 1 during the reference period, the following observations have been made:

- › The date ending the existence of the SJU (defined in Art. 1(2) as 31 December 2016) has not been changed in the period of reference.
- › The first edition of the European ATM Master plan was endorsed by the Council on 30 May 2009²² and was communicated to the European Parliament on 14 November 2008²³ as required by Art. 1(3). The second edition of the European ATM Master Plan was published in October 2012.
- › Art 1(5) sets out the aims and tasks of the SJU. These have not been changed in the period of reference.
- › The seat of the SJU as required in Art. 1(7) has been in Brussels during the reference period.

The assessment of the Annual Work Programmes (AWPs) and Annual Activity Reports (AARs) for the years 2010, 2011 and 2012 confirmed that the activities undertaken by the SJU in the reference period were in line with the tasks set out in Art. 1. (5). This finding is supported also by the Court of Auditors (CoA) reports for the same years. In addition, interviews with SJU personnel and Commission officials supported this view. The respondents generally consider that the tasks are

²⁰ Commission Communication COM (2011) 14 final of the 24 January 2011 on the intermediate evaluation of the SESAR Joint Undertaking and its progress on the execution of the European ATM Master Plan

²¹ Regulation 1361/2008

²² COUNCIL DECISION of 30 March 2009 endorsing the European Air Traffic Management Master Plan of the Single European Sky ATM Research (SESAR) project (2009/320/EC)

²³ EC, Communication from The Commission to the Council and to the European Parliament, The Air Traffic Management Master Plan (THE EUROPEAN ATM MASTER PLAN), COM(2008) 750

formulated in broad enough terms to allow the SJU the necessary level of flexibility to attain its aims and goals.

Structure and operations are in line with Art. 2, 2a to 2d, 4, 4a, 4b

The AARs and the Annual Budgets indicate that staff-related provisions are in line with the SJU Regulation. The implementing rules to the staff regulation were adopted in 2011 aligning the SJU with the relevant Commission Decisions. The staff committee was set up in 2011²⁴. Multi-annual staff policy plans for 2010-2012 as well as for 2013-2015 were developed²⁵. An administrative agreement between the SJU and Belgium concerning privileges and immunities was signed on 30 March 2009, and no change during the reference period was identified.

The Financial Rules were amended in 2010 (ADB(D) 16-2010) following the required procedure and an opinion of the CoA (no 2/2010). The general agreement between the Commission and the SJU was signed in the same year in line with the requirements of the SJU Regulation²⁶, and annual financial implementation agreements have been signed for the period under consideration. Annual Accounts have been prepared for the years 2010, 2011 and 2012. Reports on the Annual Accounts have been prepared by the CoA for each of these years²⁷. A budget discharge from the European Parliament has been given for the years 2010, 2011 and 2012²⁸.

Information collected through interviews with SJU and DG MOVE personnel confirmed the above findings.

Art. 5, Single Sky Committee

Art. 5(1) of the SJU Regulation requires that the Single Sky Committee be informed on the activities of the SJU. A review of the Agendas of the Meetings of the Single Sky Committee during the reference period identified a SESAR related agenda item in each case. Both SJU and DG MOVE staff confirmed that a SESAR item was on the agenda for each Committee meeting.

Judgement criterion: Does the SJU comply with its Statutes?

Answer: The information examined confirms that the SJU activities comply with the SJU Statutes.

The assessment of this judgement criterion follows the structure and Articles of the SJU Statutes.

²⁴ ADB(D)-11-2011 and ADB(D)-05-2011

²⁵ Multiannual staff policy plan 2010-2012, Decision ADB(D)15-2009 and Multiannual staff policy plan 2013-2015, Decision ADB(D)06-2012.

²⁶ Signed on 7/12/2009

²⁷ COA decisions of 12/10/2011, 15/11/2012 and 22/10/2013

²⁸ European Parliament Decision of 10 May 2012 on discharge in respect of the implementation of the budget of the SESAR Joint Undertaking for the financial year 2010 (C7-0297/2011 – 2011/2238(DEC)), European Parliament Decision of 17 April 2013 on discharge in respect of the implementation of the budget of the SESAR Joint Undertaking for the financial year 2011 (C7-0278/2012 – 2012/2216(DEC)) and European Parliament Decision of 3 April 2014 on discharge in respect of the implementation of the budget of the SESAR Joint Undertaking for the financial year 2012 (C7-0336/2013 – 2013/2248(DEC))

Compliance with
Annex of the SJU
Regulation (statutes)

The membership structure and the organs of the SJU are in line with Arts. 1 and 2 of the SJU Statutes as evidenced by the Annual Reports, the governance structure publicly presented in the SJU website²⁹ and the consultation of the SJU Board members. A review of the Administrative Board meetings found that membership requests were considered on two occasions³⁰. The procedure followed was in line with Art. 1.3, however neither case has progressed further than the notification to the board. Following an Administrative Board decision the categories of “Associate Partners of the SJU” and “Associate Partners of an SJU member” were created in 2010³¹. These categories are not SJU members under the provisions of Art. 1 of the SJU Statutes as mentioned explicitly in ADB (D) 2-2010 but a more flexible form of association complementing and completing the expertise brought by the members, established in line with Art 5.1 (m) and (o).

The review of the Administrative Board Minutes of Meetings (MoM) and Decisions found compliance with the provisions of Articles 3 (composition and chairmanship of the board), 4 (voting in the board), 5 (responsibilities of the board) and 6 (avoidance of conflict) of the Statutes. A new Administrative Board secretary was appointed in 2010 and a Board Vice-Chairman was re-appointed in 2010 and 2012³². Voting rights were adapted in 2010, 2011 and again in 2012³³. In 2012, the Administrative Board adopted amendments to its rules of procedures as well as a code of conduct for its members³⁴. The review of the MoM identified evidence of use of the provisions of Art. 6 regarding avoidance of conflict of interest.

The review of information examined found that the activities of the Executive Director during the reference period were in compliance with the provisions of Art. 7 of the SJU statutes, which sets out the responsibilities and tasks of the Executive Director. This was confirmed during the interviews with the Commission and the SJU Board members. The Executive Director’s term was based on Art. 3 of Regulation 1361/2008. The provisions for the appraisal of the Executive Director were put in place in 2010³⁵ and provide for a more regular (annual) evaluation than that required by the statutes³⁶.

Internal auditing
function (Art 7a)

The Internal Audit Service of the Commission (IAS) has been responsible for this function since 2010³⁷ with decision ADB(D)-11-2010. The Administrative Board (ADB(D)-11-2010) also requested the establishment of an Internal Audit Capability (IAC) of the SJU in accordance with Article 4.a.2 of the Statutes. The

²⁹ www.sesarju.eu

³⁰ DHMI (Turkey) ADB(M)018- MoM and ADB(M)019- MoM; and UAE company ADB(M)022-MoM

³² Administrative Board decisions: ADB(D)-14-2010, ADB(D)-10-2010 and ADB(D)-02-2012

³³ ADB(D)-07-2010, ADB(D)-02-2011 and ADB(D)-01-2012

³⁴ ADB(D)-07-2012 and ADB(D)-08-2012

³⁵ ADM(D)-12-2010

³⁶ DG MOVE reported that two evaluation reports have been made for the Executive Director.

³⁷ In line with Article 185 (3) of the Financial Regulation of the European Union

IAS mission charter, the SJU internal control standards and the Ex-Post Project Audit Strategy were adopted in the same year. The IAS coordinated Strategic Audit Plan 2012-2014 was adopted in 2011³⁸. These developments are also confirmed by the CoA reports. The internal audit activities of IAS and the IAC were verified through a number of audit and risk assessment reports³⁹, thus confirming that the SJU has an internal audit function in line with Article 7a.

Staff of the Joint undertaking (Art. 8)

Interviews with SJU staff, confirmed that the requirements of Art. 8 regarding the secondment of staff to the SJU are fully respected.

Agreements (Art. 9), external contracts (Art. 10) and working groups (Art. 11)

Agreements with members and external contracts are in line with the provisions of Articles 9 and 10 of the statutes. A Multilateral Framework Agreement (MFA) and Membership Agreements (MAs) have been signed with the members. The MFA was amended in 2010 following the creation of the categories of “Associate partners of the SJU” and “Associated partners of the Members of the SJU”. The MFA was further amended in 2011⁴⁰ reflecting a first re-allocation of resources for the SESAR Programme activities. In 2010, a cooperation agreement was signed between the SJU, Eurocontrol and the European Aviation Safety Agency (EASA) setting out the areas and conditions of cooperation with EASA in line with the regulatory and supervisory activities of SESAR programme⁴¹. Art. 11 provides the SJU with the option to set up working groups “*to carry out activities that are not already being carried out elsewhere*”. Interviews with SJU staff clarified the SJU has not made use of this option as this proved not necessary.

Financial provisions (Art. 12) and revenue (Art. 13)

Regarding the financial provisions, (Art. 12) and Revenue (Art.13), the SJU received commitments and contributions from the EU on an annual basis in accordance with the General Agreement⁴². The CoA reports for 2010 and 2011 included a comment relating to late payments of other members' contributions⁴³. The attached reply of the SJU points to minor procedural issues, and this issue was not mentioned again in the 2012 CoA report. Interviews with SJU staff confirmed this assessment. Furthermore, the CoA reports for this period noted a positive budget result, which is at odds with the principle of equilibrium according to the CoA. The budget has decreased from the initial level identified in 2009. The staff of the SJU explained that the reason for this surplus was the front-loaded provision of contributions by SJU members.

³⁸ ADB(D)-17-2010, ADB(D)-13-2010, ADB(D)-15-2010 and ADB(D)-06-2011

³⁹ List of relevant IAS and SESAR JU IAC reports included in Appendix B

⁴⁰ ADB(D)-09-2010, ADB(D)-08-2010 and ADB(D)-10-2011

⁴¹ Letter from SJU to EUROCONTROL and EASA of 28 October 2010 on the cooperation between the three parties and Letter from EUROCONTROL to SJU of 26 November 2010 on SJU, EASA and EUROCONTROL cooperation on SESAR activities.

⁴² Letter from SJU to DG MOVE of 10 May 2012 requesting commitments and contributions and Annual Financial Implementation Agreement between the EC and the SJU (2012).

⁴³ The timely payment of contributions is dealt with in Evaluation question 11.

Implementation and control of the budget (Art. 15) and Work programme and reports (Art. 16)

IPR Art 18

The review of the Administrative Board MoM, AWP and Annual Reports found the SJU to comply with the provisions of Art. 15 and 16. This was confirmed by interviews with DG MOVE and SJU staff. No occurrences were identified relating to Art. 17, Protection of financial interests of the European Union.

Property rights (and in particular Intellectual Property Rights - IPRs) of the SJU are governed by Art. 18 of the SJU Statutes. Detailed rules relating to IPRs are included in Art. 15 of the Multilateral Framework Agreement and the Membership Agreements. They are in line with TEN-T and FP7 provisions while at the same time considering the specificities of the SJU. This is also confirmed by the CoA report for 2012 and interviews with the SJU staff. Updated yearly, the implementing rules for IPRs provide specific guidance. They are available to SJU members through the SJU Extranet and a first report on their implementation was released in 2013⁴⁴. The inclusion of such provisions was verified through the review of two cases⁴⁵.

Concerning the provisions of Art. 19 (Transparency), it is noted that a number of documents (including reports, board decisions and MoM) are publicly available on the Internet. A decision on transparency and access to documents, with reference to Regulation 1049/2001 was adopted in 2011⁴⁶. Regarding the confidentiality provisions of Art. 22, the SJU staff stated that no document is considered classified. Procurement documents are not made available until the process is closed.

4.2 Summary and conclusion

The activities of the SJU during the period under consideration were in line with the SJU Regulation and focused on the tasks set. No activities outside this remit were identified. It is generally considered that the tasks of the SJU are defined in a broad way. This gives some flexibility, which enables the SJU to adapt to changes in the R&D and ATM environments and to undertake a variety of specific tasks as required in order to fulfil its aim.

Even though the SJU was set up prior to 2010, certain functions/provisions were updated/or established during the reference period 2010-2012 (e.g. staff provisions, internal audit function, implementation of Regulation 1049/2011). This reflects the fact that the SJU was operationally evolving and adapting to requirements during the period under consideration. As such, it did not bring into question SJU's compliance.

In conclusion, it is found that the SJU set up and operations are relevant and fulfil the requirements of the legal framework.

⁴⁴ SJU (2013) 1st Annual Report on the SJU monitoring of the implementation of the IPR provisions

⁴⁵ E.g. the SJU, EASA and Eurocontrol agreement for cooperation in SESAR activities in 2010 and the Memorandum of Cooperation between SESAR JU and EUROCAE in 2012.

⁴⁶ ADB(D)-12-2011

5 The working methods of the SJU

This Chapter focuses on the working practices, procedures, functioning of the Administrative Board, financial rules and involvement of and relations with SJU members.

Analysing effectiveness and efficiency

The effectiveness of the SJU relates to its actual achievements and operation compared with the intended objectives. Effectiveness is often closely connected with the evaluation criterion of 'efficiency', which addresses the extent to which the desired objectives/effects are achieved at a reasonable cost.⁴⁷

When evaluating an organisation, efficiency often relates to the 'administrative cost' of effects or the efficiency/competence of the administration. This concern both to the actual management of the SJU as well as to the relationship with its members.

5.1 The SJU's organisation

Evaluation question 2. To what extent are the SJU's internal organisation, procedures and activities in line with the tasks entrusted to it?

The evaluation confirms that the SJU organisation is in line with the tasks entrusted to it.

5.1.1 Introduction

The evaluation question is answered using the following judgment criteria:

- › Is the structure and organisation of the SJU adequate to the work entrusted to it and to the actual workload?

⁴⁷ See e.g. "EVALUATING EU ACTIVITIES - A PRACTICAL GUIDE FOR THE COMMISSION SERVICES", European Commission, DG-BUDGET Evaluation unit, July 2004

- › Is the chain of responsibility within the SJU well defined and are there appropriate management systems and procedures in place?
- › Is there a well-established and clearly defined delimitation of responsibilities of the Administrative Board and the Executive Director of the SJU?
- › Does the SJU's work programme secure the achievement of the execution of the European ATM Master Plan and does it support the preparation of the deployment?

5.1.2 Evidence

Judgment criterion: Is the structure and organisation of the SJU adequate to the work entrusted to it and to the actual workload?

Answer: The SJU is an efficient organisation in view of its achievements and the resources employed during the reference period.

The tasks entrusted to SJU

The SJU is responsible for implementing, commissioning and controlling the SESAR Programme. It does so through (1) defining the overall strategy targets, and (2) ensuring the performance with regard to the strategy. The SESAR Programme consisted in 2012 of 336 projects⁴⁸ organised in 19 Work Packages.

Project overview

The period from 2010 to 2012 saw the initiation of almost all projects (more than 300 being initiated). In 2010, 80% of the 304 projects were in execution phase, excluding those projects that were cancelled or suspended. That was the last year of major project initiation with 114 projects, bringing the total number to 285 while 13 projects were either cancelled or suspended. In 2011, despite the increase of projects to 310, the number of projects in the execution phase increased to 91% and only one project was cancelled. The total number of projects increased further in 2012 reaching 336, with 93% initiated. An overview of the project status for each year is presented in Table 5-1.

Table 5-1: Overview of SESAR projects as managed by the SJU for the years 2010-2012

	Situation as at 31 Dec 2009	Situation as at 31 Dec. 2010	Situation as at 31 Dec. 2011	Situation as at 31 Dec 2012
Total number of Projects in the SESAR Programme	304	304	310	336
Of which				
Projects initiated	171	285	301	331
Cancelled projects	0	2	3	3
Suspended projects	0	11	10	8

⁴⁸ SESAR JU, Annual Activity Report 2012

	Situation as at 31 Dec 2009	Situation as at 31 Dec. 2010	Situation as at 31 Dec. 2011	Situation as at 31 Dec 2012
Projects still under initiation	157	26	6	5
Closed projects	0	0	0	3
Projects in execution phase	14	246	282	312
Projects to be initiated	133	19	9	5

Source: SJU Annual Activity Reports for the years 2010, 2011 and 2012

The projects are executed by the members of the SJU. The important task of the SJU in this respect is to manage the main dependencies between the projects and to ensure the final acceptance of the projects' deliverables.

Staffing
development over
the assessed period

The organisational structure of SJU was put in place during 2007 and 2008⁴⁹. Thus, the SJU is a relatively young organisation reaching cruising speed in terms of recruitment during the reference period 2010-2012. Initially, recruitment began with staff contracts under Belgian Law, and conditions were aligned to the EU Staff Regulations in 2009.

The recruited staff during the reference period consisted of:

- › Temporary agents (TAs): for positions requiring a long-term duration of the contract within the limit of the existence of the SJU
- › Contract agents (CAs) engaged for a fixed period that may be renewed once and for a fixed period only: for administrative support functions, where the TAs recruitment did not prove to be effective or for short-term needs
- › Seconded by SJU members in accordance with Art. 8 of the SJU Statutes.
- › The Administrative Board has approved a number of Seconded National Experts.

SJU Staff
Establishment Plan

The list of positions by grade is provided in the SJU Staff Establishment Plan⁵⁰ and adopted yearly by the Administrative Board⁵¹ as part of the budget. The following table provides an overview staff according to category.

⁴⁹ Multiannual staff policy plan 2010-2012, Decision ADB(D)15-2009.

⁵⁰ The Staff Establishment Plan defines the total number of positions by grade necessary to ensure the sound operational and financial management of the SJU's organisation.

⁵¹ It is the Administrative Board that adopts appropriate implementing rules (Art. 110(1) of the Staff Regulations) and the Staff Establishment Plan as part of the budget procedure.

Table 5-2: Positions filled and recruitment plan

	2010	2011	2012
Staff ⁵²	42	42	42
Total positions filled by 31 Dec	37	35	41
Temporary agents (TAs)	23	23	29
Contract agents (CAs)	2	3	3
Seconded personnel ⁵³	10	8	7
Seconded national experts (SNEs)	2	1	2
Percentage filled	88%	83%	98%

Source: SJU Annual Activity Reports

The Multiannual Staff plan reflects the growing workload of the SJU over the years. The workload of the SJU is linked to initiating projects, monitoring the projects and ensuring the interdependencies between the projects. While the SJU staff amounted to 41 FTE, including three SNEs at end of 2012, the SJU projects were carried out by roughly 3000 experts belonging to the members and not on the direct payroll of the SJU. This is a significant increase from the 23 FTE employed end of 2009 and approximately 1000 experts⁵⁴ working on the projects, reflecting that a majority of the SESAR projects had been launched by 2012.

In the reference period, 15 staff were involved in administrative and support tasks, 1 staff has carried out mixed tasks and the remaining (21 in 2010, 19 in 2011 and 25 in 2012) have worked on operational tasks.

The main limitation of the SJU is the staff numbers and the required profiles needed for operational tasks. The Multi annual staff policy plan states *“it has to be recognised that it is difficult to attract highly skilled persons on TA contracts for a limited duration, especially for technical activities where the SJU is in competition on the recruitment point of view with other institutions such as Eurocontrol”*. This also explains why, in terms of recruitment, actual numbers of administrative staff have been stable over the period.

Staff turnover

Neither retirement nor termination of employment was planned for the period of 2010-2012.⁵⁵ In 2011, three SJU staff members (2 TA and 1CA) terminated their

⁵² Establishment plan of 39 temporary agents and 3 national seconded experts

⁵³ There was one additional replacement CA (end of contract 15/01/2013) who was not recruited on a position of the establishment plan as it was a short term contract for replacement of a TA on maternity leave.

⁵⁴ SJU Multi annual staff policy plan 2011-2013.

⁵⁵ Multiannual Staff Policy Plan 2010-2012, Decision ADB(D)15-2009.

contracts. Additionally, one secondment was terminated at the request of the employee's national administration.⁵⁶

The SJU staff confirmed that staff turnover is higher among qualified experts in the SJU. The staff turnover of temporary agents⁵⁷ is relatively stable compared with seconded staff, particularly as the latter tend to rotate and return to their respective organisations. It was reported by the SJU staff that technical competences related to ATM could be vulnerable to turnover as the market for these experts is limited.

The recruitment process focuses on selecting staff with the required capacities. SJU staff and SJU members generally acknowledge that timely and adequate recruitment and staff management is essential to ensure continuity, particularly as the SJU does not have excess staff capacity to cover absence. It is a matter of balancing the skills and capacity with available resources in SJU, prioritising the work and keeping the mandate clear (coordination of R&D).

Judgment criterion: Is the chain of responsibility within the SJU well defined and are there appropriate management systems and procedures in place?

Answer: The structure of SJU and the chain of responsibility of SJU are perceived as well defined by staff and SJU members. An appropriate management system, including procedures and management plans, has been developed and employed.

Organisational set-up of the SJU

The basic organisational structure of the SJU is laid down in the SJU Regulation. The governance of the SJU is undertaken by the Administrative Board and the Executive Director (Art. 2 of the Statutes). The Administrative Board provides guidelines for the operation of the SJU, while the Executive Director, appointed by and reporting to the Administrative Board, is responsible for the day-to-day management of the SJU.

Roles and responsibilities of the SJU

In 2011, the Administrative Board was presented with the new organisational chart. The aim of the reorganisation was to rationalise the technical side of the organisation, which prior to this change consisted of three departments reporting to the Executive Director. The Administrative Board⁵⁸ approved the organisation illustrated in Figure 5-1.

The SJU organisation is structured along three main sub-structures:

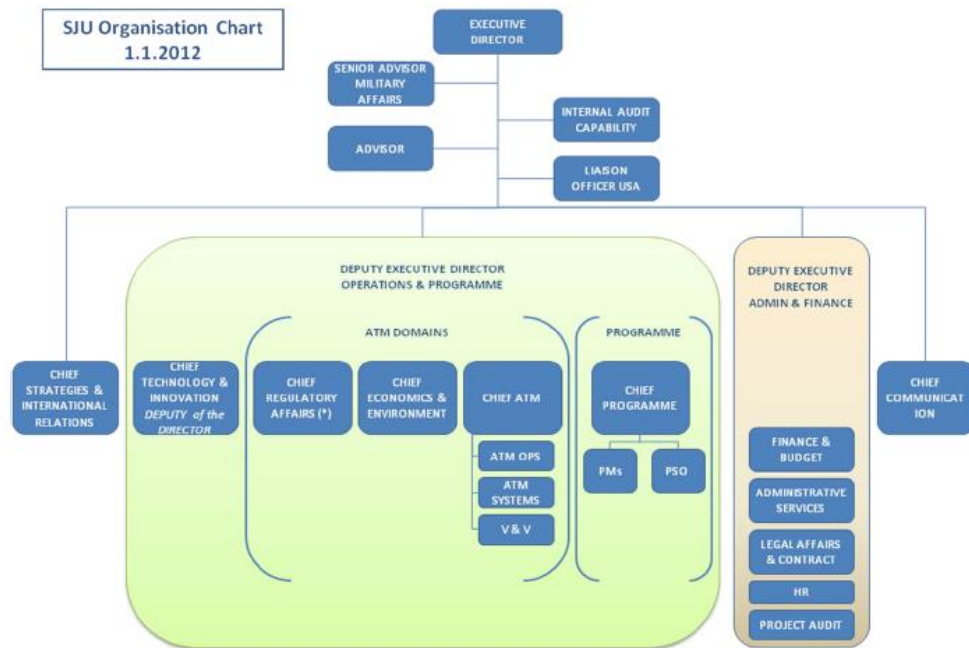
- › The Executive Director (including advisors and officers)
- › The Directorate for Operations and Programme (technical department)
- › The Directorate for Administration and Finance.

