



Risk Management Report

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SJU Risk Management Report

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1 SJU Risk Management

In accordance with the SJU Internal Control Standard for Effective Operations¹ 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 Policy² which provides the legal basis for the SJU Annual Risk Management exercise and is aligned to the ERM³ approach. The SJU's Risk policy covers the following aspects:

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

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

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

2 Methodology

2.1 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.

¹ 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.

² SJU/ED/64 of 25 March 2010

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

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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: Gross criticality = Severity x 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 = [1,3])
- 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

2.2 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).

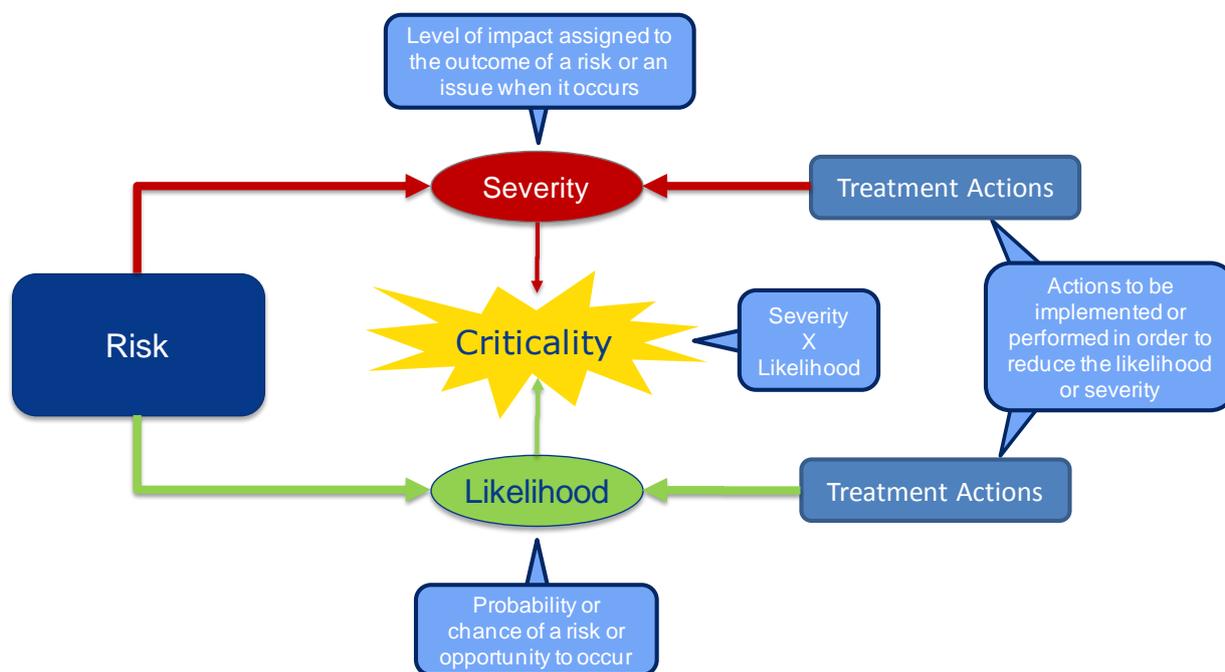


Figure 1: Risk management process

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.

2.3 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:

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- An initial **bottom-up approach** which provides the SJU with an initial risk map, through the information contained in the Project Initiation Reports, for the Programme activities, or the work performed at the internal organization level, for the administrative and financial services. 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.
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.

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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

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

3 The SJU Risk Profile

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

Following the process described in Section 2, which

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

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

- 8 risks with a *very high criticality* (12 or more points),
- 8 risks with *high criticality* (8 - 9 points),

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- 13 risks with *medium criticality* (4 - 6 points), and
- 1 risk with *low criticality*.

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

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

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

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

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

3.1 The SJU Main Risks

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

- **Corporate risks (11 risks):**
 - risks related to the achievement of the four Programme Strategic Objectives and early delivery (SG);
 - risks related to the Key Performance Areas (KPA) defined in the ATM Master Plan (KG);
- **SESAR Programme R&D risks (12 risks):**
 - risks related to Enablers (E) required for the Programme implementation (SWIM, Institutional evolution [legislation/regulation/standardisation], safety, security, environment, HR performance);
 - risks related to the operational management of the Programme by the SJU (P);
- **Wide SESAR scope risks (2 risks):**

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- risks which albeit not directly manageable by the SJU, may have a significant impact on the Programme implementation and/or the subsequent deployment (C);
- **Administrative/Financial risks (5 risks):**
 - risks related to the compliance and sound financial management of the Programme (AD).

