REGULATORY IMPACT ASSESSMENT

ON

THE EXTENSION OF THE EASA SYSTEM TO THE REGULATION OF AIR TRAFFIC MANAGEMENT AND AIR NAVIGATION SERVICES (ATM/ANS)

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List of acronyms

ACC	Area Control Centre
AIB	Accident Investigation Body
AFIS	Aerodrome Flight Information Service
AMC	Acceptable Means of Compliance
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
AOC	Air Operator Certificate
ASM	Airspace Management
AST	Annual Safety Template
ATC	Air Traffic Control
ATCO	Air Traffic Control Official
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATS	Air Traffic Services
ATSP	Air Traffic Service Provider
CFIT	Controlled Flight Into Terrain
CFMU	Central Flow Management Unit
CoO	Concept of Operations
CRD	Comment Response Document
CS	Certification Specification
CTR	Controlled airspace volume around an aerodrome
DOA	Design Organisation Approval
EASA	European Aviation Safety Agency
EC	European Commission
ECAC	European Civil Aviation Conference
EGNOS	European Geostationary and Navigation Overlay Service
ERs	Essential Requirements
ESARR	EUROCONTROL Safety Regulatory requirements
ESIMS	ESARR Implementation Monitoring and Support
EU	European Union
FAB	Functional Airspace Block
FIR	Flight Information Region
FMP	Flow Management Position
FTE	Full Time Equivalent
FUA	Flexible Use of the Airspace
GSA	GNSS Supervisory Authority
GNSS	Global Navigation Satellite System
HLG	High Level Group
HST	High Speed Train

ICAO	International Civil Aviation Organisation
ICASC	International Committee for Airspace Standards and Calibration
ICB	Industry Consultation Body
IFR	Instrument Flight Rules
IRs	Implementing Rules
IS-SG	Inter-Service Steering Group
JAMC	Joint (civil-military) Airspace Management Cell
LCIP	Local Convergence and Implementation Plans
MCA	Multi – Criteria Analysis
MS	Member State
NAA/NSA	National (or Civil) Aviation Authority/Supervisory Authority
NPA	Notice for Proposed Amendment
OPS	Operations
POA	Production Organisation Approval
QMS	Quality Management System
RIA	Regulatory Impact Assessment
RNAV	Area Navigation
RVSM	Reduced vertical Separation Minima
SARPs	Standards And Recommended Practices
SES	Single European Sky
SESAR	Single European Sky ATM Research
SJU	SESAR Joint Undertaking
SME	Small/Medium Enterprise
SMS	Safety Management System
SRC	Safety Regulation Commission
TSA	Temporary Segregated Areas
TWR	Tower
UAS	Unmanned Aerial Systems
UIR	Upper (flight) Information Region
VLJ	Very Light Jet

Executive Summary

The purpose of this Regulatory Impact Assessment (RIA) is to evaluate, from a European perspective, the potential consequences of extending the Basic Regulation[1] to Air Traffic Management (ATM) and Air Navigation Services (ANS).

The present RIA builds upon the preliminary impact assessment performed in 2005 at the initiative of the Commission services. It was conducted by the Agency, according to the methodology issued by the Executive Director of the Agency to implement the provisions of paragraph 5.3 of the Agency's Rulemaking procedure.

Stakeholders have been extensively consulted and in particular their 1860 replies to NPA 2007-16 have been presented in CRD 2007-16 published by the Agency on 18 March 2008.

The RIA supports the Agency's Opinion that the EASA system[2] shall be used to:

- Improve the safety of ATM and ANS, which could cause around 18 accidents per year (1/3 of them with fatalities) and around 90 000 incidents in the next two decades;
- Reduce the costs, which could be generated by ATM/ANS related accidents and incidents within the EU 27+4[3] and which can be estimated in the order of 680 M€/year;
- Implement a total system approach for regulating civil aviation safety ;
- Establish a robust regulatory framework in the EU 27+4, clearly separated from service provision, as well as from other forms of regulation or public intervention;
- Support the pan-European SESAR project by identifying a single safety regulator able to follow developments and ease implementation by an early identification of certification means;
- Improve at EU level the reporting rate of incidents and ATM occurrences.

General, specific and operational objectives have been identified. Result indicators correlated to the specific objectives have been used in the present RIA.

Following comments received to NPA 2007-16, the Agency felt necessary to evaluate the impact of extending its Basic Regulation, as compared to embedding its safety regulatory role in the SES framework.

It also identified questions put in NPA 2007-16 for which impact assessment was necessary before conclusions could be drawn:

- Question 1, which asked whether deciding on the concepts of operations was a governmental function or that of air traffic services providers;
- Question 3, which asked whether ASM and ATFM have to be considered of a regulatory or service provision nature;
- Question 6, which asked whether the provision of certain services should not be subject to certification;

[1] Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 079, 19.03.2008, p. 1).

[2] The EASA "system" encompasses the complementary functions of the Agency and of the competent aviation authorities of the Member States, for the execution of the respective regulatory tasks assigned to them by the legislator.

[3] Iceland, Liechtenstein, Norway and Switzerland, in addition to the EU 27 are part of the "EASA system".

- Question 8, which asked whether the certification of pan-European ATM/ANS service providers should be done by the Agency; and in such a case, what should be the criteria to define the pan-European nature of the service.

Alternative options have been developed for each point to be analysed. Such options have been assessed for their impact in terms of safety, economy, environment, social impact and relationship with other relevant Community regulations. Subsequently they have been compared using non-dimensional "weighted scores" in accordance with a Multi-Criteria Analysis.

Based on the results of these assessments, the Agency in its Opinion decided to:

- select option 0B (see paragraph 2.6), which means extending the scope of the Basic Regulation instead of embedding the role of the Agency into SES legislation, since the former scores about twice better than the latter in safety terms, while being the cheapest in overall economic terms). Its social impact is very limited and can be easily mitigated by transferring the concerned FTE (full time equivalents) to the Agency. Last but not least it is the only one providing for the separation between safety and other aspects of regulation;

- discard options 1A and 1B (see paragraph 2.7) and therefore recommend not to include provisions for the safety regulation of the "generic" concept of operation into the Basic Regulation. This in any case will not prevent SESAR Joint Undertaking and the Agency to conclude proper arrangements to contribute to the validation of the SESAR safety deliverables also from the regulatory point of view;

- select option 1C, which considers the "specific" concept of operations (which imposes obligations on both the airspace users and the service providers) a regulatory activity, whether carried out at EU or national level. This option scores twice as much than 1D (i.e. consider this part of the service provision); it scores indeed much better in safety terms, implies no additional costs and minimises impact on other aviation legislation outside the the Agency remit, while being neutral in environmental and social terms;

- select option 3C (see paragraph 2.8) which considers central ATFM to be of a regulatory nature, while local/regional ATFM is of an operational nature, since this option has the maximum positive safety impact, the most reduced cost and undisputable compatibility with the principles and rules for the fair competition in the internal market;

- recommend option 3D (see paragraph 2.9), which considers ASM at EU or national level, and during the strategic, pre-tactical or tactical phase, always a regulatory function, since this option outscores the two alternatives in safety and economic terms (zero additional cost), while it will also be compatible with present legislation outside the the Agency mandate; this however will not prevent States to delegate to ANSPs ASM functions at local level if so wished;

- select option 6B (see paragraph 2.10), which means that the SMEs offering AFIS (or apron management) should be subject to proportionate common rules, and have the obligation to declare their capabilities, since this option scores about four times better than its alternatives, with reference in particular to economic efficiency and relationship with other Community legislation;

- select option 8C (see paragraph 2.11), which consider that ANSPs providing services in four or more States will be under oversight by the Agency since this option scores globally about twice as much and outscores the others in economic terms, while being also the best in terms of safety.

The above proposals are in line with the positions expressed by many stakeholders as they emerged from the extensive consultations (see paragraph 2.2.) and in particular from the 1860 comments to NPA 2007-16 and the 100 reactions to the related CRD.

The impact of the combination of the six selected options is summarised in the table below:

Impact			**Selected Options**						**TOTAL**
			OB	**1.C**	**3C**	**3D**	**6B**	**8B**	
Item		**Unit**	**Ext. B.R.**	**Gen. CoO* out; Spec. CoO regul.**	**Central ATFM gov.; local regulated**	**ASM regul.**	**"self declar." for SMEs**	**Real P-E by EASA**	
Safety		Weighted Score	9	7.4	7	7.5	7.2	9	**47.1**
Environmental		Weighted Score	0	0	0	0	1	0	**1**
Economic	For the Agency	K€/ year	3,150	0	15	0	0	600	**3,765**
	TOTAL	K€ / year	- 17,139	0	0	0	- 265.8	600	**- 16,805**
Social	Agency	Jobs	21	0	0	0	0	0	**21**
	ECTL**		- 10	0	0	0	0	0	**- 10**
	Authorities		- 8	0	0	0	0	0	**- 8**
	Partial total public sector		**3**	**0**	**0**	**0**	**0**	**0**	**3**
	Partial total private sector		**0**	**0**	**0**	**0**	**0**	**0**	**0**
	TOTAL		**3**	**0**	**0**	**0**	**0**	**0**	**3**
On other EU law		Weighted Score	3	1.33	3	3	3	2.2	**15.53**

* Concept of operations
**EUROCONTROL

None of the selected options has a detrimental safety impact. On the contrary all of them have the best score in safety terms when compared to the respective alternatives.

The costs associated with the extension of the competences of the EASA system to the safety regulation of ATM/ANS is estimated in the order of 1,815 k€ per year for the Agency, paralleled by savings for the stakeholders of the order of 17 M€/year, due not only to a marginal increase of safety (estimated only 1%), but mainly due to streamlining the processes and de-fragmenting the regulatory framework.

In addition the proposed policy should lead to a marginally positive contribution to environmental protection.

In social terms the proposed policy, will have an insignificant impact. No social impact at all on the private sector already subject to SES obligations. Eight jobs lost in the national authorities, which could however easily be reused for better oversight of the ANSPs. Eight jobs lost in EUROCONTROL, which could be transferred to the Agency. Sixteen jobs created in the Agency, including the gradual replacement of the EUROCONTROL effort.

Finally, the proposed policy could also contribute to better align the safety regulation of ATM/ANS, not only with the rest of the Basic Regulation, but also with the "new approach" and with other aviation policies and internal market legislation. The sphere of competence of the Agency will strictly be limited to safety regulation, in compliance with the recommendations of the HLG, and this will also create a better distinction of roles in respect to SES.

On the basis of this RIA, it is then considered that the extension of the EASA system to the safety and air/ground interoperability of ATM/ANS is justified in terms of safety and economic benefits; it will also allow streamlining and making more consistent the aviation legislation in EU.

1. Introduction & Scope

1.1 Context

According to the last published EUROCONTROL long term forecast[4] (scenario C, i.e. sustained economic growth within more stringent environmental constraints), air traffic is expected to **continue to grow** in the next decades. All other stakeholders concur on this general trend. Although scientific forecasts differ on the actual numbers and yearly percentage increases of the continued growth, it can be noted that in Europe, in the years 2003 to 2007, the average yearly growth rate was 5.4%.

According to the Commission Communication[5] on the implementation of the Single European Sky, the impact of global instability on the energy market has resulted in a huge increase in fuel costs and led the airline industry to further seek for economic performance as it operates in a largely liberalized internal market, where it also competes with other transport modes. In this context, airlines have identified air navigation service provision and flight patterns as major areas for improvement. Their request for better performance of ATM/ANS service provision has become the main driver for change.

However, the combination of the extended growth and of the search for increased economic efficiency is likely to pose **new safety challenges** as described in paragraph 2.3.1 below

Increasing capacity and improving safety, while providing for the best possible economic efficiency, was indeed the background of the "Single European Sky" initiative, which has already established Community competence for Air Traffic Management (ATM) and Air Navigation Services (ANS)[6].

SESAR deliverables also show a continuing traffic increase and confirm that the challenge is to create a new system able to meet an overall **threefold increase in air traffic**[7], while at least maintaining the current quality of service at a reduced cost for the users This roughly means handling around 30 million IFR flights in Europe instead of the current 10 million per year.

The EASA system, which has been designed to respond to industry's needs in a competitive environment and, in addition to providing for a high uniform level of civil aviation safety, has received the mandate by the legislator:

- to facilitate the free movement of persons and services;
- to promote cost-efficiency in the regulatory and certification processes;
- to provide a level playing field for all actors in the internal aviation market,

should therefore be able to contribute to improving economic efficiency at least in two ways:

- Rational use of resources for regulatory and certification processes;
- Development of rules proportionate to the related safety risks and the type and complexity of the activity they cover.

1.2 An iterative process for impact assessment

1.2.1 "Better Regulation"

[4] EUROCONTROL long term forecast 2006-2025: http://www.eurocontrol.int/statfor/gallery/content/public/forecasts/Doc216%20LTF06%20Report%20v1.0.pdf

[5] COM(2007) 845 final of 20 December 2007 - COMMUNICATION FROM THE COMMISSION - First Report on the implementation of the Single Sky Legislation: achievements and the way forward

[6] Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European Sky (*OJ L 96. 31.3.2004, p. 1*).

[7] SESAR Deliverable D1, version 3.0, dated July 2006: http://www.sesar-consortium.aero/deliv1.php

According to the principle of "better regulation" the Commission shall produce an impact assessment when submitting a proposal to the legislator. The same principle applies to the Agency, which shall also carry out a Regulatory Impact Assessment (RIA) in support of its opinions.

Having identified the problem as reflected in sub-paragraph 1.2.2 below, the work has been organised in order to reduce duplication of effort. The Commission has carried out a preliminary impact assessment, an assessment of the administrative costs, and a final Impact Assessment; the latter focusing on "whether" the competences of the Agency should be extended.

It was agreed then that the Agency would produce a specific RIA on "how" the extension to aerodromes could be implemented[8] and the present document on "how" the same extension could also encompass ATM/ANS.

The following sub-paragraphs in this Chapter 1 summarize, for ease of reference, the extensive iterative impact assessment work carried out in synergy by the Commission services and the Agency. This work included extensive consultation with stakeholders.

1.2.2 Identification of the problem

In Europe, commercial aviation safety dramatically improved from the early 1970's (i.e. about 200 victims per million IFR flights) to 1995 (i.e. down to about 10 victims per million IFR flights) as highlighted in the mentioned Agency RIA on aerodromes. Since then, however, despite significant technological improvements, the accident rate remained almost constant. In the case of ATM/ANS, new types of demand (Unmanned Aerial Systems and very light jet in particular), the increase of traffic and commercial pressure, are likely to pose new challenges.

To further reduce the accident probability, it is necessary to act not only on technology, but also on other aspects of the "safety chain". It is clear that the current safety performance is achieved by the collective efforts of a professional, highly skilled and safety conscious workforce. The question is not however only how the current safety performance could be maintained, but how it can be improved further in the near future, to face the new challenges while optimising the use of resources at European level. It can be envisaged that further safety improvements depend strongly on the ability to introduce uniform safety management systems (SMS) by all stakeholders in an effective and harmonised way throughout Europe. But SMS is only one of the necessary tools; the safety regulatory processes also need to be considered, as well as the interfaces among the SMSs of various entities and the consolidation of the SMS requirements across all aviation domains. In this respect, although ICAO rules function as a world-wide regulatory umbrella, these rules are subject to differences in application. In addition, ICAO issues many recommendations, which are not mandatory for contracting States. Thus, in the current situation, clear differences exist between Member States in the fields of ATM/ANS, since much of the implementation activities are carried out at Member States level, without strong central oversight or centralized certification of the emerging pan-European ANSPs. Large diversity occurs even where central co-ordinating activities have been undertaken (e.g. in the field of ATM). Consequently the applied methodology for certification and for safety oversight, if any, varies strongly between Member States. Allocated resources are as well different between Member States. Another drawback of the present situation is that there is a lack of an overall "total system" approach to air transport safety. The different domains are handled by different organisations, while it is increasingly recognized that air transport safety would benefit from a holistic consistent gate-to-gate approach that integrates ATM, ANS, aircraft equipment, air and aerodrome operations, as well as personnel competency.

In particular the following main problems should be addressed in the ATM/ANS domains:

- increase safety levels in the face of continuing air traffic growth foreseen for the next decades (i.e. about +3% per annum);

[8] http://www.easa.europa.eu/doc/Rulemaking/opinions/Translations/03_2007/RIA%20Opinion%203-2007.pdf

- facilitate the safe introduction of new technologies;
- introduction of a "total system approach" to safety regulation encompassing the airborne and ground segments, as well as people and organisations carrying out operational tasks interfaced to Air Traffic Services (ATS), taking into account their inter-relationships;
- avoid multiple certification processes for organisations providing services in different domains[9] or for equipment[10];
- define legal responsibilities and associated liabilities, especially in the perspective of "unbundling" of ANS[11], or in the case of providers of very complex systems (e.g. satellite based);
- address the "patchwork" of the fragmented aviation safety regulatory framework at European level, as highlighted by the High Level Group established in 2006 by Vice President Jacques Barrot[12].

1.2.3 The Commission's preliminary impact assessment

A preliminary impact assessment was carried out in 2005 by a consultant contracted by the Commission[13]. The study concluded that indeed extending the competences of the Agency was the most logical, effective and efficient option. In particular, according to the opinion of the consultant, the extension of the EASA system would produce notable safety benefits, especially when compared with the "do nothing" option.

The results of both the interviews and the questionnaires under the responsibility of the consultant (i.e. ECORYS) hired by the Commission, had been used to develop and substantiate the analysis done on the various topics during the preliminary impact assessment, such as problem analysis, assessment of impacts and comparison of options. In each of the main chapters of that study, the stakeholders' views have been presented in a separate section. Furthermore, a detailed analysis of the results of the questionnaire was provided in Annex B of the said document. Stakeholders had been identified through their membership in the Board of the Agency or as being significant stakeholders in the ICB (Industry Consultation Body), representative of relevant international organisations. In addition also a sample of ANSPs and aerodrome operators had been consulted.

1.2.4 The Commission's final impact assessment

The Commission services have then developed in March 2008, the final impact assessment; which shall accompany its legislative proposal for the extension ofthe Agency's competencies, focusing again on "whether" the competence of the Agency should be extended to aerodromes and ATM/ANS. Based on the work done so far and the results of the consultations conducted by the Commission, the recommendations of the High Level Group, the Council conclusions on the Commission's Communication on the implementation of the single European Sky, as well as the Agency's work and consultations, this final impact assessment concluded positively on the matter.

1.2.5 The present regulatory impact assessment

Community competence for ATM and ANS has already been established when adopting the SES legislative package. As mentioned here above all assessments made so far conclude

[9] As an example the Spanish company AENA which is both an aerodrome operator (and hence subject to the essential requirements in the Basic Regulation once approved by the legislator) and an ANSP (hence subject to Commission Regulation (EC) No 2096/2005 of 20 December 2005 laying down "common requirements" for the provision of air navigation services; *OJ L 335, 21.12.2005, p.13*).

[10] E.g. for verification of suitability for use of the airborne part of ATM, which is in the scope of both the EASA Basic Regulation and of Article 5 of Regulation (EC) No 552/2004 of the European Parliament and of the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (*OJ L 96, 31.3.2004, p. 26*).

[11] Article 7.3 of Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (*OJ L 96, 31.3.2004, p. 10*).

[12] Final Report of the High Level Group for the future European Aviation Regulatory Framework (July 2007): http://ec.europa.eu/transport/air_portal/hlg/doc/2007_07_03_hlg_final_report_en.pdf

[13] http://ec.europa.eu/transport/air_portal/traffic_management/studies/doc/finalized/2005_09_15_atm_en.pdf

to the need to make one more step in the rationalisation of civil aviation safety regulation at Community level by extending the competence of the Agency to the regulation of ATM and ANS. The Agency considered then that the "if" question had been answered.
It remained then necessary to address the question of "how" this should be done in the same way than this had been done as regards the extension of the EASA system to the safety regulation of aerodromes[14]. The purpose of the present document is therefore to assess[15], in the above context, the impact of possible alternative solutions. As the intention is to build as much as possible on the regulatory processes established under the SES, the Agency did not find appropriate to assess the impact of such processes when its proposed approach would not depart from them. At the contrary it felt necessary to further assess possible changes to such processes, as well as to examine some issues it considered to be insufficiently clear in the SES context. As a result the present regulatory impact assessment concentrates on the following points:
Should the Agency competence be established by amending the Basic Regulation or by introducing provisions governing the role of the Agency into the Single European Sky (SES) Regulations[16]?
Is deciding on the concepts of operations a governmental function or that of air traffic services providers?
Should ASM and ATFM be considered of a regulatory or service provision nature?
Should the provision of certain services be exempted from certification?
Should the certification of pan-European ATM/ANS service providers be done by the Agency; and in such a case, what should be the criteria to define the pan-European nature of the service?

In summary, the present regulatory impact assessment complements an iterative process conducted over a period of three years in full cooperation between the Agency, the Commission services and the many stakeholders involved in the many extensive consultations, which took place on the possible extension of the EASA system to aerodromes, ATM and ANS.

[14] Opinion No 3/2007 of the European Aviation Safety Agency for amending Regulation (EC) No 1592/2002 of the European Parliament and of the Council of 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, to extend its scope to the regulation of safety and interoperability of aerodromes
http://www.easa.europa.eu/doc/Rulemaking/opinions/Translations/03_2007/Opinion%203-2007.pdf

[15] Stakeholder positions/replies are not fully analyzed here in detail, since they have been summarized in the Comment Response Document (CRD 2007-16) published on the Agency website on 18 March 2008, http://www.easa.europa.eu/ws_prod/r/doc/CRD-2007-16.pdf

[16] Regulations (EC) No 549/2004 (the framework Regulation), (EC) No 550/2004 (the service provision Regulation), (EC) No 551/2004 (the airspace Regulation) and (EC) No 552/2004 (the interoperability Regulation), of the European Parliament and of the Council of 10 March 2004 (*OJ L 96, 31.3.2004, p. 1-42*).

2. Regulatory Impact Assessment

2.1 Approach to impact assessment

2.1.1 Qualitative and quantitative assessment

A Regulatory Impact Assessment (RIA) is an evaluation of the pros and cons of an envisaged rule or modification to legislation, taking into account various possible options to reach the expected community goal (i.e. more effective and efficient safety regulation of ATM and ANS), while quantifying as much as feasible their impact on all categories of affected persons and organisations.

The depth of the study shall be proportionate to the likely impact of the proposal, as stated in the applicable Commission guidelines for impact assessment. These impacts shall be analysed from different perspectives. Therefore this RIA, affecting the aviation sector and in particular ATM/ANS, considers in particular the following items for impact assessment:

- safety;
- economy;
- environment;
- social;
- and impact on other EU law requirements outside the present EASA scope, but which are also directly or indirectly related to aviation.

More particularly the impacts listed above have been assessed qualitatively or quantitatively, as presented in Table 1:

Assessment	**I M P A C T**					
	Safety		**Economy**	**ENV**	**Social**	**Impact on other aviation requirements**
	Past	**Future impact**				
Quantitative	X					
Coarse quantitative		X	X		X	
Qualitative		X	X	X	X	X

Table 1: Qualitative and quantitative impact assessment

Each of those five items for impact assessment will be reviewed individually in § 2.6 to 2.11 below.