⁵⁶ Multiannual Staff Policy Plan 2013-2015, Decision ADB(D)06-2012.

⁵⁷ Permanent staff of SJU but categorised as temporary in the EU staff regulation (as compared to EU officials). Their contracts cannot exceed the lifetime of the SJU.

⁵⁸ ADB(M)020 – Final MoM

Figure 5-1: SJU Organisational chart (1 January 2012)



The Executive Director

The Executive Director has a number of advisors and is also supported by the communication department and two secretaries. The fields of advice are military affairs, institutional affairs and strategies & international relations. The tasks of the advisors in their respective fields are outlined in the Table 5-3.

Table 5-3: Responsibilities of the advisors to the Executive Director

Advisor and officers	Role
The Chief Strategies & International relations ⁵⁹	Responsible for setting the strategic direction for the SESAR programme. In charge of the follow-up on all SESAR international relations, and, in cooperation with the advisor to the Executive Director, responsible for developing and maintaining the SESAR related parts of EC international agreements.
The Senior Advisor for Military Affairs	Responsible for the interface between the SJU work programme and the military stakeholders. Advises on military and security activities and ensures that the military perspective is taken into consideration in the work programme. The primary point of contact for the relations with the relevant military authorities. Facilitates the coordination with the military community, the military equipment suppliers, and coordinates the communication on SESAR challenges to the military.
The USA Liaison Officer	Develops relations with the FAA/NextGen and the relevant stakeholders in Washington.
The Chief Communication	Responsible for ensuring that the objectives of, the progress of and results achieved by the SESAR Programme are widely communicated internally and externally.
The Advisor for Institutional Affairs	In charge of the interface between the programme and staff association and of the supervision of the technical participation of staff representatives in different projects. Responsible for the support contract signed with ACI-Europe. Is the interface with the SES Industry Consultation Body.

⁵⁹ New position following the 2012 organisational revision

The Directorate for Operations and Programme	<p>The mission of the Directorate is to drive, in coordination with Administration and Finance, the execution of the Programme. In undertaking its responsibilities, the Directorate for Operations and Programme is supported by the:</p> <ul style="list-style-type: none"> › The SESAR Solutions Design Function, which is responsible for providing key ATM system, technical and operations design direction setting, expertise and guidance. It also supports the monitoring of projects by working with Programme Management in relation to architectural, operational and technical design matters › The SESAR Solutions Development and Delivery Function, which is responsible for ensuring the planning and execution of the Programme, and for managing the delivery of the SESAR solutions through Releases › Support functions: Quality & Support and third party Resource Management.
Directorate for Administration and Finance	<p>The Directorate is in charge of supporting the organisation, management and supervision of the SJU by providing the necessary resources, financial, human, legal, information technology, and assurance to the Executive Director and the Administrative board on the legality, regularity and sound financial management of the activities performed.</p>
Appropriate IT management systems in place	<p>As resources in the SJU are scarce, efforts have been made to use IT as much as possible. IT is outsourced and provided through Eurocontrol. SJU staff deal only with the business aspects of IT. The IT management system facilitates both the work with members (on programme and projects) and the work on internal SJU administration. The IT tools can support diversification of access to material to the required groups of users (e.g. the extranet of the SJU). IT tools also allow for reporting and risk management.</p>
Project management plan (PMP)	<p>The PMP is the main process and management tool applying to the different work packages. The PMP is used by the SJU and by the approximately 3000 experts working on the SESAR projects. The PMP is an extensive document, which includes guidance for the project leaders on the FP7 procedural requirement. Exceptions are small projects and studies that, due to their nature, require more flexibility and, as such, a lighter version is applied.</p> <p>The PMP was released in 2009. The PMP document was continuously reviewed and updated. A second edition was released in February 2011 and the third edition in April 2013.</p>
SJU staff perceive the management system as transparent	<p>Interviews with the SJU personnel indicated that the structure and management system of the SJU are considered transparent. It was mentioned by SJU staff that closer integration with EC systems in terms of financial transactions could streamline the work flow, by having only one reporting system⁶⁰. However, it would have to be assessed by the SJU if an adequate EC system is available to be implemented in a relatively small structure like the SJU.</p>

⁶⁰ e.g. The European Commission uses the Accrual Based Accounting – ABAC system

Judgment criterion: Is there a well-established and clearly defined delimitation of responsibilities of the Administrative Board and the Executive Director of the SJU?

Answer: The responsibilities of the Administrative Board and the Executive Director are clearly defined.

The responsibilities of the Administrative Board and the Executive Director

The responsibilities of the Board and the Executive Director are clearly defined in the Statutes of the SJU. A non-exhaustive list of responsibilities of the Administrative Board is provided in the Statutes of the SJU, Art. 5. This provides a binding framework for the Administrative Board.

Pursuant to the Statutes, Art. 7, the Executive Director is responsible for the day-to-day management of the Joint Undertaking and is the SJU's legal representative. He directs the execution of the Programme according to the guidelines provided by the Administrative Board and is responsible for providing the Board with the information necessary to carry out its tasks. With respect to the staff of the SJU, the Executive Director exercises the powers of the appointing authority by the Staff Regulations, and he is empowered to conclude employment contracts following the conditions of employment of other servants of the EU.

A more operational description of the tasks and the responsibilities of the Executive Director is provided in the Programme Management Plan (PMP). In addition to the tasks described in Art. 7, the PMP states that the Executive Director:

- › is, in accordance with the SJU Financial Rules, responsible for the budget execution, i.e. is in particular the Authorising Officer for the co-financing.
- › represents and coordinates the Programme activities and initiatives related to the SESAR Programme with external stakeholders.
- › ensures coordination and communication with international organisations in coordination with the SJU founding members.
- › recommends standards to be developed.

The review of the AAR, Administrative Board Minutes of Meeting (MoM) and decisions confirms that the Executive Director performs the above-mentioned tasks.

Clear definition of roles of involved partners

The roles of the partners are defined in the Multilateral Framework Agreement as well as by the individual agreements with each partner. Furthermore, the tender process for the projects also provides a definition of the roles of each party. The stakeholders interviewed indicate that the role of partners involved is clearly defined.

Clarity of responsibilities and tasks

No SJU member has mentioned any difficulties in identifying SJU procedures (and in particular the project management related ones) or the SJU staff responsible. The stakeholders perceive the allocation of tasks and responsibilities to be clearly defined. At the same time, these are perceived to be broad and flexible enough to ensure adequate room for manoeuvring.

Judgment criterion: Does the SJU's work programme secure the achievement of the execution of the European ATM Master Plan and does it support to preparation of deployment?

Answer: The SJU did secure the achievement in line with the European ATM Master Plan including updating the visions and priorities.

Needs and objectives are clearly defined

The SJU Annual Work Programme (AWP) 2010 formulated a mid-term vision in the form of seven strategic objectives to be achieved by the end of 2012. These mid-term objectives correspond with the European ATM Master Plan and are aligned with the annual objectives as defined in the respective AWP's and reported on systematically in the SJU Annual Activity Report (AAR). At the end of 2012, the progress towards achieving the seven mid-term strategic objectives was evaluated. The majority of these targets were met as reported in Chapter 6 of this report. Visions and objectives were revised in the updated European ATM Master Plan (Edition 2 of 2012).

The AWP's link each of the activities planned for the upcoming year with a specific Chapter in the SJU's Budget and are reported on in the AAR. With respect to each of the planned activities, the level of commitment is also provided. This is in line with how the Commission implements its activity-based management system (integrate priorities, objectives and resource allocation at the operational level)⁶¹.

Measures are defined and operational

The 2010 AWP defines the objectives for 2010 and the seven strategic mid-term objectives. The definition of the objectives included indicators and monitoring of progress. Moreover, each measure of the AWP is related to an objective, and the link between the resources that will be mobilised and the measure to be implemented is established. This provides a clear framework for the operations of the SJU both in the short and in the midterm.

The 2011 AWP identified a number of specific activities for 2011 in continuation of the activities planned for 2010. For each of the specific activities, the AWP referred to a specific Chapter in the 2011 budget. The 2011 AAR confirmed that the Programme activities are developing as planned and constitute solid progress towards achieving the midterm objectives. Subsequently, a number of objectives for 2012 were formulated in the 2012 AWP. These objectives correspond to the gap between the progress made until 2011 and the mid-term strategic objectives. This gap was reported in the 2012 AAR. Thus, the level of implementation of each strategic objective is monitored and assessed annually (See section 6-1 for details). This constitutes an effective framework to secure the SJU operational objectives.

5.1.3 Conclusion

The SJU is a PPP structure with the members being the industry, Eurocontrol and the European Union. The organisational structure is flexible to allow it to adapt to the demands of the SESAR programme, still the SJU operates according to rules and regulations.

⁶¹ http://ec.europa.eu/atwork/strategy/index_en.htm

Staffing and organisational structures are regularly updated to respond to current and planned tasks thereby ensuring the adequate functioning of the SJU and the continuity of its operations.

An appropriate management system, including procedures and management plans, has been developed and employed. The Project Management Plan was kept updated at all times during the period under review.

The stakeholders perceive that the allocation of tasks and responsibilities in the SJU is transparent. The organisational structure is relatively flat with the overall responsibilities being vested with the Executive Director. Stakeholders (SJU staff and SJU members) perceive that the chain of command is clear.

The SJU Work Programme was aligned with the European ATM Master Plan (2009) and the seven mid-term objectives during the reference period 2010-2012. The mid-term objectives are aligned with the annual objectives as defined in the respective Annual Work Programme (AWP). Progress was reported on systematically in the SJU Annual Activity Report (AAR).

5.2 Procedures and activities

Evaluation question 3. To what extent have the SJU's internal organisation, procedures and activities been conducive to its efficiency?

The SJU is an efficient organisation with optimised utilisation of resources achieving output in a cost effective manner.

5.2.1 Introduction

The evaluation question is answered using the following judgment criteria:

- › Is the SJU an efficient structure?
- › Does the organisation of SJU ensure possible economies of scale resulting from the management of different projects?
- › Has the SJU implemented the recommendations from the previous evaluation?

5.2.2 Evidence

Judgment criterion: Is the SJU an efficient structure?

Answer: The SJU is an efficient organisation with optimised utilisation of resources achieving output in a cost-effective manner.

A cost-effective structure

The SJU was set up to be a flexible and efficient organisation that could respond to the needs of SESAR projects and utilise the technical resources available in the SJU and among SJU members. In principle, technical expertise in the SJU is

allocated to a pool of resources to be used as required (matrix organisation). At management level, the chain of command is defined and perceived as clear (see section 5.1).

Direct comparison of the SJU with other JTI/JUs is difficult, as the objectives, organisations and governance structures vary across the structures. Unlike other JTIs, research is for the SJU a means of attaining its objectives as one the pillars of SES (Single European Sky). The SJU is focused on R&D projects, and from an administrative point of view, it handles more projects per employee than the other JTIs/JUs.

On the organisational side, when the full portfolio of 336 projects is running at the same time, it involves some 1000 deliverables per year (2012 figures). This is also reflected by SJU staff, who stresses the considerable coordination efforts and control measures involved in the interdependencies of the projects. A move towards fewer but larger projects was proposed as a possible solution in view of possible financing under the 2014-2020 financial perspective. Grouping of projects with a high degree of interdependency is planned under Horizon 2020 programming.

A number of SJU staff indicated that the support provided through the internal IT tools and the different procedural guides had in general a positive impact on the daily work routine in the SJU.

The annual accounts of the SJU include the administrative management costs of the SJU (staff costs and other administrative expenses). The table below outlines the development in costs in the period from 2009 to 2012.

Table 5-4: Staff costs of the SJU in EUR.

	2009	2010	2011	2012
Staff costs ⁶²	3,485,089	4,037,695	4,527,126	4,373,765
No of staff	18	37	35	41
Per staff	193,616 ⁶³	109,127	129,347	106,677

Source: SJU Annual Accounts.

In 2009, 13 of the SJU staff were employed under Belgium contracts until June 2009. This is reflected in the average staff price, which includes higher employer and employee contributions to taxes and social security benefits to be paid under Belgium law. As of 2010, all staff were employed under EU staff regulation contracts (CEOS). The annual fluctuations between 2010 and 2012 are due to the

⁶² Salaries, allowances, contribution social security & pensions, SNEs, Secondment Members, other staff costs

⁶³ 13 of the staff were on Belgium contracts until June 2009. The increase staff cost are due to higher taxes and social to be paid under Belgium law. As from 2010 all staff were on contracts under the EU staff regulation (CEOS).

respective staff compositions and exact time of recruitment (No. of staff are end of year figures).

Table 5-5: Total administrative cost of SJU in EUR

	2010	2011	2012
Administrative costs	6,970,399	8,167,569	7,587,681
No of projects	304	310	336
Cost per project	22,929	26,347	22,582

Source: SJU Annual activity reports 2012, 2011, 2010

The average, administrative cost per project remained stable over the period 2010 to 2012.

The Clean Sky Regulation (71/2007/EC) stipulates that the running costs of the Clean Sky JU should not exceed 3% of the overall cash contributions and contributions in kind. For 2012, the ratio between administrative and total expenditure has been calculated to 1.91%. This is slightly lower than the SJU where the administrative costs and staff expenses amounted to 2.8% of the total operating expenses (EUR 271,230,902) in 2012. The direct comparison between the two JUs is limited due to different programme requirements and types of staff recruited.

The table below illustrates the average, administrative cost per staff. The costs are similar (also confirmed in Chapter 6.4). According to the AAR 2012, the Clean Sky handles approximately 500 deliverables from 200 ongoing projects whereas the SJU handles approximately 1000 deliverables from 336 projects.

Table 5-6: Total administrative costs of Clean SKY and SJU

2012 / EUR	Clean Sky (24 staff)	SJU (41 staff)
Administrative expenses	4,364,115	7,587,681
Per employee	181,838	185,065

Source: AAR 2012 (SJU and Clean Sky)

Comparison of costs with initial CBA

The initial CBA analysis⁶⁴ considered the costs and benefits of the technical and operational steps. The costs were calculated for three different scenarios varying in the development costs and steps and the speed of implementation. In the analysis,

⁶⁴ Steer Davies Gleave: SESAME CBA and Governance – Assessment of option, benefits and associated costs of the SESAME Programme for the definition of the future air traffic management system. Final Report, 24 June 2005.

the costs were split between R&D, implementation and operating costs. The Commission's contribution to the operating/staff costs was estimated to amount to EUR 10 million annually for the following 30-year period. The actual, staff and administrative management costs are considerably lower than the costs envisaged in the 2005 CBA study. However, the amount mentioned in the initial 2005 CBA was described as illustrative and intended to show the magnitude of costs does not detail operating/staff costs. A direct comparison is therefore not possible.

Comparison of cost with alternative structures

In Chapter 6.4, the SJU is compared with other JTIs and it was found that the SJU has similar ratio of operating costs vs administrative expenditures (2.8%).

Judgment criterion: Does the organisation of SJU ensure possible economies of scale resulting from the management of different projects?

Answer: In terms of project management, the SJU actively monitors project performance including merging or closing projects if found necessary.

Tiger Team and the PMP

In 2011, the Programme Committee⁶⁵ redefined the priorities of the programme. This was carried out through the Tiger Team comprising experts appointed by the Programme Committee. The SJU Tiger Team was established in order to profile and review SESAR priorities on the basis of the business needs of service providers, as well as to suggest and explore opportunities to further enhance project management principles to implement those priorities. One of the recommendations of the Team was to improve the effectiveness of the Programme Management and potentially re-prioritise resources. This recommendation was taken into account in the third edition of the SESAR PMP.

Project organisation

The execution of the SESAR projects is organised along two dimensions:

Work breakdown: the Programme is divided into Work Packages addressing ATM domains (further organised in sub-work packages and projects). To organise the interdependencies between R&D projects, the projects have been assigned different roles:

- › Primary projects: focus on the development of parts of the future ATM System.
- › Transversal and federating projects: provide primary projects with a normative reference/framework and consolidated results.

Operational breakdown: The Programme is divided into Operational Focus Areas (OFAs). Priority Strategic Business Needs are defined as groups of Operational Focus Areas. They consist of multiple SESAR Solutions, oriented towards the same operational improvement of the ATM, and delivered in different releases over time.

Project management

⁶⁵ See definition in Evaluation question 4

The projects are executed and supervised by SJU members themselves and at work package and sub-work package levels.

- › **Work Package Management Teams** consist of Work Package Leaders and the Sub-Work Package Managers. The Team is in charge of coordinating the activities of the Work Package, tracking the progress of the Projects and ensuring the reporting to the SJU. The role of the Work Package Leaders is to give a comprehensive overview of their Work Package and to coordinate the operational relationship between the members involved in the Work Package.
- › **Project Managers:** The role of the Project Manager is to lead and coordinate the activities under the Project. The responsibility of the Project Manager is to prepare and implement the Project Plan, implement the SJU methodologies and procedures with the Projects, manage the operational relationship between the members at Project level, identify, track and manage risks, carry out quality assessment of the deliverables, prepare required reports, ensure involvement of experts, ensure proper and timely communication of information, prepare closure (list not exhaustive).

Deliverables The project deliverables are assessed and reported on in the Annual Activity Reports. In 2012, the SJU received 1009 deliverables of which 533 were assessed with “no reservation”, 290 with remarks and 186 projects were not assessed (pending for early 2013). If significant changes are required, task redefinition, suspension or cancellation will be decided on at the following project gate review.

Project gate review The Gate review is a comprehensive evaluation of project status and orientation. The evaluation focuses on expected results and contributions to the SESAR programme and checks whether the project is properly managed and under control. For each project, a judgement is given (Green: the project is under control and objectives to date have been achieved; Amber: significant issues have been identified, which pose a threat to the successful outcome - project implementation can continue but following a corrected action plan; and Red: Major deficiency identified – project discontinued). The project gate review is carried approximately once per year for every project.

The outcome is an agreement to proceed, make changes to the conditions or changes to the planning of the project (change request). The table below presents the outcome of the 2011 and 2012 project gate reviews. In total, 176 projects were reviewed in 2011 of which 139 projects received a green indicator and 37 an amber indicator. In 2012, 189 projects were reviewed of which 157 projects received a green indicator, 29 an amber indicator and three projects a red indicator.

Table 5-7: Project gate review - outcome

	2010	2011				2012			
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Red	1	0	0	0	0	0	1	1	1
Amber	10	10	11	6	10	5	4	3	17
Green	49	22	21	18	78	38	33	21	65
Total	60	32	32	24	88	43	38	25	83

Source: AAR 2011, AAR 2012

Quality management

The project monitoring follows a risk-based approach (focusing on projects with delays and projects of high technical difficulty). This helps the SJU identify projects with potential difficulties and allows proactive intervention or, more drastically, closing of non-performing projects.

This quality management system was introduced in early 2011 with the second edition of the PMP. It can be concluded that project performance and quality control of individual deliverables are carried out systematically.

In line with our assessment in Section 6.4.2 and as stated in the first Mid-term evaluation of the SJU, the use of a uniform PMP supports the application of the same methodology across projects ensuring economies of scale.

Judgment criterion: Has the SJU implemented the recommendations from the previous evaluation?

Answer: The SJU has responded to the recommendations, which was also confirmed by the SJU and DG MOVE.

Status on the implementation of recommendations

The 2010 evaluation of the SJU⁶⁶ provided seven recommendations. The SJU staff and DG MOVE staff interviewed confirmed that the recommendations had been addressed and that the SJU had reported to DG MOVE on the status of implementation of the recommendations.

The recommendations touch upon issues assessed in other sections of this report. The table below provides an overview of the actions taken under each recommendation. All findings point towards that fact that the recommendations of the 2010 mid-term evaluation were taken into consideration by the SJU during the 2010-2012 period.

⁶⁶ Mid-term Evaluation of the SESAR Joint Undertaking (TREN/A2/143-2007).

Table 5-8: Recommendation and actions from the first SJU evaluation

Recommendation	Action taken
<p>1. Coordination of the execution and update of the European ATM Master Plan by the SJU is appropriate and should continue throughout this phase of the programme.</p>	<p>The European ATM Master plan remained the strategic paper of the SJU. It was updated during the reference period, e.g. in 2012.</p> <p>The SJU led the update of the European ATM Master Plan which was published as "2nd edition" October 2012.</p>
<p>2. On the basis of the training needs assessment, training processes and instruments attractive to members should be developed by the SJU and applied to increase overall capacity of members' staff working on the projects in terms of project reporting requirements.</p>	<p>Training needs persist due to the complexity and number of projects but also to introduce new staff in the organisation.</p> <p>Such processes and documentation have been developed and it has not been raised as a specific issue again by SJU members.</p>
<p>3. The SJU should ascertain that the system is in place for overall coordination among work packages and that projects are further developed to ensure an appropriate level of information sharing at Programme Committee and between WPs. Improvements should be made with regard to the communication to the Board and to the stakeholders of the content and progress of the WPs. Communication should take place on a regular basis and to avoid segregation of WP communication only going bilaterally from the SJU to the WP leadership, but also horizontally between WPs.</p>	<p>The SJU developed and published its Communication plan in 2010 outlining a framework of communication activities with its stakeholders.</p> <p>In evaluation question 4, the information and coordination efforts with SJU members are assessed as being adequate during the reference period.</p>
<p>4. The SJU is a lean organisation confronted with a huge number of deliverables in a short period of time. Timely acceptance of deliverables not only has an impact on payments but also on the validation of inputs needed by other WPs and projects to progress. The SJU operational staff, who are at the heart of the technical acceptance process, have limited human resources and should carefully monitor its capacity for performing validation of deliverables and assess the need for external assistance provided that the relevant principles concerning the mitigation of conflict of interest, liabilities and transparency, etc. are respected.</p>	<p>The SJU has established a quality management system to monitoring and follow up on project deliverables as well as systematic and continuous review of the projects. This is documented in the PMP and assessed in the previous Chapter of this report.</p> <p>In addition, the SJU did launch a call for tender for a framework contract to provide external project management support service for the period 2010-2014.</p>
<p>5. Based on the analysis of different stakeholders' information needs and linked to the adopted communication plan, communication processes and instruments should be further developed to meet differentiated communication needs of the founding members, SJU members, stakeholders being members of the Administrative Board and other stakeholders.</p>	<p>Efforts have been made to improve communication and as assessed in evaluation question 4, a comprehensive communication plan has been developed and implemented after being published in 2010.</p>

Recommendation	Action taken
6. The Administrative Board should clarify at the practical level, within the scope of the Statutes and the MFA, its need to have more technical discussions and increased knowledge of technical and relevant discussions in the Programme Committee.	<p>This issue was dealt with during 2010 as reported in the Administrative Board MoM. The SJU provided more technical information and expertise during the board meetings.</p> <p>No reappearance of the requirement for more technical information was traced in the Administrative Board MoM during the reference period.</p>
7. Much has been done to include stakeholders in the Programme, and all stakeholders stress this as the great success of the SESAR Programme. This effort should be continued. In this process, it is important for the Commission and the SJU always to be one step ahead of the process management of the issues mentioned above.	<p>The stakeholders' involvement remains a successful parameter of the SJU and the SESAR programme. This was both reported from surveying SJU members, staff, DG MOVE.</p>

5.2.3 Conclusion

The SJU is an efficient organisation, which has optimised utilisation of resources to achieve outputs in a cost-effective manner. The SJU organisation was set up to achieve specific goals and corresponding management procedures and processes were established. The SJU is an adaptive organisation undergoing regular audits, and evaluations, and lessons learnt/recommendations are used to improve the organisation.