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

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

Ref.	Risk	Likelihood	Severity	Gross criticality	Net criticality end 2010
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Corporate Risks					
SG2	The Cost Effectiveness objective is not reached	3	4	12	12
SG5	The R&D Programme does not deliver early results or not sufficiently	3	4	12	8
SG1	The Capacity objective is not reached	3	3	9	9
KG4	The Security objective is not reached	2	4	8	8
SG3	The Safety objective is not reached	2	3	6	6
SG4	The Environmental Sustainability objective is not reached	2	3	6	6
KG1	The Efficiency objectives is not reached	2	3	6	6
KG2	The Flexibility objective is not reached	2	3	6	6
KG3	The Predictability objective is not reached	2	3	6	6
KG6	The Interoperability objective is not reached	2	3	6	6
KG5	The Access and Equity objective is not reached	1	3	3	3

SESAR Programme R&D Risks

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Ref.	Risk	Likelihood	Severity	Gross criticality	Net criticality end 2010
P9	The definition of the main milestones of the Programme does not enable to steer the Programme effectively	4	4	16	8
P10	The System Engineering approach does not enable the Programme to ensure the overall coherence of the future ATM System	4	4	16	8
E2	SWIM is not adequately developed	3	4	12	9
P3	The R&D activities do not deliver results	3	4	12	9
E3	The investment of the stakeholders, necessary to support the development activities, is not secured	2	4	8	8
P1	The governance of the R&D Programme does not provide contributors with sufficient guidance	2	3	6	6
P2	Lack of buy-in and support from stakeholders during the Development Phase	2	3	6	6
P4	The Programme does not adapt to external changes	2	3	6	6
P5	Planning issues cause delays	2	3	6	6
P6	Inefficient or unrealistic resource management	2	3	6	6
P7	The delivery of the Programme shows performance / quality issues	2	3	6	6
E1	Regulatory arrangements and standards implementation are unable to support the Deployment of the programme	1	4	4	4

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

Administrative/Financial Risks					
AD1	Rejection or delay by the Members to accept amendments make the MFA a constraints to the efficient running of the Programme	2	4	8	4
AD2	ECA major observation on the SJU's accounts	2	4	8	4
AD3	Inefficient implementation of the financial circuits through ABAC/SAP due to system rigidity and lack of resources	2	4	8	4

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Ref.	Risk	Likelihood	Severity	Gross criticality	Net criticality end 2010
AD4	Non respect of the value for money principle	2	4	8	4
AD5	Lack of motivation and increased staff turnover	2	4	8	4

Specific mitigating actions concentrate on the risks with a gross criticality score above 6 whereas those below this threshold will be continuously tracked to ensure their 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 who is responsible for the evolution of the risk and for the coordination and monitoring of the mitigating actions.

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

4 Conclusion

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

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

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

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

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

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

Risk ID	SG5	Risk	The R&D Programme does not deliver early results or not sufficiently	Owner	Chief Programme Officer
Objective(s) affected by the risk	<p>A set of seven objectives had been approved by the SJU Administrative Board as 2012 objectives:</p> <ol style="list-style-type: none"> 1. Initial 4D trajectory is validated in an operational environment supported by satellite-based technology; 2. 10,000 flights, including 500 military, are SESAR labeled; 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. 				
Gross criticality	12 - Very High	Likelihood	3 - High	Severity	4 - Very High
Causes	Mitigation actions			Status of mitigation actions	
<ul style="list-style-type: none"> • Lack of common understanding of the 2012 objectives by the Projects that are supposed to contribute to their achievement 	<ul style="list-style-type: none"> • Ensure a clearer and more concrete description of the objectives leading to a common understanding 			In progress	
<ul style="list-style-type: none"> • Measure of the covering of the 2012 objectives is not possible during the Development phase 	<ul style="list-style-type: none"> • Identify the key projects contributing to the 2012 objectives and their level of contribution • Consider the feasibility to define 2012 objectives indicators that could measure the achievement of this objective according to the progress of the Development phase 			<p>In progress</p> <p>In progress</p>	
<ul style="list-style-type: none"> • 2012 objectives are not tangible enough 	<ul style="list-style-type: none"> • Ensure a clearer and more concrete description of the objectives leading to a common understanding 			In progress	
<ul style="list-style-type: none"> • 2012 objectives are unattainable 	<ul style="list-style-type: none"> • Measure the possible achievement of the 2012 objectives through the Release 1 during the Release definition • Set up mechanisms to drive the Programme towards the achievement of early results 			<p>In progress</p> <p>Completed</p>	