2.1.2 Assessment methodology

The applied methodology for impact assessment is structured in 6 steps:

- Problem analysis described in paragraph 2.3;
- Definition of objectives (general, specific and operational) and indicators as presented in paragraph 2.4;
- Identification of alternative options for the main issues emerged from the consultation (i.e. relationship with SES legal acts; concept of operations; Air Traffic Flow Management – ATFM; Airspace Management – ASM; small/medium enterprises like Aerodrome Flight Information Services – AFIS; and certification of pan-European ANSPs) in paragraph 2.5;
- Identification and estimation of the size of the target group;

- Identification and assessment of impacts of each possible option for all five items listed in 2.1.1 in order to determine the most significant ones;
- Conclusive Multi-Criteria Analysis (MCA).

The possible impacts are highly correlated with the general and specific objectives identified in 2.4.2 and 2.4.3 below. Their measurement is based on the monitoring indicators (outcome and result indicators) presented in paragraph 2.4.5 below. However the indicators related to the general objectives, could be influenced very significantly by other policies. Therefore it is not proper to consider them when assessing the impact of the proposed extension of the Agency's competence to ATM and ANS.

The main use of the general objectives is to support the definition of the specific objectives for the proposed policy. The result indicators correlated to these specific objectives will be used in the present RIA as appropriate; they also could be used in the future for regular evaluation of the performance of the EASA system. In this context operational indicators have been identified in paragraph 2.4.5; although there are not utilized for the present RIA, they could be used in the future to also continuously benchmark the progress of the proposed initiative.

After all impacts for each main issue and each related policy option have been identified, in relation to the said specific objectives, the results are presented in summary in an impact matrix in the conclusive sub-paragraphs in 2.6 to 2.11 below. The procedure to develop such a matrix is the Multi-Criteria Analysis (MCA), carried out through the following detailed steps:

- Identification of the specific objectives, which are applicable for all the proposed alternative options;
- Correlation of each option to the potential items of impact which are relevant, in order to allow the comparison of the options;
- Establishment of measurement criteria (through the result indicators) - at least in qualitative terms and where possible in quantitative terms (in the latter case taking into account the size of the target group);
- Scoring how well each option meets the criteria, expressing each impact, whether measured quantitatively or assessed qualitatively, in a non-dimensional ranking ("score"): i.e. -3 for very negative impact, -2 for medium negative, -1 for little negative impact, 0 for neutral impact and up to +3 for positive impacts;
- Assigning "weights" to each impact item to reflect its relative importance: weight 3 has been assigned to safety and environmental impacts; 2 to economic and social impacts and 1 to impact on other EU law;
- Finally compare the options by combining their respective weighted scores.

2.2 Stakeholders' Consultation

A structured and iterative consultation of the stakeholders (in addition to mails and informal exchanges) has been carried out via twelve mechanisms so far, as summarised in Table 2 below:

N.	Responsible	Consultation period	Target Group	Mechanism	Results
1	ECORYS	Mid 2005	More than 70 selected stakeholders	Questionnaires	56 received. Summary of replies in the ECORYS report
2	ECORYS	Mid 2005	25 key stakeholders	Interviews	Summary of replies in the ECORYS report
3	EASA	Dec 2005	Advisory Group of National Authorities (AGNA)	Consultation on EASA annual Rulemaking Programme	Task BR.003 approved
4	EASA	Dec 2005	Safety Standards Consultative Committee (SSCC)		Task BR.003 approved
5	EASA	Dec 2005	AGNA	Consultation on ToRs for task BR.003	ToRs published
6	EASA	Dec 2005	SSCC		ToRs published
7	EASA	Dec 2007	Public through web consultation	NPA 2007-16	1860 comments received. CRD published
8	EASA	Mar 2008	Public through web consultation	CRD 2007-16	100 reactions received by 18 stakeholders. Taken into account for the Opinion
9	EC	Since early 2006	National Supervisory Authorities	Attendance to EUROCONTROL SRC meeting	Constant attendance and debate at meetings
10	EC	Since early 2007	National Authorities	SES Committee	Constant information provided at meetings
11	EASA	Since 2007	EGNOS and Galileo	Regular attendance to GALCERT meeting	Improved understanding with GSA & ESA
12	EASA	Since 2007	IRIS (Communication services via satellite)	Regular attendance to the group of external experts	Improved understanding with ESA

Table 2: Consultation of stakeholders

The Commission has constantly provided information on the progress of work on the extension of the EASA system to the Single Sky Committee (SSC), to the mentioned ICB and to the EUROCONTROL Safety Regulation Commission (SRC).

On its side the Agency, as required by its rulemaking procedure, has consulted twice AGNA and SSCC respectively on the inclusion of task BR.003 into the Rulemaking Programme and then on the detailed ToRs for its progress. Since 2007 the Agency has also spared no effort for liaising not only with the competent authorities, but with key stakeholders for very complex pan-European systems, such as those including a space segment. These stakeholders included the GNSS Supervisory Authority (GSA) and the European Space Agency (ESA).This effort has contributed to the quantity and quality of comments received on the NPA 2007-16. More than 1800 received comments were analysed, as described in CRD 2007-16 published on 18 March 2008. Finally also the CRD received 100 reactions, which again have been analysed in preparation of the present Opinion.

In conclusion, and obviously within the limits of the available resources, all stakeholders had multiple opportunities to express their views to the Commission and to the Agency, in line with the principles for "better regulation".

2.3 Problem analysis

2.3.1 ATM/ANS Safety level in Europe

2.3.1.1 Source of safety information

Each year the EUROCONTROL Safety Regulation Commission (SRC) publishes an annual safety review available on the web. The 2007 edition[17] of this report, containing data until 2006, has been used as the main source of factual data in this paragraph.

2.3.1.2 Safety culture and reporting

In 2006, 24 States reported to EUROCONTROL ATM specific occurrences in their AST[18] report comparing with 21 the year before. This is **less (about 63%) than the total number** of EUROCONTROL Member States[19], due either to a lack of access of the Focal Point[20] to ANSP safety data, or to this type of occurrence simply not being collected. Furthermore the total number of occurrences reported and the quality of the data significantly varies between States.

Where AST Focal Points have access to ANSP safety data, combined with a good reporting system, the numbers of ATM specific occurrences reported were high, although including a large proportion of minor technical events with no safety impact. However in 2006, 5 States each reported more than 500 ATM specific occurrences, while 10 out of the 24 States reporting ATM specific occurrences (i.e. 42%) reported less than 10 occurrences per year.

This is highlighted by EUROCONTROL SRC Annual Report, that indicates a large variation of reporting cultures in organisations and authorities and stresses the need for more effective standardisation at EU level.

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[17] EUROCONTROL Safety Regulation Commission – Annual Safety report 2007: http://www.eurocontrol.int/src/gallery/content/public/documents/report/srcdoc43_e1.0_ri%20-%20EPR%20Final.pdf

[18] Annual Safety Template

[19] Currently 38, including: 25 EU States (except Estonia and Latvia), 2 States associated also to EASA (Norway and Switzerland), 6 States from the European Common Aviation Area (Albania, Bosnia-Herzegovina, Croatia, FYROM, Montenegro and Serbia), and 5 more ECAC States (Armenia, Moldova, Monaco, Turkey and Ukraine).

[20] Nominated by Member States as required by ESARR 2.

It also notes that the EUROCONTROL Safety Regulatory Requirement (ESARR) 2[21] on reporting and assessment of safety occurrences in ATM was published, in its edition 1.0 on 12 November 1999, with applicability from 1 January 2000; and that, after seven years, barely 2/3 of the involved States reported to EUROCONTROL. This is considered to be a clear symptom of slow progress under intergovernmental arrangements.

The reports submitted by the Focal Points to EUROCONTROL in 2007, based on the requirements from ESARR 2 and Directive 2003/42/EC[22], however, indicate further progress in implementing the safety reporting culture by individual staff. Nevertheless, according to the mentioned SRC Annual Report, there are still a number of issues requiring attention, including:

- In a number of ECAC[23] States there is a lack of a "Just Culture" environment with regard to the reporting of occurrences and, although this most important issue is being dealt with at global, European and national level, progress is still lamentably slow.
- The continued lack of resources and qualified staff at national level, dedicated to safety data collection and analysis.

The lack of resources will be discussed further in paragraph 2.3.3.2 below. The issue of the "just culture" will not be considered further in the present RIA, since the legislator has already and recently adopted specific provisions for the protection of the source of information[24].

2.3.1.3 Total number of ATM/ANS accidents, incidents or occurrences

Preliminary data on the total number of accidents in Europe for 2006 (for aircraft with MTOM > 2250 kg), compared to 2005, show an increase (from 85 to 96). Less than 10% of those accidents resulted in fatalities. However the contribution (direct or indirect) by ATM/ANS to the number of accidents, according to the mentioned SRC Annual Report 2007, has remained low: in the range of 6 out of 96 accidents (i.e. around 6%). For accidents the rate of reporting (versus the total estimated number of similar events not reported) can be assumed to be 100%.

The numbers of high risk bearing ATM incidents decreased slightly in 2006, still totalling about 600 of such incidents per year. Even in this case, it is optimistically assumed that the reporting rate is 100%.

Furthermore EUROCONTROL estimates that the total 9600 ATM related incidents (including those with minor severity and not bearing a significant safety risk) reported in 2006, could represent only 31% of the actual total. Therefore the Agency estimated that the total number of ATM related incidents in ECAC in 2006 was in the range of 30 000 per about 10 million IFR flights.

EUROCONTROL also records that 15 658 ATM related occurrences[25] have been reported for 2006. EUROCONTROL does not estimate the reporting rate for this type of events. The Agency assumes that it could be in the range of 30% as for the incidents.

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21 http://www.eurocontrol.int/src/gallery/content/public/documents/deliverables/esarr2_awareness_package/esarr2e20ri.pdf

22 Directive 2003/42/EC of the European Parliament and of the Council of 13 June 2003 on occurrence reporting in civil aviation *(OJ L 167, 4.7.2003, p. 23).*

23 European Civil Aviation Conference, grouping today 42 States, including all the Members of EU 27.

24 Article 16 of already mentioned Basic Regulation (EC) No 216/2008 of 20 February 2008.

25 it is to be noted that this number includes a large proportion of minor technical events, which have no safety impact due to the existence of proper back-up mitigation measures, such as redundancies and automatic reconfiguration.

According to the preliminary study carried out by ECORYS in 2005, in the 10 years time frame of 1994-2004 there were an average of 3.9 fatal commercial air accidents per year within Europe, in which ATM/ANS issues were contributing factors. If nothing were done to further improve safety, i.e. if the accident rate remains at the current level, this would result in a number of 6 to 8 fatal commercial air accidents per year in 2025 with an ATM/ANS causal factor.

In paragraph 1.1 above, it has been recalled that SESAR estimates a three-fold increase in the traffic level over ECAC: i.e. 30 million IFR/flights per year, versus the current 10 millions. All the experts concur that significant increase of traffic, if nothing were implemented to improve safety, will lead to an increase of safety events. Some estimate that, since the increase of traffic will lead to increased density in time and space, the related increase of safety events could not be linear, but on the contrary exponential (i.e. much higher). The Agency however observes that no consensus exists yet on the quantification of the said exponential increase. Therefore, in following table 3, only a very prudent linear increase of safety events is assumed:

Safety events with ATM/ANS (direct or indirect) contribution	Reported to EUROCONTROL in 2006	Estimated reporting rate	Estimated total number of events per 10 million IFR flights/year	Linear extrapolation of number of events for 30 million IFR flights/year
Accidents with fatalities	3.9 (reported by ECORYS)	100%	N.A.	**6-8** (estimated by ECORYS)
Accidents	6	100%	6	**18**
Risk-bearing incidents	600	100%	600	1,800
Total incidents	9,600	31%	30,000	90,000
ATM occurrences	15,658	30%	50,000	150,000

Table 3: Estimated number of total ATM/ANS related safety events

2.3.1.4 ATM/ANS accidents, incidents, occurrence and related categories

In the mentioned Annual Safety Report 2007, the EUROCONTROL SRC also assessed the most relevant accident/incidents categories. In particular the category "**Collision on the ground**" was found to be the most-significant in accidents, accounting for 11% of the total in 2006. Therein the most risky event is the **Runway Incursions,** 667 cases of which were reported in ECAC in 2006: almost 2 runway incursions per day. This total shows an increase of 6% in 2006 compared to 2005. Although the overall trend in the highest severity incursions is decreasing, this type of occurrence, also in the light of the expected continuing increase in airport throughput, will require continuous attention and effort.

The category "**Controlled Flight into Terrain (CFIT)**" has shown an increase in 2006 over 2005 (from 5 to 7). CFIT remains the second most significant category. It has to be noted that CFIT can also occur at minor aerodromes, by IFR general aviation traffic, where often no vertical radio navigation signals are provided today. The total number of incidents in the category "Near Controlled Flight into Terrain (Near CFIT)" has decreased (21 in 2006, 31 in 2005). However, the risk bearing incidents are almost at the same high level as in 2005 (3 severity A in 2006 vs. 4 in 2005, and 6 severity B in both 2006 and 2005). Moreover, the proportion of high risk bearing Near CFIT is very high.

Total numbers of incidents in the category **Separation Minima Infringements** have registered a small decrease of less than 2% (in absolute numbers) and 6% in normalised figures compared with 2005. This decrease was also reflected in the high risk bearing separation minima infringements. In total this category still accounts for about 100 events per million flight hours per year.

After the significant increase (30%) in total numbers in 2005, the increase in 2006 preliminary data for **Unauthorised Penetration of Airspace** was less marked at 4%, which corresponds to a total of almost 1500 reported incidents. The number of unreported events might well be much larger.

The category **Aircraft Deviation from ATC Clearance** aggregates all forms of deviation from clearances given, including deviations from assigned level, assigned route, assigned time as well as minimum safe altitudes where applicable. The aggregation of all these events explains the size of the overall number of incidents in this category, which have increased by 5% in 2006 - in line with the traffic growth. The reported number of events in this category was in the range of 140 per million flight hours.

Furthermore EUROCONTROL considered a sort of "basket" category, identified as **Aircraft Deviation from Applicable ATM Regulation.** It should be noted that certain Aircraft Deviations from Applicable ATM Regulation are also registered in other categories where the circumstances of the occurrence are applicable (e.g. Unauthorised Penetration of Airspace). In this category there was however an increase in both overall reported numbers in 2006 (2 370 occurrences) and numbers of risk bearing incidents (43).

2.3.1.5 Fatal accidents to which ATM/ANS contributed

The ECAC Strategy for ATM 2000+ set a high-level safety objective: ***"…. To improve safety levels by ensuring that the number of ATM induced accidents and serious, or risk bearing, incidents do not increase and, where possible, decrease "*** The number of accidents reported by EUROCONTROL varies year to year, as it may be expected, but the overall trend is presently not increasing against a background of increasing traffic levels. Thus, the ECAC safety objective is being presently met as far as fatal accidents are concerned. **In particular no fatalities were recorded in 2006, as a consequence of ATM/ANS related accidents.**

However, during the ten years period 1997-2006, at least nine fatal accidents recorded within the EU 27+4 had an ATM or possibly ANS (as for instance insufficient navigation services or lack of timely/easily understandable AIS information) direct or indirect contribution:

- 30 July 1997, ATR-42, Air Littoral, Italy, 1 fatality.
  The aircraft landed long and fast and subsequently overran Florence's 1 650 m long runway 23. The runway threshold had been displaced resulting in 1 030 m landing distance remaining.

- 17 December 1997, Yakovlev 42, Aerosweet Greece, 70 fatalities.
  After an ILS missed approach the aircraft was instructed to climb and proceed north and hold for a second attempt. The aircraft instead deviated to the west-southwest and struck a mountain at 3 300 ft, 71.8 km from the airport.

- 30 July 1998, Beech 1900, Proteus Air, France, 14 fatalities.
  The aircraft collided with a Cessna 177 at an altitude of 2000 ft. The aircraft had requested permission to modify the flight plan and to descend below 3000 ft into uncontrolled airspace to over-fly the cruise ship 'Norway'. The aircraft were not using the same frequency and both flight crew were probably focusing their attention on the cruise ship.

- 25 February 1999, Dornier 328, Minerva Airlines, Italy, 4 fatalities.
  On landing on Runway 29 at Genoa the aircraft reportedly touched down 'long and fast' with a tail wind component. As the end of the runway approach, the pilot apparently attempted to turn the aircraft off to one side but without success. The aircraft subsequently overran and fell into the waters of the Golfo di Genova.

- 11 December 1999, British Aerospace ATP, SATA Air Açores, Portugal (Azores), 35 fatalities.
  Weather en route was affected by a frontal system with scattered cumulonimbus, heavy showers, turbulence and strong winds from southwest, so the crew decided to alter the flight plan, opting for a route that included a descent over the channel between Pico and Sao Jorge Islands to intercept the 250 deg VOR Horta radial. Horta tower initially cleared the aircraft to FL 100. The crew then requested a descent to 5 000 ft and was cleared with the instruction of maintaining visual contact with Pico Island. During descent heavy rain and turbulence were reported. Seven minutes after initiating the descent, the aircraft collided with the north hillside of Pico da Esperanca, Sao Jorge island, in IMC. GPWS alerted the crew 17 seconds before impact;

- 25 May 2000 - Collision on the runway at Charles De Gaulle airport (France)[26], 1 fatality.
  Probable causes were firstly, a controller's erroneous perception of the position of one aircraft, being reinforced by the context and the working methods, which led him to clear a Shorts aircraft to line up. And secondly, the inadequacy of systematic verification procedures in ATC, which made it impossible for the error to be corrected;

- 08 October 2001 - Collision on the runway at Linate airport (Italy)[27], 114 fatalities.
  The investigation concluded that it could be assumed that the immediate cause for the accident had been the incursion on the active runway of a Cessna aircraft. The obvious consideration is that the human factor related action of the Cessna crew - during low visibility conditions - must be weighted against the scenario that allowed the course of events that led to the fatal collision; equally it can be stated that the system in place at Milano Linate airport was not geared to trap misunderstandings, let alone, inter alia, inadequate procedures and blatant human errors;

- 24 November 2001, British Aerospace 146, Crossair, Switzerland, 24 fatalities.
  On 24 November 2001 at 20:01 UTC the aircraft took-off from Berlin-Tegel airport as a scheduled flight to Zurich. At 20:58 UTC, after an uneventful flight, the aircraft received the clearance for a standard VOR/DME approach 28 at Zurich airport. Ahead of the aircraft involved in the accident, an Embraer EMB 145, flight CRX 3891, landed on runway 28 at Zurich airport. The crew informed the control tower that the weather was close to the minimum for this runway. At 21:00 UTC flight CRX 3597 reported on the aerodrome control frequency. When the aircraft reached the minimum descent altitude (MDA) of 2 390 ft at 21:06, the commander mentioned to the co-pilot that he had certain visual ground contact and continued the descent. Shortly afterwards the aircraft collided with treetops and subsequently crashed into the ground;

- 01 July 2002 - Collision in flight (over Überlingen)[28], 71 fatalities for which the following causes, inter alia, have been identified:
  - The imminent separation infringement was not noticed by ATC in time. The instruction for the TU154M to descend was given at a time when the prescribed separation to the B757-200 could not be ensured anymore.

[26] http://aviation-safety.net/database/record.php?id=20000525-0
[27] http://aviation-safety.net/database/record.php?id=20011008-0
[28] http://aviation-safety.net/database/record.php?id=20020701-1

- The TU154M crew followed the ATC instruction to descend and continued to do so even after TCAS advised them to climb. This manoeuvre was performed contrary to the generated TCAS RA.
- The integration of ACAS/TCAS II into the total aviation system was insufficient and did not correspond in all points with the system philosophy.
- The regulations concerning ACAS/TCAS published by ICAO and as a result the regulations of national aviation authorities, operational and procedural instructions of the TCAS manufacturer and the operators were not standardised, incomplete and partially contradictory.
- Management and quality assurance of the air traffic service provider did not ensure that during the night all open workstations were continuously staffed by controllers.
- Management and quality assurance of the air traffic service provider tolerated for years that during times of low traffic flow at night only one controller worked while the other one was at rest.

Five of seven CFIT accidents were fatal in 2006. While ATM was not a direct or indirect causal factor, no data are provided by EUROCONTROL to conclude whether the availability of proper ANS could have contributed to avoid these accidents to happen.

2.3.1.6 Key Risk Areas

In summary, in the mentioned Annual Safety Report 2007, EUROCONTRL SRC lists the following key risk areas:

- **Ground collisions** and in particular **Runway Incursions;**
- **Unauthorised Penetration of Airspace;**
- **Controlled Flight Into Terrain (CFIT) or "near CFIT"**, for which the proportion of risk bearing incidents (severity A and severity B) in the total number of CFITs is very high (43% in 2006 compared with 32% in 2005) and continues to increase. For comparison the proportion of risk bearing incidents in separation minima infringement is around 20% and for runway incursions is 10%;
- **Aircraft deviation from ATC clearance;**
- **Level busts;**
- **Level of ATS at aerodromes.**

For the latter, in particular in the vicinity of secondary aerodromes, the SRC, already in 2005 had raised concerns about the differences among States as regards airspace classification and the varying level of provided ATS. In the mentioned Report 2007 EUROCONTROL concluded that there is no standard approach to the provision of ATS and the establishment of controlled airspace for commercial flights. Therefore, according to the SRC, regulatory action is required in particular for this key risk area.

From the above the Agency therefore concludes that:

- A total system approach is required to improve ATM/ANS safety;
- ANS services, in addition to ATM, deserve attention;
- The total number of accidents (or fatal accidents) is so low, that, in order to credibly assess safety indicators, the reporting systems for incidents need to be improved and centralised analysis organised in a total system perspective.

2.3.1.7 Cost of safety events

The worst ATM related accident may involve a high energy collision between two very large aircraft, resulting in the hull loss of both and claiming even more than 500 human lives[29].

[29] http://aviation-safety.net/database/record.php?id=19770327-0

The value of one human life is a very disputable concept, if seen from the moral point of view. However, for insurance costs, in the present document, based on literature[30] it is assumed in the range of 1 million €. One ATM/ANS accident, involving at least one large commercial aircraft, may well claim 50 human lives. So the total cost of those victims can be estimated in 50 million €.

On 30 March 2008 a number of used aircraft were offered on the web. Modern, relatively large business jets, were offered at prices in the order of 15-34 million US $[31], i.e. in average the residual value of a business jet can be assumed in the range of 20 million €. The residual value of a large commercial airliner can therefore be estimated in no less than 100 million € (twice as much for very large, as B-747).

Therefore one accident involving two B-747 will represent 200 + 200 = 400 million € in term of the cost of hull loss. Plus 500 x 1 million € = 500 million € for the lost lives. The total cost could be in the range of 900 million €, assuming no additional damage to third parties on the ground. However, the probability of this type of accident (only one in aviation history) proved to be extremely remote; therefore it will not be appropriate to consider such an enormous cost in the following paragraphs of present RIA.