In terms of costs, the organisation is effective involving minimum administration to support the SJU programme of 336 research projects. The administrative costs broken down by project and per staff are within the same scope as other Joint Undertakings.

The SJU is a flexible organisation that can both drive and adapt to changes in programme and immediate objectives. In terms of project management, the SJU actively monitors project performance. This extends to merging or closing projects if found necessary. Project monitoring and quality control of individual deliverables are carried out systematically based on the Project Management Plan. Performance and economies of scale are explored in the management of the 336 projects both linked to the Gate review and the work of the Tiger Team. The use of PMP also ensures that the same methodology is used across projects.

The recommendations of the 2010 mid-term evaluation were addressed by the SJU and reported on to DG MOVE.

5.3 Coordination with SJU members

Evaluation question 4. To what extent is the coordination between the SJU, its members and its founding members working satisfactorily?

Based on the evidence examined, the coordination and communication of the SJU with its members and founding members is adequate and satisfactory.

5.3.1 Introduction

The evaluation question is answered using the following judgment criteria:

- › Has the SJU developed a comprehensive Communication Plan?
- › Does the SJU have an appropriate mechanism and instruments in place to ensure an adequate coordination and information flow?

5.3.2 Evidence

Judgment criterion: Has the SJU developed a comprehensive Communication Plan?

Answer: The information examined shows that the SJU has developed a comprehensive and operational communication plan.

Communication Plan
2010-2016

The Communication Plan 2010-2016⁶⁷ provides the framework for the SJU's communication activities in particular towards the stakeholders regarding the objectives, activities and results of the SJU. The plan is founded upon an integrated approach to communication tools and emphasises a need to put in place a distinctive communication style. It identifies a number of risks and challenges in relation to communication and formulates a number of key messages in order to ensure consistency in the messages provided by the SJU. The plan defines the primary communication targets (interested decision-makers and specialised audiences) and other relevant audiences. These include SJU employees, SJU members and stakeholders. The audience is grouped into general audience, interested audience and specialized audience recognising the need to use different communication tools for each audience. The communication plan defines the specialized audience as the primary audience.

Measuring the
effectiveness of
communication

The communication plan outlines a number of tasks to be carried out to monitor and measure the effectiveness of SJU communication. Specifically to:

- › define key performance indicators to measure the impact and perception of the communication activities

⁶⁷ Decision ADB(D)28-2009.

- › define how to gather data to inform the effectiveness assessment
- › establish baseline values.

Implementing the communication plan

Each SJU AWP specifies a number of communication activities to be carried out in the upcoming year, taking into consideration the lessons learnt in the previous years. 2010 saw the implementation of the first Communication plan. Based on the lessons learnt, changes were introduced in the AWPs of 2011 and of 2012. The execution of the Communication plan was verified through the SJU AAR for the respective years.

The consultation carried out in the preparation of the 2012 study⁶⁸ for the extension of the SJU identified communication with citizens/customers as one of the most important elements for improvement. This could be expected as this group does not match the stated target group of the Communication plan.

At the same time, the majority of the SJU members indicated that there was no need to revise the SJU's working methods related to communication.

Judgement criterion: Does the SJU have an appropriate mechanism and instruments in place to ensure an adequate coordination and information flow?

Answer: The review of the information shows that the coordination and information mechanisms developed by the SJU are appropriate.

Lines of communication are clearly defined in the relevant documents

Communication to staff, stakeholders and the Air Transport community is an important pillar of the SJU. This is done in line with the Communication Plan and the activities defined in the AWPs.

There is extensive coordination and information sharing between the SJU and its members. Coordination and collaboration take place at the four structured levels, also referred to as the four SJU governance levels:

- › The Administrative Board (more political, giving guidance), results are presented to the Board, the Board gives direction and deals with issues related to the regulation
- › The Programme Committee is chaired by the SJU Executive Director, with a more technical approach providing a coordination role
- › The programme coordination groups (PCG) operates at the level of contributors; coordination projects being aware of project involvement, costs and time issues.

⁶⁸ SESAR Joint Undertaking, SJU's Extension – Impact Assessment Study, Ernst&Young, 31 July 2012.

- › The work package leaders (WPL) are technical working groups. Standardisation processes are dealt with here. Work package leaders meetings take place four times annually.

These four formalised levels provide a structure which is perceived by respondents as well functioning. However, transversal coordination could be improved at project management level. (e.g. between different members and between groups, however, this could also imply significant costs if done centrally).

In addition to the above formal governance structure, the SJU has bilateral meetings directly with members on ad hoc but regular basis (either by specific request or periodically).

Coordination with Member States and the European Parliament

The 28 Member States in the European Union are represented in the SJU through the Commission. The Commission (DG MOVE) chairs the SJU Administrative Board. Member States are not direct members of the SJU or part of the SJU internal line of communication. DG MOVE is the Commission's service responsible for the communication with the Member States through the Single Sky Committee (SSC) as well as the European Parliament.

It has been verified that SESAR related items are included on the agenda of each SSC meeting. And thus Member States are being informed continuously through their participation in the Single Sky Committee.

The SJU interacts with the Member States through the National Supervisory Authorities Coordination Platform under the umbrella of the Single Sky Committee.

The SJU is also in direct contact with Member States as part of its own communication/information activities. In 2010, the SJU participated in national event and informed national stakeholders in Spain and UK and workshops were arranged at the request of specific Member States.

Quarterly meetings with Member State experts were held in 2011 and 2012. The contributions from the Member State experts provided during these meetings were also used by the SJU as input for the future deployment of SESAR solutions.

The SJU staff perceive communication to Member States and the European Parliament as good, recognising, however, that they take a technical approach to explaining the work being undertaken by the SJU and its members.

Some of the national authorities consulted noted that communication is often of a too technical nature. They state that information is mostly received at SSC meetings from oral or written presentations given by the Commission or the SESAR Representatives. In addition as mentioned in Section 6.2.2, EU Member State respondents raised issues regarding communication of the achievement of objectives. A few EU Member States expressed that they had received inadequate information about the SJU aims and activities.

Despite the actions undertaken by the SJU, a communication gap has been identified in particular towards the EU Member States. Even though this gap is not revealed to have any impact on the performance of the SJU in the period under review, EU Member States and their authorities are important stakeholders in ensuring the final success of the project. In this respect, the SJU and DG MOVE should analyse in more depth the communication gap and adapt the communication plan and activities to ensure that the appropriate message is transmitted to the appropriate recipient at the appropriate level (whether technical, operational or political).

5.3.3 Conclusion

The information examined shows that the SJU has developed a comprehensive and operational communication plan. The governance structure ensures adequate coordination and a proper information flow to the SJU Members.

Overall, the coordination and information flow is perceived as being satisfactory for the stakeholders directly involved in the SJU (Commission, Eurocontrol and SJU Members).

The current communication adopts a rather technical approach to explain the work undertaken and is targeted primarily at a specialised audience.

Despite the actions undertaken by the SJU, a communication gap has been identified regarding the EU Member States, particularly when it comes to information of non-technical nature. In this respect, it is **recommended** that the SJU and DG MOVE assess the exact information needs of the EU Member States and consider how to bridge the current communication gap. It should be mentioned that there is no indication that the gap has had any impact on the performance of the SJU in the period under review.

5.4 SJU, FP7 and TEN-T programmes

Evaluation question 5. To what extent is the SJU implementing the requirements of the European Union's FP7 and TEN-T Programmes?

The SJU respects the objectives and principles of FP7 and TEN-T. In terms of project management the SJU do extensive project monitoring and project follow up exceeding basic requirements in FP7 and TEN-T.

5.4.1 Introduction

The evaluation question is answered using the following judgment criteria:

- › Does the SJU respect the objectives and principles of FP7 and TEN-T?

5.4.2 Evidence

Judgment criterion: Does the SJU respect the objectives and principles of FP7 and TEN-T?

Answer: The SJU respects the objectives and principles of FP7 and TEN-T with a project monitoring system exceeding the requirements of FP7 and TEN-T.

Previous evaluation

The first mid-term evaluation of the SJU concluded that the SJU was performing according to the requirements of the TEN-T Programme and the FP7; including stated priorities to include SMEs to the extent possible. The stated priorities of the SJU in contracting procedures to be respected by the Members are in line with the principles of TEN-T and the FP7.

Contractual arrangements fulfil FP7 and/or TEN-T requirements

The SJU Financial Rules,⁶⁹ adopted in accordance with the Financial Regulation, lay down basic principles governing all financial operations (e.g. calls for tenders, calls for proposals). The Financial Rules refer expressly to compliance with the FP7 and TEN-T requirements in three specific situations:

- › The accession of new SJU members: The SJU's rules governing the procedure for submission of proposals and their evaluation, selection and award must comply with the requirements of the Statutes and must be in line with the principles of FP7 and TEN-T and the relevant decisions of the Administrative Board (Art. 97(5));
- › The assessment of SJU members' contributions in kind: The principles applied by the SJU in assessing members' in kind contributions must be inspired by the ones of the FP7 and TEN-T and comply with the Financial Rules (Art. 98(6));
- › The SJU co-financing: The SJU co-financing must be maximum 50% of the member's eligible costs, with the exception of the costs for the secondment of staff, which are eligible to be co-financed at 100%. In duly justified cases and in accordance with the broad principles of the FP7 and TEN-T, the Executive Director may propose to the Administrative Board that a higher co-financing rate up to 100% be approved (Art. 99(2)). The maximum co-funding rates established in the TEN-T Regulation must apply to the EU contribution from the TEN-T budget.

The SJU has implemented a contractual framework consisting of a Multilateral Framework Agreement (MFA) and the individual Member Agreements (MAs). The MAs provide details on the financial contributions of the members.

Call for proposals (grants) and call for tender procedures follow the EU procedures. The SJU designs the call specifications. Projects relating to work packages are restricted to members similar to the procedure of a framework contract. For specific studies or projects where members might be considered to have a conflict of interest, the SJU uses open calls for tenders.

⁶⁹ Decision ADB(D) 16-2009.

The SJU is managing projects on its own, respecting TEN-T, FP7 and the Financial Regulation requirements. SJU procedures are stricter than FP7 and TEN-T procedures as documented below.

The SJU respects the objectives of FP7

The legal basis for the FP7 programme is laid down in Decision No 1982/2006/EC.⁷⁰ The purpose of the FP7 programme is to achieve the general objectives laid down in Art. 179 TFEU; i.e. to strengthen industrial competitiveness and to meet the research needs of other EU policies, thereby contributing to the creation of a knowledge-based society, building on the European Research Area and complementing activities at national and regional level. The programme was set up to promote excellence in scientific and technological research, development and demonstration.

According to the DG Research website on FP7, the activities envisaged to be addressed under transport were:

- › Aeronautics and air transport (reduction of emissions, work on engines and alternative fuels, air traffic management, safety aspects of air transport, environmentally efficient aviation⁷¹)

The high level objectives⁷² of SESAR also presented above in Chapter 4.1 focus on the aspects of air traffic management, safety aspects of air transport and environmentally efficient aviation. The SESAR objectives are as such fully in line with the FP7 objectives.

TEN-T Programme

The legal basis of the TEN-T Programme is laid down in Regulation No 680/2007 (the TEN-T Regulation). The TEN-T Regulation defines the conditions, methods and procedures for granting financial aid to projects of common interest. As of 2010, the objectives and the priorities of the TEN-T networks are laid down in Decision 661/2010 (Art. 5: Priorities).

According to INEA website⁷³, the TEN-T Programme is a dedicated financial support service targeted to supporting and upgrading transport infrastructure projects - in line with the overarching goal of European competitiveness, job creation and cohesion. The TEN-T programme supports the development of Traffic Management Systems (TMS), and SESAR is a specific programme item in the TEN-T programme. SESAR is fully integrated and compliant with the TEN-T programme.

⁷⁰ Decision No 1982/2006/EC concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013).

⁷¹ DG Research website for FP7 - http://ec.europa.eu/research/fp7/index_en.cfm

⁷² Increasing air traffic capacity levels in order to handle three times more traffic in the coming years; improving safety by a factor of 10; Reducing environmental effects by 10% per flight; Reducing ATM costs to airspace users by 50%.

⁷³ <http://inea.ec.europa.eu/en/ten-t/ten-t.htm>

Adequate reporting mechanisms are in place

The principle of reporting on the progress of the activities is established in the Multilateral Framework Agreement. Details of the content of the reporting are provided in the SJU Programme Management Plan (PMP)⁷⁴. The PMP includes a reporting calendar for submitting each of the deliverables mentioned, including the flow between the different parties involved.

Progress reporting is carried out at project and WP levels. The SESAR Programme collects and consolidates information from WPs and projects regarding progress and subsequently validates the progress of the overall Programme and initiates corrective actions when necessary. The individual deliverables are outlined in the table below.

Table 5-9: SJU Progress Reporting

Deliverable	Frequency	Done by	Content
Effort consumption report	Quarterly	Member Contribution Manager	Estimate of the actual effort consumption to date at the Project level for tasks completed and tasks in progress. The report is used as an indication of the level of effort by an organisation on each project, but not as part of the financial and contractual statement of an organisation.
Interim/Final Financial Statements	Yearly	Members through the Member Contribution Manager	The Interim Financial Statements (including the eligible costs incurred for the Projects during the financial year). The eligible costs consist of the costs that have been assessed by the SJU without critical deficiencies and the work in progress.
Project Progress Report	Quarterly	Project Manager (for R&D Projects)	The periodic Progress Reports are used to monitor and control the progress of projects towards achieving the SESAR Objectives. The reports consist of: <ul style="list-style-type: none"> > a summary status > achievements made (milestones, control gates, key data on tasks) > % completion at the task level > top 5 risks in order of criticality and/or priority > red and amber issues, with their status and corrective actions > main targets and events over the next reporting period.
Work Package Progress Report	Quarterly	Work Package Leader	Information from the R&D Projects is consolidated and sent to the Work Package Leader under the form of a set of indicators per project. These include indicators for the: <ul style="list-style-type: none"> > status of completion against plan, > general status of dependencies (incoming and outgoing), > level of risk (net criticality), > status of issues and relevance of action plans,

⁷⁴ SESAR Programme Management Plan, third final edition.

Deliverable	Frequency	Done by	Content
			<ul style="list-style-type: none"> > status of change requests impacting the Project.
Interim Project Report	Yearly	Project Manager	<p>The Interim Project Report constitutes the Project's input to the Control Gate. It includes:</p> <ul style="list-style-type: none"> > the objectives of the Project, an overview of the work towards these objectives including a detailed status of the Deliverables in the reporting period, defined activities within the next planned reporting period, identified risks and issues, and related actions with their completion status, the achievement of the Deliverables and an explanation of the discrepancies between the planned and the actual work carried out in the Deliverables in the reporting period; > a specific section on the potential contribution of the Project to the development of new Standards and Norms Proposals in the Project as the case may be; > an estimate of the effort consumption within the reporting period; > a publishable summary of the first point hereinabove.

Comparison with reporting under the FP7

The reporting requirements of the SJU correspond to the framework of deliverables established under the FP7 Programme, but they are more detailed given, among other things, the two-tier reporting structure (Project and Work Package).

Under the FP7, the following deliverables are required:⁷⁵

- > A periodic report (within 60 days of the end of each reporting period), informing on the progress of the work, the use of resources and a financial statement;
- > A final report (within 60 days after the end of the project), including a summary report and a report covering the wider societal implications of the project, as well as the plan for the use and dissemination of foreground;
- > A report on the distribution of the European Union financial contribution between beneficiaries (30 days after receipt of the final payment);
- > Abstracts and summaries of all scientific publications related to foreground (two months after publication at the latest).

Comparing the FP7 required reporting with the structure presented in Table 5-9, the main difference is in the timing of the reporting requirement. The financial reporting requirements and the interim reports operate with a yearly reporting period, which coincides with the typical FP7 requirements. The SJU has introduced an additional quarterly reporting structure through the effort consumption, periodic

⁷⁵ Guidance Notes on Project Reporting: Periodic Reports.

progress and work package progress reports. This quarterly reporting allows the SJU to monitor progress continuously and to identify issues, if any, and intervene at an early stage. As presented in Chapter 5.2, the quality management system does identify issues to be dealt with by the SJU and the project holders, and actions to rectify these issues are taken.

Intellectual Property Rights

The SJU's policies and practices on IPR and the related monitoring systems are laid down in the SJU Regulation. Detailed rules are provided in the individual MAs and in the MFA. They contain detailed IPR provisions on access rights and ownership to background and foreground as well as provisions on the dissemination of foreground. These provisions are based on the FP7 and TEN-T Rules, and also take into account the public-private characteristics of the SJU. The implementation of the IPR provisions is monitored and ensured by the Administrative Board.

Adequate allocation by funding source

Pursuant to the SJU Regulation the maximum EU contribution is EUR 700 million of which equal parts must be paid from the TEN-T and FP7 frameworks. The funding must be used:

- › in accordance with the EU programmes and the EU Financial Regulation and the interests of the European Union,
- › in accordance with the tasks entrusted to and objectives of the SJU.

The arrangements for the EU contribution are established in the form of a general agreement and annual financial implementation agreements concluded between the Commission and the SJU.

According to the EU Financial Regulation (1605/2002), Art. 54(3),⁷⁶ the bodies carrying out budget implementation tasks must conduct regular checks to ensure that the actions to be financed from the budget have been implemented correctly and take appropriate measures to prevent irregularities and fraud.

The funds received (actual revenues and expenses) by the SJU from TEN-T and FP7 during 2010-2012 are presented in Table 5-10. As explained above and confirmed also by the CoA reports, these have been allocated in line with the SJU Regulation and the FP7 and TEN-T requirements. For each of the years examined, the actual revenues were higher than the actual expenditures. This has led to a budget surplus in each year. As described already in Section 4.1.2, this surplus was also verified by the CoA. The origin of this surplus is the front-loaded provision of contributions and in particular by the founding members (a situation that arose before the period under review) as well as the lower amount of payment requests received by members. In 2011, the Administrative Board authorised an amendment to the budget and among other things decided to reduce the payment request from the EU from EUR 96 million to EUR 18 million also to “*allow the SJU to close the year end with a minimum net cash balance...*”⁷⁷ Therefore, the existence of the

⁷⁶ The Regulation 1605/2002 was applicable through the evaluation period. It is now replaced by Regulation 966/2012.

⁷⁷ ADB (D) 08-2011

surplus and the request to reduce contributions from members indicates that the SJU did not have budgetary issues during the period under review. As such, the funds allocated (and in particular from the EU) are considered as appropriate.

Table 5-10 SJU Budget outturn, actual revenues and expenses, figures in EUR

Budgetary outturn	2010	2011	2012
Total revenue	142,083,300	91,154,498	123,102,874
<i>Of which:</i>			
TEN-T	19,000,000	9,000,000	34,826,000
FP-7	22,000,000	9,000,000	34,887,000
<i>Total EU</i>	41,000,000	18,000,000	69,713,000
Budget surplus from previous year	86,468,261	57,183,031	15,571,258
Total expenditure	84,900,269	75,583,240	107,262,086
Total budget surplus	57,183,031	15,571,258	15,840,788

Source: SJU Final Annual Accounts and Annual Activity Reports for the years 2010 to 2012

5.4.3 Conclusion

The contribution from the European Union to SJU funding comes from TEN-T and FP7, and the SJU is in line with the respective procedures and FP7 and TEN-T rules are applied.

The evaluation found that the internal procedures, processes and verification fulfil the requirements of TEN-T and FP7. This also means that SJU procedures and actions are updated every time the FP7/TEN-T programme rules/requirements are updated.

It should be noted that the SJU applies a more strict interpretation of the rules. The requirement for monitoring is periodical (mid-term and final evaluations), but the SJU does continuous monitoring of projects and processes.

The funds received (actual revenues and expenses) by SJU from TEN-T and FP7 have been allocated according to the SJU Regulation and the FP7 and TEN-T requirements, as confirmed by CoA.

5.5 Summary of conclusions

The SJU is a flexible PPP structure that solves the tasks entrusted to it and operates according to EU rules and provisions. The SJU Work Programme was aligned with the European ATM Master Plan (2009) and the seven mid-term objectives during the reference period 2010-2012. The achievement has systematically been reported on in the AAR and the AWP and the European ATM Master Plan have been updated accordingly.

The SJU's
organisation

The SJU meets and adapts to the demands of the SESAR programme by updating regularly the staffing and organisational structures to respond to the current and planned tasks thereby ensuring the adequate functioning of the SJU and continuity of its operations. It has a flat structure with clearly defined tasks and responsibilities. This perception is confirmed by the SJU members and SJU staff consulted.

Procedures and activities

The SJU is an efficient organisation, which has optimised the utilisation of resources to achieve outputs in a cost-effective manner. The procedures and processes established are instrumental for work effectiveness in the SJU and on the projects. In terms of costs, the organisation is effective using a minimum amount of administration to support the SJU programme of 336 research projects. The administrative costs broken down by project and per staff are of the same scope as other Joint Undertakings. An appropriate management system including procedures and management plans have been developed and employed.

The SJU can both provoke and adapt to changes in programme and immediate objectives. Project monitoring and quality control of individual deliverables are carried out systematically based on the Project Management Plan. Performance and economies of scale are explored in the management of the 336 projects, both linked to the Gate review and the work of the Tiger Team. The use of the PMP also ensures that the same methodology is used across projects.

Coordination with SJU members

The SJU has developed a comprehensive and operational communication plan. In addition, the governance structure ensures adequate coordination and a proper information flow with members. This was reflected also in the views of the stakeholders directly involved in the SJU (Commission, Eurocontrol and private SJU members). The current communication adopts a rather technical approach to explain the work undertaken and is targeted primarily at a specialised audience. EU Member States have information needs that go beyond what is currently provided by the SJU.

Recommendation: In this respect, the SJU and DG MOVE should address the exact information needs of the EU Member States and explore how best to address this information gap.

SJU, FP7 and TEN-T programmes

The SJU meets the procedures and objectives of FP7 and TEN-T, and the respective rules are applied. It is noted that the SJU adopts a more strict interpretation of the rules, in particular concerning the continuous monitoring of projects and processes. The funds received by SJU from TEN-T and FP7 have been allocated adequately according to the SJU Regulation and the FP7 and TEN-T requirements, as has been confirmed by CoA.

