



# Risk Management Report

15 December 2011

## 1 SJU Risk Management

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In accordance with the SJU Internal Control Standard for Effective Operations<sup>1</sup> as well as the Council of Ministers resolution requesting the SJU to report on risk management of the organization, the Executive Director established the SJU Risk Policy<sup>2</sup> which provides the legal basis for the SJU Annual Risk Management exercise and is aligned to the ERM<sup>3</sup> approach. The SJU's Risk policy covers the following aspects:

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

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

This Risk Management Report builds on this logic and covers the full spectrum of risks concerning which may affect the capacity of the SJU to achieve its objectives in execution of the SESAR Programme as the core aspect of the European ATM Master Plan implementation. The ATM Master Plan update which is currently ongoing provides the opportunity for a thorough review of the overall risk related to the evolution of the ATM environment.

SJU's risk management processes, methodology and definitions are described in Annex 1

## 2 The SJU Risk Profile

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

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

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<sup>1</sup> Adopted in its final version by the Administrative Board on 19 October 2010, replacing the SJU Internal Control Standard for Effective Operations adopted on a provisional basis by the Executive Director on 25 March 2010, SJU/ED/64.

<sup>2</sup> SJU/ED/64 of 25 March 2010

<sup>3</sup> Enterprise Risk Management, developed by Committee of Sponsoring Organizations of the Treadway Commission (COSO), USA

who is responsible for the evolution of the risk and for the coordination and monitoring of the mitigating actions.

The Risk Management Report (SJU-AB016-10-DOC-01-revised) approved by the ADB relating to the risk assessment at the end of 2010, provided the basis for the risk management activity implemented during 2011.

With regard to the situation at the end of 2010, no new or additional risks were of such a magnitude to be brought to the attention of the SJU management and the gross criticality of the risks identified in 2010 did not change. As result of these processes, the following risks, originally identified and maintained at the end of 2011, are assessed with their gross criticality:

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

Since then, as result of the mitigating measures identified and progressively implemented through risk specific action plans, which contribute to the substantial reduction of the SJU risk profile, the Net Criticality measured at the end of 2011 is the following:

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

The table below present the risks by category with the indication of the different level of criticality:

Ref.	Risk	Gross Criticality 06-2010	Net Criticality 12-2010	Net Criticality 10-2011
<b>Corporate Risks</b>				
SG2	The Cost Effectiveness objective is not reached	12	12	12
SG5	The R&D Programme does not deliver early results or not sufficiently	12	8	8
KG4	The Security objective is not reached	8	8	8
SG4	The Environmental Sustainability objective is not reached	6	6	6
SG1	The Capacity objective is not reached	9	9	6
SG3	The Safety objective is not reached	6	6	6
KG1	The Efficiency objective is not reached	6	6	6
KG2	The Flexibility objective is not reached	6	6	6
KG3	The Predictability objective is not reached	6	6	6
KG6	The Interoperability objective is not reached	6	6	6
KG5	The Access and Equity objective is not reached	3	3	3
<b>R&amp;D Programme Risks</b>				
P10	The System Engineering approach does not enable the Programme to ensure the overall coherence of the future ATM system	16	8	8

Ref.	Risk	Gross Criticality 06-2010	Net Criticality 12-2010	Net Criticality 10-2011
E2	The SWIM concept is not broadly adopted	12	9	8
P9	The definition and follow-up of the main milestones and business criteria do not enable to steer the Programme effectively	16	8	8
E3	The investment of the stakeholders, necessary to support the development activities, is not secured	8	8	6
P3	The R&D activities do not deliver	12	9	6
P2	Lack of buy-in and support from stakeholders during the Development phase	6	6	6
P4	The Programme does not adapt to external changes	6	6	6
P6	Inefficient or unrealistic resource management	6	6	6
P7	The delivery of the Programme shows performance / quality issues	6	6	6
P5	Planning issues causing delays	6	6	6
P1	The governance of the R&D Programme is not capable of steering the R&D Programme	6	6	4
E1	Regulatory arrangements and standards implementation are unable to support the Deployment phase	4	4	4
<b>Wide SESAR Scope Risks</b>				
C2	Delays in the implementation of short-term initiatives (IP1)	12	12	12
C1	Investment to support deployment is not secured	12	12	8
<b>Administrative Risks</b>				
AD1	Rejection or delay by the Members to accept amendments make the MFA a constraints to the efficient running of the Programme	8	4	4
AD2	ECA major observation on the SJU's accounts	8	4	4
AD3	Inefficient implementation of the financial circuits through ABAC/SAP due to system rigidity and lack of resources	8	4	4
AD4	Non respect of the value for money principle	8	4	4
AD5	Lack of motivation and increased staff turnover	8	4	4

The mathematical average of the Net Criticality is at 6.23 points decreasing by 7% comparing to the previous year, while the standard deviation is at 2.13, showing a high concentration around the mean, and a limited number of risks with very high or low criticality.

