



**NOTICE OF PROPOSED AMENDMENT (NPA) No 2009-02G**

**DRAFT OPINIONS OF THE EUROPEAN AVIATION SAFETY AGENCY,  
FOR A COMMISSION REGULATION establishing the implementing rules for air  
operations of Community operators**

**and**

**DRAFT DECISIONS OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION  
SAFETY AGENCY on  
acceptable means of compliance, certification specifications and guidance material  
related to the implementing rules for air operations of Community operators**

*“Implementing Rules for Air Operations of Community Operators”*

**G. Regulatory Impact Assessment for the Supplementing Measures for Air  
Operations(per Article 8(5) of Regulation (EC) No 216/2008)**

**NOTE:** This NPA contains the draft Opinion on the Implementing Rules for Air Operations of Community Operators, the Subparts related to Air Operations of the draft Opinion on the Implementing Rules for Organisation Requirements, the Subparts related to Air Operations of the draft Opinion on the Implementing Rules for Authority Requirements and the related draft Decisions (AMC, CS and GM). The NPA is split into seven separate NPAs (2009-02a, 2009-02b, 2009-02c, 2009-02d, 2009-02e, 2009-02f and 2009-02g) as indicated in the Table of Reference below. The documents are published in the Comment-Response Tool (CRT) available at <http://hub.easa.europa.eu/crt/>.

**TABLE OF REFERENCE FOR NPA 2009-02:**

<b>A.</b>	<b>Explanatory Note:</b>	See NPA 2009-02a
	I. General	See NPA 2009-02a
	II. Consultation	See NPA 2009-02a
	III. Comment response document	See NPA 2009-02a
	IV. Content of the Draft Opinions and Decisions	See NPA 2009-02a
	V. Appendices	See NPA 2009-02a
<b>B.</b>	<b>Draft Opinions and Decisions:</b>	
	I. Draft Opinion <b>PART-OPS</b>	See NPA 2009-02b
	II. Draft Decision AMC and GM to <b>PART-OPS</b>	See NPA 2009-02b
	III. Draft Opinion <b>PART-OR (Subpart OPS)</b>	See NPA 2009-02c
	IV. Draft Decision CS to <b>PART-OR (Subpart OPS)</b>	See NPA 2009-02c
	V. Draft Decision AMC and GM to <b>PART-OR (Subpart OPS)</b>	See NPA 2009-02c
	VI. Draft Opinion <b>PART-AR (Subpart GEN, CC and OPS)</b>	See NPA 2009-02d
	VII. Draft Decision AMC and GM to <b>PART-AR (Subpart GEN, CC and OPS)</b>	See NPA 2009-02d
	VIII. Draft Opinion <b>PART-CC</b>	See NPA 2009-02e
	IX. Draft Decision AMC and GM to <b>PART-CC</b>	See NPA 2009-02e
	X. Supplement to Draft Opinion <b>PART-MED</b>	See NPA 2009-02e
<b>C.</b>	<b>Cross-Reference Tables:</b>	See NPA 2009-02f
<b>D.</b>	<b>Regulatory Impact Assessment:</b>	See NPA 2009-02g