6 The results obtained by the SJU

This Chapter on the results obtained by the SJU evaluates the extent to which intended outputs, results and impacts have been achieved. Results are looked at, notably with respect to progress towards SESAR programme objectives.

Targets - identifying needs, problems and issues

To evaluate the results obtained by the SJU, needs, problems, issues and the intended effects are identified and compared with the actual effects of the SJU.

Where possible, the evaluation also addresses the intermediate impacts and considers the probability of creating longer-term, sustainable effects.

6.1 SJU achievement of objectives

Evaluation question 6. To what extent has the SJU achieved its objectives over the reference period?

The SJU achieved most of the midterm objectives set by the SJU and its members within the framework of the SESAR programme.

6.1.1 Introduction

The judgment criteria employed to assess whether the SJU achieved its objectives are:

- › Have the SESAR programme's objectives been achieved by the SJU?
- › Has the SJU achieved the objectives stated in the Annual Work Programmes?
- › Has the SJU made the necessary preparations for the SESAR deployment phase?

- › Does the SJU seek to achieve the highest level of interoperability between SESAR and NextGen?

6.1.2 Evidence

Judgment criterion: Have the SESAR programme's objectives been achieved by the SJU?

Answer: The SJU achieved most, but not all of the midterm objectives set by the SJU and its members within the framework of the SESAR programme.

SESAR Objectives

The SJU had seven mid-term strategic objectives, which are approved by the SJU Administrative Board. These have remained the same throughout the period under review. These objectives are:

- 1 Initial 4D trajectory is validated in an operational environment supported by satellite-based technology;
- 2 10,000 flights, including 500 military, are SESAR labelled;
- 3 80% of SESAR projects have tested their output in a real life environment;
- 4 First SWIM pilots are in place to exchange data across at least five domains;
- 5 The first remote tower is ready for operations;
- 6 SESAR benefits are demonstrated on city pairs connecting eight European airports;
- 7 Airspace users have signed up to the SESAR business case for time-based operations.

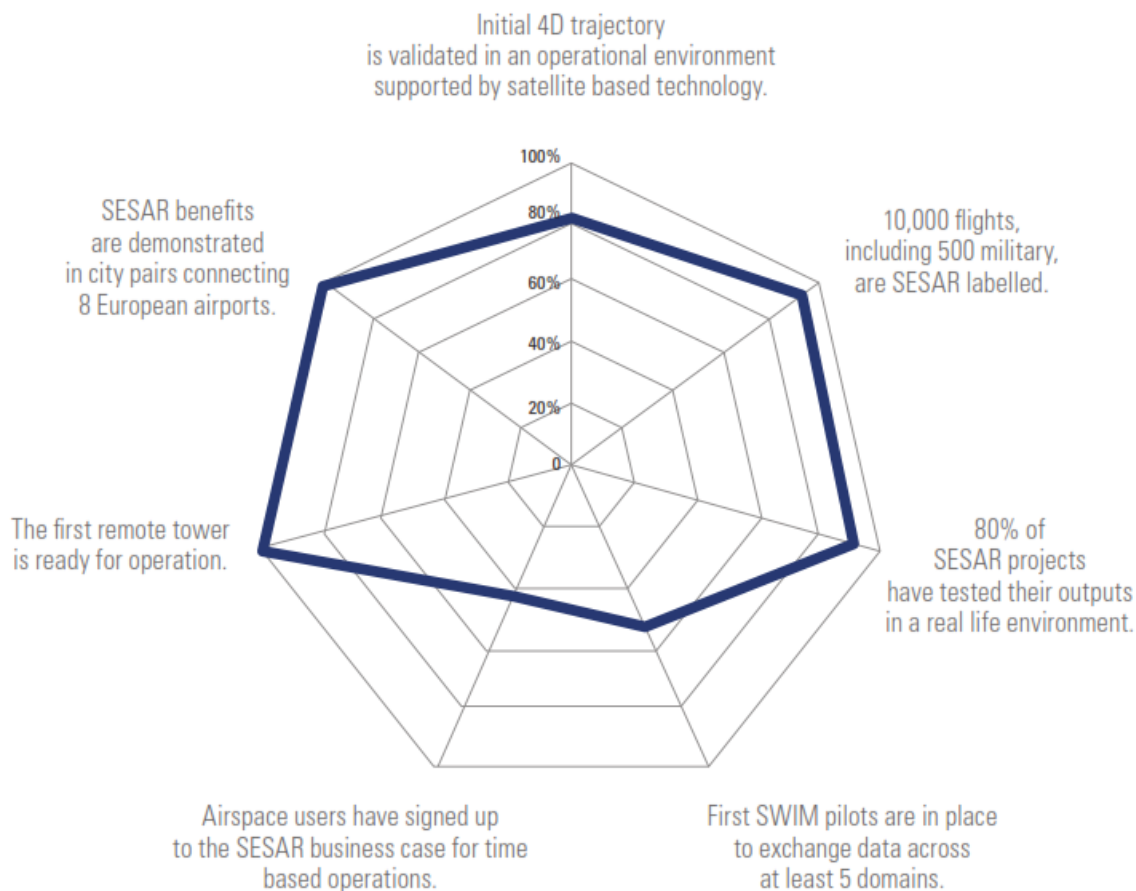
The objectives support the delivery of the European ATM Master Plan, which in turn identifies the "Essential Operational Changes" that need to be implemented to deliver the full benefits of the deployment of the new SESAR concept by 2030 and support the achievement of the long-term political goals of SES.

The SESAR programme objectives have been achieved by the SJU.

Stakeholder perceptions, as well as actual outputs or results, are key indicators of the achievement of the programme's objectives.

For the three years under review, the SJU in the Annual Report for 2012 includes the figure below summarising progress against the seven mid-term strategic objectives.

Figure 6-1: Actual versus planned work package performance - Core R&D activities



Source: SJU Annual Report 2012

Of the seven mid-term strategic objectives, five were met or substantially met in 2012. In summary, the status at 2012 and issues of concern are detailed in Table 6-1 below.

Table 6-1: Summary of status of SESAR mid-term strategic objectives at 2012

Met	Mostly achieved	Not achieved
Objective	Status – our synopsis from AAR	Issues
Initial 4D trajectory is validated in an operational environment supported by satellite based technology.	The "Initial 4D trajectory"-based operations, was tested in an operational environment as part of the Releases 1 and 2.	The validation did not validate the use of satellite technologies in 4D operations.
10,000 flights, including 500 military, are SESAR labelled.	By the end of 2012, 10,568 commercial flights demonstrated early SESAR benefits. These flights took place in the context of AIRE and OPTIMI.	No Military flights have been completed. AIRE flights account for most of the flights – these are Oceanic and thus represent a small portion of European traffic
80% of SESAR projects have tested their outputs in a real life	70% of SESAR validation took place through live trials, operational shadow	Nil

Met	Mostly achieved	Not achieved
Objective	Status – our synopsis from AAR	Issues
environment.	mode or even flight trials.	
First SWIM pilots are in place to exchange data across at least five domains.	Live SWIM Demonstration Event of November 2012 demonstrated data exchange across three domains.	The November 2012 event was a simulation not a pilot. The event did confirm technical capabilities. However, there was no trial operational "pilot project" as envisaged in the objective.
The first remote tower is ready for operation.	Successful Remote Tower validation exercises, conducted in 2011 and 2012. Feasibility confirmed.	Nil
SESAR benefits are demonstrated in city pairs connecting eight European airports	The results of AIRE and in demonstration activities met the objective.	Nil
Airspace users have signed up to the SESAR business case for time based operations	Business case methodologies developed but did not receive wide airspace user acceptance.	Initiatives defined to address issue need to be implemented.

Perceptions of stakeholders on the achievement of objectives

There is some evidence from stakeholder interviews that the objectives provide guidance and direction but meeting them is not an absolute requirement. Examples of stakeholder quotes are “out of the 7 operational objectives only 3,4,6 were not fully achieved in 2012 and overall we judge this as a great achievement” and that “the compliance rate is good”. This reflects the general perception for the period under assessment. This lack of concern with failure to deliver on all targets on a yearly basis reflects the view that this will be attained within the life of the overall project. Some of the respondents see SESAR Releases as a more reliable indicator of progress towards the higher level goal of translating the concepts and techniques defined in the Master Plan into delivery⁷⁸. SESAR Releases are processes to validate concepts / technology and thereby preparing them for deployment. Two releases were published during the review period but they do not reflect on all the activities carried out by SJU as it was in the initial stage of the programme.

In terms of how to improve SJU performance, several respondents indicated that there was scope for improved programme management, with the Tiger Team being mentioned as a positive factor in defining improvements in this area. Several respondents found that fewer, more focused projects based on key enablers like SWIM, Trajectory Management and Standardization (as opposed to what is a very broad programme) would improve performance. Under Horizon 2020 and the programming period 2014-2020 the aim of the SESAR project is to have fewer and more focused research projects.

⁷⁸ Stakeholder survey responses

Judgment criterion: Has the SJU achieved the objectives stated in the Annual Work Programmes?

Answer: Delivery of Annual Work Programmes improved with the rate of completion versus the planned achievements moving from less than 60% at the beginning of the period to 80%+ in late 2012.

Annual work programmes

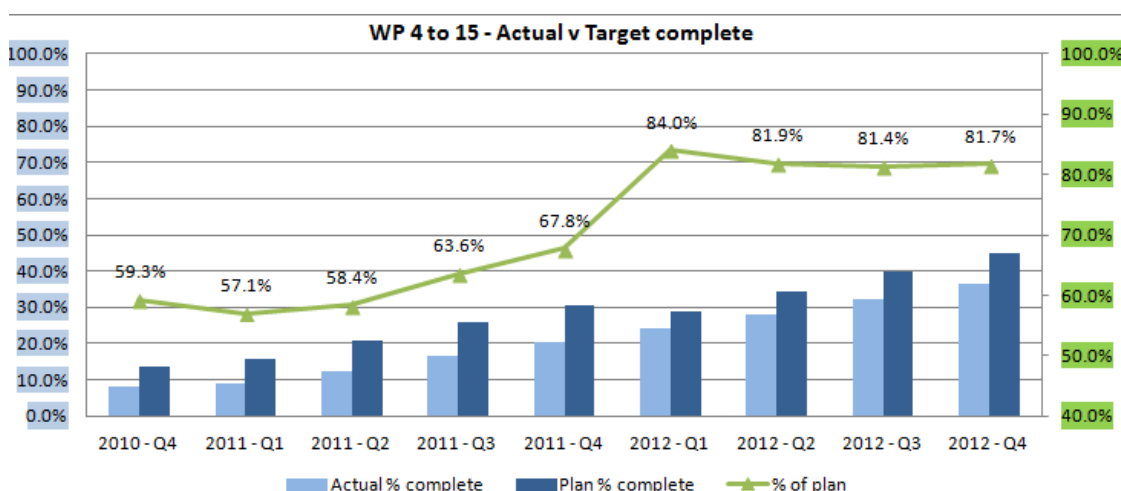
In accordance with the SJU processes, the European ATM Master Plan is translated into an Annual Work Programme (AWP), itself further defined into Work Packages, designed in collaboration with all stakeholders. The AWP is approved by the SJU Administrative Board and reported in Annual Activity Reports (AAR) which in turn is reflected in the SJU Annual Reports. While the Annual Reports represent a self-assessment, they are approved by the SJU Board and thus can be seen as an accurate representation. Data from these reports have been corroborated by independent analysis where possible.

Comparison between work plans and reported results/effects

The SJU Annual Reports provide an informed view on whether the SJU has achieved its objectives over the period under review. Appendix F provides information about the overall programme and the individual work packages. The Figures below provide a higher level view of the completion percentages of the Annual Work Programme over the period versus plan and are sourced from ARR data. Figure 6-2 relates to Work Packages 4 to 15 being the core of the R&D activities. This Figure shows the percentage of planned project completion (plan % complete) and the actual project completion attained (actual % complete). It refers to what part of the overall SESAR work packages should be attained by the specified time period (100% is full implementation of the SESAR work packages).

The line (% of plan) presents the effective completion rate, being how much of the plan for the quarter is actually delivered.

Figure 6-2: Actual versus planned work package performance - Core R&D activities



Source: SJU Annual Report 2012

The trend in terms of the effective completion rate is one of steady improvement with the ratio between planned and actual completion moving from approximately 60% achievement in early 2011 to over 80% through the course of 2012. The 84%

achievement rate in Q1 2012 is due to a decision to revise the programme, which had the effect of reducing the planned deliverables for the quarter⁷⁹.

Other than this factor, progress is explained in the SJU annual reporting⁸⁰ as being due to:

- › completion of the 2009/2010 ramp-up activities
- › increasing level of maturity of programme management processes and skills and of the partnership in general
- › better alignment of projects with programme objectives.

This still leaves the question of whether an 80% completion rate is a satisfactory performance and whether, at Q4 2012, delivery of 36.6%⁸¹ of the total programme as Figure 6-2 shows is sufficient to meet the SJU strategic objectives. SJU staff noted annual targets are being set very ambitious and it was generally recognised by respondents that the inherent nature of R&D does entail an uncertainty to such type of achievement planning (on an annual basis). Further the SJU do present both the AWP and AAR to the Administrative board who has approved the annual targets and actual achievements. Importantly, the quality of deliverables was not perceived to have been compromised by the improved level of programme delivery⁸². Figure 6-3 relates to integration (transversal) activities underpinning the programme.

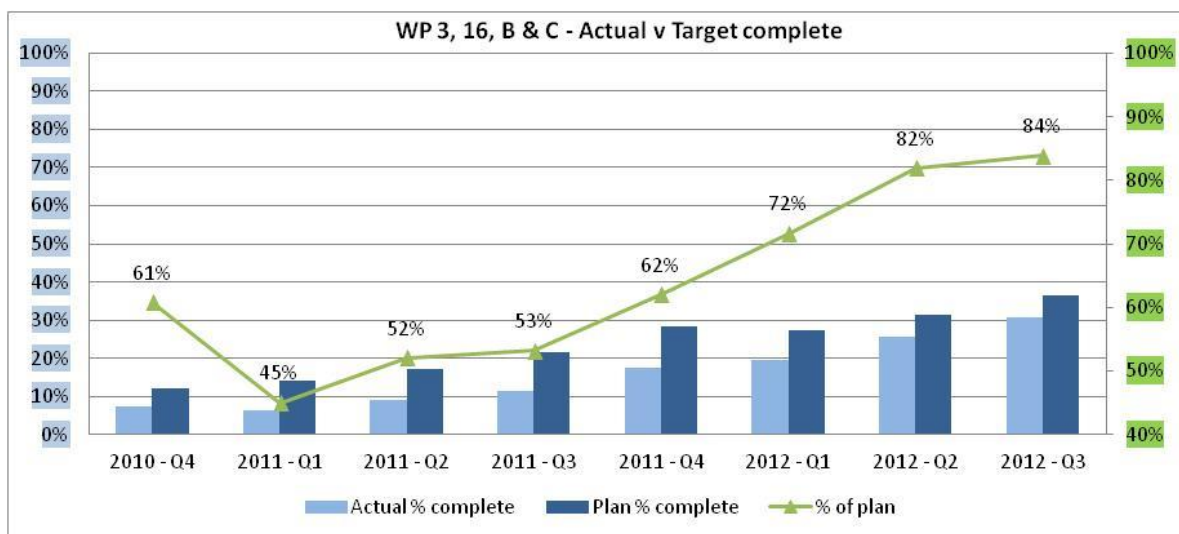
⁷⁹ An example was the delay of SWIM. Most plan adjustments in this period were a result of the need to ensure secure synchronisation between operational and system projects.

⁸⁰ SJU Annual Activity Report 2011 and SJU Annual Activity Report 2012

⁸¹ SJU Annual Report 2012

⁸² Statement: “In terms of quality, the results were also very good. Only 8 deliverables required a revision over the last 6 months out of more than 150 deliverables which were reviewed during that period.”

Figure 6-3: Actual versus planned work package performance – Transversal activities



Source: SJU Annual Activity Report 2011.

The 2011 SJU AAR noted significant issues in delivery of transversal activities WP B and WP C; however, the 2012 SJU AAR observed “a remarkable improvement as the percentage of plan achieved reached 84% in Q3 2012 compared with 53% of Q3 2011”⁸³. Thus, over the course of 2012, many of the issues with the Transversal packages (WP 3, 16, B & C) evident in 2011 were addressed. The trend here is similar with that achieved for the core R&D activities.

Until 2012, the SJU had taken a number of measures, which significantly improved the situation. While not reaching 100% annual planning targets, the current level is considered satisfactory and not critical to the overall programme. Nevertheless the SJU should continue implementing the necessary changes and make efforts to improve its completion rate further.

Judgment criterion: Has the SJU made the necessary preparations for the SESAR deployment phase?

Answer: The SJU effectively supported the definition of requirements for the deployment phase, in particular with the production of the revised European ATM Master Plan and SESAR releases.

SESAR deployment phase

The SJU is not responsible for implementation of the deployment phase, but it is responsible for maintaining the European ATM Master Plan, coordinating validation exercises on the projects producing SESAR releases, and for overseeing the R&D aspects of the implementation of the plan. The SJU has a vital interest in this as deployment is the logical continuation of the SESAR development phase and extending the momentum through deployment is essential for the success of SESAR. The need is to ensure the transition towards deployment activities, and associated investment plans are effectively coordinated, and all stakeholders commit themselves to deploying operational concepts and technologies and

⁸³ SJU Annual Activity Report 2012 pp 65

translating them into regular operations in a synchronised and timely manner. This has historically been problematic for European ATM.

Extent to which requirements for the deployment phase have been defined or determined

The SJU is legally responsible for the maintenance and execution of the Master Plan and the connection between R&D and deployment activities⁸⁴. To this end, in the period under review, the SJU effectively contributed to preparations for the SESAR deployment phase. Further, the SJU actively supported deployment through:

- › supporting the Interim Deployment Steering Group (IDSG) to ensure, in the absence of a deployment manager and resolution of the issue of funding and governance, progress in the short-term implementation activities that are part of SESAR. The SJU is a member of this body.
- › producing the updated European ATM Master Plan providing the roadmap for implementation and engaging stakeholders in definition of this plan.
- › coordinating validation exercises to produce SESAR releases ready for deployment consistent with the European ATM Master Plan.
- › starting the preparation of the Pilot Common Project⁸⁵.

Judgment criterion: Does the SJU seek to achieve the highest level of interoperability between SESAR and NextGen?

Answer: The initial steps of establishing the framework for co-operation and identification of priority work programme areas with the US FAA have laid the foundation for ensuring both NextGen and SESAR programmes support systems interoperability.

NextGen

A Memorandum of Cooperation was signed on 3 March 2011 between the EU and the USA on civil aviation R&D. The Memorandum enables technical cooperation required for the SESAR/NextGen interoperability and supports a joint EU/USA contribution to ICAO standardisation process.

Co-operation with FAA

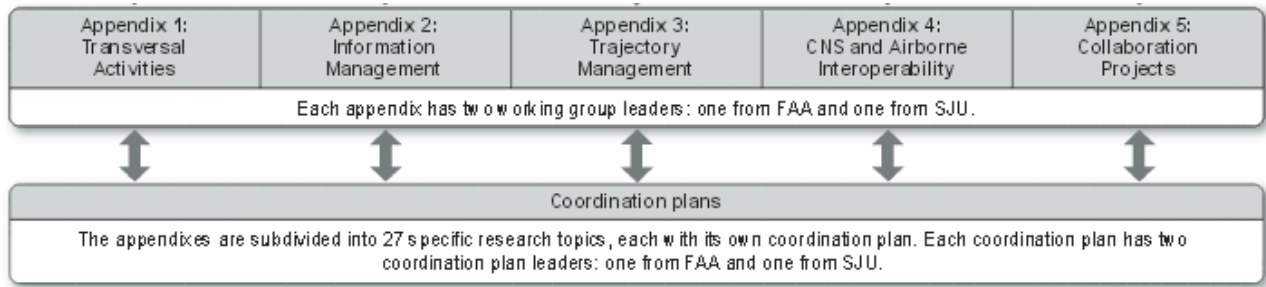
There is a long history of formal cooperation arrangements between FAA and Eurocontrol thus collaboration on SESAR and NextGen is built on a foundation of past cooperation. In 2011, a Memorandum of Cooperation MOC was completed. The MOC established formal structures for the coordination (and where appropriate integration) of the SESAR and NextGen programme efforts.

The number of agreed areas of co-operation between SESAR and NextGen is defined in Annex 1 of the MOC. These are the critical touch-points to achieving the common goal of interoperability. The specific areas of cooperation are detailed in Figure 6-4.

⁸⁴ Establishing Guidance material on Common Projects for SESAR deployment, DG MOVE Seminar – Brussels, 12.07.2012

⁸⁵ mandate from August 2012

Figure 6-4: SESAR/NextGen – Areas of Cooperation



Source: GAO presentation of FAA information.

Source: NEXT GENERATION AIR TRANSPORTATION, United States Government Accountability Office Report to Congressional Requesters, November 2011 - GAO-12-48

During the period under review, coordination structures were established and coordination activities (described in Coordination Plans) were developed and integrated with the SJU work programme tasks. As the US GOA⁸⁶ reported in November 2011, this initiative “is still in the early stages of implementation”⁸⁷. During the spring and summer of 2011, the FAA and the SJU implemented the various pieces of the MOC (Memorandum of Cooperation) and Annex I, such as developing coordination plans. FAA and SJU officials continue to meet informally to address technical issues. The US view at the end of 2011 was that “Because the components of the MOC have not yet been operationalised, we were unable to judge its effectiveness in facilitating collaboration towards interoperability”⁸⁸.

Most stakeholders interviewed on NextGen⁸⁹ saw the MoC as positive but several commented they did not see effective engagement. Whilst there is exchange of information, it is not clear that there is any notable progress towards genuine interoperability between SESAR and NextGen in the period under review.

Shared initiatives with FAA

Shared initiatives with FAA need to be reflected in relevant SESAR Work Programme elements which deliver interoperability. SESAR has Work Packages that address all of the identified areas of cooperation with FAA, thus shared initiatives have been put in place. Activity under the MOC did produce some concrete steps towards ensuring interoperability during the period under review, including:

- › Coordination of technical efforts in support of the Global ATM Concept and the development of global standards – in particular the common approach to the 12th ICOA Air Navigation Council

⁸⁶ United States Government Office of Accountability

⁸⁷ NEXT GENERATION AIR TRANSPORTATION, United States Government Accountability Office Report to Congressional Requesters, November 2011 - GAO-12-48 page 26

⁸⁸ NEXT GENERATION AIR TRANSPORTATION, United States Government Accountability Office Report to Congressional Requesters, November 2011 - GAO-12-48 page 26

⁸⁹ Stakeholder survey responses

- › Progressing standardisation in SWIM, ACAS, Datalink and Trajectory management
- › Continued engagement in common projects in the form of AIRE and Oceanic tracking and monitoring.