It should be noted that risks which are associated to reaching the 2020 SES political targets (capacity, safety, environment and cost efficiency) will be reassessed in the light of the outcome of the EU ATM Master Plan update which is expected to be approved in the second half of 2012.

During 2012, the SJU Management will continue to monitor and review on a quarterly basis the implementation of the measures and their effects on the treatment of the risks taking into account their cost-effectiveness.

### 3 The SJU Main Risks

The risks are grouped in four categories in consideration of their nature; in order to ensure a coherent approach and clear ownership of the treatment of the 30 main risks which were escalated at SJU Management level, a risk owner has been assigned to each of them. In the following sections details are given for those risks with a net critically above the threshold of 6. However a description of all the risks and related mitigations actions can be found in the SESAR Risk Register available to the Members in the SJU Extranet.

#### 3.1 Corporate Risks

These risks relate to the achievement of the four Programme Strategic Objectives and early delivery (SG), as well as to the Key Performance Areas (KPA) defined in the ATM Master Plan (KG);

Ref.	Risk	Gross Criticality (June 2010)	Net Criticality (End 2010)	Net Criticality (October 2011)
<b>CORPORATE RISKS</b>				
SG2	The Cost Effectiveness objective is not reached	12	12	12
SG5	The R&D Programme does not deliver early results or not sufficiently	12	8	8
KG4	The Security objective is not reached	8	8	8
SG4	The Environmental Sustainability objective is not reached	6	6	6
SG1	The Capacity objective is not reached	9	9	6
SG3	The Safety objective is not reached	6	6	6
KG1	The Efficiency objective is not reached	6	6	6
KG2	The Flexibility objective is not reached	6	6	6
KG3	The Predictability objective is not reached	6	6	6
KG6	The Interoperability objective is not reached	6	6	6
KG5	The Access and Equity objective is not reached	3	3	3

Albeit mitigating actions had been identified since last review, progress made is not such to justify many changes in the criticality assessment; only risk SG1 “The capacity objective is not reached” has been reduced by one notch the impact severity and its criticality.

Based on Eurocontrol’s latest traffic forecasts (Eurocontrol Long-Term Forecast, Flight Movements 2010-2030, Dec-10), it is stated that airport congestion is now lower than in the forecast two years ago. The recent drop in traffic has given the system some extra years to react and adapt. The decline in traffic in 2008-09 has eased the pressure on airport capacity and with only gradual recovery of growth and return to previously

observed flight-counts, airport congestion should not be a major concern for the next few years.

As Corporate risks pertain to the achievement of the Programme objectives, their assessment, fine tuning and implementation of the mitigating actions will be more accurate and effective as the Programme execution progress. The management of these risks is extremely complex as the achievement of the objectives relies on the successful execution and interrelation of the Projects within the Programme; the SJU has a full picture of the Programme evolution and thus is in the condition to identify the emerging of a risk and assess its criticality, but the action plan should necessarily be based on activities performed by the Members in the execution of the Projects they are participating.

The tables describing the three risks with the highest criticality (8 to 16) are here below

Risk ID	SG2	The Cost Effectiveness objective is not reached				Owner	Executive Director, supported by an Advisor	
Objective(s) affected by the risk	The 2004 baseline was €7,000M for 8.7 million flights (€800/flight). In 2020, this total annual cost should stay below €6,400M for 16 million flights (€400/flight, a reduction of 50% per flight). Baseline and 2020 target are expressed in 2005 Euros.							
Consequence / Impact	<ul style="list-style-type: none"> <li>• Compromise on Cost Effectiveness performance objective may ultimately be required</li> <li>• Potential delay of the deployment or need to revise the Cost Effectiveness objective</li> <li>• The nature (speed and extension) of the deployment will be dependent on the degree to which the Cost Effectiveness objective has been reached</li> </ul>							
Gross criticality	12-Very High	Likelihood	3-High	Severity	4-Very High	Risk status	Accepted	
Target net criticality	4-Medium	Likelihood	1-Low	Severity	4-Very High			
Net criticality (As per December 2010)	12-Very High	Likelihood	3-High	Severity	4-Very High			
Net criticality (As per October 2011)	12-Very High	Likelihood	3-High	Severity	4-Very High			
Mitigation actions	Action status			Due Date				

SG2-A1	<ul style="list-style-type: none"> <li>Put in place a Performance Framework</li> </ul>	In progress	30/06/2012
SG2-A2	<ul style="list-style-type: none"> <li>Monitor Projects contribution as a result of the validation exercises:                             <ol style="list-style-type: none"> <li>Identify the key projects contributing to the Cost Effectiveness objective and their level of contribution</li> <li>Ensure those projects better define their contribution in their Validation plan.</li> <li>Include objective achievement measurement in the Validation process</li> </ol> </li> </ul>	In progress	31/12/2011
SG2-A3	<ul style="list-style-type: none"> <li>Perform regular gap analysis and launch complementary activities that will enable to reach the Cost Effectiveness objective</li> </ul>	In progress	30/04/2013
SG2-A4	Define and implement an enhanced deployment planning and monitoring process that fully takes into account performance plans and support and has an established link with a performance scheme.	In progress	31/12/2011

