



**TOWARDS A ROADMAP TO IMPLEMENT
THE SINGLE EUROPEAN SKY
2009-2014**

1. A ROADMAP TO SUPPORT THE MODERNISATION OF THE EU ATM NETWORK

1.1 "Drive performance" is the overriding message in the second package of the SES formally approved in November 2009¹. The aim is to align the activities of all actors involved in air traffic management (ATM) towards one single goal: on the basis of the SES I acquis, offer the most performing ATM infrastructure to the needs of an evolving aviation industry. The five pillars of the package (performance, safety, technical innovation, airports and human factor) should allow a "gate-to-gate" approach materializing the performance improvements airspace users expect from ATM.

1.2 The strict deadlines which have been set (e.g. 2012 for the establishment of FABs) indicate that there are very strong expectations both within the aviation community and at policy level for a fast implementation of the new legislative package. Considering the **high number of actions to be initiated**, defining clear priorities, the right sequence of actions in time as well as the potential relationships between them is essential. For the above reasons, a roadmap for the period 2009-2014 is needed; it will contribute to **ease the implementation process** by the many actors concerned.

1.3 The roadmap will take due account of human factor to effectively implement the Single European Sky regulations and of the need to strengthen the safety culture.

1.4 The roadmap will provide a strategic overview of the priorities and encapsulate all the actions to be taken to complete the implementation of SES I and to implement SES II. It will also provide indicative target dates for each individual action and the actors in charge. It will be a **living, evolving and adaptable document, allowing regular monitoring of progress**. Following consultation of the Single Sky Committee, the Industry Consultation Body and staff representatives expert group, it will be endorsed in a conference to be hosted by the Spanish Presidency of the EU early in 2010.

2. A NEW INSTITUTIONAL SET-UP

The second legislative package has endorsed a new institutional set-up. The roadmap will require a strong partnership of all actors.

¹ Regulation (EC) No 1070/2009 of the European Parliament and of the Council of 21 October 2009 amending Regulations (EC) No 549/2004, (EC) No 550/2004, (EC) No 551/2004 and (EC) No 552/2004 in order to improve the performance and sustainability of the European aviation system, OJ L 300/34 of 14.11.2009

2.1. A number of **new functions** have been established: (i) an independent Performance Review Body will assist the Commission and the national supervisory authorities in performance regulation; (ii) the EU Network Management function will complement the regional service providers with a genuine network approach. This will directly provide for a European perspective regarding airspace capacities, routes or frequencies; (iii) a Functional Airspace Block (FAB) Coordinator will facilitate the discussions between the actors in charge of the change management leading to the integration of services; (iv) EASA will strengthen the safety dimension of the ATM network. In particular, the involvement of staff representative in the implementation of SES at the national, functional air space block and EU levels will be promoted. Building on the achievements of Eurocontrol, where safety regulatory requirements paved the way to EU rules, and respecting the SES safety acquis, the "total system approach" will cover the whole aviation safety chain; (v) one of the motors for the performance is technological innovation; the SESAR Joint Undertaking pools current R&D efforts to speed up technological innovation. It will be for the Community to ensure a transition from development to synchronised deployment through appropriate regulatory instruments and financial incentives; (vi) finally, the airport capacity observatory will not only integrate the entry and exit points of the ATM network into a seamless aviation transport chain, but will also provide inputs on the network management functions.

2.2 SES II will also affect the role of **existing players**: (i) National Supervisory Authorities (NSA) will have to enlarge their current focus on principally safety, and turn themselves into genuine performance regulators. Beyond safety, authorities will have to cope with consultations, setting performance targets for all performance areas, assessing and validating performance plans of the service providers, working closely together at regional level to elaborate performance plans at FAB level; better coordination at EU level will also help; (ii) as improving performance will require management of the change process, a more visible social dialogue will play a vital role in maintaining the human factors dimension, ensuring consistency at local and regional levels.