An accident (directly or indirectly involving ATM or ANS) is likely to involve on average the hull loss of a commercial jet liner (residual value around 100 million €) and 50 lives, for a total cost of about 150 million €. It is assumed that one out of five (i.e. 20%) of ATM/ANS related accident could fall into this category.

For the remaining 80% of accidents, it can be observed that in EU 27+4 the most frequent safety events during taxiing are collisions with fixed objects or with ground equipment. ATM may well be a contributing factor.
Such **occurrences at aerodromes, although usually neither claiming lives nor causing hull loss, nevertheless also involve significant costs.** According to data provided by the Ground Accident Prevention (GAP) programme launched in 2003 by the Flight Safety Foundation[32] (FSF: an independent international non-profit organisation) even a minor incident may result in costly repair to aircraft and even more costly disruption of the schedule and aircraft ground time for repair) in the order of 10 000 million US $/year world wide, which means an average cost of 370 000 US $/accident or incident. ATM accidents include events during taxi along taxiways. In the FSF estimations also minor (and therefore cheaper and quicker to repair) damages to aircraft parked on the apron are included. Using the values estimated by FSF in the present RIA, may therefore lead to underestimation and not to overestimation of the cost. Assuming 1€ = 1.35 US $ (in 2006), the **average cost of a single of those event, could cost around 270 000 €. It is here assumed that such events represent 80% of ATM/ANS related accidents.**

The average cost of one single ATM/ANS related accident can be estimated in the range of:

(1 x 150 million €)x20% + (4 x 270 000 €)x80% = 37 770 000 €

In paragraph 2.3.1.3 above, the possible future number of yearly ATM/ANS related accidents, if nothing were done to improve safety, has been estimated in 18.

It is then concluded that in the next two decades the cost of ATM/ANS related accidents in Europe could be on average of 18 x 37.77 = 680 M€/year.

2.3.2 The Regulatory framework

[30] http://www.law.harvard.edu/programs/olin_center/papers/pdf/422.pdf
[31] http://www.aviationbusinessindex.net/listings.asp?airframe=F&make=GULFSTREAM
[32] http://www.flightsafety.org/gap_home

2.3.2.1 The global regulatory framework: ICAO

For the ICAO framework, the considerations expressed in the RIA attached to the Agency Opinion 03/2007[33] apply. In summary the system based on the ICAO Annexes and their legal transposition at national level, presents the following main shortcomings:

- No legally binding rules at international level;
- Rules often specify only the "what", but neither "by whom" (i.e. an organisation), nor "how" (e.g. certification and oversight by competent Authorities);
- Parallel legal transposition processes are required in each contracting State, with inherent heterogeneity, difference of timescales and multiplication of work.

2.3.2.2 Rulemaking and standardisation in Europe

According to deliverable D1 by SESAR[34], although European-wide safety regulations and performance reporting regime have been established, their implementation has been inconsistent and very slow. Such behaviour is unacceptable and must be made transparent for conscious consideration by the end users. The current management and enforcement approach is incapable of forcing States to implement such regulations. This must change and the need is for a single institutional framework with an organisation and management structure which is empowered to do it in a coherent and consistent manner. If the level of safety performance cannot be increased, capacity cannot grow.

The already mentioned Annual Safety Report 2007 by the EUROCONTROL SRC added that the level of ATS provision within the vicinity of secondary aerodromes had already been raised as a concern by the SRC in 2005, focussing on their increased use by commercial carriers, and the differences between Member States as regards airspace classifications and the level of air traffic services provided.

A questionnaire was developed by the SRC, aimed at eliciting relevant information, and focusing on the classification of airspace used by, and types of ATS provided to, commercial air services. The outcome of the questionnaire revealed the following:

… there ***is no standard approach to the provision of ATS and the establishment of controlled airspace for commercial flights****….*

Therefore the SRC, in addition to actions to be implemented at national level, recommended harmonisation throughout Europe in the application of AFIS service.

More in particular through the ESARR Implementation Monitoring and Support (ESIMS) programme, EUROCONTROL has noticed (Annual Safety Report 2007) that some findings of a "generic" nature have been found in a significant number of cases across the continent. These "generic findings" indicate the existence of some pan-European issues requiring action at European level. They include:

- Lack of arrangements for the safety oversight of ATFM and ASM;
- Lack of implementation of some ESARR provisions;
- Lack of formalisation of safety oversight arrangements as regards cross border situations;
- Poor safety oversight of systems' changes;
- Lack of arrangements for NSAs' reception and check of the EC Declarations of Verification of Systems produced by ANSPs as required by Regulation (EC) No 552/2004;
- Lack of enforcement measures for infringements to SES regulations by certified providers;

[33] http://www.easa.europa.eu/ws_prod/r/doc/opinions/Translations/03_2007/RIA%20Opinion%203-2007.pdf

[34] http://www.sesar-consortium.aero/deliv1.php

- Poor implementation of the "safety directives" concept (inspired by the airworthiness directive) widely used in other aviation domains;
- Need to clarify the scope and applicability of the SES certification rules in the case of small organisations providing information to aircraft, notably to consider the widely differing levels of complexity of service within the FIS category.

Additional considerations on the present safety regulatory framework in Europe have already been presented by the Agency in the mentioned RIA accompanying Opinion 03/2007, where it was concluded that any rule, standard or requirement adopted and published by any of the existing inter-governmental aviation organisations, is not immediately applicable unless legally transposed at national level and that such organisations do not have anyhow authority for issuing certificates or enforcing their standards on their members.

2.3.2.3 The fragmented regulatory framework

The majority of stakeholders consulted by ECORYS during the preliminary impact assessment, in general agreed or partially agreed with the problems identified in 2.3.2.1 and 2.3.2.2 above. Although not all parties agreed that ICAO rules would not be binding in all cases, they did agree that there is significant room for differences in interpretation and slow implementation into national law.

The perception by stakeholders, as observed by ECORYS in 2005, has also been shared by the SESAR project, which, in paragraph 5.2.4.1 in its "Deliverable 3" (DLM-0612-001-01-00) released in July 2007, stated that the European civil aviation legislation requires a pan-European safety regulatory framework for change management that sets up stable procedures and participative processes.

To support the development of this framework, and to ensure a successful implementation of changes, three principal recommendations have been identified by SESAR:

- The European Union and the Member States should designate a safety regulatory authority at European level acting also as the regulatory interface for change management and interacting with the SESAR JU to be established at the latest by the end of the SESAR Definition Phase;
- The designated European safety regulatory authority should develop a (review) procedure for change management and where appropriate propose amendments to European Civil Aviation legislation and existing safety regulatory requirements and arrangements;

In the same direction the High Level Group (HLG) established by Vice President Jacques Barrot at the end of 2006, in Recommendation 1 contained in its final report delivered in July 2007 suggested that fragmentation is a major bottleneck in improving the performance of the European aviation system. As this can only be addressed at the European level, the HLG recommended strengthening the role of the European Community and the Community method as the sole vehicle to set the regulation agenda for European aviation. This should also eliminate overlaps between EU and other regulatory processes, ensuring independent structures for regulation and service provision, and ensuring that safety regulatory activities are conducted independently from other forms of regulation (e.g. economic or financial). Even more explicitly, in its Recommendation 6, the HLG suggested to focus EUROCONTROL on necessary pan-European functions, ATM network design, and support to regulation as requested by the European Commission and Member States, while transferring the responsibility for safety regulatory activities to the Agency. Finally, in its Recommendation 8, the HLG requested the Commission to empower the Agency as the single EU instrument for aviation safety regulation, including airports and ATM.

The European Commission has endorsed the conclusions developed by the HLG and announced a package of legislative proposals for aviation, to be published in 2008, in

order to solve, inter alia, the fragmentation of the safety regulatory framework at EU level[35].

In conclusion the problems stemming from the presently fragmented safety regulatory framework and the legal shortcomings of the intergovernmental approach are identified by the stakeholders, SESAR and the HLG, as requiring urgent remedial action. The lack of homogeneity of ATM rules across Europe is also recognised by EUROCONTROL SRC as a factor affecting the overall economic and safety performance of the European AT/ANS system. The Commission has therefore already announced its intention to take initiative to address and solve these issues.

2.3.3 Processes at national level

2.3.3.1 "Top-ten" non-compliances revealed by ESIMS

According to the same SRC Report, the "Top-ten" Non-Compliances revealed by ESIMS audits until 2006 are as presented in following Table 4:

Identification	Non-compliance	% of NON compliant States
RLMK0240	Rules for risk assessment and mitigation	90
ESIM0030	Verification of implementation of SMS by ANSPs	90
ESIM0020	Verification of implementation of ESARR 2	90
PERS0340	Safety rules for ATM/ANS engineering personnel	90
FRAM0430	Safety indicators at national level	80
ESIM0050	Verification of implementation of ESARR 5 for engineering personnel	80
RESD0160	Safety recommendations or safety measures	80
PERS0350	Safety oversight of engineering personnel	80
PERS0360	Oversight of subcontractors (e.g. maintenance organisations)	70
PERS0280	Audit of procedures to assess ATCO competence	70
ESIM0040	Verification of implementation of ESARR 5 for ATCOs	70
ESIM0010	Verification of implementation of ESARR 1	70
RLMK0220	Reporting of ATM specific occurrences	70

Table 4: Estimated number of total ATM/ANS related safety events

2.3.3.2 Present effort for ATM/ANS safety oversight

In addition, the SRC noted that there remains a dearth of suitably qualified personnel to undertake Safety Regulatory functions in a number of States. This affects competent authorities to a larger extent than the ANSPs, with many authorities struggling to obtain the necessary budgets to enable them to offer attractive remuneration and career prospects for potential applicants. This could perhaps be solved by a more determined action by States to put in place robust and credible national aviation/supervisory authorities. On the other side the Agency observes that perhaps pooling of resources at EU or sub-regional level could be a more logic response for the optimal use of the scarce available resources, also in the light of the growing complexity of ATM/ANS.

[35] COM (2007) 845 final of 20 December 2007: First report on the implementation of the Single Sky legislation – achievements and the way forward.

For the purpose of the present RIA, it is however assumed that, since rulemaking has already been centralized through SES, it is not necessary to assess the impact of such a transfer of responsibilities, which occurred in the past.

Equally, since the Agency will not propose to transfer to it a large proportion of the certification tasks, it is not necessary to estimate in detail the number of FTEs used at national level for certification and oversight of ATM/ANS, as this should not change.

2.3.4 Challenges posed by development

The combined effect of increasing traffic and introduction of new technologies/concept, will pose a number of potentially significant safety challenges during the SESAR timeframe. A non-exhaustive list can include:

- Increase of traffic from/to the new Member States (EU 10+2), which implies more complex traffic patterns, due to East-West routes crossing the traditional North-South routes;
- Consequent increase of the proportion of intra-EU flights;
- Extensive application of RNAV in upper airspace, leading to more complex traffic patterns;
- Saturation of major hub airports and mergence of "super high density" terminal areas around them;
- Development of regional aerodromes, which will increase complexity of traffic at medium/low level;
- Constant growth of general aviation and emergence of Very Light Jets (VLJ), increasing the complexity and density of traffic at low level;
- Increased use of air/ground data links;
- Entry into operational use of EGNOS based approach instrument procedures, which will also enhance the possibility of using minor aerodromes;
- Instrument procedures for helicopters;
- Integration of Unmanned Aerial Systems (UAS) in non-segregated airspace.

2.3.5 Conclusions and justification for EU intervention

In conclusion the identified and analysed problems justify intervention at EU level in order to:

- Improve the safety of ATM and ANS, which could cause around 18 accident per year (1/3 of them with fatalities);
- Reduce the cost deriving from ATM/ANS related accidents and incidents within the EU, which can be estimated in the order of 680 M€ (2006)/year;
- Progress towards a consistent and non fragmented safety regulatory framework clearly separated from service provision and other forms or regulation or public intervention;
- Establish a robust regulatory framework providing for the total system approach to the regulation of civil aviation safety;
- Support the SESAR project by identifying a single safety regulator able to facilitate and early and smooth implementation by anticipating the safety validation and certification of its deliverables;
- Improve at EU level the reporting and analysis of incidents and ATM occurrences.

2.4 Objectives and indicators

2.4.1 Objectives

The objectives of the envisaged extension of the EASA system to ATM/ANS shall address the problems that are associated to the current organisation of safety rulemaking and the

lack of standardization in safety oversight and of proper reporting by the competent authorities.

Identified objectives can be classified according to the three levels normally used by the Commission services for impact assessment, such as:

- The **general objectives**, which represent the overall policy goals;
- The **specific objectives**, which are the more immediate objectives of the planned legislative initiative contributing to achieve the overall objectives. Both the general and specific objectives are influenced by factors outside the direct control of the Commission or of the Agency and therefore sometimes difficult to measure;
- The **operational objectives**, which are related to the precise outputs of the proposal and which can then be assessed or even measured by appropriate indicators.

Objectives and indicators for the extension of EASA system to ATM and ANS are presented in following paragraphs 2.4.2 to 2.4.5.

2.4.2 General objectives

The general societal objectives of the European Commission as described in the Commission's work programme and the Annual Policy Strategy[36], in turn broadly based on the "Lisbon strategy", are:

- Putting Europe on the track of *prosperity*, which, in addition to building an internal market based on fair competition, also comprises greater efficiency and effectiveness of the transport system,
- Reinforce Europe's commitment towards *solidarity*, which includes offering citizens the same level of protection all across the territory of the EU 27 + 4;
- Strengthen the citizen's *protection* in terms of security and also *transport safety*;
- Project and promote these objectives outside EU borders through *a stronger voice in the world*.

2.4.3 Specific objectives

The specific objectives are related to specific air transport objectives, which are also supported by other initiatives such as the creation of a Single European Sky and the establishment of the EASA system. More in detail these specific objectives can be identified from the ten recommendations contained in the report of the HLG and are identified in table 5 below.

Extract from the Recommendations by the HLG			**Related specific objectives**
N.	**Title**	**Text**	
1	**EU as driving force in aviation regulation in Europe**	Fragmentation is a major bottleneck for the performance of the European aviation system. As this can only be addressed at the European level, strengthen the role of the Community and the Community method as the sole vehicle to set the regulation for European aviation by eliminating overlaps between EU and other regulatory processes, ensuring independent structures for regulation and service provision, and ensuring that safety regulatory activities are conducted independently from other forms of regulation.	• Eliminate overlaps for safety regulatory processes; • Ensure independent structures for safety regulatory activities versus other forms of regulation or public intervention.

[36] see http://europa.eu.int/comm/atwork/programmes/index_en.htm

2	**Greater responsibilities for industry**	Give more responsibility to industry in line with the liberalisation of the internal market. Involve industry more systematically in the rulemaking process for the aviation system.	Involve industry systematically in the rulemaking process
3	**Better regulation**	Apply the principles of Better Regulation, avoiding overregulation, and undertaking full impact assessments and consultation.	Include full impact assessments and consultation in rulemaking processes
4	**Drive improved performance**	For ATM, adapt the regulatory framework and governance structures to stimulate management to deliver improved performance. Where possible, facilitate the application of market principles by the unbundling and liberalisation of ANSP services.	• Facilitate the emergence of pan-European providers of unbundled services; • Facilitate service provision of AFIS and apron management services by SMEs
5	**Deliver the Single European Sky**	Accelerate the delivery of the Single European Sky (SES) and SESAR through proactive management and annual progress monitoring and reporting by the European Commission.	• Eliminate overlaps for safety regulatory processes;
6	**Empower and focus Eurocontrol**	Empower Eurocontrol to play a key role in delivering the Single European Sky and SESAR objectives within the strategic and regulatory framework set by the EU. Focus its activities on excellent pan European functions and ATM network design, and support to regulation as requested by the European Commission and member states. Transfer the responsibility for safety regulatory activities to EASA.	• Eliminate overlaps for safety regulatory processes;
7	**Address airport capacity**	Integrate airports more systematically into the total system approach.	Harmonise management for operators/ providers of different services
8	**Deliver continuously improving safety**	Empower EASA as the single EU instrument for aviation safety regulation including airports and ATM, and ensure that EASA is funded and resourced accordingly. Prepare for the SESAR challenge by timely certification processes. Ensure that states' safety oversight is harmonised and that cooperation between national authorities is stimulated to achieve overall higher levels of performance.	• Establish a single, consistent regulatory framework for the total aviation system • Standardise safety oversight across member States to achieve a high uniform level of safety
9	**Deliver environmental benefits**	Building on the three pillars of improved gate-to-gate ATM, cleaner and quieter aircraft, and market oriented solutions, ask the European Commission to develop an integrated environment strategy.	• Eliminate overlaps for safety regulatory processes;
10	**Commit member states to deliver**	Require more systematic implementation of existing commitments by EU member states, in particular the de-fragmentation targeted by the Single European Sky initiative. States should address inconsistent guidelines for ANSPs, performance shortfalls in oversight	• Facilitate the rational use of safety oversight resources at EU level • Standardise safety oversight across member States to achieve a high uniform level of safety

Table 5: Specific objectives linked to the recommendations by the HLG

The ten specific objectives listed in the last column of table 4 above, will then be used in the following paragraphs of present RIA.

2.4.4 Operational objectives

Obviously the expected objectives of the extension of the EASA system are closely linked to the problems analysed in paragraph 2.3. The policy chosen is meant to remedy or mitigate the existing problems and to lead to improvements.

The operational objectives are hence related to the concrete actions related to the proposed EU intervention. Their output is observable or even measurable and can be directly attributed to the action carried out. First of all these observable/measurable operational objectives are:

- amendments to the Basic Regulation (EC) No 216/2008 by the European legislator;
- publication of proper implementing rules for the safety of ATM and ANS, as well as for organisations, personnel and systems and components involved in their delivery;
- establishment of a working organisation;
- continuous monitoring of ATM/ANS safety;
- implementation of close relationship with other payers, in particular EUROCONTROL and SESAR;
- emergence on a market for pan-European ANS providers;
- establishment and implementation of proper enforcement means in the ATM/ANS domain.

2.4.5 Indicators

Three different levels of indicators can respectively be identified:

- *Outcome* indicators: Such indicators reflect the ultimate desired impact on society. They are usually expressed by global indicators and can be influenced by many other policies; in some cases it will be difficult, if at all possible, to correlate results achieved to the extension of the EASA system;
- *Result* indicators: Such indicators reflect the immediate objectives of the proposed policy that needs to be reached in order to achieve the general goal. They are expressed in direct and short term effects of the implemented measures and can also be influenced by other policies;
- *Output* indicators: Such indicators reflect the precise actions or direct effects which the policy proposed by the Agency's opinion is expected to produce. The achievement is under direct control of the Commission and can be easily verified.

Indicators allow monitoring if, and how much, the objectives are achieved. Defining them in advance is important, since this will allow assessment of the effects produced by the proposed intervention. The indicators related to specific and general objectives are closely related to the problems and the expected impacts, while the operational objectives result in simpler and more observable indicators related to the fulfilment of actions.

The outcome indicators, linked to the general objectives are presented in the following table:

Identified Problems	General Objectives	Outcome Indicators
Improve ATM and ANS safety	Citizen's *protection:* transport and aviation safety.	Safety of ATM/ANS subject to the EASA system
Reduce the cost of aviation accidents caused at least partially by ATM/ANS factors.	*Prosperity*: reducing cost of accident caused at least partially by ATM/ANS factors.	Cost of damages caused by accidents and incidents directly or indirectly related to ATM/ANS factors
De-fragment the safety regulatory framework.	*Stronger voice in the world*;	Influence ICAO ATM/ANS SARPS
	Expand the EASA system beyond the EU.	Conclude new association agreements or extend the geographical scope of ECAA
Establish a robust regulatory framework providing for the total system approach to the regulation of civil aviation safety.	*Prosperity:* building the internal market and promote labour mobility.	Emergence of pan-European providers
		Establishment of common competence schemes for ATM/ANS technical staff.
	Solidarity: offering citizens the same level of protection across EU 27.	Uniform implementation of common safety rules.
Support SESAR by identifying a single safety regulator able to facilitate an early and smooth implementation by anticipating the safety validation and certification of its deliverables	*Prosperity*: reducing cost connected to safety regulation..	Establish proper mechanisms to assess, validate and certify safety critical deliverables

Table 6: Identified problems, general objectives and outcome indicators

The specific objectives related to the problems analysed in paragraph 2.3 above, as well as indicators to monitor their achievement, are presented in table 7 below:

Identified Problems	Specific Objectives	Result Indicators
Improve ATM/ANS safety and reduce the cost stemming from accidents and incidents.	Establish independent structures for safety regulatory activities versus other forms of regulation or public intervention	Competencies of EASA clearly separated from other forms of regulation or public intervention
	Involve industry systematically in the rulemaking process	Constant application of the EASA rulemaking procedure.
	Standardise safety oversight across member States	Extension of the EASA standardisation inspections to the ATM/ANS domains.
De-fragment the safety regulatory framework.	Establish a single, consistent regulatory framework for the total aviation system	ATM/ANS regulation is incorporated into the Basic Regulation
	Harmonise management rules for operators/ providers of different services	Adoption of "horizontal" implementing rules for the management system of operators and providers.
Establish a robust regulatory framework providing for the total system approach to the regulation of civil aviation safety.	Maintain clear separation of roles between authorities and operators/ providers	Establish clear separation of roles between authorities and operators/ providers in particular for the adoption of the concepts of operations
	Facilitate the emergence of pan-European providers of unbundled services	Establish a dedicated certification scheme for providers of services in 4 or more States
	Facilitate service provision of AFIS and apron management services by SMEs	Simplification of rules for aerodrome operators directly organising AFIS and/or apron management
	Include full impact assessments and consultation in rulemaking processes	RIAs attached to proposed implementing rules
Support the SESAR project by identifying a single safety regulator able to facilitate and early and smooth implementation by anticipating the safety validation and certification of its deliverables	Eliminate overlaps for safety regulatory processes	Formalisation of regulatory interface between safety and other forms of regulation.
Need to rationalise the effort for ATM/ANS safety regulation.	Facilitate the rational use of safety oversight resources at EU level	Oversight arrangements among competent authorities
		Consistent process for oversight of all ACC functions

Table 7: Identified problems, specific objectives and result indicators

The operational objectives, which can be associated to a number of detailed observable or measurable output indicators, are presented in the below table.

Operational Objectives	Output Indicators
Amendments to the Basic Regulation (EC) No 216/2008	Agency's Opinion delivered to Commission.
	Legislative proposal adopted by Commission.
	First reading by European Parliament.
	Council position.
	Second reading by European Parliament.
	Adoption of amendments.
Publication of common implementing rules for the safety of ATM and ANS and for related organisations and personnel	Publish NPA on implementing rules for ATM/ANS.
	Publish NPA on implementing rules for ATM/ANS providers.
	Publish CRD on implementing rules for ATM/ANS.
	Publish CRD on implementing rules for ATM/ANS providers.
	Deliver Opinion on implementing rules for ATM/ANS.
	Deliver Opinion on implementing rules for ATM/ANS providers.
Establishment of the necessary functions within EASA;	Recruitment of staff for ATM/aerodrome rulemaking
	Recruitment of staff for safety analysis of ATM/ANS occurrences.
	Recruitment of staff for standardisation inspections on the ATM/ANS domain
	Designate external auditors able to participate to standardisation inspections on the ATM/ANS domains.
	Inclusion of ATM/ANS community into SSCC.
Continuous monitoring of ATM/ANS safety	Inclusion of ATM/ANS safety analysis in the annual safety review
Implementation of close relationship with SESAR	A stable process for the safety Assessment of SESAR safety deliverables is up and running.
Emergence on the market of pan-European ANS providers.	A dedicate certification process for the certification of pan-European ANS providers is up and running.
Uniform implementation of ATM/ANS rules in the EU	Establishment of procedures for standardisation inspections in the ATM/ANS domains.
	Plan the first series of standardisation inspections covering also the ATM/ANS domains.
	Carry out the first standardisation inspection in the ATM/ANS domains.