**TABLE OF CONTENTS FOR NPA 2009-02G:**

<b>LIST OF ACRONYMS</b> .....	<b>7</b>
<b>1. INTRODUCTION &amp; SCOPE</b> .....	<b>8</b>
1.1 CONTEXT.....	8
1.2 SCOPE OF PRESENT REGULATORY IMPACT ASSESSMENT .....	8
1.3 AN ITERATIVE PROCESS FOR IMPACT ASSESSMENT .....	10
1.3.1 "Better Regulation" .....	10
1.3.2 Identification of the problem .....	10
1.3.3 The Initial Impact Assessment.....	12
1.3.4 RIA attached to EASA A-NPA 14-2006 of 16 October 2006.....	12
1.3.5 Drafting group of experts for task OPS 001 .....	13
1.3.6 RIA attached to NPA 2008-22 of 31 October 2008 .....	13
1.3.7 The present Regulatory Impact Assessment .....	14
<b>2. REGULATORY IMPACT ASSESSMENT</b> .....	<b>15</b>
2.1 APPROACH TO IMPACT ASSESSMENT .....	15
2.1.1 Qualitative and quantitative assessment .....	15
2.1.2 Economic flows .....	16
2.1.3 Assessment methodology .....	16
2.2 ORGANISATION OF THE PROCESS .....	17
2.2.1 Task OPS.001 .....	17
2.2.2 Consultation of stakeholders .....	18
2.3 PROBLEM ANALYSIS .....	19
2.3.1 Issues to be addressed.....	19
2.3.2 OPS Safety level in Europe.....	20
2.3.2.1 Source of safety information .....	20
2.3.2.2 Commercial air transport by large aeroplanes .....	20
2.3.2.3 Cabin crew contribution to safety.....	24
2.3.2.4 Commercial air transport by helicopters.....	26
2.3.2.5 Safety of business aviation .....	27
2.3.2.6 Non-complex motorized general aviation .....	28
2.3.2.7 Sailplanes and balloons .....	30
2.3.2.8 Summary of OPS safety analysis.....	31
2.3.2.9 Cost of safety events .....	31
2.3.2.10 Conclusions on OPS safety analysis .....	35
2.3.3 Increase and diversification of air traffic .....	36
2.3.4 The Regulatory Framework .....	37
2.3.4.1 The international regulatory framework .....	37
2.3.4.2 From EU-OPS to EASA rules .....	38
2.3.4.3 From JAR-OPS 3 to EASA rules .....	38
2.3.4.4 Cabin crews.....	38
2.3.5 Conclusions and justification for EU intervention .....	39
2.4 OBJECTIVES AND INDICATORS.....	40
2.4.1 Taxonomy of objectives.....	40
2.4.2 General objectives and "weights" .....	41
2.4.3 Specific objectives .....	41
2.4.4 Operational objectives.....	42
2.4.5 Indicators, targets and summary of objectives.....	42
2.5 OPTIONS .....	45

2.6 COMMERCIAL AIR TRANSPORT .....	46
2.6.1 Options .....	46
2.6.2 Target group and number of entities concerned .....	47
2.6.2.1 Competent Authorities .....	47
2.6.2.2 Air operators .....	47
2.6.2.3 Summary of affected entities .....	50
2.6.3 Safety Impact .....	50
2.6.4 Environmental Impact .....	52
2.6.5 Economic Impact .....	52
2.6.5.1 Rulemaking and standardisation cost .....	52
2.6.5.2 Oversight cost .....	53
2.6.5.3 Regulatory cost for the operators .....	53
2.6.5.4 Summary of economic impact .....	54
2.6.6 Social Impact .....	55
2.6.7 Regulatory harmonisation .....	56
2.6.7.1 Compatibility with other EU/EASA regulations .....	56
2.6.7.2 Compatibility with ICAO standards .....	57
2.6.7.3 Harmonisation with other foreign regulatory bodies .....	57
2.6.7.4 Summary of impact on regulatory harmonisation .....	57
2.6.8 Multi Criteria Analysis (MCA) and recommended option .....	58
2.7 COMMERCIAL AERIAL WORK .....	59
2.7.1 Options .....	59
2.7.2 Target group and number of entities concerned .....	59
2.7.2.1 Competent Authorities .....	59
2.7.2.2 Air operators .....	60
2.7.2.3 Summary of affected entities .....	61
2.7.3 Safety Impact .....	61
2.7.4 Environmental Impact .....	62
2.7.5 Economic Impact .....	63
2.7.5.1 Rulemaking and standardisation cost .....	63
2.7.5.2 Certification and oversight cost .....	63
2.7.5.3 Regulatory cost for the operators .....	64
2.7.5.5 Summary of economic impact .....	65
2.7.6 Social Impact .....	66
2.7.7 Regulatory harmonisation .....	67
2.7.7.1 Compatibility with other EU/EASA regulations .....	67
2.7.7.2 Compatibility with ICAO standards .....	67
2.7.7.3 Summary of impact on regulatory harmonisation .....	67
2.7.8 Multi Criteria Analysis (MCA) and recommended option .....	68
2.8 NON-COMMERCIAL OPERATIONS BY COMPLEX MOTOR-POWERED AIRCRAFT .....	69
2.8.1 Options .....	69
2.8.2 Target group and number of entities concerned .....	70
2.8.2.1 Competent Authorities .....	70
2.8.2.2 Air operators .....	70
2.8.2.3 Summary of affected entities .....	71
2.8.3 Safety Impact .....	71
2.8.4 Environmental Impact .....	73
2.8.5 Economic Impact .....	74
2.8.5.1 Rulemaking and standardisation cost .....	74
2.8.5.2 Oversight cost .....	74
2.8.5.3 Regulatory cost for the operators .....	74
2.8.5.4 Additional demand .....	75
2.8.5.5 Summary of economic impact .....	75
2.8.6 Social Impact .....	76
2.8.7 Regulatory harmonisation .....	77