At all stages of the process, expertise of staff will guarantee commitment to improve quality of air navigation services and quality of jobs; (iii) moreover Eurocontrol and the European Community will need to establish a new cooperation scheme to satisfy SES requirements, based on separation of regulatory and service provision functions and allocating clear roles for industry and Member States. Once reformed, Eurocontrol will become the arm of the SES implementation; (iv) the military dimension is still a key consideration when improving the European ATM system and Member States should make best use of the Single Sky Committee to involve defence representatives in all phases of the decision-making process.

All in all, the harmonious functioning of all actors involved will rely on the strong partnership between Member States, the Commission and stakeholders. Only a strong partnership is able to materialize the SES goals.

3. OVERVIEW OF THE MAIN ACTIONS TO BE IMPLEMENTED OVER THE PERIOD 2009-2014

3.1 The implementation of the **first legislative package** (the part of it which has not been amended by the second legislative package) remains necessary for the proper implementation of the SES second package. Therefore the roadmap identifies a dozen of actions which are still related to the SES first package and dealing with new

interoperability rules, monitoring of SES legislation, strengthening of NSAs, analysis of terminal charges etc...

Priorities for the completion of the first package:

- Adoption of a Commission regulation on Air traffic flow management (end 2009)
- Adoption of a Commission regulation on surveillance and interoperability (early 2010)
- Monitoring of the application of SES I legislation (continuous)

3.2 As far as the **second legislative package** is concerned, the implementation of the **performance scheme** will be a very strong priority. The Commission will present an implementing rule on the performance regulatory process to the Single Sky Committee in the end of 2009 with the aim to start quickly with a first three year reference cycle covering the period 2012-2014. Once the Performance Regulation adopted and the Performance Review Body designated, the preparation of a first reference period will start by setting the Community wide targets (end 2010). The process to set national/FAB targets and plans can then take place in 2011, so that the first reference period can start in 2012. This timing would also allow FABs to play their roles as adequate vehicles to achieve the performance improvement.

At the same time, the performance scheme rules will be mirrored in the charging Regulation², where the traditional automatic full cost recovery mechanism will be replaced by a "determined cost" principle. In a performance-based system, the performance targets will exercise pressure on the cost bases and hence the unit rates. In order to achieve their targets, Member States will adopt incentives schemes on ANS providers and airspace users. Such schemes should go beyond the mere cost-efficiency approach and become a genuine incentive to contribute to safer, greener and more efficient aviation.

Priorities prior to the implementation of the performance scheme in 2012-2014:

- Adoption of a Commission regulation on performance scheme, update of Commission regulation laying down a common charging scheme and designation of the performance review body (PRB) by the Commission (June 2010)
- Adoption of a Commission regulation on Community-wide performance targets for 2012-2014 (2010+)
- Adoption of national/FAB targets and plans for the period 2012-2014 (2011)

3.3 SES II endorses and reinforces **FABs** as drivers to performance and to change of the industrial ATM landscape. With a firm 2012 deadline, Member States and their air navigation service providers will confirm their commitment to work towards enhanced

² Commission Regulation (EC) No 1794/2006 of 6 December 2006 laying down a common charging scheme for air navigation services.

cooperation and/or integration of services³. Functional airspace blocks should also become the reference level for Performance Regulation and may extend SES beyond EU borders along the wider European Common Aviation Area.

The experience of SES I has shown that the creation of FABs is a far reaching process of change management to overcome fragmentation. The task for Member States is to prepare the current governance structures to the future landscape of the performance regulatory scheme in a regional perspective, i.e. to allow a professional and independent service provider to ally or integrate and so to achieve the targets set in compliance with the performance plan.

SES II introduces a FAB Coordinator in order to facilitate the process of change. The Commission will nominate a person or a group of individuals in 2010, so that Member States can call upon their mediatory services, helping them to deliver. Moreover, active coordination between FABs is expected to deliver results in terms of defragmentation of the ATM system based on exchange of best practices, facilitation for solving technical and operational issues, preparation of the ATM Master Plan deployment.