Risk ID	SG5	The R&D Programme does not deliver early results or not sufficiently	Owner	Chief Prog. Officer
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Objective(s) affected by the risk	<p>A set of seven objectives had been approved by the SJU Administrative Board as 2012 objectives:</p> <ul style="list-style-type: none"> <li>Initial 4D trajectory is validated in an operational environment supported by satellite-based technology;</li> <li>10,000 flights, including 500 military, are SESAR labeled;</li> <li>80% of SESAR projects have tested their output in a real life environment;</li> <li>First SWIM pilots are in place to exchange data across at least five domains;</li> <li>The first remote tower is ready for operations;</li> <li>SESAR benefits are demonstrated on city pairs connecting eight European airports;</li> <li>Airspace users have signed up to the SESAR business case for time-based operations.</li> </ul> <p>The goal of this approach is to secure delivery of early benefits to the ATM community.</p>
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Consequence / Impact	<ul style="list-style-type: none"> <li>Potential loss of SJU credibility</li> <li>Negative impact on the Programme costs / benefits</li> <li>Potential delay of the deployment of certain parts of the Programme</li> <li>The magnitude and nature of the deployment will be dependent on the degree to which the R&amp;D programme delivers early or sufficient results</li> </ul>
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Gross criticality	12-Very High	Likelihood	3-High	Severity	4-Very High	Risk status	Accepted
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Target net criticality	2-Low	Likelihood	1-Low	Severity	2-Medium		
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Net criticality (As per Dec.2010)	8-High	Likelihood	2-Medium	Severity	4-Very High		
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Net criticality (As per October 2011)	8-High	Likelihood	2-Medium	Severity	4-Very High		
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Mitigation actions		Action status	Due Date
SG5-A1	Ensure a clearer and more concrete description of the objectives leading to a common understanding	closed	31/12/2011
SG5-A2	· Identify the key projects contributing to the 2012 objectives and their level of contribution	closed	31/12/2011
SG5-A3	· Consider the feasibility to define 2012 objectives indicators that could measure the achievement of this objective according to the progress of the Development phase	In progress	31/12/2011
SG5-A4	· Ensure a clearer and more concrete description of the objectives leading to a common understanding	closed (SG5 A1)	31/12/2011
SG5-A5	· Measure the possible achievement of the 2012 objectives through the Release 1 and Release 2 during the Release definition	In progress	31/12/2011
SG5-A6	Set up mechanisms to drive the Programme towards the achievement of early results	closed	

The AWP 2012 describes the activities the SJU will perform in 2012 showing solid plan to reach the 2012 mid-term objectives. Nevertheless for some of them, in particular SWIM, the plan is quite ambitious and some concerns remain on their full achievement within the set timeframe. For this reason the net criticality of this risk remains high.



Risk ID	KG4	The Security objective is not reached	Owner	SJU Military Advisor
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Objective(s) affected by the risk	<p>At European level, the Security objective is translated into the following performance target:</p> <ul style="list-style-type: none"> <li>• Improve ATM Self Protection: introduce improvements in managing the risk, the prevention, the occurrence and mitigation of unlawful interference with flight operations of civil aircraft and with ATM service provision (e.g. via attacks compromising the integrity of ATM data, services, facilities and staff). ATM Self Protection also includes the prevention of unauthorised access to and disclosure of ATM information;</li> <li>• Improve Collaborative Security Support: provide improved support to State institutions / agencies that deal with in-flight security incidents and to respond effectively to such incidents when they happen.</li> </ul>
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Consequence / Impact	<ul style="list-style-type: none"> <li>• Rework required resulting in delays in development and increased development costs</li> <li>• Compromise on Security performance objective</li> <li>• Delay of the deployment of the Programme</li> <li>• Reduction of the magnitude of the deployment</li> </ul>
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Gross criticality	8-High	Likelihood	2-Medium	Severity	4-Very High	Risk status	Accepted
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Target net criticality	4-Medium	Likelihood	1-Low	Severity	4-Very High		
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Net criticality (As per December 2010)	8-High	Likelihood	2-Medium	Severity	4-Very High		
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Net criticality (As per October 2011)	8-High	Likelihood	2-Medium	Severity	4-Very High		
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Mitigation actions		Action status	Due Date
KG4-A1	<ul style="list-style-type: none"> <li>• Put in place a Performance Framework (a first action plan should consist in the definition of Security indicators that could measure the achievement of this objective according to the progress of the development phase).</li> </ul>	In progress	30/06/2012

KG4-A2	<ul style="list-style-type: none"> <li>Monitor Projects contribution as a result of the validation exercises</li> <li>1/ Identify the key projects contributing to the Security objective and their level of contribution</li> <li>2/Ensure those projects better define their contribution in their Validation plan.</li> <li>3/Include objective achievement measurement in the Validation process</li> </ul>	In progress	31/12/2011
KG4-A3	<ul style="list-style-type: none"> <li>Perform regular gap analysis and launch complementary activities that will enable to reach the Security objective</li> </ul>	Open	31/12/2012
KG4-A4	Define and implement an enhanced deployment planning and monitoring process that fully takes into account performance plans and support and has an established link with a performance scheme.	Open	31/12/2011

### 3.2 SESAR Programme R&D Risks

These are risks related to Enablers (E) required for the Programme implementation (SWIM, Institutional evolution [legislation/regulation/standardisation], safety, security, environment, HR performance); and to the operational management of the Programme by the SJU (P).