2.8.7.1	Compatibility with other EU/EASA regulations .....	77
2.8.7.2	Compatibility with ICAO standards .....	77
2.8.7.3	Harmonisation with the FAA rules .....	78
2.8.7.4	Summary of impact on regulatory harmonisation .....	78
2.8.8	Multi Criteria Analysis (MCA) and recommended option .....	78
2.9	NON-COMMERCIAL AIR OPERATIONS WITH OTHER THAN COMPLEX MOTOR-POWERED AIRCRAFT ....	80
2.9.1	Options .....	80
2.9.2	Target group and number of entities concerned .....	81
2.9.2.1	Competent Authorities .....	81
2.9.2.2	Air operators .....	81
2.9.2.3	Summary of affected entities .....	82
2.9.3	Safety impact .....	82
2.9.4	Environmental Impact .....	84
2.9.5	Economic Impact .....	84
2.9.5.1	Rulemaking and standardisation cost .....	84
2.9.5.2	Oversight cost .....	84
2.9.5.3	Regulatory cost for the operators (recurrent) .....	85
2.9.5.4	Regulatory cost for the operators (non recurrent) .....	85
2.9.5.5	Additional demand .....	85
2.9.5.6	Summary of economic impact .....	85
2.9.6	Social Impact .....	86
2.9.7	Regulatory harmonisation .....	86
2.9.7.1	Compatibility with other EU/EASA regulations .....	86
2.9.7.2	Compatibility with ICAO standards .....	87
2.9.7.3	Summary of impact on regulatory harmonisation .....	87
2.9.8	Multi Criteria Analysis (MCA) and recommended option .....	88
2.10	ASSESSMENT OF CABIN CREW MEDICAL FITNESS .....	89
2.10.1	Options .....	89
2.10.2	Target group and number of entities concerned .....	90
2.10.2.1	Competent Authorities .....	90
2.10.2.2	Air operators .....	90
2.10.2.3	Cabin crews .....	92
2.10.2.4	Medical examiners .....	92
2.10.2.5	Summary of affected entities .....	93
2.10.3	Safety impact .....	94
2.10.4	Environmental Impact .....	97
2.10.5	Economic Impact .....	97
2.10.5.1	Rulemaking and standardisation cost .....	97
2.10.5.2	Oversight cost .....	97
2.10.5.3	Regulatory cost for the operators (recurrent) .....	97
2.10.5.4	Summary of economic impact .....	99
2.10.6	Social Impact .....	100
2.10.7	Regulatory harmonisation .....	101
2.10.7.1	Compatibility with other EU/EASA regulations .....	101
2.10.7.2	Compatibility with ICAO standards .....	101
2.10.7.3	Harmonisation with the FAA rules .....	101
2.10.7.4	Summary of impact on regulatory harmonisation .....	102
2.10.8	Multi Criteria Analysis (MCA) and recommended option .....	102
2.11	ATTESTATION PROCESS FOR CABIN CREW COMPETENCE .....	104
2.11.1	Options .....	104
2.11.2	Target group and number of entities concerned .....	105
2.11.2.1	Competent Authorities .....	105
2.11.2.2	CAT air operators .....	106
2.11.2.3	Non-commercial air operators .....	106