Priorities prior to the implementation of FABs by 2012:

- Adoption by Member States of the necessary measures at national and FAB levels to ensure the implementation of each individual FAB (2009-2012)
- Adoption of a Commission regulation on information requirements before FAB establishment (2010)
- Appointment of the FAB Coordinator (2010)

3.4 Regional service provision (e.g. at FAB level) can only perform when integrated in the whole network. SES II therefore introduces the **network management function**. The present European level co-ordination will be strengthened to assist air navigation service providers in improving overall efficiency in the design and management of routes, in addition to coordination of frequencies, or the allocation of transponder code pools, etc. and in providing guidance for the deployment of the SESAR related infrastructure. The network management could be improved through the full implementation of the Flexible Use of Airspace and could evolve towards more dynamic concepts. Related implemented rules are expected to be approved by the designation of the network manager in 2011.

The challenge is to strengthen the governance structures responsible for the management of these central functions on basis of SES principles. As these functions steer the daily operations of airspace users and service providers, involvement of industry is key to performance. Again, the partnership between Commission and Member States is instrumental to achieve the required governance change within Eurocontrol, before the Commission may entrust this organisation with specific tasks on basis of Community rules.

³ It has to be noted that in 2008 TEN-T financial support has been already allocated to FAB projects for a total amount of 9 million Euro.

Priorities for establishing the EU ATM network management functions as of 01.2012:

- Adoption of Regulations on the development of route design, of frequency co-ordination plans and of transponder code management functions (end 2010)
- Designation of the network manager by the Commission (end 2010)

3.5 The inclusion of aerodromes, ATM and ANS into the **EASA** total-system approach will contribute to improving safety at network level in line with growing traffic. It will require that EASA accesses the required expertise in these new areas. Respecting the solid safety acquis under SES legislation and the growing experience of national supervisory authorities, EASA will build on existing rules and material so as to provide for a smooth transition. Also, the Commission will assess the integration of the human factors into the implementation of SES no later than 2012. Based on a "joint Commission and EASA approach for rulemaking in the context of the extension of the EASA system to the safety regulation of ATM/ANS"⁴, it is proposed concentrating the first set of ATM related implementing rules to ANS provisions, ATCO licensing and competent authorities in ATM/ANS; the adoption of these rules shall take place by the end of 2012. In order to ensure coherence in the implementation of Single Sky, the Commission will seek the endorsement of the Single Sky Committee on implementing rules in the field of ATM (safety), while appropriately involving the Safety Committee. EASA will keep the SSC regularly informed of all developments during the rule drafting process itself.

To ensure a consistent set of aviation legislation in Europe, with proper implementation and enforcement, EASA should also address issues not yet covered by current legislation, in particular related to the network or developed by SESAR, and on assisting the authorities in their safety oversight functions.

Priorities for strengthening the ATM network safety dimension:

- Requirements for air navigation service providers (end 2012)
- Reformulation of the ATCO licensing directive as implementing rule (end 2012)
- Requirements on competent authorities (end 2012)
- Assessment of human factor (end of 2012)

3.6 The **SESAR** programme should also contribute to performance by pooling the research efforts towards clear goals endorsed in the European Air Traffic Management Master Plan adopted in March 2009.

The programme value added is the fact that the SESAR Joint Undertaking is well embedded in the overall SES institutional set-up. This implies that Community legal and financial instruments can be used to ensure an efficient and effective deployment of the ensuing technologies. Certification procedures may involve EASA if the technology

⁴ This joint paper is submitted to the SSC for discussion in SSC33 as agreed in SSC32.

concerns the network as a whole, which will not only satisfy forward-fit requirements but also the retro-fit aspects of stakeholders. The Commission will adopt the required interoperability rules, in line with international standards, to speed up the pace of technological innovation. In this context, cooperation with the FAA and the US NextGen programme will take place based on the negotiation mandate agreed by the Council in October 2009.

The FABs will become more and more the "vehicle" where the SESAR "motor" will become the heart of the technological system and the ideal place for deployment of advanced technologies and the new platform for FAB coordination will be involved in this process. The Commission will, before end 2010, suggest an update of the ATM Master Plan and come up with concrete proposals on governance and funding of the deployment phase of SESAR, in light of the experience of the development phase and with the aim to achieve the most cost-efficient introduction of new equipment and technologies.