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Outcome					
<ul style="list-style-type: none"> • Loss of SJU credibility • Negative impact on the Programme costs / benefits • Delay of the deployment of certain parts of the Programme • Reduction of the magnitude of the deployment of the Programme 					
Net criticality end 2010	8 - High	Likelihood	2 - Medium	Severity	4 - Very High

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Risk ID	SG2	Risk	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.					
Gross criticality	12 - Very High		Likelihood	3 - High	Severity	4 - Very High
Causes	Mitigation actions				Status of mitigation actions	
<ul style="list-style-type: none"> Description of projects contribution in the PIR not complete enough nor understandable 	<ul style="list-style-type: none"> Identify the key projects contributing to the Cost Effectiveness objective and their level of contribution Projects to better define their contribution to the objective in their Validation Plan 				<ul style="list-style-type: none"> Completed Not started 	
<ul style="list-style-type: none"> Projects that contribute to the Cost Effectiveness objective are not contributing as expected 	<ul style="list-style-type: none"> Monitor their contribution as result of the validation exercises 				<ul style="list-style-type: none"> Not started 	
<ul style="list-style-type: none"> No justification that Validation performed is good and allows to deliver properly the targeted objective 	<ul style="list-style-type: none"> Include objective achievement measurement in the Validation process 				<ul style="list-style-type: none"> Not started 	
<ul style="list-style-type: none"> Measure of the covering of the Cost Effectiveness objective is not possible during the development phase 	<ul style="list-style-type: none"> Consider the feasibility to define Cost Effectiveness indicators that could measure the achievement of this objective according to the progress of the Development phase 				<ul style="list-style-type: none"> Not started 	
<ul style="list-style-type: none"> All available budget is not consumed although there are Cost Effectiveness objectives not covered in the work programme 	<ul style="list-style-type: none"> Perform regular gap analysis and launch complementary activities that will enable to reach the Cost Effectiveness objective 				<ul style="list-style-type: none"> Not started 	
Outcome						
<ul style="list-style-type: none"> Rework required resulting in delays in development and increased development costs Compromise on Cost Effectiveness performance objective Delay to the deployment of the Programme Reduction of the magnitude of the deployment of the programme 						

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Net criticality end 2010	12 - Very High	Likelihood	3 - High	Severity	4 - Very High
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Risk ID	SG1	Risk	The Capacity objective is not achieved	Owner	SJU Military Advisor
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Objective(s) affected by the risk	<p>The Capacity objective is defined through :</p> <ul style="list-style-type: none"> • ATM Network capacity: ability to accommodate 16 Million flights/year and 50,000 flights/day in Europe by the year 2020 (73% increase over 2005 traffic levels - 3 times more en-route and airport network traffic. • Local airspace capacity: The ATM target concept should be able to support a tripling or more of traffic where required. • Best-in-class declared airport capacity in Visual Meteorological Conditions (VMC): an improvement of 20% with respect to current best-in-class performance. • Best-in-class declared airport capacity in Instrument Meteorological Conditions (IMC): This aims to reduce the gap between IMC and VMC capacity from 50% (2008) to 20% (2020). 				
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Gross criticality	9 - High	Likelihood	3 - High	Severity	3 - High
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Causes	Mitigation actions	Status of mitigation actions
<ul style="list-style-type: none"> • Description of projects contribution in the PIR not complete enough nor understandable 	<ul style="list-style-type: none"> • Identify the key projects contributing to the capacity objective and their level of contribution • Projects to better define their contribution to the objective in their Validation Plan 	<p>Completed</p> <p>Not started</p>
<ul style="list-style-type: none"> • Projects that contribute to the Capacity objective are not contributing as expected 	<ul style="list-style-type: none"> • Monitor their contribution as a result of the validation exercises 	<p>Not started</p>
<ul style="list-style-type: none"> • No justification that Validation performed is good and allows to deliver properly the targeted objective 	<ul style="list-style-type: none"> • Include objective achievement measurement in the Validation process 	<p>Not started</p>
<ul style="list-style-type: none"> • Measure of the covering of the Capacity objective is not possible during the development phase 	<ul style="list-style-type: none"> • Consider the feasibility to define Capacity indicators that could measure the achievement of this objective according to the progress of the Development phase 	<p>Not started</p>