However, beyond these specific areas of collaboration, the 2011 and 2012 Annual Activity Reports show that the focus was primarily on implementation of the framework for co-operation and identification of (as opposed to achieving results from) coordination plans.

6.1.3 Conclusion

In terms of attaining its goals, the above analysis showed that the SJU has achieved fully or partially five of the operational objectives set by the SJU and its members under the framework of the SESAR programme. This result was considered acceptable by most of the respondents, who preferred to focus on the final delivery of the complete programme rather than on the attainment of intermediate targets.

Even though delivery of Annual Work Programmes was initially relatively low in 2010, the SJU actions led to an improvement with the rate of completion versus the planned achievements moving from less than 60% at the beginning of the period to 80%+ in late 2012.

To deliver the SESAR long-term strategic objectives, focusing on Annual Work Programmes is an effective approach. These are more immediate, measurable and actionable than long-term objectives and, as such, ultimately play a key role in securing that SESAR objectives are met.

The SJU did improve the situation during the period under review and retained the quality level of deliverables. The respondents identified a number of actions that may assist in attaining this goal.

It is **recommended** that the SJU continue its efforts to improve the rate of completion of its annual stated goals.

Even though the SJU is not responsible for the deployment phase, it has participated in the preparations for this phase through the update of the European ATM Master Plan, the SESAR releases, the support to the Interim Deployment Steering Group and the preparation of the PCP.

The initial steps of establishing the framework for co-operation and identification of priority work programme areas with the US FAA have laid the foundation for NextGen and SESAR integration.

With the structures and plans in place at the end of 2012, it was to be expected that deploying these would facilitate progress into the future. Whether this was, in fact, achieved can only be determined by a later review.

6.2 The SJU as a public private partnership

Evaluation question 7. To what extent has the SJU as a private-public partnership led to improved management of the ATM related research and validation activities?

The SJU has improved the management of the ATM related research and validation activities. Progress has in particular been noted in the coordination of different research activities under one structure

6.2.1 Introduction

This question is answered through the following judgement criteria:

- › Does the SJU combine and rationalise public and private sector efforts?
- › Has the SJU partnership led to improved management of the SESAR projects?

6.2.2 Evidence

Judgment criterion: Does the SJU combine and rationalise public and private sector efforts?

Answer: The SJU has improved collaboration and involvement of SJU members. ATM R&D efforts have been rationalised and duplication and fragmentation avoided at European level.

Perceptions of stakeholders

The assessment of this judgment criterion is mainly based on the perception of the stakeholders. The information was collected both through targeted interviews and through the stakeholder survey. As these views come from experts we consider them to be an adequate reflection of the existing situation. Absence of quantifiable and documented evidence means that not all arguments could be validated.

Improved collaboration

Almost all the respondents indicate that, in general, the private-public partnership (PPP) model is a good approach and consider that the SJU is performing well in this role. All categories of respondents agree that the SJU has brought together the private and the public sectors in a close working relationship with a common objective. Both DG MOVE and SJU staff considered that the SJU (by its design) integrates the key players in the ATM sector and directs them towards a common objective, despite differing interests and goals. Generally, SJU members and EU Member States are of the same opinion and consider that “... *significant amounts of research effort are now operated jointly within the SESAR programme and all the [involved] organisations are now used to working together*” and that “*this is one of the successes of the SJU*”.

Improved involvement Both DG MOVE and SJU staff mentioned that the PPP business model ensures the direct involvement of the stakeholders and the end users who are part of the governance. This way, they now have also ownership of the programme and the opportunity to steer it from an early stage.

Rationalisation of efforts The general opinion is positive, also in this case. DG MOVE personnel consider that the PPP structure has helped avoid duplication and fragmentation in EU funded ATM research; a view reflected also in the replies of the other respondent groups. For example an SJU member commented that “... *most of R&D activities previously carried out by single ANSPs are now taking place within SESAR (ASAS, AMAN, Point Merge, Data link, etc.)*”. SJU staff also added that the oversight of the public sector helps focus the efforts of the private sector towards the common goals.

Challenges Respondents of all categories consulted generally agree that R&D related projects have an inherent risk. This is linked to the inherent uncertainty of every research project in terms of outcome and timing issues. This risk is also linked with the complexity of the research task. Therefore, the majority of the respondents recognised this challenge for the SJU.

In addition, the respondents pointed out a number of further challenges. Specifically, one EU Member State was of the opinion that there is still little common understanding of how to achieve the objectives and that stakeholders have different perspectives. Furthermore, in order to combine and rationalise the public and private sector efforts, it would be necessary to first understand and then approach the very diverse operational working methods used across Europe. The review of the available documentation and the performance of the SJU did not confirm nor dispute this statement. The issue raised here is also one of perceptions that EU Member States have of the SJU. In this respect it is linked and considered under Section 5.3.2.

Another EU Member State called for further efforts to include additional stakeholders since, in their view, programme gaps (geographic, operational areas, expertise) have not been fully addressed by the project partners during the period. The review of the information showed that the Administrative Board from an early stage (and in particular ADB-13-2008) has decided on a broad membership as possible. All groups of stakeholders are represented in the governing structure of the SJU, and the two associate groups introduced in 2010 and 2011 show commitment to expand membership. In addition spontaneous membership is not excluded and the SJU has (as examined in chapter 5.1.2) considered further membership requests. Besides the SJU founding members, all other members and associates were selected through an open competitive process. Such processes are designed to select the best candidates and may not lead to a balanced geographical representation for example.

Judgment criterion: Has the SJU partnership led to improved management of the SESAR projects?

Answer: The SJU PPP structure is considered to have a positive impact in the management of the SESAR projects. The SJU manages to balance between

enhancing cooperation among its members and retaining the advantages of a competition/innovation processes.

During the reference period and with the provided resources, the SJU has successfully initiated and monitored the 336 research projects which also resulted in the achievement of many of the mid-term objectives.

The SJU approach

The existing PPP structure of the SJU allows the various actors in the ATM research area not only to be consulted, but also to take part in the management of the programme. It also provides focus and a common goal to work towards, which ensures not only acceptance, but also interest in the SJU activities. Stakeholders also consider the PPP model to be a good structure when dealing with conflicts and managing conflicts of interest. The rules on avoiding conflict of interest were described in Section 4.1.2 and include:

- › Members of the SJU and/or the Administrative Board are not allowed to participate in any stage of the procurement/grant processes and have no access to relevant documents;
- › Each participant to Administrative Board meetings, as well as boards relating to recruitment, procurement/grant or similar bodies and committees must sign a mandatory declaration on conflict of interest. Any person identified in a potential conflict of interest situation is excluded from the relevant meetings/boards/committees;
- › As mentioned also in Section 5.4.2 for specific studies or projects where members might be considered to have conflict of interest, the SJU uses open calls for tenders.

The existing coordination layers are perceived to be very important in avoiding conflicts of interest since the different layers control one another. Decisions in the Administrative Board and the Programme Committee are made in agreement of the members. At the same time through the call for projects structure, which is a competitive process, the SJU encourages innovation and efficiency. The SJU therefore manages the fine balance between enhancing cooperation among its members and retaining the advantages of a competition/innovation process. To this end, the SJU is considered to have a positive impact on managing the SESAR project.

Adequate expertise

Staff resources of SJU are limited and the project management has been established accordingly as defined in the PMP.

Overall, the stakeholders are satisfied with the operation of the SJU, noting however that the "real" results are first to be seen and evaluated in the deployment phase.

Stakeholders consider the expertise within the management of the SJU to be well-balanced and adequately split between technical and administrative staff. Stakeholders in particular highlight the technical knowledge accumulated within

the SJU as one of the strengths, which allows the SJU to communicate effectively with its members.

6.2.3 Conclusion

The SJU has improved the management of the ATM related research and validation activities. All categories of respondents agree that the SJU has brought together the private and the public sectors in a close working relationship with a common objective. Progress has in particular been noted in the coordination of different, previously fragmented, research activities under one structure.

The partnership led to an improvement in the management of the projects, and adequate expertise is provided. Respondents highlight two specific areas where the PPP structure of the SJU has yielded positive results. The first is the direct involvement of stakeholders in the management of a project, which leads to greater acceptance and a common focus on the common goals. The second relates to the effective management of conflicts of interest.

Overall, the majority of the respondents is satisfied with the work of the SJU and considers its PPP structure appropriate.

6.3 SJU contribution to the objectives of SES

Evaluation question 8. How the activities and actions of the SJU contribute to implementing the SES and allow for a quicker realisation of its objectives?

The SJU provides technical solution (R&D) whereas the SES provides the institutional change needed. SJU has facilitated significant progress towards realisation of the SES capacity and flight efficiency objectives – even if partial - at the end of 2012.

6.3.1 Introduction

The judgment criteria employed to assess the SJU's contribution to SES objectives are:

- › Does the SJU contribute to SES objectives?
- › Are SJU activities are integrated with other SES pillars?
- › Does the SJU coordinate the development of identified common projects assisting the successful implementation of the European ATM Master Plan?

6.3.2 Evidence

Judgment criterion: Does SJU contribute to SES objectives?

Answer: The SJU provides technical solution (R&D) whereas the SES provides the institutional change needed. SJU has facilitated significant progress towards

realisation of the SES capacity and flight efficiency objectives – even if partial - at the end of 2012.

The SES high level goals were first articulated by the European Commission in 2005 and subsequently adopted as strategic performance objectives for the European ATM Master Plan published in 2012 – the SES targets are detailed below.

Table 6-2: SES Targets

Area	Target
Capacity	3-fold increase in capacity
Safety	Improve the safety performance by a factor of 10
Environmental impact	Enable a 10% reduction in the effects flights have on the environment
Costs	Provide ATM services at a cost to the airspace users which are at least 50% less

Regulation (EC) 1070/2009⁹⁰ updated the original SES legislation and recognised “five pillars” that support SES;

- 1 Regulation (including ATM Performance scheme – acceleration of (Functional Airspace Blocks) FABs and Network Management).
- 2 Safety - including the establishment of EASA
- 3 Technology (SESAR)
- 4 Airports – recognising their impact on capacity in particular
- 5 The human factor (being an enabler of SES success)

The contribution of the SESAR is critical to the achievement of the SES targets. However, the five pillars are interdependent and all contribute to the final goal of meeting stakeholder requirements in terms of ATM performance and sustainability.

SESAR contribution to objectives defined in the European ATM Master Plan

The SESAR contribution to SES objectives is defined in the European ATM Master Plan in the four key SES performance areas:

- > Capacity,
- > Safety,
- > Environment and

⁹⁰ REGULATION (EC) No 1070/2009

- › Cost.

The time based operations stage (Step One) is defined in the European ATM Master Plan and reproduced in Table 6-3 below. SESAR delivers the majority of the Step 1 Capacity and Environment targets, all of the safety target and a significant portion of the cost target.

Table 6-3: SESAR Step 1 Targets v Actual

SESAR STEP 1 – Targets v Actual (at March 2013)		
	SESAR target contribution – Step One⁹¹	SESAR contribution identified at Mar 2013⁹²
Capacity	TMA/Enroute 27 %	TMA 20%/Enroute 5.4%
<i>Increase airspace capacity</i>	Airport 14%	Airport 9.1%
Safety		
<i>ATM-induced accidents and serious or risk bearing incidents</i>	40% reduction in risk per flight hour	Not quantified
Environmental impact		
<i>Reduction per flight in environmental impact (Fuel efficiency)</i>	2.8 %	1.3%
Costs		
<i>Reduction in cost per flight</i>	6 %	1.5%

SESAR WP5 is responsible for analysing the performance of SESAR with responsibilities including comparing performance levels with performance targets.

This group reported to the SJU board in March 2013 ⁹³ detailing the status of targets at that time based on contributions confirmed by validation exercises detailed in Table 6-3 above. Based on this report:

- › Significant progress had been made in airport capacity and TMA, however, limited progress was made in en route
- › SESAR had achieved approximately half the target on flight efficiency
- › The contribution to the cost effectiveness target was limited.

Step 1 was still a work in progress when this review was undertaken. The review of Table 6-3 clearly shows that the SJU, through delivery of its work programmes,

⁹¹ Ibid – pp 17

⁹² SESAR WP B.5 Performance Analysis of ATM Target Concept objectives

⁹³ SJU Administrative Board, Minutes of Meeting ADB(M)025, 14 March 2013

has facilitated significant progress towards realisation of the SES capacity and flight efficiency objectives - even if partial - at the end of 2012.

Stakeholders recognise that the SES performance objectives cannot be reached with SJU alone. SJU provides the technical solution; SES provides the institutional change needed. The prevailing view of stakeholders surveyed is that the pillars of SES complement each other. Furthermore, it is not clear to what extent the R&D will ultimately contribute to the SES targets as it will only become visible with full deployment.

Judgment criterion: Are SJU activities integrated with other SES pillars?

Answer: The assessment shows that SJU activities are integrated with the other SES pillars.

SESAR integration
with other SES
pillars

The SJU is a unique partnership providing a mechanism for stakeholders to contribute and work together towards SES objectives and ensure coordination with the other SES pillars; Regulation, Safety, Human factor and Airports.

Regulation – encompasses not only regulatory compliance and thus EASA and NSAs, but extends to include other elements of the SES regulatory framework including; the ATM Performance scheme, FABs and Network Management. These are discussed below.

Network Manager: The Network Manager function was established⁹⁴ in 2011 with the Network Manager being responsible for network operations and for network level performance. The Network Manager ensures coordination of deployment of the ATM Master plan through its network planning processes, as documented in (the Network Operations Plan and Network Strategy. These plans serve to integrate with and support the ATM Master Plan and thus SESAR at network level. In particular the Network Manager is involved in supporting WP7(Network operations) and WP13 (Network Information Management System) with expertise and release exercises. SJU solutions and activities well integrated with Network Manager plans and activities.

EASA: The SJU requires the EASA to ensure operational and technical compliance with safety standards and facilitate certification processes required for operational deployment. To this end, working arrangements between EASA and the SJU were established in 2010 and formalised in January 2011, thus acknowledging and providing a mechanism for engaging EASA support and expertise for SESAR.

Proof that the arrangement is working in practice is found in the SJU AAR 2012⁹⁵ which stated that “during 2012, the Letter of Agreement signed in 2010 between the SJU and EASA has been put fully into operation” That report also noted that in 2012, “3 quarterly meetings were held with EASA, 1 familiarization workshop and 2 ad-hoc meetings took place: one on Proof of Concept and another on the

⁹⁴ Commission Regulation (EU) No 677/2011 of 7 July 2011

⁹⁵ AAR2012 pp 83-84

alignment of the SESAR Regulatory Roadmap and the EASA Rulemaking Plan". Beyond this it was reported that "15 deliverables have been reviewed by EASA during 2012" and that a "large amount of detailed recommendations from EASA have been considered both in the execution of SESAR projects and in the elaboration of the SESAR solutions." Based on this evidence, the SJU is effectively integrating with the EASA as part of the Regulatory pillar and the work of SESAR.

FABs: pursuant to the role defined under SES, FABs a key element of the performance pillar of SES⁹⁶ and the implementation of the ATM Master Plan.

There is limited evidence of the SJU is interacting with the FAB. FABs are not mentioned in the 2012 Annual Report but are mentioned in the 2012 AAR⁹⁷ which confirms that SESAR integration with FABs is limited to cross border operations. SJU activities are not integrated with FABs with FAB plans submitted in response to the requirements of Regulation (EU) 176/2011 providing no clear evidence that they will be delivered or contribute significantly towards delivery of the European ATM Master plan or the step improvement in performance required to meet the SES targets. This issue is an issue for the FABs rather than SJU.

Safety and the Human factor – fall within the scope of the WP16 R&D Transversal Areas. This WP extends to include safety and human performance management system practices. As such these pillars are integrated into SESAR through this mechanism.

During the review period itself WP 16 produced updated Human Performance and Security risk assessment methodologies. Beyond WP 16 Safety and Human factors were an integral component of other WP, for example;

- › Integrated controller working position to improve the working environment, improve efficiency and a lower workload formed part of Release 1.
- › Airport safety nets (WP 12) initiatives to improve safety at airports through better situational awareness and conflict alert systems formed part of Release 2.

Airports – the airport pillar is similarly integrated by way of being a SESAR WP (WP12) – Airport Systems. Activities carried out under WP12 during the period under review include; Airport Safety Nets, Remote Towers, Surface Movement procedures and Tower CWP/HMI validations. This work package thus encompasses all R&D required to define and deliver the airport systems needed to support the SESAR target concept.

⁹⁶ "The functional airspace blocks are key enablers for enhancing cooperation between air navigation service providers in order to improve performance and create synergies." REGULATION (EC) No 1070 2009

⁹⁷ AAR2012 pp81

Common projects
and the European
ATM master plan

Judgment criterion: Does the SJU coordinate the development of identified common projects assisting the successful implementation of the European ATM Master Plan?

Answer: SJU initiated processes for co-coordinating the development of common projects and the European ATM Master Plan. The most significant progress in this area was made outside the period under review.

In October 2012, the SJU successfully released an updated European ATM Master Plan. The European ATM Master Plan assessed the risks of the plan, which included the risk relating to the fact that *“the future deployment governance structure will be capable of ensuring a strong link between development and deployment of the SESAR Programme.”* In mitigation, it was noted that the EC would *“develop all guidance material necessary to establish the deployment governance structure through common projects.”*⁹⁸

Thus how coherence between common projects and the European ATM Master Plan was to be achieved was defined in the Master Plan itself. Consistent with Article 15a (2) of Regulation 550/2004 (SES Service provision Regulation), this would be through issuance of Guidance material. This material was produced after the review period, limiting the SJU capacity to demonstrate compliance in a review ending calendar year 2012.

Pre-dating this, in August 2012, the SJU was asked to prepare a draft Pilot Common Project, to support the European Commission in setting up the deployment of SESAR. Under this mandate the 2012 Annual report noted *“the SJU is now working on developing the necessary business cases and their relative models. Overall, 40% this objective is considered to be achieved and further progress will be achieved as the Pilot Common Project develops.”*⁹⁹

Accordingly, in the period under review, the SJU progressed with some elements (assessed in the 2012 Annual Report at 40%) required to ensure that SESAR candidate ATM functionality formed part of and was coherent with the PCP.

6.3.3 Conclusion

The SJU is integrated with and supports the other pillars of SES. The SJU contributed to the objectives of the SES in the period from 2010 to 2012 in providing the technical solution (R&D) whereas the SES provides the institutional change needed.

The SJU successfully met its responsibility for maintaining the European ATM Master Plan by producing an updated European ATM Master Plan in 2012.

Progress has been made in terms of SJU contribution to objectives defined in the European ATM Master Plan in the four key SES performance areas, in particular in

⁹⁸ European ATM Master Plan pp87

⁹⁹ Annual Report 2012 pp 12

the areas of airport and TMA capacity. More limited progress has been made to support the SES cost efficiency objective within the timeframe assessed.

The SJU has initiated processes for co-coordinating the development of common projects and the European ATM Master Plan, however, the most significant progress in this area was made outside the period under review.

6.4 The SJU organisation

Evaluation question 9. To what extent is the SJU the most efficient solution for the management of the SESAR project's development phase?

The current structure is more efficiently organised than that of the ATM R&D management before the creation of the SJU reducing R&D fragmentation and promotes competition and innovation.

6.4.1 Introduction

The judgment criteria employed to assess this evaluation question are:

- › Does the SJU bring added value at EU level?
- › Has the SJU achieved organisational efficiency?

6.4.2 Evidence

Judgement criterion: Does the SJU bring added value at EU level?

Answer: The SJU adds value in that it organises the technical works. Consistent with its establishment mandate, the SJU adds value in avoiding duplication and lack of coordination in the European ATM R&D environment that preceded it.

Impact on industrial competitiveness, sustainable growth and socio economic issues

The indicator to assess the added value of the SJU at the EU level is the impact on industrial competitiveness, sustainable growth and socio economic issues. However, the evaluation period is 2010-2012, and at that time the programme was in the beginning of the development phase. Typically, sustainable growth and socio-economic benefits are to be derived from the deployment phase onwards (see below), and thus the effect of the SJU on these elements during the evaluation period is considered very limited. An exception is, however, a limited short-term effect on industrial competitiveness.

The set-up of the SJU as a PPP to manage the concerted European ATM R&D programme has reduced fragmentation¹⁰⁰ of R&D expenditures on ATM innovation compared with the situation before the establishment of the SJU. Before

¹⁰⁰ Limited fragmentation still exists as there has still some ATM innovation research been carried out outside SESAR in the framework programmes.

the management of European ATM R&D by SJU, the majority of R&D was implemented via the European Framework Programmes, with its specific rules on participation and development of larger consortia that allowed for significant fragmentation of research¹⁰¹. As a result, there is now an efficiency gain for the participating industry, which would logically result in an improved competitive position of the ATM manufacturing industry. It should be noted that it is anticipated that this effect will increase in the coming decade, as also indicated in a study by Ernst & Young¹⁰². Respondents in our interview survey indicated that another impact on the competitiveness is the fact that the SJU operates in a competitive manner. There are for example always two industry partners in competition in order to push the technological development and to avoid that one member would gain a monopolistic position.

Consistent with its establishment mandate, the SJU adds value in that:

- › The SJU is the recognised vehicle for ***coordinating and concentrating ATM research***. The existence of SESAR has avoided the duplication in R&D that preceded it. Furthermore, it has integrated the systems development and ANSP efforts.
- › The SJU funding arrangements ***ensure necessary funding*** to support that the SESAR programme is in place. The added value from the SJU is thus a commitment to public and private funding for ATM innovation research.
- › The SJU adds value in that it ***organises the technical work including development of common projects***. To the extent the technical work has been delivered, the SJU has added value.
- › By coordinating R&D, by standardising requirements of solutions, the SJU has increased European industrial competitiveness, while ensuring maximum benefit for the network performance, as the positive impact of standardisation on industrial competitiveness is commonly acknowledged¹⁰³.

According to the evaluation team, the largest added value of the SJU regarding sustainable growth and socio-economic benefits has yet to materialise. In 2011, the SJU¹⁰⁴ carried out a study on the macroscopic impact of the SESAR programme, in which the expected impact of the SESAR programme between 2013 and 2030 on different socio-economic indicators was estimated. Additionally, this estimated the effect of a desynchronised¹⁰⁵ or delayed implementation of SESAR on the same

¹⁰¹ http://consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/intm/139875.pdf

¹⁰² Ernst & Young, 2012, SJU's extension – impact assessment study.

¹⁰³ http://ec.europa.eu/enterprise/policies/industrial-competitiveness/industrial-policy/intellectual-property-rights/patents-standards/index_en.htm and http://ec.europa.eu/enterprise/policies/industrial-competitiveness/industrial-policy/files/communication_on_industrial_policy_en.pdf

¹⁰⁴ SJU, Assessing the macroeconomic impact of SESAR, June 2011 (prepared by McKinsey)

¹⁰⁵ In this case, not all of the parties involved invest in SESAR simultaneously

indicators. The SJU contribution to timely deployment consists in developing and validating ATM functionalities deriving from the Master Plan. In summary, the following results were noted.