Priorities related to technological innovation based on the SESAR programme:

- Completion of the SESAR programme development phase (2016)
- Update of the ATM master plan (2010-2016)
- Commission proposal to Council and EP on SESAR deployment phase (2010)

3.7 As airspace is the infrastructure for aviation, **airports**, as the entry and exit points to the ATM network, must be integrated in the performance chain. The quality of air navigation service provision depends on airports operations and vice-versa. Green flights begin and end in airports. They require also ground operations and turn-around to be as environmentally and energy friendly as possible. That is why the **gate-to-gate** approach includes the airport dimension through integration of flow of information and operations throughout the system, which includes an appropriate coordination of ATM and airports slots management. The **Observatory on airport capacity** will therefore provide an input as regards the definition of the network management functions. Inputs from the AIRE programme shall be taken into account to ensure early benefits.

4. GOVERNANCE, ASSESSMENT OF PROGRESS, OVERALL PROCESS AND CONSISTENCY

4.1 Any actor in the decision-making chain should contribute along the lines of the roadmap to deliver the paradigm shift towards a more effective and above all more predictable system. Solid **governance** structures need to be implemented as well as effective **monitoring** of progress at national, FAB and European levels, including the implementation of the Eurocontrol institutional reform. The Single Sky Committee, the Industry Consultation Body as well as representatives of the Social Dialogue will assist the Commission in its tasks. It is the intention of the Commission to report on a regular basis to the Council of Ministers and to the European Parliament. In parallel the Commission will monitor that SES II legislation is properly applied.

4.2 The aviation package will be implemented very likely in times of economic turmoil. The sense of urgency during its preparation and adoption process has only been exacerbated. It is time for action and to **deliver results**. The intention is to start with the implementation of the new package immediately after its formal approval, with **2012 as the date for the first performance cycle and the establishment of FABs**. A possible acceleration of the SES implementation will be considered in order to **get early tangible benefits**. Stakeholders will be invited to study how operational measures could be identified urgently bringing immediate benefits (quick wins) to the ATM network.

4.3 The Single European Sky, complemented by the SESAR Programme, will need to be reflected in EU policy related initiatives, such as the guidelines and financing of the TEN-T network and the research programmes. It also provides the overarching context for enabling the safe access to airspace to all users without any discrimination, including the integration of specific constituents like Unmanned Aerial Systems (UAS); explanatory activities shall be initiated to consider how to facilitating the use and the integration of UASs in Europe, which also necessitates proper coordination with ICAO.

4.4 The Single Sky will also deliver results in EU neighbouring countries, especially based on multilateral and bilateral agreements to establish a **European Common Aviation Area**; some of these neighbouring countries are being associated to FAB initiatives. In addition the impact of SESAR in international aviation is leading to the establishment of a closer association to the development phase of the programme from relevant third countries.

Priorities for SES governance, assessment of progress, overall process and consistency:

- Monitoring of the SES II Roadmap implementation progress
- Contribution of the Social Dialogue
- Implementation of the Eurocontrol institutional reform
- Monitoring of the application of SES 2 legislation
- Extension of SES to non-EU States (continuous)

Attachment: Actions to be performed as part of the Roadmap for SES implementation 2009-2014 (Dec. 2009)