Table 8: Identified problems, operational objectives and output indicators

2.5 Options available

2.5.1 Options for the preliminary impact assessment

In the preliminary impact assessment mentioned here above five alternative options had been considered:

- A) "do nothing" (i.e. do not change the situation expected after the first extension of the EASA system: the Agency responsible for airworthiness, flight crew licensing and air operations; competent Authorities nominated a national level responsible for ANS, including pan-European providers, and aerodromes);
- **B) Progressively extend the EASA system to rulemaking, certification and standardisation inspections to the domains of ATM, ANS and aerodromes;**
- C) Extend the SES mechanism of mandates to EUROCONTROL to aerodrome safety regulation and give EUROCONTROL also tasks in the field of certification and standardisation inspections;
- D) Establish a totally new European Agency to support the Commission for the safety regulation of ATM, ANS and aerodromes;
- E) Confer to the "extended" EASA (as per option B) also the responsibility for carrying out specific ATM operational functions (e.g. Air Traffic Flow Management).

That study concluded that Option B was the preferred one, based on the consultant's analysis of the expected impacts and also supported by the consulted stakeholders.

2.5.2 Options considered in the present RIA.

The Options A, C, D and E, listed above, also considered by the Commission in its final impact assessment on the matter, do not therefore need to be assessed again in the present RIA. On the other side to actually implement Option B other important issues shall be assessed.

NPA 2007-16 contained 10 questions in this respect, also assuming that the ultimate aim was to implement the already justified and chosen (by the Commission[37]) option B from 2.5.1 above.

Among the said 10 questions, however, question 3 in fact contained two separate issues: Nature and need to regulate Airspace Management (ASM) and same question for Air Traffic Flow management (ATFM). The total number of questions contained in NPA has therefore to be considered 11. Among those 11 issues, in the opinion of the Agency, 6 do not need to be further analysed in terms of impact assessment.

[37] COM (2005) 845 final of 20 December 2007.

The table below lists them and explains why further impact analysis is not deemed necessary.

Questions in NPA 2007-16		Reason for not considering alternative options
N.	**Text**	
2	*The Agency is interested to know whether stakeholders consider the attached essential requirements as constituting a good basis for the regulation of the safety and interoperability of ATM/ANS. It also welcomes any suggestion to improve these essential requirements.*	Qualitative judgment on ERs. No relevant alternative options identified.
4	*The Agency is interested to know whether stakeholders consider that the definition of systems and components used in the context of the European Air Traffic Management Network appropriately specifies those, which need to be subject to the extended Basic Regulation?*	The overwhelming majority of stakeholders considered not necessary to change definitions. The Agency concluded that it will not propose changes to ICAO or SES definitions and coordinate its IRs with those in charge with performance and other interoperability aspects. No further impact assessment is necessary
5	*The Agency is interested to know whether stakeholders consider that regulating organisation involved in the design, manufacture and maintenance of safety critical systems and constituents, as well as those involved in the verification of conformity, should be required to demonstrate their capability so as to alleviate the responsibility of their operators?*	Already established in the EASA system. Supported by stakeholders replying to NPA 2007-16. The Agency concluded that such a possibility will be decided on a case-by-case basis and that proper RIAs will be done to support the related IRs No deeper assessment necessary at that stage
7	*The Agency would be interested to know stakeholders views as regards the possibility for ATM/ANS service providers to be entitled to operate several services and/or operating units under a single certificate.*	Stakeholders interpret the already established SES regulation to provide for such a possibility. No further impact assessment is necessary
9	*The Agency is interested to know whether stakeholders consider that the certification of some service providers involved in less sensitive services could be performed by assessment bodies. In such a case, should the Agency also be also empowered for the accreditation of such assessment bodies?*	This possibility has already been assessed for aerodromes. In principle the impact will be driven by similar factors also for ATM/ANS.
10	*The Agency would be interested to know whether stakeholders consider appropriate to implement separate certification schemes for certain safety critical systems and constituents. If so what should be these systems and constituents?*	Stakeholders' views did not allow identifying cases for such a process at that stage. The Agency concluded that such a possibility will be decided on a case-by-case basis and that proper RIAs will be done to support the related IRs No deeper assessment necessary at that stage

Table 9: Issues in NPA 2007-16 whose impact does not need to be analysed in detail

For the remaining five questions put in NPA 2007-16 on the contrary, alternative solutions could be envisaged. They are listed in Table 10 below. Their impacts are assessed in detail, in paragraphs 2.7 to 2.11.

Questions in NPA 16/2007		**Alternative options**	
N.	**Text**		
1	*Whether stakeholders consider that deciding on the concepts of operations is a governmental function or that of air traffic control service providers.*	1A	Generic concept of operations (e.g. development of SESAR) and decisions concerning specific airspace both of a governmental nature and subject to articles of law in the Basic Regulation.
		1B	Generic concept of operations (e.g. development of SESAR) and decisions concerning specific airspace both regulated activities, carried out by service providers on the basis of ERs
		1C	Generic concept of operations (e.g. development of SESAR) out of scope of EASA B.R. While decisions concerning specific airspace of a governmental nature and subject to articles of law.
		1D	Generic concept of operations (e.g. development of SESAR) out of scope of EASA B.R. While decisions concerning specific airspace being of a service provision nature and carried out on the basis of essential requirements.
3 (FM)	*Whether stakeholders consider that ATFM is of a regulatory or service provision nature.*	3A	ATFM is of a regulatory/governmental nature.
		3B	AFTM, being service or operational function, is regulated matter.
		3C	ATFM at EU level is regulatory function. Local (or regional) AFTM is a regulated matter.
3 (SM)	*Whether stakeholders consider that ASM is of a regulatory or service provision nature.*	3D	ASM is of a regulatory/governmental nature (including safety, capacity and efficiency).
		3E	ASM, being service or operational function, is regulated matter.
		3F	ASM at EU level is regulatory function. Local ASM is regulated matter.
6	*Whether provisions of certain services should not be subject to certification.*	6A	Allow national variants/derogations for SMEs.
		6B	Establish proportionate common rules for SMEs, including "self declaration".
		6C	Proportionate common rules for SMEs including certification.
8	*Whether Agency to certify pan-European ANS/ATM service providers. In such a case what should be the criteria to define the pan-European nature of the service?*	8A	"Do nothing": i.e. all ANSPs under oversight by the NSAs as in the "Single Sky"
		8B	Under supervision by Agency if providing services to two or more States ("cross border" will be under the Agency supervision)
		8C	As 8B, if providing services to four or more States (excluding cross border service provision and excluding ATS in a FAB if provided by a group of different ATSPs)

Table 10: Issues in NPA 2007-16 open to alternative options

Last but not least, many stakeholders, replying to NPA 2007-16 observed that there are two alternative ways to give the Agency competence for ATM and ANS. The first is to amend the Basic Regulation, but the alternative is to embed the the Agency's role into the legal framework of the Single European Sky. The Agency found this proposal deserving attention, and therefore, although it was not touched by the questions in the NPA, it has decided to include it in the present RIA, considering the following three alternative options:

- 0A): Do not give the Agency any role for ATM/ANS; or
- 0B): Extend the Basic Regulation to include ATM/ANS; or
- 0C): Modify the SES Regulations in order to include the role of the Agency for ATM/ANS.

Their impacts are assessed in detail and compared in the next paragraph.

2.6 Best option for extending EASA competence to ATM/ANS safety regulation

2.6.1 Alternative options

The possible options for extending EASA competence to ATM/ANS safety regulation are the following:

- 0A: do not give the Agency any role for ATM/ANS (i.e. "do nothing");
- 0B: Extend the Basic Regulation to include ATM and ANS;
- 0C: Modify the SES (basic) four Regulations in order to include therein the role of the Agency for ATM and ANS.

Option 0A does not require assessment, since it has already been analysed and not recommended by the ECORYS preliminary impact assessment, however it is needed to provide a common baseline to benchmark the other two options 0B and 0C.

2.6.2 Target group and number of entities concerned

2.6.2.1 Competent Authorities

Before the "Single Sky" competent national aviation authorities were carrying out two main tasks in relation to ATM/ANS safety:

- rulemaking (i.e. transposing ICAO provisions into national legal order and integrating them);
- generic oversight of ATM/ANS, since there where no specific ICAO standards on the matter.

The SES has already drastically changed the said situation, since on its basis, common rules for ATM/ANS are now developed at EU level[38], while States have to nominate or establish National Supervisory Authorities (NSAs)[39], in order to formally apply mechanisms, based on the common rules, for the certification and oversight of the service providers. Single Sky provisions also include the obligation for the NSAs to be audited through the "peer review" process[40].

[38] Article 8 of the SES framework Regulation 549/2004.
[39] Article 4 therein.
[40] Article 9 of Commission Regulation (EC) No 2096/2005 of 20 December 2005, laying down common requirements for the provision of air navigation services (*OJ L 335, 21.12.2005, p. 13*).

Consequently the present baseline (i.e. option 0A) is that:

- common rules for ATM/ANS (including for safety) continue to be established through the SES mechanisms;
- NSAs continue to certify and oversee ANSPs within the limits of their respective geographical competence;
- NSAs are subject to periodical audits under the EUROCONTROL ESIMS programme.

Transferring safety **rulemaking** (the first task among those listed in the bullets immediately above) to the Agency will not change the above in principle. In other words, for options 0A, 0B or 0C, the competent authorities at national level will not be impacted. **In 0B or 0C on the contrary, the Agency will be impacted as well as EUROCONTROL**, which today normally receives the "mandates" to develop implementing rules as appropriate.

For the second task (i.e. certification and oversight of the ATM/ANS providers) it should be noticed that today 30 States[41] participate to the SES; nothing will significantly change for these States either in option 0B or 0C, since in any case their respective competent authorities will remain responsible for certification and oversight of the principal national ANSPs for proximity reasons.

Finally, in either option the NSAs are audited. In case of either option 0B or 0C the Agency will be impacted, as well as 30 authorities and EUROCONTROL which today carries the ESIMS (ESARR Implementation Monitoring & Support) programme.

Therefore, the total number of involved NSAs, in either option 0B or 0C will be 30. As well EUROCONTROL and the Agency will be impacted by options 0B or 0C.

2.6.2.2 ATM/ANS service providers

Basically, ANS providers are already subject to certification[42]. For the majority of them nothing will significantly change whether the role of the Agency will be included in one or a different piece of legislation, inasmuch as they correspond to the traditionally notion of civilian Air Navigation Service Providers, which is a single public entity providing ANS to general air traffic within the airspace of one State. This situation, also because of the SES legislation, is however evolving.

In fact, in some cases the major civilian ANSPs, in addition to being ATS providers are often providers of navigation, AIS, surveillance or communication services. On the contrary MET providers are highly specialized and therefore there are no significant cases showing one of them involved also in different types of services. The MET providers and the military providers will therefore not be considered in the following.

Most (but not all of the said major civilian ATM/ANS entities) provide safety critical maintenance services through their staff.

However it is interesting to note that a number of them are also commercial aerial work operators providing flight inspection and calibration of radio navigation signals. In fact **6 of them** (ATSA-Bulgaria, Avinor, LFV, DSNA, ENAV and HCAA) were listed (on 4 April 2008) on the web site of the International Committee for Airspace Standards and Calibration (ICASC)[43] as **providers of flight calibration services.** These services already fall under the scope of the EASA system. Therefore fragmentation of the regulatory framework could possibly affect such air operators/ATSP.

[41] Liechtenstein is associated to the Community, but has historically delegated ATM/ANS matters to its neighbours

[42] Article 7 of the service provision Regulation (EC) No 550/2004.

[43] http://avnwww.jccbi.gov/icasc/fi_service_providers.html

The EUROCONTROL Local Convergence and Implementation Plans (LCIP)[44] also identifies a number of major ATSPs as operators of major airports in their country and/or of a significant number of aerodromes in several countries. A summary of this information is presented in the below table.

N.	State	Major civilian ATSP (whose core business is ATM)	Operational services provided beyond ATM/ANS
1	Austria	Austrocontrol	No
2	Belgium	Belgocontrol	No
3	Bulgaria	ATSA	Aerial work
4	Cyprus	Department of Civil Aviation - ANS	No
5	Czech Republic	ANS – Czech Republic	No
6	Denmark	Naviair	No
7	Estonia	EANS	No
8	Finland	Finavia	Operator of aerodromes (25)
9	France	DSNA	Aerial work
10	Germany	DFS	No
11	Greece	HCAA	Aerial work + Operator of aerodromes (43)
12	Hungary	HungarControl Pte. Ltd. Co	No
13	Ireland	IAA Operations Directorate	No
14	Italy	ENAV	Aerial work
15	Latvia	LGS	None
16	Lithuania	ORO NAVIGACIJA	None
17	Luxembourg	None	N.A.
18	Malta	MATS	None
19	Netherlands	LVNL	None
20	Poland	PANSA	None
21	Portugal	NAV Portugal	None
22	Romania	ROMATSA	None
23	Slovak Republic	LPS SR	None
24	Slovenia	Slovenia Control	None
25	Spain	AENA	Operator of aerodromes (47)
26	Sweden	LFV	Aerial work + Operator of aerodromes (16)
27	United Kingdom	NATS	None
28	Iceland*	**Isavia** (Flugstoðir)	Aerodrome operations
29	Liechtenstein*	No ATS provision	Not applicable
30	Norway	Avinor	Aerial work + Operator of aerodromes (46)
31	Switzerland	Skyguide	None

*No LCIP prepared for them.

Table 11: Major civilian ATSPs providing also services beyond ATM/ANS

The above table shows that six ATS providers are involved in aerial work and three are **aerodrome operators** as well.

The attention therefore needs to be focused on the 9 operators/providers mentioned above, for either option 0B or 0C, since being subject to one or more streams of legislation may have an impact on them.

[44] http://www.eurocontrol.int/lcip/public/subsite_homepage/homepage.html

2.6.2.3 Other multiple services providers

According to the information available to the Agency, there are a number of other companies/entities, different from the major civilian ATS provider in each country, which also provide ATM/ANS services. The available information is summarised in the below table.

While it is likely that the way the Agency competence is establish will have no impact on Tower Company Gmbh because it only offers ATM services and The Romanian CAA AIS Department as it belongs to the local CAA, this may be different for all others, which are mainly aerodrome operators.

N. of entities	State	Further known civilian ANSPs	Core business
1	Czech Republic	Prague Airport Authority	Aerodrome Operation
1	Estonia	Tallin Airport Ltd	Aerodrome Operation
3	Finland	Mikkeli community airport Seinäjoki community airport Sodankylä community airport	Aerodrome Operation
66	France	66 private AFIS operators	Aerodrome Operation
5 - 1	Germany	Tower Company GmbH	ATC (only TWR services)
		Fraport* Munchen Flughafen* 2 regional airports (Lahr & Mannheim) directly providing TWR	Aerodrome Operation
8	Hungary	Budapest airport (CNS) FlyBalaton LHSM (CNS) Debrecen LHDC (CNS) LHPP Pécs-Pogány(CNS & AFIS) Békéscsaba (CNS and AFIS) Győr-Pér (CNS and AFIS) Nyíregyháza (CNS and AFIS) Szeged (CNS and AFIS)	Aerodrome Operation
8	Ireland	Waterford Airport Kerry Airport PLC Galway Airport Ireland West Airport Knock Sligo Airport Co LTD Donegal Airport Weston Airport	Aerodrome Operation
10	Italy	Independent AFIS providers	Aerodrome Operation
1	Luxembourg	Adm. de l'Aéroport de Luxembourg	Aerodrome Operation
0	Romania	RCAA AIS Department	Dpt of the NAA
10	Slovenia	Local AFIS providers (10)	Aerodrome Operation
40	Sweden	Local AFIS at around 40 aerodromes	Aerodrome Operation
1	United Kingdom	SERCO Aviation	Service management
153	**TOTAL**		

*Apron Management Service

Table 12: Minor civilian ATSPs having aerodrome operation as core business

Moreover, in the context of present Opinion, aerodrome operators could offer the simplest local services: i.e. AFIS and/or Apron Management Service, without the need to become fully fledged ANS providers and without the need to employ licensed ATCOs. Should they elect to become providers of TWR air traffic control, then of course they, and their involved staff, will be covered by the ERs for ATS service provision. The possible

simplification of the requirements for AFIS/apron management is further discussed in paragraph 2.10, but **for the scope of the present assessment, the number of aerodrome providers possibly affected by options 0B or 0C can be estimated in 150.**

2.6.2.4 Design, production and maintenance organisations

Design, production and maintenance organisations of aircraft, engines and their parts, including avionics for navigation and communication, are already regulated through the EASA system. In the SES the responsibility of designers/manufacturers is equally already established, in terms of obligation to sign a declaration of conformity for the constituents[45].

In the SES however, safety related maintenance organisations[46], if different from the certified ANSP, are subject to oversight by the said provider on the basis of the "common requirements"[47],. In case of option 0A this will not change, therefore the number of affected maintenance organisations will be zero.

Equally, in case of option 0C (i.e. giving EASA a role but maintaining SES as it is presently) the number of affected maintenance organisations will be zero.

In case of option 0B on the contrary, maintenance organisations could be regulated, separately from the ANSP, on a case by case basis. Today only three significant companies or entities are known in the EU, for carrying out the mentioned safety related maintenance services: the Cyprus Telecommunications Agency (CYTA), Eltel Networks[48] and Techno Sky[49]. They will be affected by the Agency rules, if they are subject to certification.

Three design and production entities also provide ATM/CNS services, as listed in the below table.

State	Further known civilian ANSPs	Core business
Germany	Airbus Deutschland GmbH (ATS at Hamburg-Finkenwerder)	Design and production of large aeroplanes
	BAN 2000 Gmbh THALES ATM Navigation GmbH (CNS services)	Turn-key solutions for CNS equipment + Design and production of ATM/CNS systems
Ireland	IAA Technology Directorate (CNS)	Siting, procurement, and operation of CNS

Table 13: Technical organisations providing also ATM/ANS services

In option 0B or 0C therefore, 3 (providing ATM/ANS) + 3 design, production or maintenance organisations could be affected.

[45] Article 5 of Regulation (EC) No 552/204 of the European Parliament and of the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (*OJ L 96, 31.3.2004, p. 26*).

[46] i.e. those whose staff monitors and reconfigures safety critical systems in real time, and signs the release into service after planned or corrective maintenance on the site.

[47] Article 8 of Commission Regulation (EC) No 2096/2005 of 20 December 2005 laying down common requirements for the provision of air navigation services (*OJ L 335, 21.12.2005, p. 13*).

[48] http://www.eltelnetworks.com/main.aspx?ID=B2B538BF-3D54-4640-984A-D3DE847ED006

[49] http://www.technosky.it/Lang1/

2.6.2.5 Training organisations and medical examiners

From the information available to the Agency **4 entities** provide **ATCO training without being a provider of any ATM/ANS**, as listed in the below table.

Location	Further known civilian ANSPs	Core business in the domain of regulated aviation services
Latvia	ANS Training Centre	ATCOs training
Lithuania	Vilnius Gediminas Technical Univ.	ATCOs training
Luxembourg	Institute of Air Navigation Services (IANS)	ATCOs training
Sweden	EPN (Entry Point North)	ATCOs training

Table 14: ATCOs training organisations

Medical examiners[50] and ATCO training providers[51] are however already subject to approval/certification by the NSAs in the SES framework. Therefore in any of the options 0A, 0B or 0C **none of them will be affected**.

2.6.2.6 Summary of affected entities

In conclusion, on the basis of the information in sub-paragraphs 2.6.2.1, 2.6.2.2, 2.6.2.3, 2.6.2.4 and 2.6.2.5 above, the number of concerned entities is estimated in table 15 below:

OPTION		Estimated Number				
Id.	**Description**	**Authorities**	**ANSPs**	**Aerodrome operators**	**Design, Production or Maintenance organisations**	**ATCOs Training organisations or medical examiners**
0A	"Do nothing"	**0**	**0**	**0**	**0**	**0**
0B	Extend the scope of the Basic Regulation	**30 + 2***	**9**	**150**	**3 (also ANSPs)** **+ 3 (maint.)**	**0**
0C	Embed the role of EASA into SES	**30 + 2***	**9**	**150**	**3 + 3**	**0**

*EUROCONTROL and EASA.

Table 15: Number of affected entities for different ways of extending the Agency mandate

It will therefore be in particular of paramount importance to assess the impact on the aerodrome operators to compare option 0B against 0C.

[50] Article 12.1 of Directive 2006/23/EC of the European Parliament and of the Council of 05 April 2006 on a Community air traffic controller licence.
[51] Article 13.1 therein.

2.6.3 Safety impact

In option 0A, neither the SES basic[52] provisions nor the Basic Regulation will be modified in any way.

In option 0C few articles will describe the role of the Agency, but the general philosophy and wording of the SES provisions will remain. This assumption remains true even in presence of the legislative proposal for the "second package" of the SES, since this will mainly aim at performance monitoring and improvement of efficiency and not at safety regulation. Therefore option 0A and 0C, from the safety point of view are equivalent, since they both will be based on existing safety provisions in SES.

In option 0B a few more articles, specific to ATM/ANS, will be included in the Basic Regulation. The latter today consist of 70 articles already adopted by the legislator; in the present RIA it is assumed that the philosophy and even the wording of those articles will not change so that the EASA system will apply as such to the ATM/ANS domain.

To compare option 0B versus the other two in terms of safety impact, some general features are then listed in the following table.

Topic	**SES framework (Options 0A & 0C)**		**EASA B.R. (Option 0B)**		**Comparative safety impact**	
	Art.	**Provision**	**Art.**	**Provision**		
					SES	**EASA**
Separation design, production and maintenance provisions from service	5 (552)	Only assessment of conformity on purchase. No involvement of manufacturer for subsequent changes	1.1(a)	Very clear	☹	☺
Total system approach to civil aviation safety	N.A.	SES by definition is limited to ATM/ANS, which will not allow for a harmonised approach to aviation safety	4	Already embedded in the EASA system	☹	☺
Total system approach to ATM/ANS	N.A.	SES framework will allow for a harmonised approach to ATM issues, but using several entities that will need to coordinate, which could lead to loop-holes or overlaps	N.A.	By definition, the EASA system is limited to safety issues, which could lead to loop-holes	☹	☹
Suitability for use of avionics (EU operators)	5 (552)	Covers also airborne constituents	8 + 1.c.2 Ann. I & 5.a Ann. IV	Includes airworthiness and suitability for use	☺	☺
Suitability for use of avionics (non EU operators)	5 (552)	Covers also airborne constituents	9 + 1.c.2 Ann. I & 5.a Ann. IV	Includes airworthiness and suitability for use	☺	☺
Collective oversight	2.4 (550)	Case by case arrangements to be established = risk of non comprehensiveness or non uniformity	10.2	Immediately applicable, EU wide	☹	☺

[52] Regulations 549, 550, 551 and 552/2004 of the European Parliament and of the Council.