Table 6-4: Developing and validating ATM functionalities

	On-time SESAR implementation	Desynchronised SESAR implementation (difference compared with on-time implementation)	Delayed SESAR implementation (difference compared with on-time implementation)
GDP increase (2013-2030)	EUR 419 bn	EUR 302 bn (EUR -117 bn)	EUR 151 bn (-EUR 268 bn)
Employment increase (2013-2030)	328,000 jobs	256, 000 jobs (-72,000)	139,000 jobs (-189,000)
CO2 reduction (2013-2030)	50 million tons	15 million tons (-35 million)	0 (-50 million tons)

Source: SJU, Assessing the macroeconomic impact of SESAR, June 2011 (prepared by McKinsey)

The above table indicates that the difference between especially a delayed and on-time delivery implies a substantial loss of socio-economic benefits. As such, effective management of the SESAR programme resulting in an on-time delivery of the programme would result in substantial socio-economic benefits to Europe. While it is recognised that delayed implementation may also stem from factors external to programme management (and thus the SJU), (e.g. funding shortages by airspace users) it is clear that effective programme delivery by the SJU would certainly contribute to capturing these socio-economic benefits of SESAR to Europe.

ATM related research and innovation

The total estimated cost of the development phase of SESAR is EUR 2.1 billion, to be shared equally between the European Union, Eurocontrol and the industry. In addition to this R&D investment, the SJU has launched a number of additional R&D initiatives:

- › In 2012, the SJU prepared a call for proposals (launched in February 2013) to select and co-finance a series of projects offering SESAR integrated RPAS (Remotely Piloted Air Systems) demonstration activities¹⁰⁶.
- › Also in 2012, the SJU defined the need for a SESAR Strategy and Management framework for Information Cyber-Security, which was externally procured in a call for tender in 2013¹⁰⁷.

¹⁰⁶ <http://www.sesarju.eu/programme/highlights/steering-safe-integration-of-rpas>

¹⁰⁷ <http://www.sesarju.eu/sites/default/files/documents/procurements/SJU-LC-095-specs-corrigendum.pdf>

As such, SJU initiated additional ATM research and innovation. Stakeholders (especially Member States), however, were not able to confirm in majority if the SJU was able to secure additional resources on the industry side. A number of stakeholders pointed out that the period under consideration coincided with the economic crisis in Europe, which affected the industry. In this respect, some Member States mentioned that the industry was forced to cut back on their R&D efforts. It is considered that the SJU managed to keep R&D efforts concentrated and focused in an economically difficult environment.

Judgement criterion: Has the SJU achieved organisational efficiency?

Answer: There are indications that economies of scale have been achieved through project management (particularly PMP and Gate review) and the Tiger Team process. The SJU come across as a cost efficient structure also when compared to other EU structures.

Indicators to assess if the SJU has created savings to the EU budget are the existence of any economies of scale and the potential cost-effectiveness of alternative management options.

Have economies of scale been achieved?

One element resulting in economies of scale is the development and updating of the SESAR Programme Management Plan (PMP). It describes the programme management approach and technical process (the “what, how and who”) to implement the high-level goals as detailed in the European ATM Master Plan. As such, it applies to all projects and ensures that the same methodology is applied across all R&D projects (also see Section 5.3.2). It thus ensures (1) that all projects work towards the same goals (2) that their cross-links are made explicit and (3) allows to minimise research overlaps. This saves research effort, which can be used for other projects. The PMP was first issued in 2009, and updated in February 2011 and April 2013.

In early 2012, a team composed of Programme Committee members (Tiger Team) was set up to improve the effectiveness of the Release approach further by moving the focus to the service providers' business needs and thus reassessing the SESAR priorities. The Tiger Team identified a list of five Priority Strategic Business Needs from an operational perspective across stakeholders. The implementation of the recommendations and principles started in June 2012 with the definition of a top-down release strategy and the implementation of the most critical efficiency measures¹⁰⁸. These efficiency measures were included in the 2013 version of the PMP.

Cost-efficient structure

The SJU spends just over 2.8% of its operating expenditure on administrative costs (including staff costs and overheads). In our consultations with stakeholders, no major negative issues were raised concerning the organisational efficiency of the SJU. There are two dimensions which can further analyse the organisational efficiency of the SJU. These are:

¹⁰⁸ SJU, 2013, Final accounts 2012.

- › comparing the efficiency of the ATM R&D management carried out by the SJU today with that before the establishment of the SJU.
- › comparing the organisational efficiency of SJU compared with other Joint Undertakings and JTIs.

Comparing with situation before the establishment of the SJU

Before the creation of the SJU, ATM R&D was funded by the framework programmes of the European Commission and via Eurocontrol. The framework programme projects were managed in the same way as projects of other industries, by project officers of the European Commission, technically supported by external reviewers. In an evaluation of the aeronautics programmes of the framework programmes¹⁰⁹, the majority of survey respondents (project coordinators) were relatively negative about the use of efficient internal processes by the Commission to deliver the framework programmes. None of the stakeholders surveyed indicated any concerns about the SJU's efficiency on internal processes in the management of the R&D programmes. As such, the establishment of SJU led to an improved efficiency of the management of R&D.

Comparing with other Joint Undertakings and Joint technology Initiatives

In section 6.2.2, a brief comparison was made between the SJU and the Clean Sky. In this analysis, we add two Joint Undertakings that are active outside the aviation domain: ARTEMIS JU (embedded computing systems) and ENIAC JU (Nanoelectronics). In the following table, we compare the SJU with the Clean Sky, ARTEMIS and ENIAC in terms of (i) the ratio of total operating costs as a share of operational expenditures and (ii) the operating expenditures per staff member. It should be noted that this comparison is indicative, and has to be interpreted with caution, as there are differences in the stage of development of these JUs.

Table 6-5: SJU compared with three other JUs (2012, values in EUR million except for staff headcount)

	Administrative costs	Operational expenditure	Total expenditure	Ratio costs/ expenditure	Staff headcount	Operational expenditure per staff
SJU	7,6	263,6	270,9	2.8%	41	6,6
CleanSky	4,4	205,3	209,7	2.1%	24	8,7
ARTEMIS	2,3	49,7	52,0	4.4%	13	4,0
ENIAC	2,3	125,4	127,8	1.8%	17	7,5

Source: Annual reports of the JUs

The table indicates that the SJU takes is within the scope of other JTUS with regards to the operating costs vs administrative expenditures. The administrative costs per staff member is comparable to that of other SJUs.

Based on the comparisons, one may conclude that the structure is more efficiently organised than that of the ATM R&D management before the creation of the SJU,

¹⁰⁹ MEFISTO project, final report, April 2010. FP7/2007 2013 grant agreement n°211723

and compared with other JTIs, the SJU takes a middle position in terms of organisational efficiency. This assessment compliments the assessment in Chapter 5.2 of this report looking at the administrative efficiency of the SJU.

6.4.3 Conclusions

The examination of the evidence presented above points to the conclusion that the SJU does indeed bring added value to the EU through the organisation of the technical work, including development of common products.

Consistent with its establishment mandate, the SJU adds value in avoiding duplication and of lack of coordination in the R&D that preceded it.

The current set-up reduces R&D fragmentation and stimulates competition between suppliers. This has a positive impact on the competitiveness of the European ATM manufacturing industry.

In terms of additional investments in ATM R&D, the added value of the SJU is limited. The SJU realised a modest leverage in additional investments in ATM R&D in the areas of cyber security and remotely piloted aircraft systems (RPAS), but there is no indication that it was able to secure additional funding for R&D in industry. While this indicates in itself a limited fragmentation of ATM R&D, the impact is also that the added value of the SJU in channelling more funding towards ATM R&D is limited.

The main added value of the SJU has still to be assessed based on the results of the implementation of the SESAR programme, which would lead to substantial benefits compared with delayed implementation.

As regards organisational efficiency, the SJU has taken a number of steps towards attaining this goal during the period under review. The PMP and the Gate Review processes are measures taken to streamline the research efforts, while the Tiger team was established to improve effectiveness.

At the same time, the evidence examined supports the conclusion that the SJU is a cost-efficient structure. Its operating expenditure on administrative costs ratio is indicative of this. A comparison (to the extent possible) with the situation before the SJU as well as with other JTIs indicates a favourable result.

The above leads to the conclusion that the SJU has brought added value in R&D and that it is an improvement over the previous situation.

6.5 Unintended effects

Evaluation question 10. To what extent have the activities of the SJU resulted in unintended effects (both desirable and undesirable)?

No concrete unintended effects were identified, largely due to the design of the tasks and aims of the SJU.

6.5.1 Introduction

The evaluation question on unintended effects is answered through the following judgement criteria:

- › Have there been effects of the SJU other than the ones intended by the SJU Regulation?

6.5.2 Evidence

Judgment criterion: Have there been effects of the SJU other than the ones intended by the SJU Regulation?

Answer: No unintended effects were identified, neither through the desk study nor through the respondents.

This question is of an exploratory nature. It does not focus on whether the SJU has performed according to the required/expected criteria as this has been covered earlier in the report; rather it aims to identify any additional/unintended effects of the SJU's normal activities. This question looks into both desirable and undesirable aspects.

The information provided in this section is mainly collected through the interviews and the survey conducted of the different actors¹¹⁰ relevant to the SJU. Given the number of responses and the fact that it is an open and exploratory question, a statistical analysis is neither appropriate nor possible. Instead, a qualitative assessment of the answers of the different actors is undertaken.

Initiated change in ATM environment

Sources from the SJU staff as well as a Member State found that the SJU, showed that it is possible to make a change in the field of ATM in Europe, and that the SJU played an important role in initiating this change.

¹¹⁰ Input was collected from: Commission officials, staff of the SJU, Members of the SJU, EU Member States and other stakeholders (as explained in Section 2.3). It is important to note that the majority of the SJU Members as well as a number of Member States did not provide an answer, sometimes considering that they did not have enough information available that would allow them to formulate an opinion/view on this question

Art. 1.5 of the SJU Regulation places the modernisation of the European ATM system as the aim of the SJU. As such, it is expected that by attaining this effect the SJU is in fact fulfilling (at least part of) its role.

International aspect

The international aspect was raised by a number of interviewees, especially from among the SJU staff as well as from the Commission. It was generally reported that the activities of the SJU have allowed the coordination and the development of a “European” voice in the area of ATM (also between EU Member States and industry). This is evident in the approach and relations with third countries (including the US/FAA) and international organisations (ICAO).

Indeed, while Art. 5.1 of the SJU Regulation includes among the tasks of the SJU the organisation and coordination of activities in accordance with the European ATM Master Plan and the involvement of the European stakeholders, an international dimension and more specifically the coordination of positions is indirectly implied and is one of the means that can be employed to achieve the task. Therefore, it can be considered that increased cooperation and collaboration between actors towards a common goal (in line with the tasks of the SJU) would increase chances that they can present a co-ordinated/common position towards third parties on this topic.

Change in R&D environment

Change in the R&D environment has also been brought forward among the unintended effects of the SJU by SJU staff. According to these replies the focus of project management in the industry has developed towards change management and performance monitoring. SJU Staff also claimed that, “*improved research processes have reduced the time to market in the sector from 15 years to 5-10 years*”¹¹¹.

Indeed, while Art. 5.1 of the SJU Regulation includes among the tasks of the SJU the organisation and coordination of activities in accordance with the European ATM Master Plan as well as the organisation of the technical work of research and development, change in the R&D environment and practices of the participating companies, beyond the scope of the SESAR project, was not directly planned. Nevertheless, in the process of performing this task the SJU would introduce a new R&D approach (collaborative). As one of the expected outcomes of the work of SJU is that it will lead to new and efficient R&D processes in the ATM domain it can be safely concluded that these would be taken up by the participants as best practices and applied in other areas of their business.

Answers falling under the two above thematic areas have the common characteristic, that, even though they are not directly stipulated as SJU tasks, they appear directly linked and flowing “naturally” from the operation of the SJU. As such, it is hard to qualify them as “unplanned” and thus as unintended.

Undesirable effects

Information on undesirable effects was provided mainly from SJU staff and encompasses a number of areas, which are in practice relating with “operational

¹¹¹ Despite the apparent importance of these claims we were not able to independently verify them.

and design” aspects of the SJU. As such are more relevant to the working methods of the SJU (Chapter 5) and have been explored there.

6.5.3 Conclusion

Among the responses, a number of respondents from different groups (Commission officials, SJU members and EU Member State) found that there are no unintended impact of the SJU. In particular, it was mentioned that the SJU Regulation is wide and flexible enough to allow for a number of effects to be covered. While other respondents highlighted a number of possible unintended effects, a review of these issues found that they were secondary effects deriving from the immediate tasks and aims of the SJU. As such, they are considered part of the initial design (for example the international dimension or change in ATM research culture). Issued presented as undesirable, unintended effects by the respondents were found to be linked with direct operational aspects of the SJU and as such they were treated in the relevant chapter.

In conclusion, no concrete, unintended impacts were identified, largely due to the design of the tasks and aims of the SJU.

6.6 Summary of conclusions

SJU achievement of objectives

The SJU achieved most of the midterm objectives set by the SJU and its members under the framework of the SESAR programme. This result is considered acceptable due to nature of R&D and when focusing on the long-term objectives of the programme. The delivery of Annual Work Programmes improved during the reference period, following appropriate measures taken by the SJU. Nevertheless, the SJU should aim at improving its annual completion rate. This has led to the following **recommendation**:

- › The SJU should continue its efforts to improve the rate of completion of its stated goals.

At the same time, the SJU effectively supported the definition of requirements for the deployment phase, in particular with the production of the revised European ATM Master Plan and SESAR releases. Initial steps were taken to establish the framework for further integration of NextGen and SESAR.

The SJU as a public private partnership

Considering the impacts following from its structure, the analysis showed that the SJU has improved the management of the ATM related research and validation activities. Progress has in particular been noted in the coordination of different research activities under one structure. SJU members expressed their satisfaction with the work of the SJU as an organisation.

SJU contributed to the objectives of SES

The SJU contributed to the objectives of SES in the period 2010 to 2012 by successfully undertaking its responsibility for maintaining and updating the European ATM Master Plan. Further progress was made in terms of contribution to the objectives in the four SES performance areas, particular in the areas of airport and TMA capacity.

The SJU organisation

The SJU structure adds value in organising the technical work, including development of common products. Consistent with its establishment mandate, the SJU adds value in avoiding duplication and of lack of coordination in the R&D that preceded it. Thus, the current set-up reduces R&D fragmentation and stimulates competition between suppliers. This has a positive impact on the competitiveness of the European ATM manufacturing industry.

The largest added value of the SJU has still to be seen through the implementation of the SESAR programme, which would lead to substantial benefits compared with delayed implementation.

Unintended effects

Among the responses from Commission officials, an SJU member and an EU Member State had the view that there are no unintended effects. In particular, it was mentioned that the SJU Regulation is wide and flexible enough to allow for a number of effects to be covered. Furthermore, secondary effects deriving from the immediate tasks and aims of the SJU were part of the initial design (for example the international dimension or change in ATM research culture).

7 The general financial situation of the SJU

The aim of this section on the financial situation of the SJU is to assess the soundness of financial management principles as well as the timeliness and adequateness of financial contributions made to the SJU.

7.1 The principles of sound financial management

Evaluation question 11. To what extent does the SJU comply with the principles of sound financial management?

The SJU has a framework in place to comply with the principles of sound financial management

7.1.1 Introduction

The evaluation question is answered using the following judgment criteria:

- › Has the SJU developed transparent procedures and is there a coherent set of accounting procedures and standards in place?
- › Does the SJU have an internal audit capacity?
- › Is there a risk management plan and relevant measures in place?
- › Have all the members of the SJU provided their contribution to the SESAR development phase in a timely fashion?

7.1.2 Evidence

Judgment criterion: Has the SJU developed transparent procedures and is there a coherent set of accounting procedures and standards in place?

Answer: The SJU has a transparent set of procedures and accounting standards in place as confirmed by the Court of Auditors (CoA).

Accurate recording of transactions

The report of the Court of Auditors (ECA) on the SJU's 2010, 2011 and 2012 Annual Accounts confirms that the accounts are reliable and present fairly, in all material respects, the SJU's financial position. In the Court's opinion, the transactions underlying the Annual accounts were in all material respects legal and regular.

Procedures of an audit trail

The auditing procedures are defined in the SJUs Financial Rules,¹¹² which lay down basic principles governing the budgetary cycle, and in the SJU Regulation. These documents are accessible to all interested parties.

The role of the Commission's Internal Audit Service (IAS) is defined and its coordination with the SJU's internal auditing function is described in the Coordinated IAS Strategic Audit Plan for 2012-2014.¹¹³

In its 2010 Report, the CoA pointed to the fact that although the SJU began using the financial reporting systems also used by the Commission in 2010, the operational programme management system was not integrated into these financial reporting systems. The underlying business processes had not been validated by the Accounting Officer as required by the Financial Rules of the SJU. However, a review of the SJU's business processes carried out by an independent auditor in 2011 found that the internal control systems were operated effectively. This finding was formally validated by the Accounting Officer in 2012 and confirmed in 2013 as no significant changes were made to the internal control system.

Judgment criterion: Does the SJU have an internal audit capacity?

Answer: The SJU has internal audit capability being provided by the IAS of the Commission and its internal auditor.

Internal Auditor

As described in Question 1, in line with Article 185 (3) of the Financial Regulation of the European Union, the IAS of the Commission ... *shall exercise the same powers over the bodies referred to in paragraph 1 as he/she does in respect of Commission Departments*. Therefore the IAS has the role of Internal Auditor as it does for other JTIs and Commission Bodies in line with the provisions of the Financial Regulation. This was verified by the CoA in its 2010 Report of the annual accounts of the SJU. The mission charter of the Internal Auditor of the SJU was adopted by the ADB through ADB(D) 17-2010.

¹¹² Decision ADB(D) 16-2009.

¹¹³ Decision ADB(D)-06-2011.

Additional Auditing capability

As also mentioned in Question 1, Decision ADB(D)-11-2010 in addition requested the establishment of an Internal Audit Capability (IAC) of the SJU. Unlike the IAS, the function of the IAC is not a legal requirement and it is an optional and added internal audit function created by the SJU. The IAC was established with Executive Director Decisions ED/SJU 155 and ED/SJU/156. The IAC tasks are performed by one full time staff of the SJU, with administrative support provided by the SJU secretariat as required. Additional audit resources and expertise may be made available following an approval of the Executive Director.

The charters of the IAS and IAC mirror each other in many aspects, including their missions and objectives. The relationship and the close collaboration between the IAS and IAC are reflected in both documents. Main differences include the reporting (the IAS in its role is accountable to the Executive Director and the ADB, while the IAC to the Executive Director only) and responsibilities (for example the IAS is responsible for developing and implementing the audit plan, while the IAC implements and performs its activities through the SJU's AWP).

Internal Audit activities

Following the introduction of this setup in 2010, the internal control system developed picked-up speed during the following years with four IAC reports issued in 2010, seven IAC and one IAS reports in 2011 and five IAC and three IAS reports in 2012. For these reports, support from external consultants has been obtained as required¹¹⁴. The reports cover different areas relating to the SJU ranging from SWOT analysis of options for deployment governance and control, risk assessment and auditing of internal control standards, to more practical aspects such as validation of access rights to ABAC.

Interviews with SJU and IAS staff confirmed the close cooperation between the two services and the fact that they operate in a complementary rather than overlapping manner. The added value of the IAC was also confirmed by the DG MOVE personnel.

The Permanent Audit Panel, introduced since 2008, has met at least four times each year during the period under consideration, in order to coordinate activities of the different SJU auditors and the ADB.

The 2012 CoA Report highlighted two improvements relating to internal control matters that could be made (1) to the documentation of controls on the monitoring of project deliverables, project performance analysis, subcontractor monitoring and cost claim certificates, and (2) to the exchange of data and results between the SJU and the Clean Sky JU, as well as to coordination at management and expert levels and to the establishment of criteria for allocating projects between them.

A functioning two level system

The internal audit capacity of the SJU is therefore structured in two complementary levels. On the first level, the IAS is providing the internal audit function, its role being more targeted to the auditing aspect. The second level is the IAC, which is

¹¹⁴ SJU IAC Audit on Business Management System of the SJU (prepared under contract by E&Y), 2010 and SJU IAC Performance of an audit review of the SJU physical security arrangements (prepared under contract by SCOPE), 2011

closer to the day-to-day activity of the SJU while retaining its independence. The IAC covers audit and consulting functions. As such it is well placed to examine and identify potential areas of improvement and make recommendations to the management.

Judgment criterion: Is there a risk management plan and relevant measures in place?

Answer: The SJU has developed and implemented a risk management plan since 2010.

An adequate risk management plan is in place

The Risk Management System of the SJU was formally introduced by the Decision of the Executive Director laying down the Internal Control Framework and Risk Management Policy of the SJU.¹¹⁵ The risk management plan was implemented in 2010.

The Risk Management System consists of the SJU's Internal Control Standards for Effective Operation, the Risk Policy, the SJU Risk Management Principle Organisation and Process, the description of the SJU's Risk Management Coordinator tasks and of the Risk Manager Work Programme.

The overall Risk Management process is integrated in the Annual Work Programme Process and allows the SJU's management to assess the level of risk pertaining to the achievement of the SJU's objectives.

The SJU Risk Policy is aligned to the requirements of the European Commission as specified in the Commission's Communication "Towards an Effective and Coherent Risk Management in the Commission Services."¹¹⁶ The Risk Policy provides a basis for the SJU risk management exercise, the results of which are reported in the Annual Risk Management Report.

The verification of the implementation of the Risk Management plan is evidenced through the Risk Management Reports issued for 2010, 2011 and 2012 and endorsed by the ADB in line with the Risk Policy¹¹⁷. In all cases actions to manage the identified risks are included in the following AWP. 30 risks of various degrees of criticality were identified in 2010. The number of risks did not change in 2011, but the number of high and very high risks was decreased by half reducing the overall critical picture by 7%. Two workshops relating to the R&D Programme risks took place in 2012. The result was the identification of 31 Programme and SJU risks. As a follow-up 10 essential actions were identified to mitigate the most important risks.

¹¹⁵ Decision SJU/ED/64.

¹¹⁶ SEC(2005) 1327.

¹¹⁷ As evidenced through the examined Risks Reports and the Annual Activity Reports of 2011 and 2012

Judgment criterion: Have all the members of the SJU provided their contribution to the SESAR development phase in a timely fashion?

Answer: The SJU members have provided their contribution to the development phase. In a few cases, payments have been delayed.

Timing of contributions (cash or/and in kind)

The 2010 Opinion of the CoA pointed out the 2010 deadline for payment to the SJU of cash contributions for the year from members was not respected. Reported delays in payment ranged from 12 to 113 days, and two members were found not to have provided their contribution by the end of 2010. In its formal reply to the CoA the SJU clarified that the reason for the delay was due to internal issues in the consortium through which the members are participating. In addition, the amount not paid was EUR 18 000, a small amount compared with the budgeted EUR 55.6 million for 2010 (3.6 million of which from SJU members other than the founding members). The outstanding amount was received at the beginning of 2011. While in strict terms a delay was reported, given the origin of the issue and the amount involved, we consider this to be of minor issue, similar to occurrences that may happen under normal business situation.