Ref.	Risk	Gross Criticality (June 2010)	Net Criticality (End 2010)	Net Criticality (October 2011)
<b>R&amp;D PROGRAMME RISKS</b>				
P10	The System Engineering approach does not enable the Programme to ensure the overall coherence of the future ATM system	16	8	8
E2	The SWIM concept is not broadly adopted	12	9	8
P9	The definition and follow-up of the main milestones and business criteria do not enable to steer the Programme effectively	16	8	8
E3	The investment of the stakeholders, necessary to support the development activities, is not secured	8	8	6
P3	The R&D activities do not deliver	12	9	6
P2	Lack of buy-in and support from stakeholders during the Development phase	6	6	6
P4	The Programme does not adapt to external changes	6	6	6
P6	Inefficient or unrealistic resource management	6	6	6
P7	The delivery of the Programme shows performance / quality issues	6	6	6

Ref.	Risk	Gross Criticality (June 2010)	Net Criticality (End 2010)	Net Criticality (October 2011)
P5	Planning issues causing delays	6	6	6
P1	The governance of the R&D Programme is not capable of steering the R&D Programme	6	6	4
E1	Regulatory arrangements and standards implementation are unable to support the Deployment phase	4	4	4

Since December 2010 the cumulated net criticality for this category of risk has decreased by 9% from 82 to 75.

Two risks, E3 “The investment of the stakeholders, necessary to support the development activities, is not secured” and P3 “The R&D activities do not deliver” had their criticality significantly reduced due to the impact of the mitigating actions.

In particular for E3 two actions were completed ensuring a yearly financial control of Projects through the Control Gates mechanism and the analysis of the Interim Financial Statements per Member; and the periodical check of the resources actually committed by the Members to the Projects against plan.

Concerning P3 two actions were completed aiming at defining a concrete and realistic list of deliverables of the Programme and at defining and sharing Validation framework with all stakeholders, with focus on the complexity of the validation process.

This to ensure a clear description of the rationale/objectives of the Validation exercises and to initiate the validation schedule according the V&V roadmap activity

<b>Risk ID</b>	<b>P10</b>	<b>The System Engineering approach does not enable the Programme to ensure the overall coherence of the future ATM system</b>	<b>Owner</b>	<b>Chief Prog. Officer</b>
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<b>Objective (s) affected by the risk</b>	The SE objectives are to ensure: <ul style="list-style-type: none"> <li>- Consistency of the future ATM System Architecture and Requirements in accordance with the three steps of the SESAR Concept Storyboard;</li> <li>- Consistency &amp; coherence within &amp; between Operational Work Packages (WP), SWIM WP, System WP and Transversal WP;</li> <li>- Overall Validation and Consistency of the SESAR Programme.</li> </ul>
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<b>Consequence / Impact</b>	Consistency and synchronisation between the projects cannot be guaranteed
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<b>Gross criticality</b>	<b>16-Very High</b>	<b>Likelihood</b>	<b>4-Very High</b>	<b>Severity</b>	<b>4-Very High</b>	<b>Risk status</b>	<b>Accepted</b>
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<b>Target net criticality</b>	<b>3-Low</b>	<b>Likelihood</b>	<b>1-Low</b>	<b>Severity</b>	<b>3-High</b>		
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Net criticality (As per December 2010)	8-High	Likelihood	2-Medium	Severity	4-Very High		
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Net criticality (As per October 2011)	8-High	Likelihood	2-High	Severity	4-Very High		
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Mitigation actions		Action status	Due Date
P10-A1	Review the current System Engineering process to simplify it and ensure a better understanding of the responsibilities of each actor (Tiger Team)	Completed	15/02/2011
P10-A2	Set up SE review 1 for Release 1	Completed	31/12/2010
P10-A3	Run SE review 2 for Release 1	Completed	30/06/2011
P10-A4	Run SE review 3 for Release 1	In progress	30/06/2012
P10-A5	Move the SE reviews from a Programme snapshot to a real assessment that will ensure that the products delivered: <ul style="list-style-type: none"> <li>- are fully coherent within the context of an OFA</li> <li>- fulfil the OFA's expectations (e.g. OFA performance objectives...)</li> </ul>	Open	01/04/2014
P10-A6	Review the Architecture Strategy to set the principles for the Architectural activities and systems developments in the programme (purpose, evolution, transition towards a service approach).	Completed	30/06/2011
P10-A7	Clarify the activities related to the EA processes.	In progress	30/06/2012
P10-A8	Clarify the activities related to requirements management and define the related process	In progress	30/06/2012
P10-A9	Ensure the capture of the requirements, their integration, the identification of inconsistencies and the feedback to projects concerned	Open	31/12/2012