Exchange of information (findings)	2.4 (550)	Case by case arrangements to be established	10.4	Immediately applicable, EU wide	☹	☺
Check of compliance of certificates by EC	18.1	Limited	11.2	Possible	☹	☺
Safety measures	9 & 13 (549)	Limited to sanctions & security; no mention of safety directives in basic provisions	14.1	Immediate reaction possible	☹	☺
Flexibility of implementing rules	8 (549)	Text limited to the development of the rules. Nothing on their flexibility.	14.6	Clear hierarchy of rules and clear procedures to attain an equivalent level of safety through means different from implementing rules	☹	☺
(Safety) information network	18 (552)	Emphasis on confidentiality, not on exchange of safety information: this is contrary to the safety principles as contained in Directive 2003/42/EC	15.1	Exchange of safety information among States, EC, EASA and AIBs, mandatory and compliant with Directive 2003/42/EC	☹	☺
Annual safety report	11.1d (549)	Performance review limited to ATM: no total system vision	15.4	Entire EU + across all domains	☹	☺
Protection of voluntary reporters	N.A.	Not mentioned	16.1	Explicit	☹	☺
Protection from mobbing	N.A.	Not mentioned	16.3	Explicit	☹	☺
"Soft" rules (CSs)	4 (549)	Cumbersome process	18 (c)	Simpler process (i.e. quicker to respond to emerging safety needs)	☹	☺
Authorization 3rd country aircraft	5 (549)	Limited to the avionic equipment prior to installation on board	23.1b	Formal authorization process	☹	☺
Standardisation inspections	9 (2096)	Only at level of IRs. No inspection of undertakings possible. No requirements for competence of the auditors	24.1	Inspection of MS is mandatory and also includes investigation of regulated undertakings	☹	☺
Sanctions to pan-European providers	9 (549)	Procedures unclear, if the infringement happens in a State different from the State of certification	25.1	Administrative fines imposed by the Commission on request of EASA	☹	☺
Non contractual liability	N.A.	No provisions on the liability of EUROCONTROL or of auditors involved the "peer reviews"	31.3	By law, EASA and its staff fully liable for their acts	☹	☺
Cooperation between NSAs	2.3 (550)	Left to bi- or multi-lateral agreements, which could lead to non-uniformity	38.3(c)	Simple process	☹	☺

Consultation process & written responses	8.1 (549)	Through EUROCONTROL arrangements which are not necessarily public;	52.1(c)	Industry involvement and open public consultation mandated by law	☹	☺
Support to EC for infringements	9 (2096)	No clear link with the duty by EC to monitor the application of Community law	54.1	Clear line for reporting inspection findings to EC	☹	☺
Rules for ATCOs	5 (550)	Directive 23/2006 = time necessary for transposition + non-uniformity still possible	Implementing rules	Immediate uniform applicability	☹	☺
"Horizontal" rules for authorities	N.A.	Scope of SES limited to ATM/ANS	Sections B of the EASA implementing rules	Specified across all aviation domains for mutual recognition purposes	☹	☺
"Horizontal" rules for management system	N.A.	Different rules may exist for different domains, which make the management system less clear, or more expensive	Implementing rules under development	Single set of rules applicable across all domains to reduce regulatory burden and aim at single certification processes for several types of activities	☹	☺

Table 16: Safety comparison of options 0A, 0B and 0C

From the above table it can be observed that the Basic Regulation contains a comprehensive set of "horizontal" provisions for aviation safety. Including ATM/ANS in this framework will in particular provide for the total system approach to civil aviation safety; this would allow identifying and mitigating risks related to interfaces between the various actors as safety cannot be achieved only by the addition of individual blind action of each of them. It is also expected that placing all safety regulatory processes under one system will allow simplifying the certification process for operators involved in multiple aviation domains.

On the contrary the SES framework, which has been designed to improve ATM/ANS capacity and efficiency, is less developed from a safety regulation point of view. In addition embedding the role of the Agency in it, will force operators in multiple domains to follow separate streams of legislation: i.e. diverting part of the available effort for the management system, towards non safety essential tasks.

In conclusion, applying the methodology presented in paragraph 2.1.2 above (including a weight factor of 3 for the safety impacts), and having selected the applicable result indicators linked to specific objectives identified in paragraph 2.4.5, scores can be attributed for the safety impact of the three options as presented in the following Table.

Specific Objectives/Result Indicators	Scoring of options		
	0A	**0B**	**0C**
Role of EASA covered by	**Not extended to ATM/ANS**	**EASA B.R.**	**EASA in SES**
Safety regulation clearly separated from other forms of regulation	0	3	1
Application of EASA rulemaking procedure (for ATM/ANS)	- 3	3	3
Standardisation inspections for ATM/ANS	1	3	2
ATM/ANS in the EASA safety regulatory framework	- 3	3	1
Horizontal rules for management systems	- 3	3	- 1
Clear separation of roles between authorities and providers	Not directly related to legal act		
Basis for certification of providers in 4 or more States	- 3	3	2
Simplification (but uniform rules) for AFIS and apron management	Covered in paragraph 2.10		
Impact assessment for any proposed rule	1	3	2
Interface with other forms of regulation	- 1	3	2
Arrangements among authorities for rational use of resources	- 2	3	3
Consistent process for oversight of all ACC functions	Not directly related to legal act		
TOTAL	**- 13**	**27**	**15**
AVERAGE SCORE (/ 9 quantified parameters)	**- 1.44**	**3**	**1.67**
WEIGHTED AVERAGE (Score x 3 for safety)	**- 4.32**	**9**	**5.01**

Table 17: Scoring of the safety impact of the extension of the scope of EU legislation

2.6.4 Economic Impact

In this section Agency costs are evaluated as follows. The total cost of Agency staff (salaries + administration, but excluding travel) is around 43.8 M€ in 2008 for an average head count of 338. Therefore **1 FTE in EASA** costs around 130 k€/year, considering also Temporary Agents in the B grades, Contract Agents, and Auxiliaries. However the staff relevant to the present RIA is mostly composed by Temporary Agents in A grades. For them a cost 15% higher is estimated (i.e.: **150 k€/year).** In one year (365 days) there are 52 Saturdays and an equal number of Sundays. In addition about 30 days of leave have to be considered and 16 bank holidays. The remaining number of useful days is then: 365 – 104 -30 – 16 = 215 days. Assuming 5 days for sickness and other absences, the remaining net number of days is **210/year**. Assuming 7.5 working hours per day, this represents **1575 working hours in the year**. It is assumed that **around 20% of the hours are spent in routine**, planning, reporting and other administrative tasks, so the number of **"billable" hours is around 1260.** The **cost of one billable hour** is then (150,000/1260) in the order of **120€** for the Agency staff. About **25€/hour** are estimated to represent **travel cost**, since standardisation inspections have to cover the entire continent including its periphery. **So the total cost of one billable hour in this RIA is assumed to be, for the Agency staff in the order of 145€ (including travel).**

In conclusion in this paragraph and throughout the present RIA, **1 FTE** for the Agency **is assumed to represent**:

- An average cost of 150,000 €/year;
- **210 working days** and 1260 billable hours, at a cost of 120€
- Travel costs are evaluated at 25€ per hour.

2.6.4.1 Standardisation inspections by Agency

The extension of the Agency standardisation inspections to ATM and ANS, will happen following the present general plan for periodic audits, based on 1 visit every 2 years (frequency = 1 : 2 = 0.5 visits/year). In addition however, ad hoc inspections may be carried out in special circumstances. So the frequency is assumed to be 10% higher: 0.55.

Such visits will normally last 5 days, and are carried out by a team of 3 auditors dedicated to ATM/ANS coming from the Agency or from NSAs,[53]. The average effort per one inspection visit is then 5 days x 8 hours x 3 persons = 120 working hours.
Since the frequency of the visits per year has been estimated equal to 0.55, this means (120 x 0.55) that in average **about 66 yearly working hours are necessary to carry out one standardisation visit of one single competent authority, during the two years planning period.**

However, according to Regulation (EC) No 736/2006, the auditors fulfilling the Agency's task contribute to the development and amendments of the audit protocols and of the audit questionnaires. In addition they will have to prepare the audit plans; coordinate the visits; prepare them; report on the result; and follow up any plan for possible corrective actions. The number of necessary yearly working hours to be spent by the Agency to standardise one competent Authority, in the very complex ATM/ANS domains, is estimated to be, in average, at least 5 times higher (i.e. one week for the visit plus 4 weeks of associated desk work) than the 66 hours mentioned above.

Therefore 66 x 5 = **330 hours in average are necessary per year by the Agency for the standardisation of one competent Authority in the ATM/ANS domains**, comprising the actual visit and the associated desk work before and after the visit.

In paragraph 2.6.2.1 above, the number of involved Authorities has been estimated to 30, therefore for the standardisation inspections, the yearly burden on the Agency will total:

- 330 hours x 30 Authorities = around 9 900 billable hours/year;
- this, divided by 1260, represents **about 8 FTEs for standardisation activities**
- This number of inspectors will require **additionally 1 Section manager and 1 assistant; so the number of FTEs will be 10,** in line with the approved staffing plan for the Agency;
- at 150,000€/FTE, in the most expensive case of using only Agency staff, this leads to an **estimated total cost for the Agency of about 1 500 000 €/year.**

Standardisation inspections also require effort by the inspected authorities. However, it is assumed that:

- authorities are already subject to "peer reviews" on the basis of Article 9 of Commission Regulation (EC) No 2096/2005 ("common requirements"): therefore options 0B or 0C, since the Agency inspections will obviously replace the said "peer reviews", will imply **no additional economic burden on the authorities for receiving the inspections**;
- **authorities will provide auditors to support the EC for the "peer reviews",** for about 6 930 hours/year, which, multiplied by 110 €/hour leads to **savings for them in the order of 762 300 €/year;**
- EUROCONTROL ESIMS visits, imply more or less the same effort as that estimated for the Agency and they are parallel to the "peer reviews". Assuming a labour cost as per EASA, and based on the same assumptions, this represents a cost for

[53] According to Article 6(1) of Commission Regulation (EC) 736/2006 of 16 May 2006 on working methods of the EASA for conducting standardisation inspections, the Agency's audit team should be composed by no less than 3 members. 1 or 2 members could be provided by the Member States. This provision could easily be modified through comitology, in order to allow the involvement of EUROCONTROL staff, previously involved in the ESIMS programme.

EUROCONTROL of about **1 500 000 €/year**, which could be saved once the standardisation inspections will be carried out by the Agency.

In conclusion the differential (in relation to option 0A) **cost of extending the Agency's standardisation inspections** to the ATM/ANS domains, **in either option 0B or 0C**, bearing in mind that service providers may not be directly involved in this activity can be estimated as presented in table 17 below.

Parameter	For the Agency	In total for 30 competent Authorities	For EUROCONTROL	TOTAL
FTEs	10	- 8	- 10	**- 8**
k€	1,500	- 762	- 1500	**- 762**

Table 18: Estimated cost of standardisation inspections in the ATM/ANS domain

2.6.4.2 "horizontal" regulation of Safety and Quality Management System

In paragraph 2.6.2.6, **162 entities have been estimated as providing services across multiple aviation domains** (e.g. ANSPs which also provide aerial work; or aerodrome operators also providing some ATM or ANS services; or technical entities also providing ATM/ANS). Some of those entities are small/medium enterprises (SMEs). However in option 0A, due to the fragmented framework, they have to:

- Familiarise themselves with two different streams of aviation safety regulation;
- Train their staff involved in safety management for both sets of regulations;
- Possibly adjust their management systems to varying (and potentially conflicting) requirements, or establish a separate safety management system for each business.

In average it is assumed that the fragmentation mentioned above could lead to **wasting at least 0.5 FTEs/entity/year.** This very prudent estimate is based on the fact that, as said above, a significant number of those entities are SMEs. On the other side, for an SME even 0.5 FTE is a significant number.

The cost of labour for those entities is assumed in average the same as that of the authorities, therefore the cost of **1 FTE for them is (1260 billable hours x 110 €/hour) = 138 600 €.**

In option 0A the "wasted" cost of 0.5 FTE/entity will not be avoided. In total this represents a "wasted" effort of 0.5 x 162 = 81 FTEs; in monetary terms this represents 81 x 138 600€ = **11 227 k€/year.**

In option 0B, "horizontal" implementing rules for integrated management systems are being developed. Even if within this rules some subparts will be domain specific, in general terms there will be one single legal act and the same philosophy behind it. This means that the above **"wasted cost", compared with today's situation, could be entirely avoided.**

Finally in option 0C, some savings could still be achieved, but in the end, most probably, different rules will apply to the safety management of ATM/ANS as compared to other aviation domains. It is therefore assumed that in this case the order of magnitude of the saving could be halved to **5 613 k€/year**.

In conclusion there will be no additional costs for the ATM/ANS providers stemming from the extension of the Agency's scope to their domains, but savings, which can be estimated as presented in the table below.

Parameter	OPTION		
	0A	0B	0C
	Not extended to ATM/ANS	EASA B.R.	EASA in SES
FTEs	0	- 81	- 40.5
k€	0	- 11 227	- 5 613

Table 19: Estimated savings for ANSPs

2.6.4.3 Oversight of maintenance organisations

In paragraph 2.6.2.4 above, three safety critical maintenance organisations have been identified in the ATM/ANS domains. Today, according to the SES regulatory framework, they are not supervised by the competent authorities, but, on the contrary, by the certified service provider which has contracted them.

In option 0A and 0C this situation will continue leading to:

- Less formalised safety oversight processes, which, from the administrative perspective represent less burden, but from the point of view of legal certainty and possibility to estimate the required effort, could be worse;
- Need to establish arrangements between two or more ANSPs, should they decide to contract the same maintenance organisations, in order to avoid duplicated audits;
- The bullet immediately above could also be an obstacle to building the internal market.

Many other considerations could be listed, however in general it is felt that an objective estimation of the economic impact for this specific issue is very difficult and disproportionate for the very little number (i.e. a maximum of 3 certified organisations) of the involved entities. Some factors could lead to savings, but others could well lead to cost increase as, for instance, the multiplication of oversight activities when the maintenance organisation has several customers. This is the case of options 0A and 0C. Therefore, option 0B could be the cheapest, although the economic impact of this option is not estimated in detail in the present RIA.

2.6.4.4 Verification of conformity for avionics on third country aircraft

According to Article 12 of the Basic Regulation, the Agency can recognise certificates issued by aeronautical authorities of third countries, as provided in the applicable agreements between the Community and that country. This applies to the avionic equipment, but also to its carriage, taking into account air traffic regulations and rules of the air. In addition this includes the suitability for use under any foreseeable operating. In the absence of such agreements for mutual recognition, the Agency shall investigate any relevant aspect prior to issuing the authorization required from third country operators to enter EU airspace.

Should the role of the Agency for ATM/ANS be embedded into the SES legal framework, the following provisions would apply:

- Article 7 of Regulation (EC) No 549/2004, which gives non-EU States the possibility of establishing agreements for SES matters, but this article was not designed to address equipage requirements and does not provide an appropriate legal basis to relieve the certification requirements contained in the Basic Regulation;
- Article 5 of Regulation (EC) No 552/2004 which requires manufacturers to sign a declaration of conformity of the airborne "constituents", which covers the avionic box, but not its safety and performance when installed on board.

The safety impact of the situation described in this paragraph has already been estimated in 2.6.3 above. From the economic perspective it can be noted that the SES framework

could lack legal clarity and perhaps leave some gaps. To fill the gap and to clarify the matter, effort will have of course to be spent. However it is impossible to quantify this effort on the basis of any realistic assumption. T**he economic impact of either option 0A or 0C can therefore only be considered as negative.** Conversely option 0B leads to no additional cost.

2.6.4.5 Cost of damages

No reliable tools exist today to evaluate with precision the quantitative safety effects of new legislative measures. So it is very difficult to develop precise related economic estimations.
However paragraph 2.6.3 above concluded that, while option 0A has a negative safety impact in the face of the future challenges, the other two options 0B and 0C had a positive safety impact, with the impact of 0B almost twice as good then 0C. In addition, paragraph 2.3.1.8 concluded that the cost of aviation accidents and incidents directly or even indirectly related to ATM/ANS factors in the EU 27 + 4 amounts to 680 M€/year = 680 000 k€/year.

It is then assumed that, **option 0A** will definitely not bring any safety benefits in front of the future challenges: **0 savings in monetary terms**. On the other hand, although option 0B scored higher than 0C in the safety assessment, a very prudent estimation of only 1% benefit estimated for both **options 0B and 0C** leads to a benefit in terms of **avoided damages of at most 6 800 k€/year.**

2.6.4.6 Safety analysis and rulemaking by the Agency

Community competence having been established by the SES framework, it is assumed that no option leads to changes affecting the competent authorities or the industry stakeholders. as regards rulemaking and safety analysis.

It is then assumed that the number of **FTEs needed by the Agency** for **rulemaking activities** in the ATM/ANS domains, **is 9 (1 manager + 7 administrators + 1 assistant). 2 more FTEs are deemed necessary to support rulemaking with sufficient analysis of safety data and with safety research.**

The additional resources needed by the Agency is evaluated to 11 FTEs = 1 650 000 €/year, for both options 0B and 0C, excluding missions, groups and studies.

It is assumed that, in either option 0B or 0C, EUROCONTROL will continue to support the EC for aspects of the SES which are not related to safety regulation. Therefore it is not assumed that any FTEs could be spared by EUROCONTROL, although some units of personnel, today employed by the SRU for rulemaking activities, might be allocated to different tasks.

2.6.4.7 Summary of economic impact

The **Agency's budget** will need to accommodate, in either option 0B or 0C, more or less **21 additional FTEs** (10 for standardisation inspections + 9 for rulemaking + 2 for safety analysis). Assuming a cost of 150 000 k€/FTE this represents a direct **yearly cost for the Agency equal to 3 150 k€,** excluding the cost of missions, groups and studies, since they already exist in today's system.

Looking now at the economic impact on stakeholders, taking into account the conclusions reached in the previous sub-paragraphs, the following summary table has be compiled to compare the economic impact of the three options.

Estimated cost in function of the legal framework	Thousand €/year		
	0A	0B	0C
	Not extended to ATM/ANS	EASA B.R.	EASA in SES
Standardisation inspections by EASA	0	- 762	- 762
"Horizontal" rules for management systems	0	- 11 227	- 5 613
Oversight of maintenance organisations	0	0	0
Conformity of avionics on third country aircraft	Negative, but not quantifiable	0	Negative, but not quantifiable
Avoided damages	0	- 6 800	- 6 800
Common rules	0	1 650	1 650
TOTAL	**0**	**- 17,139**	**- 11,525**

Table 20: Summary of economic impact as function of the chosen legal solution

This table shows that **both options 0B and 0C, although implying greater costs for the Agency, lead to economic benefits for the total community, of the order of 11 M€/year in case of option 0C and around 17 M€/year for option 0B.**

The monetary terms of table 20 are translated into scoring in the following table.

Specific Objectives/Result Indicators	Scoring of options		
	0A	0B	0C
Role of EASA covered by	Not extended to ATM/ANS	EASA B.R.	EASA in SES
Safety regulation clearly separated from other forms of regulation	Not relevant for economy		
Application of EASA rulemaking procedure (for ATM/ANS)	0	- 2	- 2
Standardisation inspections for ATM/ANS	- 2	2	2
ATM/ANS in the EASA safety regulatory framework	- 3	3	2
Horizontal rules for management systems	0	3	2
Clear separation of roles between authorities and providers	Not relevant for economy		
Basis for certification of providers in 4 or more States	Assessed in paragraph 2.11		
Simplification (but uniform rules) for AFIS and apron management	Assessed in paragraph 2.10		
Impact assessment for any proposed rule	0	0	0
Interface with other forms of regulation	Not relevant for economy		
Arrangements among authorities for rational use of resources	Assessed in paragraph 2.11		
Consistent process for oversight of all ACC functions	Not directly related to legal act		
TOTAL	**- 5**	**6**	**4**
AVERAGE SCORE (/ 5 quantified parameters)	**- 1**	**1.2**	**0.8**
WEIGHTED SCORE (Score x 2 for economy)	**- 2**	**2.4**	**1.6**

Table 21: Scoring for economic impact of options 0A, 0B and 0C

2.6.5 Environmental impact

Nothing in the considered legislative proposal aims at building new infrastructure or relaxing environmental rules. The effect of any of the three considered options has to be considered then neutral in relation to environmental aspects.

2.6.6 Social Impact

2.6.6.1 Competent authorities

The following main impacts can be envisaged, based on the same figures for the economic assessment in paragraph 2.6.4 above:

- 8 FTEs in total will be saved by the 30 competent authorities that will not provide any more auditors for the peer reviews;
- This is in average less than 0.3 FTEs/authority;
- Considering that many experts concur that the effort available within the authorities for certification and oversight in the domains of ATM/ANS is barely sufficient, if not insufficient, this minimal reduction of FTEs could be very easily reallocated to similar tasks in the same organisation.

In conclusion the social impact on the Authorities will be negligible in case of any of the three possible options.

2.6.6.2 Industry

It has been estimated in paragraph 2.6.4.2 that option 0B allows a saving of 0.5 FTEs by each of the 162 affected entities. In social terms 0.5 FTE per company can easily be absorbed, so the social impact even for them is marginal.

In case of option 0C the social impact is halved.

2.6.6.3 EUROCONTROL and Agency

In the domain of aviation safety, ATM/ANS competent authorities are potentially subject to three different kinds of audits in addition to the ICAO USOAP visits:

- ESIMS by EUROCONTROL;
- "peer reviews" in the SES;
- EASA standardisation inspections in the domains of ATM/ANS.

Clearly such multiplication of more or less identical audits is neither necessary nor desirable. Therefore it has been estimated in paragraph 2.6.4.1 that, in order to eliminate duplicated inspections, the EUROCONTROL ESIMS programme, for the EU 27 + 4, shall be terminated. **This will result in the loss of 10 FTEs,** mainly in the SRU**.**

However, during the transition period while assuming new competences, the Agency will lack a sufficient number of skilled professionals. These 10 FTEs could easily be used for the standardisation inspections by the Agency; in this way the social impact on EUROCONTROL could be minimised.

In paragraph 2.6.4.7 it has also been presented that around 21 new jobs will be progressively be created in the Agency.

2.6.6.4 Summary of the social impact

The considerations in the previous paragraphs are translated into scores for the applicable result indicators in the following table.