Similarly, the 2011 deadline for payment of the cash contributions was not respected. As of end of August, 17 outstanding recovery orders remained amounting to EUR 3.7 million compared with EUR 4.5 million budgeted to be provided by members other than the founding ones for 2011 (out of a total EUR 33.9 million). One member had not paid the annual contribution at all by the end of 2011. The SJU clarified in its formal reply that the final pending contribution was cashed in February 2012. In the 2011 Final Annual Accounts the SJU further clarified “*that in the specific case the expenditure was against payment credits still available from the previous year in accordance with the Financial Rules*”¹¹⁸. In interviews the SJU staff explained that “*the late payments were a matter of balancing the accounts for work provided. The members were late in providing the work sheets so that accounts could balance*”. Therefore the delayed contribution remained as an issue in 2011, with an important amount (11% of the total budgeted revenue for the year). However, this issue is a reporting one in nature and not an operational one¹¹⁹. The SJU in its formal reply to the CoA expressed its intention to work with the members in ensuring the contractual deadlines of payment of members’ contributions.

The situation was resolved in 2012, when member’s contribution is no longer an issue as no late contributions were reported (and also no mention in the relevant CoA report). The review of the of the Administrative Board MoM in 2010, 2011 and 2012 shows that the Board members were kept informed regarding the timing of contributions issue and the importance of respecting reporting requirements was

¹¹⁸ This is because the SJU accrued for the costs and contributions performed by members in one year and they are recognised as revenue in the following year.

¹¹⁹ It is also worth considering that in 2011, the SJU revised its 2011 Budget and among other issues, reduced the payment requests from the Commission from EUR 96.5 million to EUR 18 million due to the lower amount of payment requests received by members. This indicates therefore that the delayed contributions were not critical for the operation of the SJU.

highlighted. In all, while this issue was of minor importance, it demonstrated the SJU's willingness and capacity in adapting and performing in line with requirements.

7.2 Summary and conclusions

The review of the available documentation and the CoA positive statements on the reliability and legality of SJU's financial statements led to the conclusion that the SJU complies with the principles of sound financial management.

The SJU has developed a two-tier internal audit capacity consisting of the IAS of the Commission and the IAC of the SJU, providing auditing and consulting services. The functioning of both levels has been verified through documentation as well as by the CoA.

The Risk Management System was introduced by the Internal Control Framework and Risk Management Policy of the SJU¹²⁰ and is aligned to the requirements of the European Commission as specified in the Commission's Communication. The overall Risk Management process allows the SJU's management to assess the level of risk pertaining to the achievement of the SJU's objectives.

All the members of the SJU are providing their contribution to the SESAR. In a few cases, the payments have been delayed, but this a reporting and not operational issue, which has not disrupted operations. The issue was resolved by 2012.

¹²⁰ Decision SJU/ED/64

8 Conclusions

The purpose of this project was to undertake an evaluation study on the functioning of the SESAR Joint Undertaking (SJU) from January 2010 to December 2012. Art. 7 of the SJU Regulation stipulates that the Commission shall, every three years,

“...carry out evaluations on the implementation of this Regulation, the results obtained by the Joint Undertaking and its working methods, as well as on the general financial situation of the Joint Undertaking.”

The findings of the evaluation are presented below for each of the four evaluation objects.

I. The implementation of the Regulation

The assessment of the **implementation of the SJU Regulation** analyses whether the SJU set-up follows the requirements of the SJU Regulation.

Based on the information examined, the activities of the SJU during the reference period were found to be in line with the SJU Regulation and to be focused on the tasks set. Overall, it was found that, to some degree, the SJU Regulation is flexible allowing the SJU to adapt to changes in the R&D and ATM environments.

II. The SJU's working methods

The assessment of the SJU **working methods** explores working practices, procedures, governance and stakeholder involvement.

During the reference period, the SJU **organisation** solved the tasks entrusted to it and operated according to EU rules and provisions. The SJU Work Programme was aligned with the European ATM Master Plan (2009) and the seven mid-term objectives during the reference period 2010-2012.

The SJU fulfilled the objectives and adapted to the demands of the SESAR programme by updating regularly the **staffing and organisational** structure to enable it to respond to current and planned tasks thereby ensuring the adequate functioning of the SJU and continuity of its operations. The SJU has a flat

structure, and SJU staff and SJU members perceive that the SJU has a clear definition of tasks and responsibilities.

The SJU demonstrated its effectiveness through being able to manage 336 research projects with minimum administration. The **procedures and processes** established by the SJU enhanced work effectiveness. The SJU underwent regular audits, and evaluations, and lessons learnt/recommendations were used to improve the organisation. The SJU also demonstrated its focus on improvement by implementing the 2010 mid-term evaluation recommendations.

The governance structure and the communication plan ensured the adequate **coordination and information** flow with SJU Members, which was also reflected by the stakeholders directly involved in the SJU (the Commission, Eurocontrol and private SJU members). The current communication practices of the SJU were considered to follow a rather technical approach. EU Member States have information needs that go beyond the specialised information currently provided by the SJU. In this respect, it is **recommended** that the SJU and DG MOVE attend to the specific information needs of the EU Member States and consider how to address this identified information gap.

The SJU is in line with the procedures and **objectives of FP7 and TEN-T** and the respective rules are applied. It should be noted that the SJU operates a more strict interpretation of the rules, in particular concerning project monitoring, which is carried out continuously and not only periodically.

The **funds received** by SJU from TEN-T and FP7 were allocated adequately in line with the SJU Regulation and the FP7 and TEN-T requirements, which has also been confirmed by CoA

III. Results obtained by the SJU

The evaluation of **results obtained** by the SJU assesses the extent to which intended outputs, results and impacts have been achieved.

The SJU has achieved most of the **mid-term objectives** under the framework of the SESAR programme. The delivery of Annual Work Programmes improved during the reference period. The SJU took appropriate measures to improve the annual completion rate, and it is **recommended** that the SJU continue its efforts to improve the rate of completion of its stated goals.

The SJU effectively supported the definition of requirements for the deployment phase and the SES objectives with the production of the revised **European ATM Master Plan**. The initial steps were taken to establish the framework for further integration of NextGen and SESAR.

Consistent with its establishment mandate, the SJU adds value in avoiding duplication and lack of coordination in the ATM R&D that preceded it. Thus, the current set-up reduces R&D fragmentation and stimulates competition between suppliers. The main **added value** of the SJU will only be realised with the full implementation of the SESAR projects.

The interviews or the survey conducted as part of the evaluation did not identify any **unintended impacts** of the operations of the SJU.

IV. The general financial situation of the SJU

The aim of assessing the **financial situation** of the SJU is to analyse the soundness of financial management in SJU and the timeliness and adequateness of financial contributions made to the SJU.

The review of the available documentation and the CoA positive statements on the reliability and legality of SJU's financial statements led to the conclusion that the SJU complies with the principles of **sound financial management**.

V. Overall conclusion

This second mid-term evaluation concludes that, overall, the SJU undertook the tasks assigned to it during the evaluation period (2010-2012) effectively, thus contributing to the SESAR Programme. It is assessed that the SJU is operating according to the rules and procedures governing it. The SJU has proved to be a structure that can adapt to specific needs.

Appendix A List of interviewees

Group	Institution/ company	Name	Capacity	Type of contact	Date
EC	DG MOVE	Mr Maurizio Castelletti	HoU, E2 - Single European Sky	Interview	19/2/2014
EC	DG MOVE	Mr Marco De Sciscio	Policy Officer - SESAR	Interview	11/2/2014
EC	DG IAS	Mr Friedrich Braeuer	HoU A3 - Internal Audit in EU Agencies and Bodies	Interview	27/3/2014
SJU	EASA	Mr Patrick Ky	SJU Executive Director in the review period (2010-2012)	Interview	30/4/2014
SJU	SJU	Mr Claude Chêne	Executive Director during evaluation period	Interview	25/3/2014
SJU	SJU	Mr Carlo Borghini	Deputy Executive Director Administration and Finance	Interview	19/2/2014
SJU	SJU	Mr Florian Guillermet	Deputy Executive Director Operations and Programme	Interview	31/1/2014
SJU	SJU	Mr Peter Hotham	Deputy Director Operations & Programme	Interview	27/1/2014
SJU	SJU	Mr José Antonio Calvo Fresno	Chief Regulatory Affairs	Interview	24/1/2014
SJU	SJU	Mr Benoît Fonck	Head of Development and Delivery	Interview	29/1/2014
SJU	SJU	Mr Denis Koehl	Senior Advisor for Military Affairs	Interview	23/1/2014
SJU	SJU	Mr Alain Siebert	Chief Economics and Environment	Interview	5/2/2014
SJU	SJU	Mr Michael Standar	Chief Strategies and International Relations	Interview	30/1/2014
SJU Member	DG MOVE	Mr Matthew Baldwin	Alternate Chairman of Administrative Board	Interview	31/3/2014
SJU Member	Eurocontrol	Mr Bernard Miallier	Alternate Deputy Chairman of Administrative Board	Interview	2/4/2014
SJU Member	AENEA	Ms Mariluz de Mateo	Alternate Administrative Board Member	Survey	21/2/2014
SJU Member	AIRBUS	Mr Pierre Bachelier	Alternate Administrative Board Member	Survey	24/2/2014

Group	Institution/ company	Name	Capacity	Type of contact	Date
SJU Member	DFS	Mr Ralf Bertsch	Alternate Administrative Board Member	Survey	28/2/2014
SJU Member	ENAV	Mr Cristiano Baldoni	Alternate Administrative Board Member	Survey	24/2/2014
SJU Member	NATS	Mr Simon Hocquard	Alternate Administrative Board Member	Survey	21/2/2014
SJU Member	SELEX S.I.	Mr Stefano Porfiri	Alternate Administrative Board Member	Survey	21/2/2014
EU MS	Permanent Representation of the Czech Republic to the European Union	Ms Petra Holubičková	On behalf of the administration	Survey	11/2/2014
EU MS	Danish Transport Authority representing views also from service provider and airspace user.	Mr Allan Hansen Ekstrand	Senior Advisor	Survey	7/2/2014
EU MS	Dutch Ministry of Transport and Defence	Ms Dominique van Ginkel	Policy officer	Survey	4/3/2014
EU MS	Finnish Transport Safety Agency	Mr Jani Luiro	Adviser	Survey	7/2/2014
EU MS	Federal Ministry of Transport and Digital Infrastructure - Germany	Mr. Dirk Nitschke	Head of Air Navigation Services Division	Survey and follow-up interview	6/2/2014
EU MS	Instituto Nacional De Aviação Civil, I.P. - Portugal	Mr Paulo de Andrade	Member of the Board.	Survey	10/2/2014
EU MS	Dirección General de Aviación Civil – Spanish Civil Aviation	Mr Luis Castillo Bernat	On behalf of the administration	Survey and follow-up interview	12/2/2014
Stakeholders	ACI	Mr Andreas Eichinger	Alternate Stakeholder Representative in the Administrative Board	Survey	11/3/2014
Stakeholders	FAA	Ms Maria DiPasquantonio	Stakeholder	Interview	20/2/2014

Appendix B Documents reviewed

Council Regulation (EC) No 219/2007 of 27 February 2007 on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR) - SJU Regulation

Council Regulation (EC) No 1361/2008 of 16 December 2008 , amending Regulation 219/2007 (SJU Regulation) on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR)

Consolidated version of Council Regulation (EC) No 219/2007, 2007R0219-EN-01.01.2009-001.001-1

Council Decision of 19 December 2006 concerning the Specific Programme Cooperation implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013) (2006/971/EC)

Council Decision of 30 March 2009 endorsing the European Air Traffic Management Master Plan of the Single European Sky ATM Research (SESAR) project (2009/320/EC)

European Parliament decision of 10 May 2012 on discharge in respect of the implementation of the budget of the SESAR Joint Undertaking for the financial year 2010 (C7-0297/2011 – 2011/2238(DEC))

European Parliament decision of 17 April 2013 on discharge in respect of the implementation of the budget of the SESAR Joint Undertaking for the financial year 2011 (C7-0278/2012 – 2012/2216(DEC))

European Parliament decision of 3 April 2014 on discharge in respect of the implementation of the budget of the SESAR Joint Undertaking for the financial year 2012 (C7-0336/2013 – 2013/2248(DEC))

Commission Communication COM (2008) 750 final of 14 November 2008, The Air Traffic Management Master Plan (The European ATM Master Plan)

Commission Communication COM (2011) 14 final of the 24 January 2011 on the intermediate evaluation of the SESAR Joint Undertaking and its progress on the execution of the European Air Traffic Management System Master Plan

Commission Communication COM (2013) 503 final of the 10 July 2013 amending regulation (EC) No 219/2007 on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR) as regards the extension of the Joint Undertaking until 2024

Commission Report (2009/C 310/02) on the annual accounts of the SESAR Joint Undertaking for the financial year ended 31 December 2008, together with the replies of the Joint Undertaking

Commission Staff Working Document SWD (2013) 262 final of 10 July 2013 revising the Council Regulation (EC) No 219/2007 of 27 February 2007 on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR)

Commission Staff Working Paper SEC (2010) 1580 final of 10 December 2010 on preparing a deployment strategy for the Single European Sky technological pillar

European Commission - Rules of Procedure of the Group of Experts on SESAR Interim Deployment Steering (adopted on 29/02/2012)

European Commission - Revision of the SES Regulations – SES2+: Impact Assessment Study, 28 June 2013

European Commission - Directorate General for Transport and Mobility, Mid-term Evaluation of the SESAR Joint Undertaking (TREN/A2/143-2007), Final report, July 2010

European Commission - Directorate General for Transport and Mobility, Annual Financial Implementation Agreement between the EC and the SJU (2012).

European Commission - DG MOVE, Establishing Guidance material on Common Projects for SESAR deployment, DG MOVE Seminar – Brussels, 12.07.2012

European Commission - DG MOVE, Establishment of governance and incentive mechanisms for the deployment of SESAR, the Single European Sky's technological pillar, 2 September 2011,

European Commission., Guidance material on Common Projects for SESAR deployment, Draft Discussion paper, V6.03.05.2012,

European Commission, Report on the SES legislation implementation, 2011

European Commission - IAS (2012) Final Audit Report on Programme and Project Management within Single European Sky Air Traffic Management Research Joint Undertaking (SESAR);

European Commission - IAS (2013) Final Report on the results of the IT Risk Assessment in the Single European Sky Air Traffic Management Research Joint Undertaking (SESAR)

European Commission - IAS (2013) Final Limited Review Report on Grant Management – Closing of projects in SJU;

European Court of Auditors (CoA) Report on the annual accounts of the SESAR Joint Undertaking for the financial year of 2010 together with Joint Undertaking's replies

European Court of Auditors (CoA) Report on the annual accounts of the SESAR Joint Undertaking for the financial year of 2011 together with Joint Undertaking's

replies

European Court of Auditors (CoA) Report on the annual accounts of the SESAR Joint Undertaking for the financial year of 2012 together with Joint Undertaking's replies

European Single Sky Implementation, ESSIP Plan, Edition 2012

Ernst & Young, SESAR Joint Undertaking – SJU's extension – Impact assessment study, 2012

General agreement between the European Commission and the SESAR Joint Undertaking on the financial contribution of the European Union in the SESAR Joint undertaking, 2009

Letter from SJU to DG MOVE of 10 May 2012 requesting commitments and contributions

Letter from the European Commission to the members of the Administrative Board of the SESAR Joint Undertaking of 3 December 2013 pm the 2nd evaluation of the SESAR Joint Undertaking

Letter from the Members of the Task Force for Supporting the Commission in Defining a Deployment Strategy for the SES Technological Pillar on SESAR of June 2011 to the European Commission

Letter from SJU to Eurocontrol and EASA of 28 October 2010 on the cooperation between the three parties

Letter from Eurocontrol to SJU of 26 November 2010 on SJU, EASA and Eurocontrol cooperation on SESAR activities

Memorandum of Cooperation between SJU and EUROCAE, 2012

SJU, Agreement Art 9.2 of Regulation 219/2007 between the SESAR Joint Undertaking and Eurocontrol, 2008

SJU Administrative Board Decision ADB(D) 04-2009 of 26 March 2009 regarding the approval of the accession of 15 new members to the SESAR Joint Undertaking

SJU Administrative Board Decision ADB(D) 25-2009 of 9 October 2009 regarding the general implementing provisions on the procedure governing the engagement and the use of Temporary agents at the SESAR Joint Undertaking

SJU Administrative Board Decision ADB(D) 26-2009 of 9 October 2009 regarding the general implementing provisions on the procedure governing the middle management staff at the SESAR Joint Undertaking

SJU Administrative Board Decision ADB(D) 27-2009 of 9 October 2009 regarding the general implementing provisions on the procedure governing the engagement

and the use of contract staff at the SESAR Joint Undertaking

SJU Administrative Board Decision ADB(D) 01-2010 of 18 January 2010 regarding the Annual Work Programme 2010 and 2010-2012 main targets

SJU Administrative Board Decision ADB(D) 02-2010 of 18 January 2010 regarding the “Associate Partners of the SJU” and “Associate Partners of an SJU Member”

SJU Administrative Board Decision ADB(D) 07-2010 of 12 July 2010 on allocation of voting rights to Board Members

SJU Administrative Board Decision ADB(D) 08-2010 of 12 July 2010 on the Report of the Executive Director on the acceptance of proposed Associates Partners within the scope of the invitation to the SJU Members to submit a proposal for the “Associate Partners of the SJU Members”

SJU Administrative Board Decision ADB(D) 09-2010 of 12 July 2010 regarding amendments to the Multilateral Framework Agreement

SJU Administrative Board Decision ADB(D) 11-2010 of 19 October 2010 on the Modification of the SJU internal Audit arrangements

SJU Administrative Board Decision ADB(D) 12-2010 of 19 October 2010 concerning the appraisal of the Executive director of the SESAR Joint Undertaking

SJU Administrative Board Decision ADB(D) 13-2010 of 19 October 2010 regarding SJU internal control standards for effective operation

SJU Administrative Board Decision ADB(D) 15-2010 of 31 December 2010 regarding the adoption of the SJU’s Ex-Post Project Audit Strategy

SJU Administrative Board Decision ADB(D) 16-2010 of 31 December 2010 concerning the amendment of the SESAR Joint Undertaking Financial Rules

SJU Administrative Board Decision ADB(D) 17-2010 of 31 December 2010 regarding the Mission charter of the internal auditor of the SJU

SJU Administrative Board Decision ADB(D) 02-2011 of 29 March 2011 on the allocation of voting rights to Board members

SJU Administrative Board Decision ADB(D) 04-2011 of 1st July 2011 on the Report of the Executive Director on the selection of Associate Partners to the SJU

SJU Administrative Board Decision ADB(D) 05-2011 of 1st July 2011 on the setting-up of a Staff Committee

SJU Administrative Board Decision ADB(D) 06-2011 of 17 November 2011 on the adoption of the Coordinated IAS Strategic Audit Plan 2012-2014

SJU Administrative Board Decision ADB(D) 07-2011 of 15 December 2011 regarding the Annual Work Programme 2012

SJU Administrative Board Decision ADB(D) 10-2011 of 15 December 2011 regarding the third amendment to the Multilateral Framework Agreement

SJU Administrative Board Decision ADB(D) 11-2011 of 15 December 2011 on the adoption of implementing rules to the staff regulations

SJU Administrative Board Decision ADB(D) 12-2011 of 15 December 2011 regarding Transparency and public access to SJU documents

SJU Administrative Board Decision ADB(D) 01-2012 of 29 March 2012 on the allocation of voting rights to Board members

SJU Administrative Board Decision ADB(D) 04-2012 of 29 March 2012 on the general provisions for implementing Article 43 of the Staff Regulations and Articles 15 and 87 of the Conditions of Employment of Other Servants of the European Community.

SJU Administrative Board Decision ADB(D) 05-2012 of 1st May 2012 adopting the mandate to the SJU to carry out an assessment on the extension of the operations of the SJU

SJU Administrative Board Decision ADB(D) 06-2012 of 3rd July 2012 regarding the SESAR Joint Undertaking Multi-annual Staff Policy Plan 2013-2015

SJU Administrative Board Decision ADB(D) 07-2012 of 3rd July 2012 regarding the amendment of the Administrative Board's rules of procedure

SJU Administrative Board Decision ADB(D) 07-2012 of 3rd July 2012 regarding the Code of Conduct of the SJU Administrative Board Members

SJU Administrative Board Decision ADB(D) 10-2012 of 17 September 2012 regarding the proposal to the European Commission on the extension of the SESAR Joint Undertaking

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SJU Administrative Board minutes of Meeting ADB(M)015, 19 October 2010

SJU Administrative Board minutes of Meeting ADB(M)016, 14 December 2010

SJU Administrative Board minutes of Meeting ADB(M)017, 29 March 2011

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SJU Administrative Board minutes of Meeting ADB(M)019, 17 November 2011

SJU Administrative Board minutes of Meeting ADB(M)020, 15 December 2011

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SJU Administrative Board minutes of Meeting ADB(M)022, 3 July 2012

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SJU Administrative Board minutes of Meeting ADB(M)024, 19 December 2012

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SJU Current financial contribution of the members and voting rights

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SJU IAC Audit on missions expenditure, 2010

SJU IAC Audit on Business Management System of the SJU (prepared under contract by E&Y), 2010

SJU IAC Verification of the SJU Staff Committee Elections 2011

SJU IAC Validation of user access rights in ABAC, 2011

SJU IAC SWOT analysis of two options for deployment governance and control, 2011

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SJU IAC Final Audit Report on Internal Control Standards, 2012

SJU IAC Inspection report on call 12-1100893, 2012

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SJU IAC Inspection report on call SJULC0070-CFP, 2012

SJU IAC Final Audit Report on Procurement/ Contract Management, 2013

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Appendix C Interview questionnaires

The “full” interview questionnaire used to guide the interviews with SJU staff and Commission staff is presented below. The guide is semi structured, meaning that the focus of each interview was on the questions relevant for the person in question.

Interview guide - Target group: SJU/DG MOVE

Purpose of the questionnaire

The purpose of this questionnaire is to support the second mid-term evaluation of the SESAR Joint Undertaking over the period January 2010 to December 2012 as defined in the SJU Regulation. COWI has been tasked by DG MOVE to carry out this evaluation. The questionnaire is semi-structured, meaning that questions will be selectively adapted to the situation of each person interviewed. The evaluation questions are presented in bold (for ease of reference) with the specific questions for the responders following.

Implementation of the SESAR regulation

The following questions address the set-up of the SJU and if decisions taken have followed the requirements in the SJU Regulation.

Is the SJU operating according to its regulation and statutes?