P10 - A10	Define SEMP v02.00.00	Open	30/06/2012
P10 A11	Create the PC Tiger Team to rationalise and simplify the Programme	Open	31/3/2012

<b>Risk ID</b>	<b>E2</b>	<b>The SWIM concept is not broadly adopted</b>	<b>Owner</b>	<b>Chief Programme Officer</b>
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<b>Objective(s) affected by the risk</b>	SWIM is a key enabler for future ATM system. Moreover it is expected that SWIM will be the basis of the development of Concept Storyboard Steps 2 and 3 components
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<b>Consequence / Impact</b>	<ul style="list-style-type: none"> <li>- The further evolution of CDM between ATM partners is not exploiting benefits that SWIM can bring thus limiting the capacity and operational efficiency improvements that can be derived from the NOP and trajectory management</li> <li>- Aeronautical information with extended scope is not available to ground and airborne systems</li> <li>- SWIM is not integrated in the R&amp;D Programme as a key enabler in the future ATM system</li> <li>- The whole basis of the SESAR Concept of Operations and business case would be jeopardised</li> </ul>
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<b>Gross criticality</b>	<b>12-Very High</b>	<b>Likelihood</b>	<b>3-High</b>	<b>Severity</b>	<b>4-Very High</b>	<b>Risk status</b>	<b>Accepted</b>
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<b>Target net criticality</b>	<b>4-Medium</b>	<b>Likelihood</b>	<b>1-Low</b>	<b>Severity</b>	<b>4-Very High</b>		
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<b>Net criticality (As per December 2010)</b>	<b>9-High</b>	<b>Likelihood</b>	<b>3-High</b>	<b>Severity</b>	<b>3-High</b>		
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<b>Net criticality (As per October 2011)</b>	<b>8-High</b>	<b>Likelihood</b>	<b>2-Medium</b>	<b>Severity</b>	<b>4-Very High</b>		
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<b>Mitigation actions</b>		<b>Action status</b>	<b>Due Date</b>
E2-A1	Ensure common understanding and a better integration between SWIM Projects and the rest of the Programme (through OFAs)	In progress	01/12/2011
E2-A2	Ensure that SWIM related requirements for information services are expressed by all operational projects	In progress	31/03/2012

E2-A3	Ensure availability of a prototype SWIM infrastructure supporting the broadest possible use in R&D and validation activities of operational and system projects	In progress	31/12/2011
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There might be a further risk related to the ability to deploy SWIM linked to the definition of the appropriate standards and regulations. This will be assessed during 2012 and allocated to the relevant risk category

Risk ID	P9	The definition and follow-up of the main milestones and business criteria do not enable to steer the Programme effectively	Owner	Chief Programme Officer
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Objective(s) affected by the risk	<p>The Programme must set clear guidance to the Projects in terms of milestones to achieve, target dates, level of maturity, performance targets and business expectations to reach (top-down approach).</p> <p>The content of the milestones and targets (i.e Steps and DMTs descriptions) set by the Programme must be clear to allow for:</p> <ul style="list-style-type: none"> <li>- Possible alignment of the R&amp;D Projects in the scope of the Releases,</li> <li>- Possible measure of the contribution of Projects to the performance &amp; business targets.</li> </ul>
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Consequence / Impact	Project deliverables will not deliver solutions that allow for completion of the milestones and business expectations of the Programme.
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Gross criticality	16-Very High	Likelihood	4-Very High	Severity	4-Very High	Risk status	Accepted
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Target net criticality	4-Medium	Likelihood	1-Low	Severity	4-Very High		
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Net criticality (As per December 2010)	8-High	Likelihood	2-Medium	Severity	4-Very High		
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Net criticality (As per October 2011)	8-High	Likelihood	2-Medium	Severity	4-Very High		
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Mitigation actions		Action status	Due Date
P9-A1	Define more concrete and understandable Programme milestones	Completed	30/06/2011
P9-A2	Define and agree on a process enabling the update of the European ATM Master Plan	Completed	30/06/2011

P9-A3	Update the European ATM Master Plan	In progress	01/04/2012
P9-A4	Ensure that the Programme is performance-driven	In progress	31/12/2011
P9-A5	Consider the integrated roadmap step 1 for an initial top-down approach to be applied on Release 2 as a first attempt to gain experience for future Releases	In progress	30/09/2011 postponed to 31/12/2011
P9-A6	Make a first attempt to define and apply initial top-down guidance for Release 2	Completed	01/11/2011
P9-A7	Develop a more robust top-down approach for driving the Release 3 definition phase. The approach will rely on a better consideration of the integrated roadmap. This integrated roadmap should provide a link between OIs and Enablers per project, and performance targets per Operational Sub-Package	In progress	30/06/2012
P9-A8	Apply top-down guidance for Release 3 onwards (cf. action P9-A7 for the definition of the Release 3 top-down guidance)	Open	October 2012
P9-A9	Define a gap analysis process to compare the Release results with the target and take corrective actions	Completed	30/09/2011
P9-A10	Implement the gap analysis process related to the Releases	Open	01/04/2012
P9-A11	Develop and apply a framework to close the Release and to move to V4 <i>Note: further consider the link with Deployment Packages</i>	In progress	01/04/2012