Specific Objectives/Result Indicators	**Scoring of options**		
	0A	**0B**	**0C**
Role of EASA covered by	**Not extended to ATM/ANS**	**EASA B.R.**	**EASA in SES**
Safety regulation clearly separated from other forms of regulation	Not directly related to legal act		
Application of EASA rulemaking procedure (for ATM/ANS)	0	0	0
Standardisation inspections for ATM/ANS	0	2	3
ATM/ANS in the EASA safety regulatory framework	Not directly related to legal act		
Horizontal rules for management systems	Not directly related to legal act		
Clear separation of roles between authorities and providers	Not directly related to legal act		
Basis for certification of providers in 4 or more States	Not directly related to legal act		
Simplification (but uniform rules) for AFIS and apron management	Not directly related to legal act		
Impact assessment for any proposed rule	Not directly related to legal act		
Interface with other forms of regulation	Not directly related to legal act		
Arrangements among authorities for rational use of resources	Not directly related to legal act		
Consistent process for oversight of all ACC functions	Not directly related to legal act		
TOTAL	**0**	**2**	**3**
AVERAGE SCORE (/ 2 quantified parameters)	**0**	**1**	**1.5**
WEIGHTED SCORE (Score x 2 for social impact)	**0**	**2**	**3**

Table 22: Scoring of the social impact related to options 0A, 0B and 0C

2.6.7 Impact on other Community requirements outside the present EASA scope

2.6.7.1 "New Approach"

The "new approach" for the standardisation and safety of industrial products, has been initiated by a Council Resolution[54] in 1985. It comprises four fundamental principles:

- Legislative intervention limited to essential requirements (ERs);
- Adoption of technical rules entrusted to organisations with sufficient expertise and competence;
- Community (or Certification) Specifications (CSs) not legally binding;
- Possibility of alternative Acceptable Means of Compliance (AMC).

The EASA "system" is not only fully complaint with the "new approach" as regards products, but also applies its principles to safety critical.

[54] Council Resolution of 07 May 1985 on a new approach to technical harmonisation and standards (*OJ C 136. 4.6.1985, p. 1*).

In the SES on the contrary, there are no essential requirements for services (only for systems, as attached to Regulation (EC) No 552/2004), while technical details are sometimes contained in binding implementing rules.

Furthermore the "new approach" contains ten main elements. Among those the first one is to avoid proliferation of legal provisions from different sources. Clearly options 0A and 0C will not comply with it, while option 0B will be perfectly in line.

2.6.7.2 Licensing of air carriers

Article 9 of Council Regulation (EC) No 2047/2002[55] clearly states that the granting and validity at any time of an air carrier operating licence shall be dependent upon the possession of a valid Air Operator Certificate (AOC) specifying the activities covered by the operating licence and complying with the applicable safety criteria. Hence the safety criteria are specified today in the Basic Regulation, while the above mentioned Council Regulation contains all other aspects related to business (business plan; financial stability; insurance; etc…).

In options 0A and 0C the principles of the SES will be maintained and therefore, although the "certification" and "designation" processes therein are different, the former includes also the mentioned economic/business aspects, while the latter is not defined at Community level.

Option 0B will lead to a better separation of the two matters, in line with the recommendations by the HLG and consistent with the approach already applied to other aviation domains.

[55] Council Regulation (EEC) No 2407/92 of 23 July 1992 on licensing of air carriers *(Official Journal L 240, 24.08.1992 p.1).*

2.6.7.3 Summary of impact on other Community requirements

The considerations in the above paragraphs are translated into scores for the applicable result indicators in the following table.

Specific Objectives/Result Indicators	**Scoring of options**		
	0A	**0B**	**0C**
Role of EASA covered by	**Not extended to ATM/ANS**	**EASA B.R.**	**EASA in SES**
Safety regulation clearly separated from other forms of regulation	Not relevant in this respect		
Application of EASA rulemaking procedure (for ATM/ANS)	Not relevant in this respect		
Standardisation inspections for ATM/ANS	Not relevant in this respect		
ATM/ANS in the EASA safety regulatory framework	Not relevant in this respect		
Horizontal rules for management systems	-3	3	-2
Clear separation of roles between authorities and providers	Not relevant in this respect		
Basis for certification of providers in 4 or more States	Not relevant in this respect		
Simplification (but uniform rules) for AFIS and apron management	Not relevant in this respect		
Impact assessment for any proposed rule	Not relevant in this respect		
Interface with other forms of regulation	- 3	3	1
Arrangements among authorities for rational use of resources	Not relevant in this respect		
Consistent process for oversight of all ACC functions	Not relevant in this respect		
TOTAL	**- 6**	**6**	**- 1**
AVERAGE SCORE (/ 2 quantified parameters)	**- 3**	**3**	**- 0.5**
WEIGHTED SCORE (Score x 1 for relation with other law)	**- 3**	**3**	**- 0.5**

Table 23: Comparison of options 0A, 0B and 0C in relation to other Community legislation

2.6.8 Multi Criteria Analysis (MCA) and recommended option

According to the methodology described in paragraph 2.1.2, the scores attributed to each option are reported in the following MCA matrix.

Weighted score of options for the legal framework		**0A**	**0B**	**0C**
impact item	**Weight**	**Not extended to ATM/ANS**	**EASA B.R.**	**EASA in SES**
Safety	3	- 4.32	9	5.01
Economic	2	- 2	2.4	1.6
Environmental	3	0	0	0
Social	2	0	2	3
On other EU regulations	1	- 3	3	- 0.5
WEIGHTED TOTAL		**- 9.32**	**16.4**	**9.11**

Table 24: Multi Criteria Analysis for the legal framework

The above table shows that option 0B scores about twice better than options 0C, while option 0A has a negative global impact. In particular, option 0B:

- Scores almost twice better in safety terms than 0C;
- Is the cheapest, costing to the EC about 3.15 M€/year for 21 additional staff in the Agency, but providing for a yearly saving of around 17 M€/year at the level of aviation stakeholders;
- Creates no significant social impact;
- Is fully in line with the "new approach" and the principle of separation between safety and other forms of regulation or public intervention.

2.7 Concept of operations

2.7.1 Alternative options

The expression "concept of operation" (or ATM operational concept) can be interpreted in different ways, among which the most prominent are:

a) Development of a conceptual abstract models, not linked to a specific volume of airspace, and in whose generic types of airspace certain technologies are used, certain rules are applied and various actors (e.g. airspace users and ATS service providers) play different roles;
b) Identifying and promulgating the rules for access and services in a specific volume of airspace, addressed to precise legal entities (e.g. the airspace users and ANSPs).

During the last decades in Europe the work of EUROCONTROL often concentrated on the first definition, e.g. in the nineties when developing a "generic" concept of operations for introduction of the Basic RNAV or in the beginning of this decade when doing the same for the RVSM. Today defining generic concepts of operations for different types of airspace (and in different timeframes) is one of the principal tasks for SESAR. This could be considered an activity of governmental nature or a service provision activity or even largely a development activity. In this last case it would be out of the scope of the Basic Regulation, although an early and voluntary development of safety assessments and dialogue with regulatory authorities would be most desirable.

The second definition leads to concrete decisions concerning the precise volume, shape and limits of a concerned airspace in a defined geographical area (e.g. the CTR, controlled airspace around an aerodrome); determining the class of that airspace (e.g. ICAO Class A, which means that normally only IFR traffic is allowed to enter); the related requirements for avionics by airspace users and the related pilot training; the approved standard routes for instrument departures, instrument approaches and for landing; the ATC services to be provided; etc. These activities, which can take advantage from the generic provisions developed by the activity described above as the first possible interpretation, also impose specific obligations and rights for different aviation stakeholders, such as the airspace users and ANSPs in the first place, but also aerodrome operators in case of certain low level operations. This second type of definition for concept of operations could be considered as an activity of a governmental nature or of a service provision nature.

On the basis of the stakeholders replies to question 1 (as contained in the NPA 2007-16), on the matters summarised above, the following alternative options for the concept of operations have been identified in paragraph 2.5.2 of this document:

- 1A): Generic concepts of operations (e.g. development of SESAR) and decisions concerning concepts of operations used in a specific airspace both are of a governmental nature and subject to articles of law in the Basic Regulation;
- 1B): Generic concepts of operations (e.g. development of SESAR) and decisions concerning concepts of operations used in a specific airspace are both regulated

activities, carried out by service providers on the basis of the essential requirements in the Basic Regulation;

- 1C): Generic concept of operations (e.g. development of SESAR) would be out of the scope of the Basic Regulation, while decisions concerning concepts of operations used in a specific airspace being of a governmental nature and subject to the articles of law;
- 1D): Generic concepts of operations (e.g. development of SESAR) would be out of the scope of the Basic Regulation, while decisions concerning concepts of operations used in a specific airspace being of a service provision nature and carried out on the basis of the essential requirements in the Basic Regulation.

2.7.2 Target group and number of entities concerned

2.7.2.1 Different roles

On the basis of the four alternative options identified above to specify the nature of the concepts of operations, different entities will play different roles, as presented in Table 24 below. In the table the expression "concept developers" is used to indicate SESAR related entities, which indeed are involved in the development of **generic** concepts of operations for different types of the European airspace.

Option	Agency*	concept developers (generic)	competent authorities	ATSPs	other stakeholders
1A	Interacts with SESAR based on implementing rules to be developed	Subject to EASA rules	Decide on the specific concepts in their respective airspace	Comply with rules and decisions (e.g. implement ground equipment)	Comply with rules and decisions (e.g. mandatory carriage of avionics)
1B	As 1A + exercises oversight over SESAR entities	Regulated activity	Responsible for certification and oversight of ANSPs	Decide on the specific concepts in their respective airspace	As above
1C	No formal rules applicable to a generic concept	Out of the scope of the EASA Basic Regulation	Decide on specific concept in their respective airspace	Comply with rules and decisions (e.g. implement ground equipment)	As above
1D	No formal rules applicable to generic concept	Out of the scope of the EASA Basic Regulation	Responsible for certification and oversight of the ANSPs	Decide on the specific concepts in their respective airspace	As above

* in addition to standardisation inspections, as already covered in paragraph 2.6.

Table 25: Roles of different entities

From the Table above it can be seen that aviation stakeholders, as well as other stakeholders, will anyway have to comply with related rules and decisions, the latter ones taken by either the competent authority or by the competent ATSP. In other words, their role will note change in function of any of the four possible options. Hence it is not necessary to estimate in detail the number of affected entities in this category. In addition, entities not directly involved in the air operations, such as design, production and maintenance organisations, will not be affected by any of these options.

Therefore, only the number of affected authorities, ATSPs and (generic) concept developers will be estimated in following paragraphs 2.7.2.2, 2.7.2.3 and 2.7.2.4

2.7.2.2 Competent Authorities

All the 30 competent authorities (as estimated in paragraph 2.6.2.1 above) **plus the Agency**, will be affected **by any of the four possible options**, while the EUROCONTROL safety regulatory activities have been considered in paragraph 2.6 above.

2.7.2.3 Concept developers

EUROCONTROL Directorate of ATM Strategies (DAS), which is in charge of the development of new generic concepts of operations, will be impacted by either options 1A and 1B. Vice versa, it will not be impacted in any way by options 1C and 1D, since in this case the generic concept of operations will be out of the scope of the Basic Regulation.

The same applies to the SESAR Joint Undertaking and to the SESAR Consortium.

Therefore it can be assumed that in the case of options 1A and 1B the number of affected entities will be 3, but for the remaining two options no affected concept developers exist.

2.7.2.4 ATSPs

The community of ANPSs is very wide and it comprises also entities such as providers of satellite navigation signals, aeronautical information, surveillance networks, meteorological services and communication networks. Typically such entities mentioned above cover large areas of airspace, but it is not of their role to decide on the generic or specific concepts of operations. So, they will not be affected by any of the four options provided here.

At the other extreme, providers of simple ATS services on a very limited geographical scale (e.g. AFIS) equally have no role in defining or deciding on the concepts of operations. Therefore, even this category of entities is considered as not being affected.

However, the civilian ATSPs providing ATC en-route or in the major terminal areas, will be affected by any of the four possible options, since their role may potentially be different. Presently there is at least one of such service providers in each of the EU Member States or EASA associated States (except Liechtenstein). **Therefore, the number of potentially affected ATSPs** for any of the four identified options **can be estimated to be 30**.

2.7.2.5 Summary of affected entities

In conclusion, on the basis of the information presented in sub-paragraphs 2.7.2.1 to 2.7.2.4 above, the number of concerned entities is estimated in table 26 below:

OPTION		Estimated number			
Id.	**Description**	**Authorities**	**Concept developers**	**ATSPs**	**Other stakeholders**
1A	Generic concepts of operations and decisions concerning concepts of operations used in a specific airspace both are of a governmental nature and subject to articles of law	**30 + Agency**	**3**	**30**	**0**
1B	Generic concepts of operations and decisions concerning concepts of operations used in a specific airspace both are carried out by service providers		**3**	**30**	**0**
1C	Generic concepts of operations out of the scope of EASA. Decisions concerning concepts of operations used in a specific airspace are of a governmental nature		**0**	**30**	**0**
1D	Generic concepts of operations are out of the scope of EASA. Decisions concerning concepts of operations used in a specific airspace are carried out by service providers		**0**	**30**	**0**

Table 26: Number of entities affected by concepts of operations

2.7.3 Safety impact

In the option 1C the development and validation of generic concepts of operations (e.g. for the upper airspace, for any high traffic density terminal area or for other such scenarios) would be an activity not subject to the Basic Regulation, as is the case today. This, however, would not exclude concept developers carrying out as early as possible their (generic) safety assessments and, as is recommendable, exchanging information with and asking reviews by the safety regulators. Then in the option 1C the competent authority responsible for a certain specific volume of airspace would decide on the rules of the air to be applied therein, on the boundaries among the areas of responsibility of different ATS units, on the approval of the instrument routes available, on the requirement for mandatory carriage of airborne equipment, etc. No precise tools are available to quantify the safety impact of this option. However, no evidence exists to demonstrate that leaving the development of the generic concepts of operations out of the scope of safety rules, has caused safety problems. In either case, the governmental authority has enough legal powers to impose any rule or decision not only on the ANSPs and ATSPs, but also on the other aviation stakeholders, including air and aerodrome operators.

Option 1C, after the above qualitative assessment, is therefore considered very positive from the safety perspective.

As regards the generic concepts of operations the situation in option 1D is not different in any way. In this case, however, the decisions concerning the obligations to be fulfilled, even by air operators or aerodrome operators, will be taken by the major civilian ATSP

designated (and subject to safety oversight by the competent authority) by the State or States (in case of multi-national FABs).

No elements exist to state that this option would not be safe enough. However, since ATSPs have no enforcement powers towards other stakeholders, their decisions will have to be communicated to the competent authority for formal promulgation and enforcement. In other words, the decision and implementation processes linked to safety issues, would inevitably be slower. Therefore, in the Agency's opinion, this **option 1D is slightly less optimal than 1C in safety terms.**

In order to assess the potential additional safety benefit achieved through options 1A or 1B, it should be noted that the EU Council, when establishing the SESAR Joint Undertaking[56] (SJU), in recital (2) stated that it should develop the technological element of SES, in order to **enable the safe and environmentally friendly development of air transport.** Consequently, in the same act, the Council tasked the SJU to:

- involve (third hyphen in Article 1.5) ANSPs, air operators, professional associations, airports, manufacturing industry of the sector, as well as the scientific community, i.e. a segment of the society with a strong aviation safety culture;
- organise (fourth hyphen therein), inter alia, the validation work, which in the Agency's understanding includes early safety assessment.

Provisions are therefore already in place to ensure that the SESAR (generic) concepts be validated taking into account also safety assessment. Therefore, **option 1A would not be better than 1C, nor would 1B be better than 1D** from the safety point of view.

[56] Council Regulation (EC) No 219/2007 of 27 February 2007 on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR) *(OJ L 64, 2.3.2007, p. 1).*

In conclusion, applying the methodology presented in paragraph 2.1.2 above (including a weight factor of 3 for the safety impacts), and having selected the applicable result indicators linked to specific objectives from paragraph 2.4.5, scores can be attributed for the safety impact of the four options related to the concepts of operations (CoO), as presented in following Table 27 below:

Specific Objectives/Result Indicators	**Scoring of options**			
	1A	**1B**	**1C**	**1D**
Nature and regulation of CoO	**Generic + specific CoO of a governmental nature**	**Generic + specific CoO of a service provision nature**	**Generic CoO out of scope. Specific of a governmental nature**	**Generic CoO out of scope. Specific of a service provision nature**
Safety regulation clearly separated from other forms of regulation	- 1	3	3	2
Application of EASA rulemaking procedure (for ATM/ANS)	- 1	- 1	3	3
Standardisation inspections for ATM/ANS	Not relevant in this context			
ATM/ANS in the EASA safety regulatory framework	Not relevant in this context			
Horizontal rules for management systems	Not relevant in this context			
Clear separation of roles between authorities and providers	3	- 3	3	- 3
Basis for certification of providers in 4 or more States	Not relevant in this context			
Simplification (but uniform rules) for AFIS and apron management	Not relevant in this context			
Impact assessment for any proposed rule	Not relevant in this context			
Interface with other forms of regulation	- 1	1	3	3
Arrangements among authorities for rational use of resources	- 1	- 2	2	2
Consistent process for oversight of all ACC functions	Not relevant in this context			
TOTAL	**- 1**	**- 3**	**14**	**7**
AVERAGE SCORE (/ 5 quantified parameters)	**- 0.2**	**- 0.6**	**2.8**	**1.4**
WEIGHTED SCORE (Score x 3 for safety)	**- 0.6**	**- 1.8**	**7.4**	**4.2**

Table 27: Scoring of the safety impact of the options for concepts of operations

2.7.4 Economic Impact

Option 1C,i.e. no additional rules for the development of SESAR and continuation of the traditional role of aviation authorities to take decisions for the use of and services in the airspace under their responsibility, is considered to reflect the present situation. Enshrining it into law will not lead to additional costs, while the economic impact of establishing standardisation inspections by EASA has already been assessed in paragraph 2.6.4.1. It will therefore be conducive to **neither additional costs, nor savings.**

Option 1D, delegating to ATSPs the responsibility for taking decisions which then necessarily need to be promulgated and enforced by authorities, implies some additional workload and therefore a slightly less optimal economic impact, although the quantity of this **additional effort** is very difficult to be estimated with sufficient accuracy. So, a very prudent assumption is made for the purposes of this impact assessment: only 1 additional FTE would be necessary, in comparison to option 1C, which equals **138.6 k€/year**.

In **option 1A** the **3 SESAR concept developers and the Agency** would be required to establish formal interfaces and relationships. The cost of 1 FTEs for those entities is estimated in the order of 150 k€. The quantity to provide for the said formal coordination is estimated to be in the range of 1 FTE per entity, being thus 4 FTEs in total and so equalling to **600 k€/year.**

Finally, **in option 1B,** the Agency would be required to exercise oversight on the 3 SESAR developers. In paragraph 2.6.4.1 it has been estimated that for the standardisation activities for one aviation authority the Agency requires about **330 hours in average per year**, comprising the actual audit visit and the associated desk work before and after the visit.

In this case the entities to be audited will be 3, but the actual work needed would be much more complex than is the case in the standard estimate used in paragraph 2.6.4.1. Here it is estimated than three times more effort will be necessary. Therefore, the effort for the Agency would be 330 hours x 3 = 990 hours/year. Concerning 3 entities this would equal to 2.35 FTEs (2970/1260) and would in monetary terms represent costs of **352.5 k€/year** (1 FTE = 150 k€).

Standardisation inspections do however require effort also by the inspected entities. It is assumed that, in average, they will employ as much effort as required by the Agency, with the same labour cost. Therefore the total **cost for the three concept developers would be again 352.5 k€/year in total.**

For this option 1B, the economic impact on the ATSPs will be the same as in option 1D.

The above estimations can be summarised in Table 28 below:

Estimated cost for the concept of operations	**Thousand €/year**			
	1A	**1B**	**1C**	**1D**
	Generic + specific CoO of a governmental nature	**Generic + specific CoO of a service provision nature**	**Generic CoO out of scope. Specific of a governmental nature**	**Generic CoO out of scope. Specific of a service provision nature**
EASA	150	352.5	0	0
National Authorities	0	0	0	0
ATSPs	0	138.6	0	138.6
SESAR developers	450	352.5	0	0
TOTAL	**600**	**843.6**	**0**	**138.6**

Table 28: Summary of cost of regulation of the concept of operation

All the above estimations of the economic impact can then be expressed by the scores in following Table 29:

Specific Objectives/Result Indicators	**Scoring of options**			
	1A	**1B**	**1C**	**1D**
Nature and regulation of CoO	**Generic + specific CoO of a governmental nature**	**Generic + specific CoO of a service provision nature**	**Generic CoO out of scope. Specific of a governmental nature**	**Generic CoO out of scope. Specific of a service provision nature**
Safety regulation clearly separated from other forms of regulation	Not relevant for economic impact of CoO			
Application of EASA rulemaking procedure (for ATM/ANS)	Not relevant for economic impact of CoO			
Standardisation inspections for ATM/ANS	0	- 3	0	0
ATM/ANS in the EASA safety regulatory framework	Not relevant for economic impact of CoO			
Horizontal rules for management systems	Not relevant for economic impact of CoO			
Clear separation of roles between authorities and providers	0	- 1	0	- 1
Basis for certification of providers in 4 or more States	Not relevant for economic impact of CoO			
Simplification (but uniform rules) for AFIS and apron management	Not relevant for economic impact of CoO			
Impact assessment for any proposed rule	Not relevant for economic impact of CoO			
Interface with other forms of regulation	- 2	- 3	0	0
Arrangements among authorities for rational use of resources	Not relevant for economic impact of CoO			
Consistent process for oversight of all ACC functions	Not relevant for economic impact of CoO			
TOTAL	**- 2**	**- 7**	**0**	**- 1**
AVERAGE SCORE (/ 3 quantified parameters)	**- 0.67**	**- 2.33**	**0**	**- 0.33**
WEIGHTED SCORE (Score x 2 for economy)	**- 1.34**	**- 4.66**	**0**	**- 0.66**

Table 29: Scoring of the economic impact of the options for Concepts of Operations

2.7.5 Environmental impact

As noted in paragraph 2.7.3 above, the EU Council has already tasked SESAR to develop "environmentally friendly" concepts of operations. Therefore any of the four considered options has to be scored as environmentally neutral.

2.7.6 Social Impact

The number of involved FTEs, as highlighted in previous paragraph 2.7.4 is so minimal, that no significant social impact can be identified for any of the possible four options.

2.7.7 Impact on other Community requirements outside the present EASA scope

Option 1C would have neither impact on the mentioned Council regulation establishing the SESAR Joint Undertaking or on the provisions of SES Regulation (EC) No 551/2004 when it comes to the States' responsibilities for decisions concerning the use of their respective airspace. The application of responsibilities along the lines of this option would not prevent establishing, within the limits of respective competencies and resources, voluntary arrangements between SJU and the Agency.

On the contrary, options 1B and 1D would affect the present sharing of roles between authorities and ATSPs and would require substantial modifications in Regulation (EC) No 551/2004.

Furthermore, options 1A and 1B would also have an impact on the Council Regulation (EC) No 219/2007 by creating a need for formal rules for the validation of the generic CoO development against relevant safety provisions.