**ACTIONS TO BE PERFORMED AS PART OF THE ROADMAP FOR SES IMPLEMENTATION 2010-2014
(Feb.10)**

<i>N b</i>	<i>TITLE OF ACTIONS</i>	<i>LEGAL BASIS</i>	<i>ACTORS CONCERNED</i>	<i>TARGET DATE</i>	<i>COMMENTS</i>
	<u>COMPLETION OF SES FIRST PACKAGE</u>				
	<u>Priorities</u>				
	Monitoring of the application of SES 1 legislation	Treaty art.226	EC, MS	Cont.	Rectification measures, infringement procedures
	Regulation on Surveillance Performance and Interoperability (SPI)	552/2004, art.3	SSC, EC	early 2010	Preparation already going on (mandate to Eurocontrol)
	<u>Other actions</u>				
	NSA Coordination Platform (set up by SSC 31)		EC, MS	Cont.	Work plan and priorities to be agreed and implemented
	Perform Peer Reviews of NSAs	2096/2005, art.9	EC, MS	2010-2012	First peer reviews to take place by mid 2010
	SES / Flexible Use of Airspace annual reports	549/2004, art.12	EC, MS	Cont.	Request for support (ECTL)
	Compliance review of cost basis and charges	550/2004 and 1794/2006	MS	Cont.	Request for support (ECTL)
	Analysis of Terminal Charges	1794/2006	EC	Cont.	Request for support (ECTL)
	Development of electronic aeronautical information (& portal) (Legal basis developed)	551/2004, art.3	ECTL	2012	For deadline IR and supporting material needed

further in SES2)					by 2010/2011
Development of Standardised Rules of the Air (Legal basis developed further in SES2)	551/2004, art.4	ECTL, ICAO, EASA	2010-2012	May be performed in stages, between 2010 and 2012	
IMPLEMENTATION OF SES SECOND PACKAGE - Regulation (EC) No 1070/2009					
IMPLEMENTATION OF THE FIRST CYCLE OF THE PERFORMANCE SCHEME 2012-2014					
<u>Priorities</u>					
Regulation on performance scheme	549/2009, art.11	SSC, EC	June 2010	Vote of the SES Committee in Spring 2010	
Update of Charging Regulation	550/2004 and 1794/2006	SSC, EC	June 2010	Vote together with IR on Performance	
Designation of the Performance Review Body	549/2009, art.11	EC	June 2010	Commission decision	
Regulation on Community-wide performance targets for 2012-2014	549/2009, art.11	SSC, EC	2010+		
Adoption of national/FAB targets and plans for the period 2012-2014	549/2009, art.11	MS/FABs	2011	Early in 2011 following adoption of Community-wide targets	
<u>Other actions</u>					
Implementation of the first performance cycle 2012-2014	549/2009, art.11	EC, MS, FABs	2012-14	Continuous assessment with stakeholders needed	
NSAs to organise themselves for the performance scheme	549/2009, art.11	MS	Cont.	Prerequisite for the success of SES II	

	Liaise with EASA for safety dimension		EC, PRB	Cont.	
	IMPLEMENTATION OF FABs BY END 2012				
	<u>Priorities</u>				
	Necessary measures by Member States at national and FAB levels to ensure the implementation of individual FABs	550/2004	MS, FABs	Cont.	On-going process, bottom-up approach
	Regulation on information requirements before FAB establishment	550/2009	SSC, EC	2010	
	Appointment of the FAB system coordinator	550/2009	EC	2010	A person / group of individuals designated by EC decision
	<u>Other actions</u>				
	Overall coordination between FABs, including techn/operat. issues	N/A	EC, FABs	Cont.	making use of FAB Focal Points Group
	Financial support to FABs	N/A	EC, MS	Cont.	2010 TEN-T Call just published in February 2010
	Guidance material for the establishment and modification of FABs	550/2009 Art.9	SSC, FABs, EC	Cont.	in partnership with FAB Focal Points Group
	Review of the 2008 study on FAB performance	N/A	EC	2011	Mid term review of developments.
	Implementation of FABs	550/2009	FABs, MS	2012	Link with the first performance scheme
	ESTABLISHMENT OF EU ATM NETWORK MANAGEMENT FUNCTIONS AS OF 01.2012				