### 3.3 Wide SESAR scope risks

These are risks which albeit not directly manageable by the SJU, may have a significant impact on the Programme implementation and/or the subsequent deployment (C);

Ref.	Risk	Gross Criticality (June 2010)	Net Criticality (End 2010)	Net Criticality (October 2011)
<b>WIDE SESAR SCOPE RISKS</b>				
C2	Delays in the implementation of short-term initiatives (IP1)	12	12	12
C1	Investment to support deployment is not secured	12	12	8

During 2011 an important mitigating action has been completed in respect of risk “Investment to support deployment is not secured” with the launch of the landmark Macroscopic study. This study analyses in detail the impact of SESAR in Europe. In

particular, it was directly geared to mitigate Risk C1, by raising awareness of SESAR and highlighting its importance across all stakeholder groups, as well as to emphasise the necessity for a synchronised and timely deployment.

This study has already achieved very high visibility at all levels (including at political level), producing a substantial impact on key decision makers in Europe. The results of the study have already been disseminated to all stakeholders, including the EC, Member States and the press. The criticality of the risk has been therefore reduced.

Furthermore, substantial progress has been made with regards to the development of financial and operational incentive schemes with a number of stakeholder consultations to progress the topics. These schemes are expected to contribute reducing the risk C1. With regards to financial incentives, the SJU worked closely with the EC to provide input to the development of the new TEN-T guidelines and Connecting Europe Facility to adapt the EU funding policy framework to support the implementation of SESAR (IP2).

Here below are the two tables detailing the two C risks:

Risk ID	C2	Delays in the implementation of short-term initiatives (IP1)				Owner	Chief Environment & Economics
Objective(s) affected by the risk	IP1 provides the initial baseline for future deployment of IP2 solutions, or even for their development						
Consequence / Impact	<ul style="list-style-type: none"> <li>- Insufficient financial resources and investment for the deployment phase</li> <li>- SESAR fails and return to business as usual</li> <li>- Many of the performance gains forecast for ATM Service Levels 2 to 5 threatened</li> </ul>						
Gross criticality	12-Very High	Likelihood	3-High	Severity	4-Very High	Risk status	Accepted
Target net criticality	2-Low	Likelihood	1-Low	Severity	2-Medium		
Net criticality (As per December 2010)	12-Very High	Likelihood	3-High	Severity	4-Very High		
Net criticality (As per October 2011)	12-Very High	Likelihood	3-High	Severity	4-Very High		
Mitigation actions	Action status			Due Date			



C2-A1	Monitor the implementation of IP1 and identify any deviance of the schedule for further reporting to the adequate forum (e.g. EC)	Open	Ongoing, through the active participation to the IP1 steering committee
C2-A2	Define scoping and risk management plan for PBN (Performance Based Navigation).	Open	December 2011
C2-A3	Identify IP1 projects which the implementation is a pre-requisite for the Programme and assess the potential impact in case of delay or no implementation	Open	March 2012
C2-A4	Implement AIRE programme for the implementation of Quick Wins in the environmental domain	Open	Ongoing + call on demonstration activities
C2-A5	EC initiative to put in place interim deployment steering activities, and to provide incentives.	Open	Ongoing

<b>Risk ID</b>	<b>C1</b>	<b>Investment to support deployment is not secured</b>	<b>Owner</b>	<b>Chief Environment &amp; Economics</b>
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<b>Objective(s) affected by the risk</b>	The SESAR Programme is deployment-oriented and must lead to implemented improvements. It is not oriented towards R&D results which could not be deployed
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<b>Consequence / Impact</b>	<ul style="list-style-type: none"> <li>- Insufficient financial resources and investment for the deployment phase</li> <li>- SESAR fails and return to business as usual</li> <li>- A lack of alignment of stakeholders' investments with the MP</li> <li>- Many of the performance gains forecast for ATM Service Levels 2 to 5 threatened</li> </ul>
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<b>Gross criticality</b>	<b>12-Very High</b>	<b>Likelihood</b>	<b>3-High</b>	<b>Severity</b>	<b>4-Very High</b>	<b>Risk status</b>	<b>Accepted</b>
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<b>Target net criticality</b>	<b>4-Medium</b>	<b>Likelihood</b>	<b>1-Low</b>	<b>Severity</b>	<b>4-Very High</b>		
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<b>Net criticality (As per December 2010)</b>	<b>12-Very High</b>	<b>Likelihood</b>	<b>3-High</b>	<b>Severity</b>	<b>4-Very High</b>		
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<b>Net criticality (As per October 2011)</b>	<b>8-High</b>	<b>Likelihood</b>	<b>2-Medium</b>	<b>Severity</b>	<b>4-Very High</b>		
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Mitigation actions		Action status	Due Date
C1-A1	Ensure that the intermediate business cases resulting from the Validation of first SESAR Deployment Packages demonstrate the added value of the SESAR programme to go for deployment	Open	30/06/2012
C1-A2	Perform a study on the Macroscopic impact of SESAR	Completed	30/06/2011
C1-A3	Develop financial incentive scheme in cooperation with EC, EIB and private stakeholders	Open	March 2012
C1-A4	Implement operational policy scheme around the notion of Best Efficiency Best Served	Open	December 2012

### 3.4 Administrative and Financial Risks

These are risks related to support activities which ensure the compliance and sound financial management of the Programme (AD).