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<ul style="list-style-type: none"> • All available budget is not consumed although there are Capacity objectives not covered in the work programme 	<ul style="list-style-type: none"> • Perform regular gap analysis and launch complementary activities that will enable to reach the Capacity objective 	Not started			
Outcome					
<ul style="list-style-type: none"> • Rework required resulting in delays in development and increased development costs • Compromise on Capacity performance objective • Delay to the deployment of the Programme • Reduction of the magnitude of the deployment of the programme 					
Net criticality end 2010	9 - High	Likelihood	3 - High	Severity	3 - High

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Risk ID	KG4	Risk	The Security objective is not achieved		Owner	SJU Military Advisor
Objective(s) affected by the risk	<p>The Security objective is translated into the following performance target:</p> <ul style="list-style-type: none"> • 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; • 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. 					
Gross criticality	8 - High	Likelihood	2 - Medium	Severity	4 - Very High	
Causes	Mitigation actions			Status of mitigation actions		
<ul style="list-style-type: none"> • Description of projects contribution in the PIR not complete enough nor understandable 	<ul style="list-style-type: none"> • Identify the key projects contributing to the capacity objective and their level of contribution • Projects to better define their contribution to the objective in their Validation Plan 			<ul style="list-style-type: none"> Completed Not started 		
<ul style="list-style-type: none"> • Projects that contribute to the Security objective are delayed or not contributing as expected 	<ul style="list-style-type: none"> • Monitor their contribution as a result of the validation exercises 			<ul style="list-style-type: none"> Not started 		
<ul style="list-style-type: none"> • No justification that Validation performed is good and allows to deliver properly the targeted objective 	<ul style="list-style-type: none"> • Include objective achievement measurement in the Validation process 			<ul style="list-style-type: none"> Not started 		
<ul style="list-style-type: none"> • Measure of the covering of the Security objective is not possible during the development 	<ul style="list-style-type: none"> • Consider the feasibility to define Security indicators that could measure the achievement of this objective according to the progress of the development phase 			<ul style="list-style-type: none"> Not started 		
<ul style="list-style-type: none"> • All available budget is not consumed although there are Security objectives not covered in the work programme 	<ul style="list-style-type: none"> • Perform regular gap analysis and launch complementary activities that will enable to reach the Security objective 			<ul style="list-style-type: none"> Not started 		

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Outcome					
<ul style="list-style-type: none">• Rework required resulting in delays in development and increased development costs• Compromise on Security performance objective• Delay of the deployment of the Programme• Reduction of the magnitude of the deployment					
Net criticality end 2010	8 - High	Likelihood	2 - Medium	Severity	4 - Very High

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Appendix B SESAR Programme R&D risks

Risk ID	P9	Risk	The definition of the main milestones of the Programme does not enable to steer the Programme effectively		Owner	Chief Programme Officer
Objective(s) affected by the risk	The Programme must set clear guidance to the Projects in terms of milestones to achieve, target dates and level of maturity to reach. The content of the milestones and targets set by the Programme must be clear to allow for: <ul style="list-style-type: none"> • Alignment of the R&D Projects • measurement of the contribution of Projects to the completion of these milestones 					
Gross criticality	16 - Very high	Likelihood	4 - Very High	Severity	4 - Very high	
Causes	Mitigation actions			Status of mitigation actions		
<ul style="list-style-type: none"> • Misunderstanding of the content and objectives of the milestones 	<ul style="list-style-type: none"> • Define more concrete and understandable Programme milestones 			Completed		
Outcome						
<ul style="list-style-type: none"> • Projects deliverables will not deliver solutions that allow for completion of the milestones of the Programme 						
Net criticality end 2010	8 - High	Likelihood	2 - Medium	Severity	4 - Very high	