- › Please explain (and provide supporting information or examples where appropriate) how SJU activities are in line with the provisions of Articles 1, 2, 2a, 2b, 2c, 2d, 4, 4a, 4b, and 5 of SJU Regulation? (1.1.1)
- › Please explain (and provide supporting information or examples where appropriate) how SJU activities are in line with the statutes of the joint undertaking (provisions of Annex 219/2007 (Statutes))? (1.2.1)
- › Does the SJU perform activities that are not included in SJU Regulation? (1.3)
- › Please explain the process developed to ensure compliance with the above requirements. (1.4)
 - › Please explain, in case there are any discrepancies, what their source is and how it could be rectified. (1.5)

The working methods of the SJU

Working methods refer to working practises and procedures, functioning of the Administrative Board, financial rules and involvement of and relations with SJU members and other stakeholders.

To what extent are the SESAR Joint Undertaking's internal organisation, procedures and activities in line with the tasks entrusted to it?

- › Does the SJU have the human resources needed to perform its tasks and what is the level of staff turnover? (2.1)
- › In your opinion, is the SJU structure clear (chain of command, the management systems and procedures)? (2.2)
 - › Are there appropriate IT management systems in place? (2.2.1)

- › Are the SJU and the annual work programmes focused on deployment?
(2.3)

To what extent are the SESAR Joint Undertaking's internal organisation, procedures and activities been conducive to its efficiency?

- › Does the SJU, in your opinion, have a cost effective structure? (3.1)
 - › Are resources used optimally (administrative and operational)? (3.2)
- › Does the SJU ensure that possible economies of scale are explored in project management? (3.4)
 - › Have procedures been streamlined and harmonised across projects?
(3.4.1)
 - › Is benchmarking and best practise procedures applied across projects?
(3.4.2)
 - › Have synergies been achieved (examples)? (3.4.3)
 - › Has the SJU actively implemented the recommendations from the previous evaluation? (3.3)

To what extent is the coordination between the SJU, its Members and its Founding Members working satisfactorily?

- › What type of coordination and information flow measures are in place between SJU, SJU Members and Founding Members? (4.1)
 - › Has a communication plan been developed? (4.2)
 - › How is the co-ordination rated by SJU staff? Are there areas of improvement? If yes, specify. (4.3)
- › Is there feedback on these measures collected from SJU Members and Founding Members? If yes, under which structure (organised or informal, periodical or incidental)? (4.4)
- › What is the feedback received by SJU Members and Founding Members regarding coordination? (4.5)

To what extent is the SJU implementing the requirements of the European Union's FP7 and TEN-T Programmes?

- › To what extent are SJU managed projects in line with the objectives of FP7 and the TEN-T? (5.1)
- › To what extent is the management of SJU projects in line with requirements of FP7 and the TEN-T? (5.2)
 - › To what extent are reporting mechanisms in line with FP7 requirements?
(5.3)
 - › What are the procedures of allocation? (5.5)

The results obtained by the SJU

The focus is if the SJU has proved to be an effective and efficient coordination mechanism for implementation of the European ATM Master Plan and programme objectives.

To what extent has the SJU achieved its objectives over the reference period?

- › In your view, did the SJU achieve its objectives over the period January 2010 to December 2012? (6.1)
 - › Are there areas where SJU did not achieve its objectives? (6.1.1)
 - › Why is it successful? (6.1.2)
- › How could the SJU performance be improved? (6.2)
- › Is SJU sufficiently prepared for the SESAR deployment phase? (6.3)

To what extent has the SJU as a private-public partnership led to an improved management of the ATM related research and validation activities?

- › To what extent does the SJU combine and rationalise public and private-sector efforts? (7.1)
- › What are the advantages and disadvantages of the SJU compared to other PPP approaches that you are aware of? (7.2)
- › To what extent could the management of SJU as a PPP be improved? (7.3)
- › What main programme management problems (in terms of timeliness, accuracy, communication etc.) is SJU facing? (7.4)

To what extent have the activities of the SJU contributed to the objectives of SES?

- › Is SESAR sufficiently integrated with/complementing the other pillars of SES? (8.1)
- › To what degree is SESAR contributing to the performance of SES objectives? (8.2)
- › Is the SJU performing in its role of providing support in the scope of the common projects? (8.3)

To what extent is SJU the most efficient solution for the management of the SESAR project's development phase?

- › Please indicate how the SJU has contributed to the industrial competitiveness, sustainable growth and socio economic issues? (9.1)
- › Has the SJU facilitated additional investments in ATM related research and innovation? (9.2)
- › Have economies of scale been achieved? (9.6)
- › Are alternative management options more cost effective? (9.7)

To what extent have the activities of the SJU resulted in unintended effects (both desirable and undesirable)?

- › Do you consider that the activities of SJU during this period had any additional results (ex. procedural, operational, in co-ordination) than those foreseen by the SJU Regulation? (10.1)

The general financial situation of the SJU

The questions focus on the financial management principles as well as the timeliness and adequateness of financial contributions made to the SJU.

To what extent the SJU complies with the principles of sound financial management?

- › Does the SJU have a set of accounting procedures and standards in place? (11.1)
- › Does the SJU have its internal audit capacity in place? (11.2)
- › Does the SJU have an adequate risk management plan in place? (11.3)
- › Did the members of the SJU contribute to the SESAR development phase timely (in kind contribution/cash)? (11.5)
 - › If there were any, delays what were the causes? (11.5.1)
 - › Has delay had consequences for the operation of SJU? (11.5.2)

Appendix D Survey questionnaire

The survey questionnaires circulated to member states and to SJU members are presented below.

Questionnaire: Member States

Introduction

Purpose of the questionnaire

The purpose of this questionnaire is to support the second mid-term evaluation of the SESAR Joint Undertaking over the period January 2010 to December 2012 as defined in the SJU Regulation. COWI has been tasked by DG MOVE to carry out this evaluation. In this respect and given your involvement with the workings of the SESAR Joint Undertaking we would appreciate if you could contribute your views, opinions and experiences.

Guide in completing the questionnaire

These questions are grouped in two thematic areas involving: the working methods of the SJU and the results obtained by the SJU. We would kindly ask you to as many of the following questions as relevant to you. Please consider that the framework of reference is the period January 2010 to December 2012.

We invite you to submit your answers electronically to:

- › Mr Martin R. Jensen, project leader, mrje@cowi.com, (+ 32 2 738 03 63)

Or,

- › Dr Konstantinos Rigas, transport expert, kori@cowi.com, (+ 32 2 738 03 66)

General Information

This first section includes relates to some general information about you.

Organisation: (0.1)
Name and position – <i>non obligatory</i> : (0.2)
Contact details – <i>should you wish to be contacted in case of follow-up questions</i> : (0.3)

The working methods of the S.IU

Working methods refer to working practises and procedures, functioning of the Administrative Board, financial rules and involvement of and relations with SJU members and other stakeholders).

Internal organisation and procedures

According to your experience are the responsibilities and tasks of the SJU clearly defined? (2.4)

Requirement implementation

To what extent, according to your opinion, is the funding provided by SJU to the different projects allocated according to FP7 and TEN-T requirements? (5.4)

To what extent are SJU managed projects in line with the objectives of FP7 and the TEN-T? (5.6)

The results obtained by the SJU

The focus is if the SJU has proved to be an effective and efficient coordination mechanism for implementation of the European ATM Master Plan and programme objectives.

Achievement of objectives

In your view, did the SJU achieve its objectives over the period January 2010 to December 2012? (6.1)

How could the SJU performance be improved? (6.2)

In your view, is SJU sufficiently prepared for the SESAR deployment phase? (6.3)

PPP performance

In your view, to what extent did the SJU combine and rationalise public and private-sector efforts in the period 2010 - 2012? (7.1)

What are the advantages and disadvantages of the SJU compared to other PPP approaches that you are aware of? (7.2)

To what extent could the management of SJU as a PPP be improved? (7.3)

What main programme management problems (in terms of timeliness, accuracy, communication etc.) is SJU facing? (7.4)

To what extent are you satisfied with the work of SJU? (7.5)

Contribution to SES objectives

IN your view, is SESAR sufficiently integrated with/complementing the other pillars of SES? (8.1)
To what degree is SESAR contributing to the performance of SES objectives? (8.2)
Is the SJU performing in its role of providing support in the scope of the common projects? (8.3)

Management of Development Phase

Please indicate, based on your experience, how the SJU has contributed to the industrial competitiveness, sustainable growth and socio economic issues? (9.1)
Do you consider that the SJU has facilitated additional investments in ATM related research and innovation? (9.2)
In your opinion, what should the vision of SJU be? (9.3)
Do you consider that SJU stakeholders have clearly defined roles in their relationship to SJU? (9.4)
Could the SJU operate in a different organisational format? (9.5)

Additional results

Do you consider that the activities of SJU during this period had any additional results (ex. procedural, operational, in co-ordination) than those foreseen by the SJU Regulation? (10.1)
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Other comments

Please provide here any other comments you might have regarding the SESAR Joint Undertaking. (11.1)

Thank you for your participation

Questionnaire – SJU Board Members

Introduction

Purpose of the questionnaire

The purpose of this questionnaire is to support the second mid-term evaluation of the SESAR Joint Undertaking over the period January 2010 to December 2012 as defined in the SJU regulation. COWI has been tasked by DG MOVE to carry out this evaluation. In this respect and given your involvement with the workings of the SESAR Joint Undertaking we would appreciate if you could contribute your views, opinions and experiences.

Guide in completing the questionnaire

These questions are grouped in four thematic areas involving: the implementation of the SESAR Regulation; the working methods, the results obtained, as well as the general financial situation of the SJU. We would kindly ask you to as many of the following questions as relevant to you. Please consider that the framework of reference is the period January 2010 to December 2012.

We invite you to submit your answers electronically to:

- › Mr Martin R. Jensen, project leader, mrje@cowi.com, (+ 32 2 738 03 63)

Or,

- › Dr Konstantinos Rigas, transport expert, kori@cowi.com (+ 32 2 738 03 66)

General Information

This first section includes relates to some general information about you.

Organisation: (0.1)
Name and position – <i>non obligatory</i> : (0.2)
Contact details – <i>should you wish to be contacted in case of follow-up questions</i> : (0.3)

Implementation of the SESAR regulation

The following questions address the set-up of the SJU and if decisions taken have followed the requirements in the SJU Regulation.

In your view, to what extent is the SJU operating according to the provisions of the SJU Regulation? (1.1)
In your view, to what extent is the SJU operating according to the Annex of this Regulation (Statutes)? (1.2)

The working methods of the SJU

Working methods refer to working practises and procedures, functioning of the Administrative Board, financial rules and involvement of and relations with SJU members and other stakeholders).

Internal organisation and procedures

In your opinion, is the SJU structure clear? (chain of command, the management systems and procedures) (2.2)
In your opinion, is this structure cost effective? (3.1)

This is the second mid-term evaluation of the SJU. DO you consider that the SJU has actively implemented the recommendations from the previous evaluation? (3.3)

Coordination and communication

Do you consider co-ordination and information flow provided by the SJU as satisfactory? (4.6)

Requirement implementation

To what extent, according to your opinion, is the funding provided by SJU to the different projects allocated according to FP7 and TEN-T requirements? (5.4)

To what extent are SJU managed projects in line with the objectives of FP7 and the TEN-T? (5.6)

The results obtained by the SJU

The focus is if the SJU has proved to be an effective and efficient coordination mechanism for implementation of the European ATM Master Plan and programme objectives.

Achievement of objectives

In your view, did the SJU achieve its objectives over the period January 2010 to December 2012? (6.1)

How could the SJU performance be improved? (6.2)

In your view, is SJU sufficiently prepared for the SESAR deployment phase? (6.3)

To which degree does the memorandum of Understanding ensure interoperability between SESAR and NextGen? (6.4)

PPP performance

In your view, to what extent did the SJU combine and rationalise public and private-sector efforts in the period 2010 - 2012? (7.1)

What are the advantages and disadvantages of the SJU compared to other PPP approaches that you are aware of? (7.2)

To what extent could the management of SJU as a PPP be improved? (7.3)

What main programme management problems (in terms of timeliness, accuracy, communication etc.) is SJU facing? (7.4)

Contribution to SES objectives

In your view, is SESAR sufficiently integrated with/complementing the other pillars of SES? (8.1)
To what degree is SESAR contributing to the performance of SES objectives? (8.2)
Is the SJU performing in its role of providing support in the scope of the common projects? (8.3)

Management of Development Phase

Please indicate, based on your experience, how the SJU has contributed to the industrial competitiveness, sustainable growth and socio economic issues? (9.1)
Do you consider that the SJU has facilitated additional investments in ATM related research and innovation? (9.2)
Could the SJU operate in a different organisational format? (9.5)

Additional results

Do you consider that the activities of SJU during this period had any additional results (ex. procedural, operational, in co-ordination) than those foreseen by the SJU Regulation? (10.1)
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The general financial situation of the SJU

The questions focus on the financial management principles as well as the timeliness and adequateness of financial contributions made to the SJU.

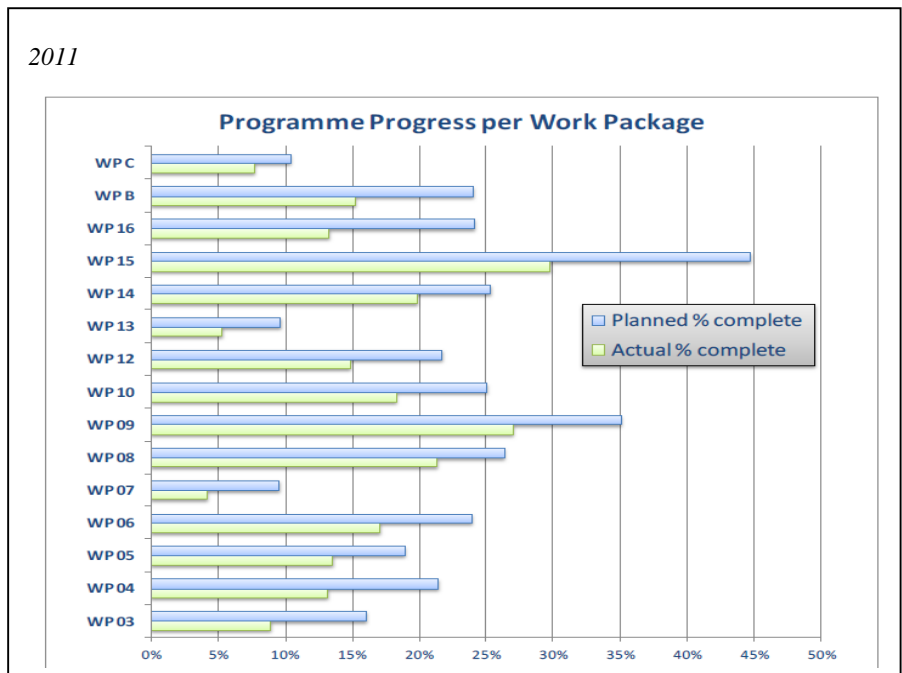
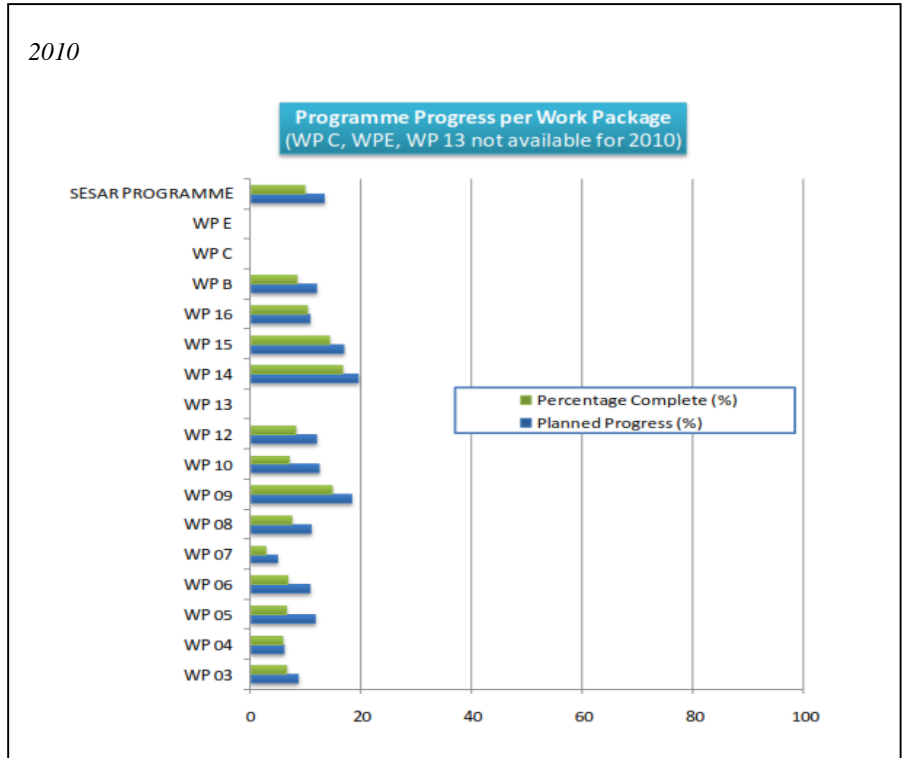
In your view, did the members of the SJU contribute to the SESAR development phase timely (in kind contribution/cash)? (11.5)

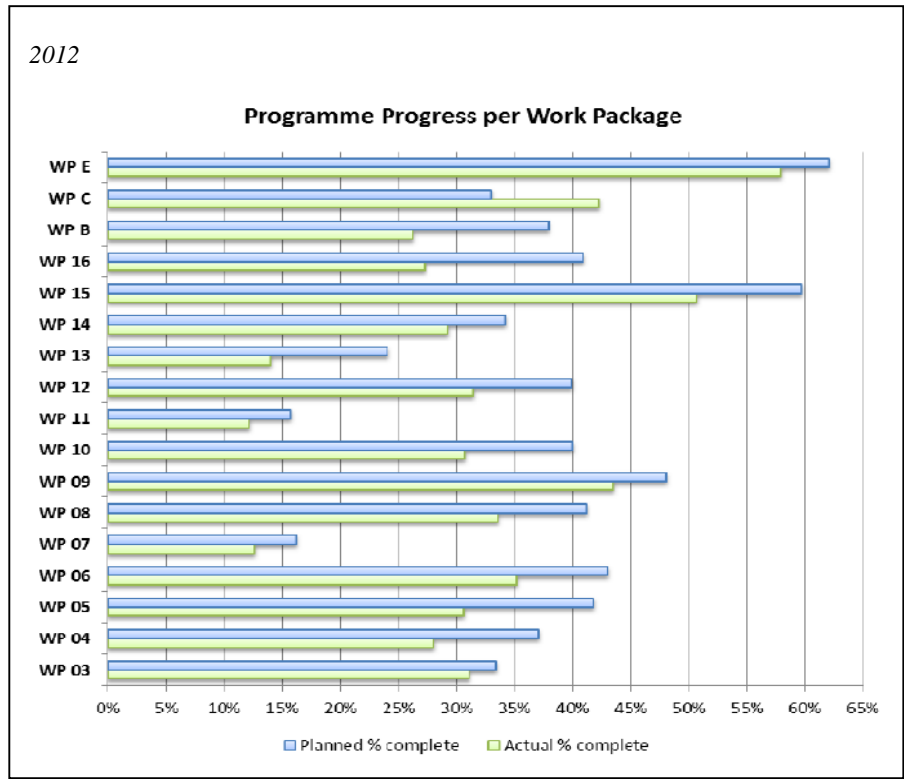
Other comments

Please provide here any other comments you might have regarding the SESAR Joint Undertaking. (11.1)

Thank you for your participation

Appendix E SJU Work Plan 2010-2012





Source: Annual Activity Reports 2010, 2011, 2012¹

Appendix F Overview of work packages

Table: Overview of work packages

Work package	Responsible	Contributors	Projects
Operational activities			
WP4 En-Route operations	DSNA	13	15
WP5 Terminal operations	NATS	7	15
WP6 Airport operations	AENA	16	22
WP7 Network operations	Eurocontrol	n/a	11
WPE SESAR long term innovative research	SJU (delegated to Eurocontrol Experimental Centre)	n/a	n/a
System development activities			
WP10 En route & approach ATC systems	INDRA / Thales	13	23
WP11.01 Flight & wing operations centres	AIRBUS	5	5.
WP11.02 Meteorological information services	Eurocontrol (EUMETNET EIG)	11	2
WP12 Airport systems	Indra / SELEX	13	29
WP13 Network information management system	Eurocontrol	n/a	6
WP15 Non-avionic CNS System	SELEX / Thales	15	15
WP9 Aircraft systems	Airbus	8	30
System Wide Information Management			
SWIM - Connecting the ATM world	NORACON / Thales / SELEX	n/a	n/a
WP14 SWIM technical architecture	Thales / SELEX	11	9
WP8 Information management	NORACON	12	18
Transverse activities			
WP16 R&D transversal areas	Eurocontrol	5	17
WP3 Validation infrastructure adaption and integration	ENAV	3	8
WPB Target concept and architecture management	DFS	5	5
WPC Master Plan maintenance	Eurocontrol	n/a	4 SWPs

Source: Based on information on SJU web site
(<http://www.sesarju.eu/programme/workpackages>)

Appendix G SJU members and Partners

Name	Type	Joined
European Union	Founding member	2008
Eurocontrol	Founding member	2008
AENEA	Member	2009
Airbus	Member	2009
Alenia Aermacchi	Member	2009
DFS	Member	2009
DSNA	Member	2009
ENAV	Member	2009
Frequentis	Member	2009
Honeywell	Member	2009
Indra	Member	2009
NATMIG	Member	2009
NATS	Member	2009
NORACON	Member	2009
SEAC	Member	2009
Selex ES	Member	2009
Thales	Member	2009
AVTECH	Associate Partner of an SJU member	2010
Belgocontrol	Associate Partner of an SJU member	2010
Boeing	Associate Partner of an SJU member	2010
NLR	Associate Partner of an SJU member	2010
NAV	Associate Partner of an SJU member	2010
NATS Services	Associate Partner of an SJU member	2010
ONDA	Associate Partner of an SJU member	2010
Lockheed Martin	Associate Partner of an SJU member	2010
Polish Air Navigation Services Agency	Associate Partner of an SJU member	2010
Aeroporti di Milano	Associate Partner of an SJU member	2010
Skyguide	Associate Partner of an SJU member	2010
Thalys Raytheon Systems	Associate Partner of an SJU member	2010
Thales Australia	Associate Partner of an SJU member	2010

Name	Type	Joined
ACSES Consortium	Associate Partner of the SJU	2011
AT-One	Associate Partner of the SJU	2011
ATM-Fusion	Associate Partner of the SJU	2011
INNOVATE Consortium	Associate Partner of the SJU	2011
MAGNITUDE Consortium	Associate Partner of the SJU	2011
MOSIA Consortium	Associate Partner of the SJU	2011
OPTPROMISE Consortium	Associate Partner of the SJU	2011
VERITAS Consortium	Associate Partner of the SJU	2011

Source: SJU Annual Reports 2010, 2011 and 2012, as well as ADB(D) 07-2009, ADB(D) 08-2010 and ADB(D)-04-2011.