Ref.	Risk	Gross Criticality (June 2010)	Net Criticality (End 2010)	Net Criticality (October 2011)
<b>ADMINISTRATIVE AND FINANCIAL RISKS</b>				
AD1	Rejection or delay by the Members to accept amendments, make the MFA a constraints to the efficient running of the Programme	8	4	4
AD2	ECA major observations on the SJU's accounts	8	4	4
AD3	Inefficient implementation of the financial circuits through ABAC/SAP due to system rigidity and lack of resources	8	4	4
AD4	Non respect of the value for money principle	8	4	4
AD5	Lack of motivation and increased staff turnover	8	4	4

Overall the criticality of this category of risks is medium and routine actions have been identified and started to maintain and in the future further reduce the net criticality. Particular attention is given to AD3 whereas an accurate planning of resources is now in place to ensure availability of resources in peak workload periods, and to AD2 whereas the full implementation of the Internal Control Standard and of the Financial Circuits should underpin compliance and sound financial management.

## 4 Conclusion

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The SJU has implemented a framework supported by an extranet platform which makes possible a continuous update of risks relating to Projects, Work Packages and the possible escalation to the Programme and Corporate levels.

This constitutes a management instrument which is embedded in the daily work of the SJU and spread in the most cost-effective manner within the Programme. Positive results are however very much dependant on the commitment of the Project, Sub Work-Package and Work Package Members' Staff who capture and assess the risks affecting their activities; and to the process which allow the escalation through the SIR database, when necessary, up to the SJU Management attention.

During 2011 some positive results have been achieved especially in the "Programme R&D" risk category where the actions implemented by the SJU were more incisive and timely performed. Further actions are being implemented and it can be expected that in 2012 the risk profile will improve consequently.

Limited progress has been achieved however for the categories "Corporate Risks" and "Wide SESAR Scope Risks" as some mitigating actions need a refocusing and an accurate and timely implementation. Risk Owners will lead this process and monitor the results achieved.

The "Administrative and Financial Risks" category shows an acceptable risk profile and actions will be geared in 2012 to maintain or even improve it by considering however the cost/benefit ratio.

The SJU management is aware that the results achieved so far are going in the desired direction but still represent an initial step toward criticality target and significant efforts need to be done; nevertheless it remains confident that the necessary actions will be implemented and adequately managed.

## Annex 1 Definition, Process and Methodology

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### Definitions

The Risk Management exercise has been implemented on the following main concepts:

- Risks:** Any event or issue that could occur and adversely impact the achievement of the SJU objectives, strategic and operational. Lost opportunities are also considered as risks.
- Severity:** Severity is the level of impact assigned to the outcomes of a risk when it occurs. Outcomes may have an effect at different levels such as on the Programme objectives (such as Capacity, Cost Efficiency, Safety and Environmental objectives), on the execution of the Programme (delayed or unsuccessful Programme) and on the SJU functioning (discontinuity of activity etc...). In order to measure the severity of a risk, evaluation matrices on a scale from 1 to 4 are used.
- Likelihood:** Likelihood is the chance of the risk occurring. In order to measure likelihood, evaluation matrices on a scale from 1 to 4 are used.
- Gross Criticality:** Gross criticality refers to the status of the risk before any treatment action is undertaken. It is calculated as follows:  $\text{Gross criticality} = \text{Severity} \times \text{Likelihood}$ .
- Treatment action:** Cost-effective action to be implemented or performed in order to reduce the likelihood (prevention) or severity (protection) of a risk to an acceptable level, defined in accordance with the SJU risk appetite.
- Net criticality:** The residual risk that would remain after an action or several actions have been implemented.

The above calculation results in 4 criticality rating tiers:

- Green: Low criticality (score = [1to3])
- Yellow: Medium criticality (score = [4,6])
- Orange: High criticality (score = [8,9])
- Red: Very High criticality (score = [12,16])

This can be represented in the criticality matrix:

Likelihood	4	4	8	12	16
	3	3	6	9	12
	2	2	4	6	8
	1	1	2	3	4
		1	2	3	4
		Severity			

Figure 1: Criticality matrix

**Process**

The objective of Risk Management is to identify, assess and take into account cost-effective actions to manage the risks affecting an entity (see Figure 2).