The above can be translated into numerical scores in Table 30 below:

Specific Objectives/Result Indicators	**Scoring of options**			
	1A	**1B**	**1C**	**1D**
Nature and regulation of CoO	**Generic + specific CoO of a governmental nature**	**Generic + specific CoO of a service provision nature**	**Generic CoO out of scope. Specific of a governmental nature**	**Generic CoO out of scope. Specific of a service provision nature**
Safety regulation clearly separated from other forms of regulation	- 1	3	2	2
Application of EASA rulemaking procedure (for ATM/ANS)	Not relevant for impact on other Community legislation			
Standardisation inspections for ATM/ANS	Not relevant for impact on other Community legislation			
ATM/ANS in the EASA safety regulatory framework	Not relevant for impact on other Community legislation			
Horizontal rules for management systems	Not relevant for impact on other Community legislation			
Clear separation of roles between authorities and providers	0	- 2	0	- 2
Basis for certification of providers in 4 or more States	Not relevant for impact on other Community legislation			
Simplification (but uniform rules) for AFIS and apron management	Not relevant for impact on other Community legislation			
Impact assessment for any proposed rule	Not relevant for impact on other Community legislation			
Interface with other forms of regulation	- 2	- 3	2	2
Arrangements among authorities for rational use of resources	Not relevant for impact on other Community legislation			
Consistent process for oversight of all ACC functions	Not relevant for impact on other Community legislation			
TOTAL	**- 3**	**- 2**	**4**	**2**
AVERAGE SCORE (/ 3 quantified parameters)	**- 1**	**- 0.66**	**1.33**	**0.66**
WEIGHTED SCORE (Score x 1 for impact on other law)	**- 1**	**- 0.66**	**1.33**	**0.66**

Table 30: Impact of CoO on other Community legislation

2.7.8 Multi Criteria Analysis (MCA) and recommended option

According to the methodology described in paragraph 2.1.2 and the scores attributed in paragraphs 2.7.3 to 2.7.7, the following matrix for MCA can be provided:

Weighted score of options for the Concept of Operations		**Options**			
		1A	**1B**	**1C**	**1D**
impact item	**Weight**	**Generic + specific CoO governmental nature**	**Generic + specific CoO service provision**	**Generic CoO out of scope. Specific governmental**	**Generic CoO out of scope. Specific of a service provision nature**
Safety	3	- 0.6	- 0.8	7.4	4.2
Economic	2	- 1.34	- 4.66	0	- 0.66
Environmental	3	0	0	0	0
Social	2	0	0	0	0
On other EU regulations	1	- 1	- 0.66	1.33	0.66
WEIGHTED TOTAL		**- 2.94**	**- 6.12**	**8.73**	**4.2**

Table 31: Multi Criteria Analysis for concept of operations

From the Table above, one can observe that options 1A and 1B show a negative weighted total score. It is therefore recommended not to include provisions for the safety regulation of the "generic" concepts of operations into the Basic Regulation. However, this would not prevent the SESAR JU and the Agency establishing mutual voluntary arrangements to contribute to the validation of the SESAR results also from the regulatory point of view. Among the remaining options the **1C scores twice as much as 1D.** As regards the option 1C, particularly it:

- scores twice as much in safety terms as option 1D;
- implies no additional costs;
- minimises impact on other aviation legislation outside the EASA remit, while being neutral in environmental and social terms.

2.8 Air Traffic Flow Management (ATFM)

2.8.1 Alternative options

The following alternative options for ATFM have been identified in paragraph 2.5.2 above:

- 3A): ATFM is of a regulatory/governmental nature;
- 3B): ATFM, being a service or an operational function, is a regulated matter;
- 3C): ATFM at EU level is a regulatory function. Local (or regional) ATFM is a regulated matter.

2.8.2 Target group and number of entities concerned

2.8.2.1 Competent Authorities

All the 30 competent authorities (as estimated in paragraph 2.6.2.1 above) **and the Agency** will be affected **by any of the three possible options**.

The EUROCONTROL safety regulatory activities have been considered in paragraph 2.6 above. They will not be impacted.

2.8.2.2 ATFM providers

Presently the central pillar of the ATFM in Europe is the Central Flow Management Unit (CFMU) managed by EUROCONTROL and located near Brussels. This unit will be impacted by any of the three possible options.

In addition, flow management positions (FMPs) do exist virtually in each European Area Control Centres (ACC), with the exception of Iceland, whose air traffic is managed in the context of the North Atlantic Region. In turn, the ACCs within the other EU Member States and EASA associated States are managed by 28 ATSPs designated to handle en-route traffic in the respective airspace of their responsibility, while no such dedicated service providers exist in Liechtenstein and Luxembourg.

In the future perhaps "regional" FMPs could be established (e.g. one per FAB instead of one per every ACC). This will not change the nature of the function. So, local and regional FMPs can be regarded similar in terms of the nature of their activity. In quantitative terms such a trend, should it materialise, would reduce the number of FMPs. Since the possible impact is a product of two factors (i.e. the impact on one entity multiplied by the number of entities) and while no precise enough estimation can be made today on the possible consolidation of FMPs at regional level, in this RIA the maximum number of FMPs is assumed on the basis of each ATSP having a FMP in its ACCs. In the perspective of the RIA this is the most pessimistic assumption. Should in fact their number decrease, also the global impact will decrease.

Therefore it can be assumed that in case of any option the number of **affected ATFM providers (each of them managing one or more FMPs) will be 28 plus the CFMU: total 29.**

2.8.2.3 Other stakeholders involved in aviation operations

Air operators will be subject to ATFM restrictions in any case irrespectively of the safety regulatory principles chosen. Choosing any of the presented options does not affect the airspace users in the sense of this impact assessment.

Equally, the role of aerodrome operators and the role of ATSPs not directly involved in ATFM (e.g. the Approach Unit and the control TWR at Luxembourg airport) will not change, which ever of the three options selected.

2.8.2.4 Other aviation stakeholders

As above, choosing any of the presented options does not affect and is totally irrelevant in the sense of this impact assessment for the other aviation entities like design, production or maintenance organisations or training institutes.

2.8.2.5 Summary of affected entities

In conclusion, on the basis of the information presented in sub-paragraphs 2.8.2.1 to 2.8.2.4 above, the number of concerned entities is estimated in table 32 below:

OPTION		Estimated number			
Id.	Description	Authorities	ATFM providers	Other aviation stakeholders	
				Involved in operations	Technical and training
3A	ATFM of regulatory nature	**30 + Agency**	**28 + CFMU**	**0**	**0**
3B	ATFM of operational nature				
3C	CFMU regulatory; FMP operational				

Table 32: Number of entities affected by ATFM

2.8.3 Safety impact

The status of ATFM in the SES Regulations is not totally clear. According to article 2(9) of the framework Regulation (EC) No 549/2004, ATFM is regarded as a function and not as a service. This may be correct, but the legal difference between such two dispositions, and the subsequent oversight regime, is not defined anywhere in the legal texts, while any of the two terms (i.e. "function" or "service") does not in itself clarify whether ATFM has a regulatory or operational nature. In any case, the article 2(4) of the framework Regulation contains a definition of the ANS, ATFM clearly not belonging to it. Since this definition is exhaustive, this means that in the present version of SES ATFM is not regarded as a service.

Hence, ATFM is exempted from the obligation for certification of the ANSPs established (only) by article 7(1) of the SES service provision Regulation (EC) No 550/2004. Nevertheless, at the level of SES implementing rules[57] the NSAs are tasked to exercise oversight also on ATFM (and ASM) provided at their areas of responsibility. Thus, the ATFM oversight responsibility is established, without establishing a clear legal basis of how to demonstrate its compliance with safety requirements or any other applicable specifications.

It is commonly agreed that so far no significant or urgent safety issues have emerged in relation to ATFM activities. However, it can be noted from the existing situation that:

- Insufficient clarity exists on the basis on which to exercise oversight in ATFM;
- The role of the ATFM may affect the economic interests of airspace users (e.g. delays or re-routings) as well as economic interests of the ATSPs (provision of capacity at a certain time); thus leaving it in a "grey area" could not be the optimum solution;

[57] Article 3.1 of Commission Regulation (EC) No 1315/2007 of 08 November 2007 on safety oversight in air traffic management and amending Regulation (EC) No 2096/2005 (*OJ L. 291, 9.11.2007, p. 16*).

- In the future the role of ATFM is expected to possibly cover also aircraft in flight (e.g. to reroute them or impose restrictions on speed/time), which again requires that the interest of safety is not biased by economic pressures;
- In emergency situations, ATFM may have to divert and re-route aircraft already in flight (and this already happened on 9 September 2001, when the USA was forced to suddenly close their airspace, while a number of aircraft were leaving the European continent aiming there), which would also potentially affect the economic interest of aerodrome operators (i.e. a number of aircraft stopped on the aprons).

Based on above it is concluded that the safety regulation of ATFM today is suboptimal. For the future, in general terms, option 3A would not allow a clear distinction of roles between the regulated entity and the authority exercising oversight at local or regional level. While option 3B could be prone to compromises between economic pressures and safety needs at central level. In case of option 3C, it can be assumed that the local (or regional) function would be covered by the certification process applicable to the ATSPs and included in the scope of the certificate, like any other relevant tasks of the regulated entity in question. The above considerations are summarised in terms of numerical coefficients in Table 33 below:

Specific Objectives/Result Indicators	**Options**		
	3A	**3B**	**3C**
Nature and regulation of ATFM	**regulatory nature**	**operational nature**	**CFMU regulatory; FMPs operational**
Safety clearly separated from other regulation	Not relevant for ATFM		
Application of EASA rulemaking procedure	Not relevant for ATFM		
Standardisation inspections for ATM/ANS	2	0	2
ATM/ANS in the EASA safety framework	Not relevant for ATFM		
Horizontal rules for management systems	Not relevant for ATFM		
Clear separation of roles between authorities and providers	3	- 3	2
Certification of providers in 4 or more States	Not relevant in this paragraph		
Simplification (but uniform rules) for AFIS and apron management	Not relevant for ATFM		
Impact assessment for any proposed rule	Not relevant for ATFM		
Interface with other forms of regulation	Not relevant for ATFM		
Arrangements among authorities for rational use of resources	Further discussed in paragraph 2.11		
Consistent process for oversight of all ACC functions	- 1	3	3
TOTAL	**4**	**0**	**7**
AVERAGE SCORE (/ 3 quantified parameters)	**1.33**	**0**	**2.33**
WEIGHTED SCORE (Score x 3 for safety)	**4**	**0**	**7**

Table 33 Safety impact of options for ATFM

2.8.4 Economic Impact

In option 3A (ATFM is of a regulatory nature):

- The Agency would carry out standardisation inspections of the NSAs, with no additional burden in respect of that assessed in paragraph 2.6.4.1;
- The Agency could also, on the basis of article 54(4) of its Basic Regulation, and if tasked by the European Commission, inspect the CFMU. This is estimated to require in average 126 working hours per year equalling to 0.1 FTE (15 k€); although this possibility may not materialise, it is considered in the present RIA, since it could potentially involve an additional cost;
- For the CFMU, already subject to oversight on the basis of the SES implementing Regulation (EC) No 1315/2007, nothing will change in terms of required effort to accept audits;
- This same principle would apply to the ATSPs managing FMPs.

In option 3B (ATFM is of an operational nature):

- The Agency would carry out standardisation inspections of the NSAs, with no additional burden, in respect of that assessed in paragraph 2.6.4.1;
- In particular, the CFMU being subject to certification and oversight by a competent authority, no specific additional effort would be required from the Agency for such inspections;
- The competent NSAs should not only continue to exercise oversight as today on the basis of Regulation (EC) No 1315/2007, but also agree on a certification basis and release respective certificates; agreeing on a certification basis is not a recurrent task, while the marginal cost for issuing a certificate after oversight/audits is considered slightly increasing;
- Since the central ATFM provider will nevertheless carry out executive powers delegated at the EU level, new and specific rules would need to be developed; this could cost in the range of 5 FTEs (around 750 k€);
- Equally as above, for the CFMU nothing will change in terms of required effort to accept audits;
- And again, the same would apply to the ATSPs managing FMPs.

Finally, in economic terms, option 3C would have an identical impact as option 3A.

Besides the monetary terms, also the legal uncertainties linked to the dedicated legal powers to exercise oversight over a governmental function (i.e. the CFMU) need to be taken into account at least in qualitative terms.

In conclusion**,** the **additional costs** deriving from the three options under consideration can be estimated as presented in Table 34 below:

Estimated cost for ATFM	**Thousand €/year**		
	3A	**3B**	**3C**
	regulatory nature	**operational nature**	**CFMU regulatory; FMPs operational**
EASA	15	750	15
National Authorities	0	0	0
CFMU	0	0	0
ATSPs managing FMPs	0	0	0
TOTAL	**15**	**750**	**15**

Table 34: Estimated costs for oversight of ATFM

The above quantitative estimations and qualitative observations for the economic impact can then be expressed by scores, as presented in following Table 35:

Specific Objectives/Result Indicators	Options		
	3A	3B	3C
Nature and regulation of ATFM	**regulatory nature**	**operational nature**	**CFMU regulatory; FMPs operational**
Safety regulation clearly separated from other forms of regulation	Not relevant for economic impact of ATFM		
Application of EASA rulemaking procedure (for ATM/ANS)	Not relevant for economic impact of ATFM		
Standardisation inspections for ATM/ANS	- 1	1	- 1
ATM/ANS in the EASA safety regulatory framework	Not relevant for economic impact of ATFM		
Horizontal rules for management systems	Not relevant for economic impact of ATFM		
Clear separation of roles between authorities and providers	Not relevant for economic impact of ATFM		
Basis for certification of providers in 4 or more States	2	- 3	2
Simplification (but uniform rules) for AFIS and apron management	Not relevant for economic impact of ATFM		
Impact assessment for any proposed rule	Not relevant for economic impact of ATFM		
Interface with other forms of regulation	Not relevant for economic impact of ATFM		
Arrangements among authorities for rational use of resources	Discussed in paragraph 2.11		
Consistent process for oversight of all ACC functions	- 2	3	3
TOTAL	**- 1**	**1**	**4**
AVERAGE SCORE (/ 3 quantified parameters)	**- 0.67**	**0.33**	**1.33**
WEIGHTED SCORE (Score x 2 for economy)	**- 1.34**	**0.66**	**2.66**

Table 35: Scoring of economic impact for ATFM

2.8.5 Environmental impact

All the three options presented would have a neutral impact in terms of environment, since they are only related to the organisation of some management and oversight processes.

2.8.6 Social Impact

The numbers of FTEs mentioned in paragraph 2.8.4 are so reduced that it can be concluded that any of the possible three options would have a negligible impact in social terms.

Equally, the social impact would be negligible in qualitative terms, since already today the personnel in CFMU and FMPs is highly skilled and the options presented would not have any impact on that.

2.8.7 Impact on other Community requirements outside present EASA scope

No specific impact on other Community legislation has been identified for options 3A or 3C, which therefore should get the maximum score (i.e. +3 in this respect). On the contrary, option 3B, which gives some economic actors powers that could penalise others, might be highly disputable from the point of view of the internal market and the

separation of roles between the regulatory and the economic functions. It's score is therefore considered as negative (– 3).

2.8.8 Multi Criteria Analysis (MCA) and recommended option

According to the methodology described in paragraph 2.1.2 and the scores attributed in paragraphs 2.8.3 to 2.8.7 above, the following matrix for MCA can be provided:

Weighted score of options for ATFM		**3A**	**3B**	**3C**
impact item	**Weight**	**regulatory nature**	**operational nature**	**CFMU regulatory; FMPs operational**
Safety	3	4	0	7
Economic	2	- 1.34	0.66	2.66
Environmental	3	0	0	0
Social	2	0	0	0
On other EU regulations	1	3	- 3	3
WEIGHTED TOTAL		**5.66**	**- 2.34**	**12.66**

Table 36: Multi Criteria Analysis for ATFM

From this analysis it can be observed that option 3B seems to have a globally negative impact, in particular with reference to possible distortion of the internal market and would not bring any significant safety benefits. On the contrary, both option 3A and 3C show a positive score, the latter one being twice as good as the first one.

In particular, option 3C has the maximum positive safety impact, the most reduced cost and undisputable compatibility with the principles and rules for the fair competition in the internal market.

That is why the Agency has included such option 3C (i.e. central ATFM of a regulatory nature and local/regional ATFM of an operational nature) in its Opinion.

2.9 Airspace Management (ASM)

2.9.1 Alternative options

Airspace Management (ASM) is considered by the Agency as including:

- A strategic phase mainly linked to designing the limits of responsibility of different ATS entities inside the FIR/UIRs, as agreed by the ICAO Council (mainly a political decision) and to design its specific airspace structures (e.g. temporary segregated areas – TSA for military exercises, etc.);
- A pre-tactical phase, typically 24 hours prior to operations, in which the use of TSAs and other airspace volumes is planned in close coordination between civil and military airspace users on the basis of the FUA concept[58];
- A tactical phase to activate/deactivate specific airspace structures (e.g. conditional routes) during the day of operations, again typically in close coordination between civil and military airspace users.

Concerning the safety regulation of ASM, the following alternative options have been identified in paragraph 2.5.2 above:

- 3D): ASM is of a regulatory/governmental nature;
- 3E): ASM is of a service/operational nature and as such a regulated activity;
- 3F): ASM at EU level is of a regulatory nature and of an operational nature at local level.

[58] Commission regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the Flexible Use of Airspace (*OJ L 342, 24.12.2005, p. 20*).

2.9.2 Target group and number of entities concerned

Therefore, along the lines already presented in paragraph 2.8.2, it can be assumed that any option might impact:

- 30 civil aviation authorities and the Agency;
- 30 military aviation authorities;
- A maximum of 30 joint civil military cells (JAMCs) if established by States on the basis of article 5.1 of mentioned Commission Regulation (EC) No 2150/2005.

No other stakeholders would be impacted, by the method through which safety regulation of ASM is ensured. In conclusion, the number of potentially affected entities for each option is presented in Table 37 below:

OPTION		**Estimated number**			
Id.	**Description**	**Military Aviation Authorities**	**Civil Authorities**	**JAMCs**	**Other aviation stakeholders**
3D	ASM of regulatory nature	**30**	**30 + Agency**	**30**	**0**
3E	ASM of operational nature				
3F	ASM regulatory at EU level; operational at local level				

Table 37: Number of entities affected for ASM

2.9.3 Safety impact

According to Commission Regulation (EC) No 2150/2005, ASM is today regarded as a regulatory/governmental activity[59], implicitly both at EU and at national level. Therefore, option 3D is already implemented today based on SES implementing rules, even though its legal basis could become even clearer through the Basic Regulation. This situation has not led to any specific and identified safety issues. Should the Community, when adopting the second package for the SES, establish some centralized ASM functions under the responsibility of the European Commission, this will not change the governmental nature of this activity. So, the **possible benefits of option 3D would only include a greater legal clarity**, which could also be indirectly seen as contributing to aviation safety.

On the other side, **option 3F**, making a differentiation between the activities at EU level and at national level, **would fragment** the continuity among the strategic, pre-tactical and tactical phases of ASM. In addition, it would pose the **problem of regulating the military staff involved in the JAMCs** or to establish two different regimes for the competence of the civil and military staff.

The same problems at the local level would stem from **option 3E**, which in addition, at EU level, could **also perhaps impact with the prerogatives of the European Commission, as established by the SES legislation.**

[59] In fact the Member States are tasked therein to perform strategic (Art. 4), pre-tactical (Art. 5) or Tactical (Art. 6) tasks.

The above considerations lead then to the scores in following Table 38:

Specific Objectives/Result Indicators	**Options**		
	3D	**3E**	**3F**
Nature and regulation of ASM	**regulatory nature**	**ops nature**	**regulatory at EU level; operational at local level**
Safety regulation clearly separated from other forms of regulation	3	- 2	- 2
Application of EASA rulemaking procedure (for ATM/ANS)	Not relevant for ASM		
Standardisation inspections for ATM/ANS	Not relevant for ASM		
ATM/ANS in the EASA safety regulatory framework	3	- 2	- 3
Horizontal rules for management systems	Not relevant for ASM		
Clear separation of roles between authorities and providers	2	- 1	- 2
Basis for certification of providers in 4 or more States	Not relevant for ASM		
Simplification (but uniform rules) for AFIS and apron management	Not relevant for ASM		
Impact assessment for any proposed rule	Not relevant for ASM		
Interface with other forms of regulation	2	- 1	- 1
Arrangements among authorities for rational use of resources	Not relevant for ASM		
Consistent process for oversight of all ACC functions	Not relevant for ASM		
TOTAL	**10**	**- 6**	**- 8**
AVERAGE SCORE (/ 4 quantified parameters)	**2.5**	**- 1.5**	**- 2**
WEIGHTED SCORE (Score x 3 for safety)	**7.5**	**- 4.5**	**- 6**

Table 38: Safety impact for ASM

2.9.4 Economic Impact

In case of option 3D, the Agency would ensure the safety at the EU level through standardisation inspections at no additional cost than that already estimated in paragraph 2.6.4.1.

Also for the national authorities (both civil and military) no changes would be introduced with respect to today's practices and therefore no additional cost could be foreseen. The same is valid with the JAMCs.

In case of options 3E and 3F, due to the specific nature of ASM (some activities will necessarily remain governmental responsibility, while the JAMCs will continue to include military staff) the Agency would have to spend some effort for specific rulemaking activities, estimated at about 1 FTE, equalling to 150 k€/year.

National (civil) aviation authorities would have to certify and oversee ASM activities (which would become regulated services) at the local level in both options 3E and 3F. However, since these services are mainly offered at the premises of the ACCs, a reduced additional effort is estimated to be necessary. It is therefore assumed that for the certification and oversight, each NSA could spend about 0.25 FTEs. This would equal in total: 30 authorities x 0.25 FTEs = 7.5 FTEs, which at a cost of 138.6 k€/FTE would represent an additional cost of around 1 040 k€/year.

Should the certification and oversight also cover the EU level, it is estimated that this would involve 1 more FTE, equalling 138.6 k€/year. This would add up to a total of 1 040 + 138.6 = 1 178.6 k€/year.

The additional effort for the military authorities is considered negligible in both options 3E and 3F.

Vice versa, it is assumed that an effort of at least 0.25 FTEs would be made by each JAMC in order to fulfil the new requirements. This, in total for the 30 JAMCs would represent 0.25 x 30 = 7.5 FTEs and therefore an additional cost (multiplying by 138.6 k€) of 1 040 k€/year.