<u>Priorities</u>					
Regulation on network management functions (route design, frequency coordination plans, transponder code management)	551/2009, art.6	SSC, EC	End 2010	Vote of the SES Committee	
Designation of the Network Manager	551/2009, art.6	EC	End 2010	Commission decision	
<u>Other actions</u>					
Regulation on further development of ATFM	551/2009, art.6	SSC	As needed	Possibly mandate to Eurocontrol depending on ECTL reform	
SAFETY ATM RULEMAKING BY EASA (based on Regulation (EC) No 1108/2009)					
<u>Priorities</u>					
Requirements for Air Navigation Service Providers	BR Art 8b(2) & Annex Vb	EASA, SSC,EC	2010	Fast-track process by EASA allowing swift adoption	
Reformulating ATCO licensing directive as implementing rule (incl. Training organisations and simulator requirements)	BR Art 8c & Annex Vb	EASA, SSC,EC	2010	Fast-track process by EASA allowing swift adoption	
Requirements on Competent Authorities	BR Art 2, 8b, 10, 11, 15, 68	EASA, SSC,EC	2010	Fast-track process by EASA allowing swift adoption	
Immediate EASA support to SES II implementation activities		EASA,SSC,EC	Cont.		
<u>Other actions</u>					
Possible requirements on equipment certification	BR Art 8b(5) & Annex Vb	EASA, SSC,EC	tbd		

	Requirements on design, manufacture and maintenance organisations	BR Art 8b(4) & Annex Vb	EASA, SSC, EC		
	SESAR related safety regulatory coordination	Art. 13a of Framework regulation	EASA, SJU	tbd	In close coordination with SESAR regulatory roadmap
	TECHNOLOGICAL INNOVATION BASED ON THE SESAR PROGRAMME				
	<u>Priorities</u>				
	Completion of the SESAR Programme development phase		SJU	2016	
	Update of the ATM Master Plan	Reg 219/2007so. 30.03.09	SJU, EC, MS, Stakeholders	2010-2016	First report early 2010
	SESAR deployment phase (including governance)	Reso. 30.03.09	EC	2010	Proposal to Council and EP
	<u>Other actions</u>				
	Preparation of deployment (IP1, IP2, IP3)	Reso. 30.03.09	SJU, EC, MS	2009+	with involvement of stakeholders along the lines agreed by SSC
	Memorandum of Cooperation on R&D with FAA including Cooperation with FAA on SESAR-NextGen interoperability	Reso. 30.03.09	EC, MS	2010	Negotiations to be completed by mid 2010
	AIRPORT CAPACITY				
	Contribution to the definition of the Network Magement functions		Observatory	Cont.	Input of the WG 2 "Gate-to-gate"

HUMAN FACTOR DIMENSION							
Promoting involvement of staff representatives at all levels	EC Declaration	EC, MS	Cont.	Fifth pillar in SES II			
Ensuring the adequate level of competence and training	EC Declaration	EC, MS	Cont.	Fifth pillar in SES II			
Build the performance scheme on a genuine safety culture	EC Declaration	EC, MS	Cont.	Fifth pillar in SES II			
Assess integration of the human factors into SES implementation	EC Declaration	EC, MS	End 2012	Fifth pillar in SES II			
GOVERNANCE, ASSESSMENT OF PROGRESS, OVERALL PROCESS AND CONSISTENCY,							
<u>Priorities</u>							
Monitoring of the SES II roadmap implementation process		EC, Council	Cont.	Following Madrid Conference in Feb. 2010			
Reform of Eurocontrol: contribution to SES 2 (PRB, NM, safety/EASA...)		ECTL, EC	Cont.	Setting-up of a SES pillar in the Agency			
Monitoring of the application of SES legislation		EC, SSC, ICB	Cont.	Essential to guarantee the success of the initiative			
Extension of the SES to non-EU States	549/2004, art.7	EC	Cont.	Extension in SES II to non-EU States part of FABs			
<u>Other actions</u>							
Safety requirements for SES: EASA transition path		SSC	2009-2012				

	FP 7 mid term review and FP 8 preparation		EC	2010			
	SES and SESAR to be reflected in the revised TEN-T Guidelines		EC, Council, EP	2010	Based on Green Paper consultation		
	Financing of ATM modernisation		EC,Council, EP	2010	Including new EU financial instruments		
	Facilitation of insertion of Unmanned Aerial Systems (UAS)		EC, ICB	2010	Work is currently going on in ICAO		