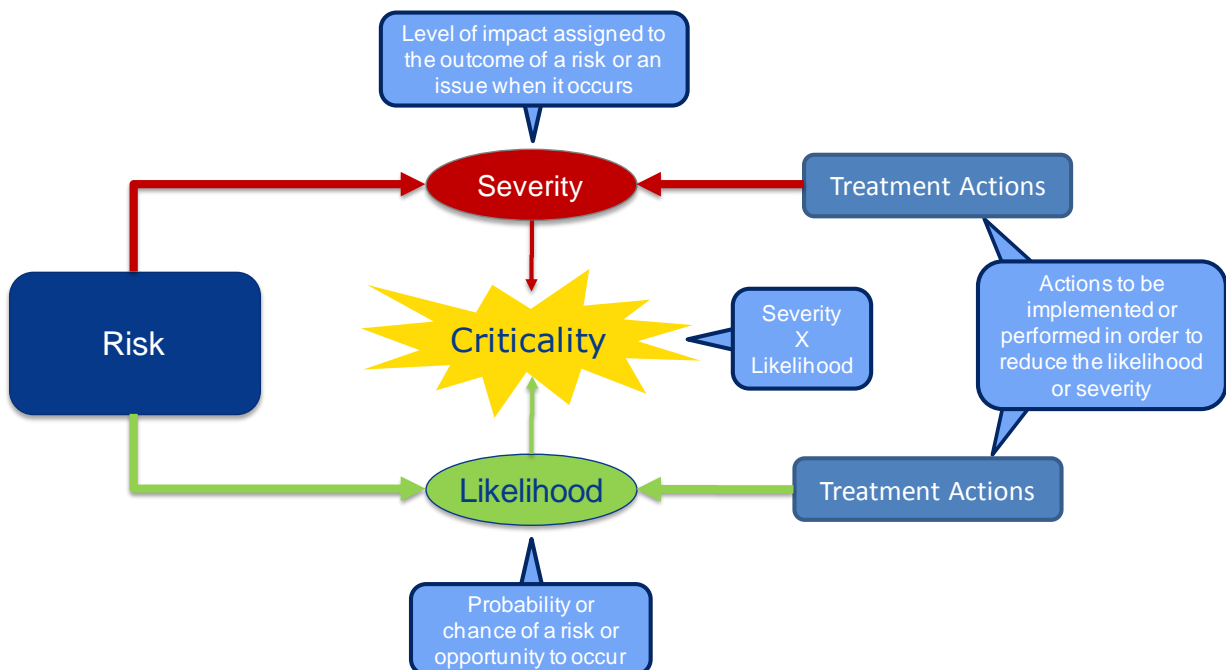


Figure 1: Risk management process

The Risk Management process encompasses several steps:

- Assessment of the risks (identification and analysis), which assists the effective and efficient operation of the organisation by identifying those risks which require attention by management;
- Evaluation, where the assessed risks are compared against risk criteria established by the organization and where the decision on the acceptance or treatment of the risks is made;
- Treatment, which consists of the selection and implementation of the mitigating measures to modify the risk criticality;
- Monitoring and Review, which consists of reporting and review structure to ensure that risks are effectively identified and assessed and that appropriate controls and responses are in place.

## The SJU Approach

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

The risk management methodology is built upon an integrated approach:

- A **bottom-up approach** which provides the SJU with a risk map, through the information contained in the Project Initiation Reports, for the Programme activities, or the work performed at the internal organization level, for the administrative and financial services. As part of the Programme Management, risks are regularly reported and consequently assessed in the occasions of the Project Control Gates and become part of the future Risk Management exercises.
- The **top-down approach**, conducted through a) the review of the key documentation resulting from the bottom-up approach and b) the evaluation conducted at Programme and SJU levels, through which major risks are evaluated, mitigating measures decided and actions put in place.

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

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

Project	Manage risks related to objectives and performances of individual project. The Project Manager is responsible for risk management within the project and for escalating at the WP level when required i.e. when the risk seems more likely to occur or when mitigating / treatment actions can be taken at the WP level. Furthermore, reporting of risks and opportunities on a regular basis is needed to ensure their visibility throughout the Programme and their supervision by the upper levels.
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- Work Package**      Manage risks pertaining to the WP objectives and performances, including Project risks which cannot be treated at that level (magnitude, cross-impact, etc).
  
- Programme**        Manage risks which because of their criticality may affect the effective execution of the Programme. Considering the high interdependencies among Work Packages, focus is on those risks which albeit related to a specific Work Package may have an impact throughout the Programme. This is determined taking into account the dependency matrix available for the Programme. These risks, where they would request the attention at senior Management level, are reported to the Executive Director and, eventually, to the Administrative Board in this document.
  
- SJU Corporate**     The focus is on risks related to the achievement of the Strategic Objectives. At these level are treated major risks whose occurrence may impact the ability of the SJU to deliver its Strategic Objectives Tables 2 and 3 hereafter contain the SESAR Programme “Corporate risks” and “Additional risks”, and the SJU Administrative and Financial risks.

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

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

*Table 1: Risk management level*