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Risk ID	P10	Risk	The System Engineering approach does not enable the Programme to ensure the overall coherence of the future ATM System		Owner	Chief Programme Officer
Objective(s) affected by the risk	<p>The SE objectives are to ensure:</p> <ul style="list-style-type: none"> • Consistency of the future ATM System Architecture and Requirements in accordance with the three steps of the SESAR Concept Storyboard; • Consistency & coherence within & between Operational Work Packages (WP), SWIM WP, System WP and Transversal WP; • Overall Validation and Consistency of the SESAR Programme. 					
Gross criticality	16 - Very high	Likelihood	4 - Very High	Severity	4 - Very high	
Causes	Mitigation actions			Status of mitigation actions		
<ul style="list-style-type: none"> • Complexity and lack of understanding of the Engineering Process by the actors 	<ul style="list-style-type: none"> • Review the current System Engineering process to simplify it and ensure a better understanding of the responsibilities of each actor (Tiger Team) • Establish SE processes for next Releases 			<p>Completed</p> <p>In progress</p>		
Outcome						
<ul style="list-style-type: none"> • Consistency and synchronisation between the projects cannot be guaranteed 						
Net criticality end 2010	8 - High	Likelihood	2 - Medium	Severity	4 - Very high	

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Risk ID	E2	Risk	SWIM is not adequately developed (i.e. does not contribute to the future ATM System as expected)		Owner	Chief Programme Officer
Objective(s) affected by the risk	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.					
Gross criticality	12 - Very high	Likelihood	3 - High	Severity	4 - Very high	
Causes	Mitigation actions				Status of mitigation actions	
<ul style="list-style-type: none"> Lack of common understanding across the whole Programme Poor integration of SWIM across the Programme 	<ul style="list-style-type: none"> Ensure common understanding and a better integration of SWIM in the Programme 				In progress	
<ul style="list-style-type: none"> SWIM planning is not synchronised with the needs of the Programme 	<ul style="list-style-type: none"> Ensure that where R&D for SWIM is needed, it is started early and completed as soon as possible 				In progress	
<ul style="list-style-type: none"> Missing some users requirements (e.g. military) 	<ul style="list-style-type: none"> Ensure requirements from all ATM actors are considered 				Not started	
Outcome						
<ul style="list-style-type: none"> SWIM is unable to support CDM (Collaborative Decision Making) between all the ATM partners thus preventing the capacity and operational efficiency improvements that can be derived from the NOP (Network Operation Plan) and trajectory management Aeronautical information with extended scope is not available to ground and airborne systems The whole basis of the SESAR Concept of Operations and business case would be jeopardised 						
Net criticality end 2010	9 - High	Likelihood	3 - High	Severity	3 - High	

SJU Risk Management Report

Risk ID	P3	Risk	The R&D activities do not deliver tangible results		Owner	Chief ATM
Objective(s) affected by the risk	As an R&D Programme, the SESAR Development phase is aimed towards concrete and tangible deliverables, which should enable the progressive industrialisation, deployment and operation of the new ATM system.					
Gross criticality	12 - Very high		Likelihood	3 - High	Severity	4 - Very high
Causes	Mitigation actions				Status of mitigation actions	
<ul style="list-style-type: none"> The deliverables defined and assigned to the R&D Projects are not concrete and/or not effectively contributing to the improvement of the ATM System 	<ul style="list-style-type: none"> Define a list of deliverables of the Programme that is concrete 				Completed	
<ul style="list-style-type: none"> Validation framework (tools and processes) is not robust enough to ensure efficient, qualitative and safe output : based on thorough measurement campaigns and modelling as well as wide stakeholder consultation 	<ul style="list-style-type: none"> Define and share validation framework with all stakeholders, focusing on the complexity of the validation process Ensure a clear description of the rationale/objectives of the Validation exercises. Initiate the validation schedule through the V&V roadmap activity Monitor the activity of the WP3, X.2 and X.3 				In progress In progress In progress	
<ul style="list-style-type: none"> External changes (e.g. new requirements after PIR) have not been identified and integrated into solution 	<ul style="list-style-type: none"> Assess and monitor the impact of external changes on the validation process 				In progress	
Outcome						
<ul style="list-style-type: none"> Compromise the continuity of the Programme Delay to the deployment of certain parts of the Programme Reduction of the magnitude of the deployment of the programme Investment for the deployment phase is not secured 						
Net criticality end 2010	9 - High		Likelihood	3 - High	Severity	3 - High