2.11.2.4 Cabin crews .....	106
2.11.2.5 Training organisations .....	106
2.11.2.6 Summary of affected entities.....	107
2.11.3 Safety Impact .....	107
2.11.4 Economic Impact .....	108
2.11.4.1 Rulemaking and standardisation cost .....	108
2.11.4.2 Oversight cost.....	109
2.11.4.3 Regulatory cost for the operators (recurrent) .....	109
2.11.4.4 Regulatory cost for the operators (non recurrent).....	109
2.11.4.4 Summary of economic impact.....	110
2.11.6 Social Impact .....	111
2.11.7 Regulatory harmonisation .....	112
2.11.7.1 Compatibility with other EU/EASA regulations .....	112
2.11.7.2 Compatibility with ICAO standards .....	112
2.11.7.3 Harmonisation with the FAA rules.....	112
2.11.7.4 Summary of impact on regulatory harmonisation .....	112
2.11.8 Multi Criteria Analysis (MCA) and recommended option .....	113
<b>3. CONCLUSIONS.....</b>	<b>115</b>

**List of acronyms**

AIB .....	Accident Investigation Body
AMC .....	Acceptable Means of Compliance
AOC .....	Air Operator Certificate
CFIT .....	Controlled Flight Into Terrain
CRD .....	Comment Response Document
CS.....	Certification Specification
EASA .....	European Aviation Safety Agency
EC.....	European Commission
ECAC .....	European Civil Aviation Conference
ERs .....	Essential Requirements
EU.....	European Union
FTE .....	Full Time Equivalent
ICAO .....	International Civil Aviation Organisation
IFR.....	Instrument Flight Rules
IRs.....	Implementing Rules (= supplementing measures)
JAA .....	Joint Aviation Authorities
JIP .....	JAA Joint Implementation Procedures
KPA .....	Key Performance Area's
MCA .....	Multi – Criteria Analysis
MS .....	Member State
NAA/NSA.....	National (or Civil) Aviation Authority/Supervisory Authority
NPA.....	Notice for Proposed Amendment
OPS.....	Air Operations
OSC .....	Operational Suitability Certificate
RIA .....	Regulatory Impact Assessment
SARPs.....	Standards And Recommended Practices
SES .....	Single European Sky
SME .....	Small/Medium Enterprise
SMS .....	Safety Management System
VLJ.....	Very Light Jet

## 1. Introduction & Scope

### 1.1 Context

When establishing the Agency<sup>1</sup>, the legislator, in recital (2) of the Regulation, already envisaged that appropriate essential requirements would be developed to cover operations of aircraft and flight crew licensing, as well as the application of same Regulation to third country aircraft. Therefore, the Commission, in November 2005, adopted a legislative proposal<sup>2</sup> to extend the tasks of The European Aviation Safety Agency (The Agency) to the three mentioned domains.

The proposal, after the co-decision process, has led to a revised Basic Regulation<sup>3</sup>, which indeed established essential requirements in the three domains mentioned above and substantive requirements respectively in Article 7 therein for pilots, in Article 8 for air operations and in Article 9 for aircraft used by third country operators, into, within or out of the Community. In addition, the legal basis for the Operational Suitability Certificate (OSC) has been embedded in Article 5 (i.e. airworthiness).

In each of these Articles the legislator delegated powers to the Commission to adopt measures supplementing the basic legislative provisions, in accordance with the regulatory procedure with scrutiny<sup>4</sup> and based on proposals contained in Opinions delivered by the Agency. The Agency shall hence analyse different alternative options in order to develop the Opinions to be transmitted to the Commission. This comparative analysis is indeed the purpose of the Regulatory Impact Assessment (RIA).

### 1.2 Scope of present Regulatory Impact Assessment

Community competence for air operations, pilots and third country operators has been established by the legislator in the revised Basic Regulation. The question "whether" the EASA system should be extended to said domains has already been analysed in the Impact Assessment carried out by the Commission services according to the applicable guidelines<sup>5</sup>. What remains to be assessed is therefore "how" to balance the need to safeguard safety with the need to establish proportionate processes at the level of implementing rules.

Currently the Agency proposes six different sets of specific implementing rules for:

- air operations<sup>6</sup>;

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<sup>1</sup> 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 (EASA); (*OJ L 240, 7.9.2002, p. 1*).

<sup>2</sup> Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EC) No 1592/2002 of 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency (COM(2005)579 final of 15 November 2005).

<sup>3</sup> 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 (EASA) and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC; (*OJ L79, 19.3.2008, p. 1*).