All the above estimations are summarised in Table 39 below:

Estimated cost for ASM	**Thousand €/year**		
	3D	**3E**	**3F**
	regulatory nature	**operational nature**	**regulatory at EU level; operational at local level**
EASA	0	150	150
National (civil) Authorities	0	1 178.6	1 040
National (military) Authorities	0	0	0
JAMCs	0	1 040	1 040
TOTAL	**0**	**2 368.6**	**2 230**

Table 39: Summary of economic impact for ASM

The above estimations can then be translated into the scoring presented in Table 40 below:

Specific Objectives/Result Indicators	**Options**		
	3D	**3E**	**3F**
Nature and regulation of ASM	**regulatory nature**	**ops nature**	**regulatory at EU level; operational at local level**
Safety regulation clearly separated from other forms of regulation	Not relevant for economic impact of ASM		
Application of EASA rulemaking procedure (for ATM/ANS)	Not relevant for economic impact of ASM		
Standardisation inspections for ATM/ANS	Not relevant for economic impact of ASM		
ATM/ANS in the EASA safety regulatory framework	0	- 3	- 2
Horizontal rules for management systems	Not relevant for economic impact of ASM		
Clear separation of roles between authorities and providers	2	2	- 2
Basis for certification of providers in 4 or more States	2	- 2	- 2
Simplification (but uniform rules) for AFIS and apron management	Not relevant for economic impact of ASM		
Impact assessment for any proposed rule	Not relevant for economic impact of ASM		
Interface with other forms of regulation	Not relevant for economic impact of ASM		
Arrangements among authorities for rational use of resources	2	- 3	- 2
Consistent process for oversight of all ACC functions	Not relevant for economic impact of ASM		
TOTAL	**6**	**- 6**	**- 8**
AVERAGE SCORE (/ 4 quantified parameters)	**1.5**	**- 1.5**	**- 2**
WEIGHTED SCORE (Score x 2 for economy)	**3**	**- 3**	**- 4**

Table 40: Scoring of economic impact for ASM

2.9.5 Environmental impact

Any of the options under consideration is estimated neutral in respect to the environmental impact.

2.9.6 Social Impact

The numbers of the FTEs estimated in paragraph 2.9.4 are very low. In addition, no staff is expected to be forced to change employment or to require new skills. Therefore, any of the three possible options is neutral in social terms.

2.9.7 Impact on other Community requirements outside present EASA scope

Option 3D perfectly matches SES Regulation (EC) No 551/2004 and its implementing rules (already mentioned Commission Regulation (EC) No 2150/2005). In addition, it may be considered to be also compliant with the principle of airspace being under national sovereignty. Therefore, it should be given the maxim score (i.e. 3) in terms of impact on other legal acts outside the present EASA mandate.

On the contrary, options 3F and 3E, impacting not only the implementing rules but also issues of a greater relevance, should be given the lowest possible score (i.e. – 3).

2.9.8 Multi Criteria Analysis (MCA) and recommended option

According to the methodology described in paragraph 2.1.2 and the scores attributed in paragraphs 2.9.3 to 2.9.7 above, the following matrix for MCA can be provided:

Weighted score of options for ASM		**3D**	**3E**	**3F**
impact item	**Weight**	**regulatory nature**	**ops nature**	**regulatory at EU level; operational at local level**
Safety	3	7.5	- 4.5	- 6
Economic	2	3	- 3	- 4
Environmental	3	0	0	0
Social	2	0	0	0
On other EU regulations	1	3	- 3	- 3
WEIGHTED TOTAL		**13.5**	**- 10.5**	**- 13**

Table 41: Multi Criteria Analysis for ASM

From this analysis it can be observed that only option 3D seems to have a globally positive impact.

In particular, option 3D outscores the other two in safety and economic terms (zero additional cost), while it will also be compatible with the present legislation outside the EASA remit.

That is why the Agency has included such option 3D (i.e. ASM is of a regulatory/governmental nature at both EU and national level) in its Opinion. However, States may decide to delegate the local ASM function to a certified ANS provider and, therefore, have this function subject to safety oversight by the competent authority.

2.10 Small and medium-sized enterprises

2.10.1 Alternative options

In the ATM/ANS domains small and medium-sized enterprises (SMEs) exist for instance as providers of radio navigation signals radiated by relatively cheap and simple beacons or

aerodrome operators providing themselves TWR services at a single location, of AFIS or apron management services. Therefore the Agency, through question 6 in NPA 2007-16 has invited the stakeholders' views on those matters.

In the present RIA the following alternative options for the SMEs have been identified in paragraph 2.5.2 above:

- 6A): Allow national variants/derogations for SMEs;
- 6B): Proportionate common rules for SMEs including "self declaration";
- 6C): Proportionate common rules for SMEs including certification.

2.10.2 Target group and number of entities concerned

As estimated in paragraph 2.6.2.1, the number of authorities involved by any of the three possible options is 30. The Agency will be involved (for rulemaking) only in case of options 6B or 6C.

In addition, in paragraph 2.6.2.3 it has been estimated that today, more or less 150 aerodrome operators (considered as SMEs in the domains of ATM/ANS) are involved in ATM/ANS provision. Should the extension of the Basic Regulation create favourable conditions, this number could perhaps increase by 10%. It is therefore estimated that 150 SMEs are involved by option 6A (i.e. today's situation), while 165 (i.e. 150 + 10%) could be interested by option 6B or 6C.

Similarly today there are 3 design and/or production organisations, as estimated in paragraph 2.6.2.4, which also provide ATM/ANS, being SMEs in these domains. This number of 3 is applicable to option 6A, while in the case of options 6B and 6C it could perhaps grow to 6.
The mentioned figures are summarised in Table 42 below:

OPTION		**Estimated number**		
Id.	**Description**	**Civil Authorities**	**SMEs**	
			Aerodrome operators	**Technical organisations**
6A	National variants for SMEs	**30**	**150**	**3**
6B	Proportionate common rules and self declaration for SMEs	**30 + Agency**	**165**	**6**
6C	Proportionate common rules and certification for SMEs		**165**	**6**

Table 42: Number of affected entities in relation to SMEs

2.10.3 Safety impact

According to Article 4 of the "common requirements" (i.e. Commission Regulation (EC) No 2096/2005) SMEs involved in ATM/ANS may elect to ask derogations from the said requirements. Certain air navigation service providers may elect not to avail themselves of the opportunity to provide cross-border services and may waive the right to mutual recognition, provided that certain criteria are met. These derogations are decided by the NSAs in the absence of harmonised criteria on a case by case basis, which may lead to

non-uniformity. In addition, the NSAs may grant specific derogations related to the requirements for the organisations (e.g. accountable manager, post holders and reporting lines), for liability and/or insurance as well as concerning the training and competence of staff for AFIS.
It has to be recalled that a list of possible future safety challenges was presented in paragraph 2.3.4. Some of those challenges are applicable also to SMEs providing ATM/ANS services at smaller aerodromes open to public use, such as:

- Further development of regional aerodromes, due to congestion of the major ones and to other economic factors, which will increase complexity of traffic at medium/low level;
- Constant growth of general aviation and in particular Very Light Jets (VLJ), operationally and economically capable of providing air taxi services to minor aerodromes, which contribute to increasing complexity and density of traffic at low level;
- Entry into operational use of EGNOS based approach instrument procedures, which will also enhance the possibility of using minor aerodromes;
- Instrument procedures for helicopters;
- Operational use of Unmanned Aerial Systems (UAS) which are a growing and potentially significant category of future users of non-segregated airspace.

Option 6A means basically maintaining article 4 of the "common requirements", which allows significant national variants at the price of denied mutual recognition. Both options 6B and 6C on the contrary will lead to common rules. The primary means to verify their implementation will be a "self declaration" in case of option 6B and the normal certification process of the ANSP in option 6C.
Based on the considerations exposed above, the safety impact of the three options under consideration can be presented in Table 43 below:

Specific Objectives/Result Indicators	**Options**		
	6A	**6B**	**6C**
Safety regulation of SMEs in the ATM/ANS domains	**National variants**	**Proportionate common rules + self declaration**	**Proportionate common rules + certification**
Safety clearly separated from other regulation	Not relevant for SMEs		
Application of EASA rulemaking procedure	- 3	3	3
Standardisation inspections for ATM/ANS	- 1	1	1
ATM/ANS in the EASA safety framework	- 1	2	2
Horizontal rules for management systems	Beyond scope of this paragraph		
Separation of roles authorities/providers	Not relevant for this paragraph		
Basis for certification of providers in 4 or more States	Not relevant for SMEs		
Simplification (but uniform rules) for AFIS and apron management	- 3	3	1
Impact assessment for any proposed rule	- 1	3	3
Interface with other forms of regulation	Not relevant for SMEs		
Arrangements among authorities for rational use of resources	Not relevant for SMEs		
Consistent process for oversight of all ACC functions	Not relevant for this paragraph		
TOTAL	**- 9**	**12**	**10**
AVERAGE SCORE (/ 5 quantified parameters)	**- 1.8**	**2.4**	**2**
WEIGHTED SCORE (Score x 3 for safety)	**- 5.4**	**7.2**	**6**

Table 43: Safety impact of options for SMEs

From Table 43 above one could observe that option 6A is suboptimal in terms of safety, while both options 6B and 6C fulfil the safety needs in a comparable measure.

2.10.4 Economic Impact

Since option 6A reflects the present situation, it is assumed that it will imply neither additional costs, nor savings. The additional costs for options 6B and 6C will therefore estimated against the former taken as a baseline.

In both options 6B and 6C there will be no additional costs for the Agency, either for certification (no role envisaged in relation to SMEs) or standardisation (already estimated in paragraph 2.6.4.1).

On the contrary for both options, it is estimated that 1 FTE should be devoted to develop rules for the SMEs, which means a cost of 150 k€/year.

Today the NSAs have to decide on the derogation in isolation and on a case by case basis (i.e. option 6A). In both options 6B and 6C, on the contrary, there will be common rules, common acceptable means of compliance and common guidance material. Since the SMEs anyway require little effort from the NSAs, it is assumed that a little benefit (i.e. only 0.1 FTEs) in terms of saved effort could be offered to them by both options 6B or 6C.

Therefore, since the number of affected authorities has been estimated equal to 30, the effort saved in total will be 30 x 0.1 = 3 FTEs, which, at a cost of 138.6 €, means saving 138.6 x 3 = 415.8 k€/year.

The 150 aerodrome operators are already subject to the provisions related to option 6A, so for them there will be no additional or reduced cost in this case.

In the case of option 6B (common rules plus self declarations) it is estimated that each of the 165 (i.e. 150 plus 10%) involved aerodromes will have to spend in average 0.2 FTEs to familiarize itself with the rules. But this effort will be balanced by the elimination of the need to negotiate derogations with the authority. In other words the two effects can be considered mutually balancing and therefore, since the effort required by the "self declaration" is negligible, option 6B for them can be considered cost neutral.

In case of option 6C on the contrary, an additional burden, estimated in 0.1 FTE is required for the certification process of each SME. Therefore 0.1 x 165 = 16.5 FTEs in total x 138.6 k€ = 2 286.9 k€/year.

Along the same lines, for the 6 technical organisations potentially impacted by option 6C, the cost can be estimated equal to 0.1 FTE x 6 entities = 0.6 FTEs x 138.6 k€ = 83 k€/year.

Estimated cost for ASM	**Thousand €/year**		
	6A	**6B**	**6C**
	National variants	**Proportionate common rules + self declaration**	**Proportionate common rules + certification**
EASA	0	150	150
national authorities	0	- 415.8	- 415.8
Aerodrome operators	0	0	2 286.9
Technical organisations	0	0	83
TOTAL	**0**	**- 265.8**	**2 104.1**

Table 44: Monetary impact for SMEs

It can easily be concluded that option 6A is cost neutral, while the simplification of the system per option 6B will lead to marginal economic savings. On the contrary option 6C will cost around 2 M€/year, charged on the SMEs.

In summary a neutral score (i.e. 0) could be assigned to option 6A, a slightly positive score (i.e. 1) to option 6B and a definite negative score (i.e. – 3) to option 6C. These non-dimensional figures need to be multiplied by the "weight" 2 in case of the economic impact.

2.10.5 Environmental impact

In environmental terms option 6A is to be considered neutral, since it will not change the present situation. On the contrary, both options 6B and 6C, through common rules and mutual recognition, could contribute to an increased use of smaller aerodromes, thus reducing noise and pollution in more congested areas. For them therefore, a slightly positive environmental impact (i.e. +1) has to be multiplied for the "weight" of 3.

2.10.6 Social Impact

The number of FTEs involved per entity, as estimated in paragraph 2.10.4, is negligible. Hence any of the three possible options has to be considered neutral in social terms.

2.10.7 Impact on other Community requirements outside present EASA scope

Option 6A is compliant with the implementing rules established through comitology in the frame of the SES. The other two options will require, in due time, repealing article 4 of the "common requirements".

It should be recalled that since 1985 the Council has initiated the "new approach"[60] for the safety of products in the single market. The driving principle of the "new approach" is on one side to protect the citizens, but on the other side it aims:

- ensuring mutual recognition;
- facilitating the market entry of SMEs;
- simplifying the requirements, while ensuring uniformity;
- allowing, whenever possible, self declaration by the entity offering the product.

With regard to the above it seems to be clear that:

- Option 6A totally diverges from the "new approach", its score should therefore be negative (i.e. -2);
- Option 6B on the contrary fully applies the principle of the "new approach", including the possibility of "self declaration" (score + 3);
- Option 6C also goes towards the "new approach", however imposes a certification process (score +1).

[60] Council Resolution of 07 May 1985 on a new approach to technical harmonisation and standards (*OJ C 136, 4.6.1985, p. 1*).

2.10.8 Multi Criteria Analysis (MCA) and recommended option

According to the methodology described in paragraph 2.1.2 and the scores attributed in paragraphs 2.10.3 to 2.10.7 above, the following matrix for MCA can then be provided:

Weighted score of options for SMEs		**6A**	**6B**	**6C**
impact item	**Weight**	**National variants**	**Proportionate common rules + self declaration**	**Proportionate common rules + certification**
Safety	3	- 5.4	7.2	6
Economic	2	0	2	- 6
Environmental	3	0	3	3
Social	2	0	0	0
On other EU legislation	1	- 2	3	1
WEIGHTED TOTAL		**- 7.4**	**15.2**	**4**

Table 45: Multi Criteria Analysis for SMEs

From the above one can observe that option 6A has a globally negative impact. Among the remaining two, option 6B scores about four times as better than 6C. In particular, option 6B outscores 6C in economic terms, and in terms of relationship with other community legislation.

That is why the Agency has included option 6B (i.e. common, but proportionate rules and self certification possibility for SMEs) in its Opinion.

2.11 Certification of pan-European ANSPs

2.11.1 Alternative options

The following alternative options for the certification of the pan-European ANSPs have been identified in paragraph 2.5.2:

- 8A): "do nothing", which means that all the ANSPs are under supervision by an NSA;
- 8B): The providers offering services in more than one State (even limited cross borders services) under supervision by the Agency;
- 8C): The "single" providers offering services in four or more States under supervision by the Agency.

In particular option 8C):

- excludes limited cross borders services, which never comprise four States;
- excludes ATS provision in a FAB, if organised through co-operation of a number of national ATSPs, which remain independent entities, although having a project in common;
- **includes** the case of single ATS provider in a FAB covering at least four States: in this case then, **Maastricht** Upper ACC will be under the Agency's supervision.

2.11.2 Target group and number of entities concerned

In all cases the manufacturing or maintenance industry is not affected by any option, since not providing services. Airspace users are not affected either as they are subject to different certification schemes.

In option 8A all the 30 NSAs (but not the Agency) are impacted. ANSPs are not impacted since already subject to certification..

In options 8B and 8C all the 30 NSAs are impacted, as well as the Agency, As regards NSPs, those potentially affected are the following:

- Providers of satellite navigation signals like EGNOS or Galileo;
- Providers of communication network services, either fixed or mobile or both;
- Providers of surveillance data over two States or more;
- Providers of aeronautical information (like group-EAD or the future possible SWIM provider) in two States or more;
- Single providers of ATS in two states or more.

Their number is estimated in the order of 10 for option 8C.
In option 8B all the national ATSPs are affected, since they provide cross-border services on a limited scale. In this option therefore their number is estimated to be 30 + 10 = 40.

OPTION		Estimated number	
Id.	**Description**	**Authorities**	**ANSPs**
8A	All providers supervised by NSAs	**30**	**0**
8B	All providers offering services in more than one State (even cross-border) under supervision by EASA	**30 + Agency**	**40**
8C	Only providers of services to 4 or more States under supervision by EASA.		**10**

Table 46: Affected pan-European providers

2.11.3 Safety impact

Most of the affected providers are complex organisations, providing sophisticated services through the exploitation of large and interconnected technical systems. However the resources available for their oversight are relatively limited. Lessons learned from on-going complex certification projects (certification of the Maastricht ACC or that of EGNOS) show the need for cooperation among the competent authorities, regardless of which one in the end will sign the certificate. This remains true even if the legislator were to decide to give legal responsibility for certification to the Agency. The latter will necessarily involve resources currently available in the NSAs.

It is assumed therefore that the certification and oversight of those complex providers will be a collective effort, at least as long as the community of regulators has to build up regulatory processes in a domain that became subject to regulation only recently. Hence any of the three possible options has to be considered highly positive, since it will be implemented pooling the best resources available on a continental scale, which in turn will facilitate mutual recognition and immediate exchange of safety information, should the need arise. Options 8B and 8C however can be expected to present an advantage inasmuch as the Agency has a good practice of handling complex certification projects in other fields of aviation safety, which can be made available for ATM/ANS. However it is recognised that the location of the Agency and its multinational workforce may not be fully adapted to the oversight of organisations dispersed over the whole territory of the Community; therefore the above mentioned advantage is likely to be annulled in the case of option 8B. The evolution over a longer period would lead to a progressive transfer of resources from NSAs to the Agency; this is deemed to provide for a stable result as regards option 8C, while the disadvantage of option 8B mentioned here above would even increase.

To conclude, it is assumed that option 8A and 8B present the same positive safety score of +2, while option 8C scores even higher: +3. All scores have to be multiplied by a "weight" of 3.

2.11.4 Economic Impact

As ANSPs are already subject to certification on the basis of article 7 of Regulation (EC) No 550/2004, the present RIA will not assess the impact of the various options on the cost of certification as such, but it will concentrate on the variations of such a cost as a function of the various options.

Article 2.3 of SES Regulation (EC) No 550/2004 establishes that, in case of multi-national providers, States have to set up specific arrangements for collective supervision on a case by case basis. This process of setting up and managing multi-lateral arrangements may well be effort intensive. For option 8A it is assumed that each NSA, in average, devotes about 0.5 FTEs to this with a cost of 0.5 FTEs x 30 affected NSAs = 15 FTEs x 138.6 k€ = 2,079 k€/year.

In options 8B and 8C, based on article 10 of the Basic Regulation neither lengthy negotiation among the NSAs nor multi-lateral agreements will be required. The cost of about 2 M€/year for the NSAs could therefore be eliminated. Even for those options nothing will change for the ANSPs, subject anyway to certification.

However the Agency, even if relying on the resources available in the NSAs, will have to devote some effort to such complex certification projects. It is estimated that for each pan-European ANSPs the Agency will have to spend, for certification and oversight, about 0.4 FTEs in average, per year.

Then in case of option 8C the cost is estimated to: 0.4 FTEs x 10 ANSPs = 4 FTEs x 150 k€ = 600 k€/year.

In case of option 8B the cost is estimated to: 0.4 FTEs x 40 ANSPs = 16 FTEs x 150 k€ = 2 400 k€/year.

Estimated cost for ASM	**Thousand €/year**		
	8A	**8B**	**8C**
	All ANSPs supervised by NSAs	**All cross border ANSPs supervised by EASA**	**ANSPs for 4 States supervised by EASA**
EASA	0	2 400	600
NSAs	2 079	0	0
ANSPs	0	0	0
TOTAL	**2 079**	**2 400**	**600**

Table 47: Estimated cost for supervision of the pan-European providers

Option 8C will be the cheapest; it should be assigned the maximum score: 3 x "weight" 2 = 6. Conversely options 8A and 8B should be considered slightly negative (i.e. score - 1 x 2 = - 2).

2.11.5 Environmental impact

Any of the options under consideration is neutral in terms of environmental impact.

2.11.6 Social Impact

In view of the limited number of staff involved it is considered that the choice between the various options is neutral in social terms.

2.11.7 Impact on other Community requirements outside the present EASA scope

The SES provisions aim at de-fragmenting the EU aviation landscape. The same objective has been stressed by the mentioned report of the HLG. In addition the EC has signed an agreement for mutual cooperation with the European Space Agency (ESA)[61], which presently finds no counter part at EU level for the safety regulation of the total aviation system. The same is true for the GNSS Supervisory Authority (GSA)[62]. It is not excluded that more pan-European ANSPs could emerge from the SESAR programme.

Taking those factors into account, the impact can be estimated as in Table 48 below:

Specific Objectives/Result Indicators	**Options**		
	8A	**8B**	**8C**
Regulation of pan-European ANSPs	**All ANSPs supervised by NSAs**	**All cross border by EASA**	**Real pan-European by EASA**
Safety separated from other regulation	- 2	3	3
EASA rulemaking procedure	Not relevant in this paragraph		
Standardisation inspections	Not relevant in this paragraph		
ATM/ANS in EASA safety framework	- 3	3	1
Rules for management systems	Not relevant in this paragraph		
Clear separation of roles between authorities and providers	Not relevant in this paragraph		
Certification of providers in 4 States	- 3	3	3
Simplification (but uniform rules) for AFIS and apron management	Not relevant in this paragraph		
Impact assessment for any rule	Not relevant in this paragraph		
Interface with other forms of regulation	- 2	3	3
Rational use of resources	- 1	2	1
Oversight of all ACC functions	Not relevant in this paragraph		
TOTAL	**- 11**	**14**	**11**
AVERAGE SCORE (/ 5 quantified parameters)	**- 2.2**	**2.8**	**2.2**
WEIGHTED SCORE (Score x 1)	**- 2.2**	**2.8**	**2.2**

Table 48: Impact on other legislation for pan-European ANSPs

2.11.8 Multi Criteria Analysis (MCA) and recommended option

According to the methodology described in paragraph 2.1.2 and the scores attributed in the previous paragraphs, the following MCA matrix has been elaborated.

[61] Framework Agreement between the European Community and the European Space Agency (*OJ L 261, 6.8.2004, p. 64*).

[62] Established by Council regulation (EC) No 1321/2004 of 12 July 2004 on the establishment of structures for the management of the European satellite radio navigation programmes (*OJ L 246, 27.7.2004, p. 1*).

Weighted score of options for the pan-European ANSPs		8A	8B	8C
impact item	Weight	All ANSPs supervised by NSAs	All cross border ANSPs supervised by EASA	Real pan-European ANSPs supervised by EASA
Safety	3	6	6	9
Economic	2	-2	- 2	6
Environmental	3	0	0	0
Social	2	0	0	0
On other EU regulations	1	- 2.2	2.8	2.2
WEIGHTED TOTAL		**1.8**	**6.8**	**17.2**

Table 49: Multi Criteria Analysis for pan-European ANSPs

The MCA shows that no option has a globally negative impact. However option 8C scores much better than either 8A or 8B.

In particular, option 8C outscores the others in safety and economic terms.

That is why the Agency has included such option 8C (i.e. the Agency to certify and oversee the single entities offering ANS in 4 or more States) in its Opinion.

3. Conclusions

Having assessed the impact of each considered option, against the specific objectives of the proposed policy, in terms of safety, economic, environmental, and social aspects, as well as in relation to other policies, the Agency then considers that the extension of its competencies to safety regulation of ATM/ANS is justified, in particular with regard to safety and economic benefits.