SJU Risk Management Report

Risk ID	E3	Risk	The investment of the stakeholders, necessary to support development activities, is not secured		Owner	Chief Economic and Environment
Objective(s) affected by the risk	As an R&D Programme, the SESAR Development phase is aimed towards concrete and tangible deliverables by 2016, which should enable the progressive industrialisation, deployment and operation of the new ATM system. Involvement of all stakeholders over time is key to allow the delivery of all expected benefits for the ATM community.					
Gross criticality	8 -High	Likelihood	2 - Medium	Severity	4 - Very high	
Causes	Mitigation actions				Status of mitigation actions	
<ul style="list-style-type: none"> Overall costs of the Development phase exceed the available budget 	<ul style="list-style-type: none"> Ensure a regular financial control of Projects through the Control Gates mechanism and the Interim reports (ref to MFA) 				In progress	
<ul style="list-style-type: none"> Lack of commitment of stakeholders 	<ul style="list-style-type: none"> Demonstrate cost effectiveness of projects and highlight the benefits 				In progress	
Outcome						
<ul style="list-style-type: none"> Planning issues causing delays in overall schedule (i.e. lack of synchronization or planning issues between project/WP/IS) Performance objective of the Programme are not met R&D activities are not achieved and not validated Reduction in the scope of the Programme 						
Net criticality end 2010	8 -High	Likelihood	2 - Medium	Severity	4 - Very high	

SJU Risk Management Report

Appendix C Wide SESAR scope risks

Risk ID	C1	Risk	Investment to support deployment not secured		Owner	SJU Executive Director and Administrative Board
Objective(s) affected by the risk	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.					
Gross criticality	12 - Very high	Likelihood	3 - Very High	Severity	4 - Very high	
Causes	Mitigation actions				Status of mitigation actions	
<ul style="list-style-type: none"> Economic slowdown affecting the whole industry of one or more of the key contributors to the SESAR project Business case is finally not sustainable for certain users 	<ul style="list-style-type: none"> Ensure that the business cases resulting from the Validation demonstrate the added value of the SESAR programme to go for deployment. 				Not started	
Outcome						
<ul style="list-style-type: none"> Insufficient financial resources and investment for the deployment phase SESAR fails and return to business as usual Many of the performance gains forecast for ATM Service Levels 2 to 5 threatened 						
Net criticality end 2010	12 - Very high	Likelihood	3 - Very High	Severity	4 - Very high	

SJU Risk Management Report

Risk ID	C2	Risk	Delays in the implementation of short-term initiatives (IP1)		Owner	External to the SJU, in particular IP1 Steering Committee
Objective(s) affected by the risk	IP1 provides the initial baseline for future deployment of IP2 solutions, or even for their development					
Gross criticality	16 - Very high	Likelihood	4 - Very High	Severity	4 - Very high	
Causes	Mitigation actions				Status of mitigation actions	
<ul style="list-style-type: none"> Lack of political commitment (at State level) to ensure overall coordination of the short term initiatives Individual stakeholder plans for ATM Service Levels 0 & 1 deployment are not aligned or not synchronised for example due to differentiated benefits at state level and subsequent local plan prioritization 	<ul style="list-style-type: none"> Monitor the implementation of IP1 and identify any deviance of the schedule for further reporting to the adequate forum (e.g. EC) 				In progress	
<ul style="list-style-type: none"> Late implementation of staff related regulations Non homogeneous deployment across Europe of ATM Service levels 0 & 1 initiatives Local Campaigns/ongoing initiatives are not aligned (crucial for quick wins, midterm improvements) 	<ul style="list-style-type: none"> 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 				In progress	
Outcome						
<ul style="list-style-type: none"> Delay in delivering performance benefits and/or reduction of expected benefits Potential duplication of efforts across Europe Delay in deployment of ATM Service Level 2 to 5 						
Net criticality end 2010	12 - Very high	Likelihood	3 - Very High	Severity	- Very high	