<sup>4</sup> See article 65 of the Basic Regulation and Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission (*OJ L 184, pages 23-26*), as amended by Council Decision 2006/512/EC of 17 July 2006 (*OJ L 200, p. 11*).

<sup>5</sup> Referred in paragraph 4 of mentioned COM(2005)579 final.

<sup>6</sup> NPA 2009-02 published on 30 January 2009:  
[http://www.easa.europa.eu/ws\\_prod/r/doc/NPA/NPA%202009-02A.pdf](http://www.easa.europa.eu/ws_prod/r/doc/NPA/NPA%202009-02A.pdf).



- flight crew licensing<sup>7</sup>;
- third country operators;
- organisation requirements<sup>8</sup>;
- airworthiness requirements related to operations (operational suitability certificate)<sup>9</sup> ;
- requirements for competent authorities (so called "JIPs" (Joint Implementation Procedures) in the JAA system)<sup>10</sup>.

The development of each set of proposed rules has been accompanied by a Regulatory Impact Assessment (RIA).

The scope of the present document is to analyse, in the above context, the impact of possible implementing rules for air operations and in particular for:

- safety assurance processes for commercial operators;
- the same for non-commercial operators of complex motor-powered aircraft<sup>11</sup> and other than complex motor-powered aircraft;
- proof of medical fitness and competence rules for cabin crews.

Horizontal aspects such as the general structure of the EASA rules for aviation services, the performance based approach to safety regulation, the Safety Management (SMS) and Quality Management (QMS), the concept of certification for providers of aviation services and the continuous oversight, have been assessed in the RIA accompanying NPA 2008-22.

Furthermore, the proposed Agency's implementing rules will replace the so called "EU-OPS"<sup>12</sup> and a number of JAA published or draft regulatory material. In fact, the legislator required the Agency to issue an opinion on supplementing measures to Annex IV of the Basic Regulation through the requirements in Articles 8 and 19 therein. Such supplementing rules will cover all types of air operations by any aircraft category.

The Commission in its proposal<sup>13</sup> stated that the main aspects relating to air operations to be taken into account when developing these supplementing measures had to be:

- To require all commercial operators to be subject to certification on the basis of common rules;
- Common requirements to be specified in implementing rules based as much as possible on existing material such as "EU-OPS", JAR-OPS 1 and 3 and draft JAR-OPS 0, 2 and 4.

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<sup>7</sup> NPA 2008-17 published on 05 June 2008:

[http://www.easa.europa.eu/ws\\_prod/r/doc/NPA/NPA%202008-17a.pdf](http://www.easa.europa.eu/ws_prod/r/doc/NPA/NPA%202008-17a.pdf)

<sup>8</sup> NPA 2008-22 published on 31 October 2008:

[http://www.easa.europa.eu/ws\\_prod/r/doc/NPA/NPA%202008-22a%20EN%20-%20RIA.pdf](http://www.easa.europa.eu/ws_prod/r/doc/NPA/NPA%202008-22a%20EN%20-%20RIA.pdf)

<sup>9</sup> NPA 2009-01 published on 16 January 2009:

[http://www.easa.europa.eu/ws\\_prod/r/doc/NPA/NPA%202009-01.pdf](http://www.easa.europa.eu/ws_prod/r/doc/NPA/NPA%202009-01.pdf)

<sup>10</sup> See footnote 8.

<sup>11</sup> As defined by Article 3(j) of the Basic Regulation.

<sup>12</sup> Commission Regulation (EC) No 859/2008 of 20 August 2008 amending Council Regulation (EEC) No 3922/91 as regards common technical requirements and administrative procedures applicable to commercial transportation by aeroplane (*OJ L 254, 20.09.2008, p. 1*).

<sup>13</sup> Refer to footnote 2.

As explained in the RIA attached to NPA 2008-22, this implies that EU-OPS/JAR-OPS 1 and JAR-OPS 3 would be transposed into performance oriented IRs. These IRs should also as much as possible take into account existing accepted JAA material (JAR-OPS, TGLs and NPAs agreed within the JAA business plan) aligned with state of the art and providing a basis for uniform implementation.

Since the legislator left to the Agency no other choice than replacing all existing JAR-OPS material by EASA rules it is obvious that there will be a transition period during which appropriate measures will apply. As explained in paragraph 73 of NPA 2008-22 and paragraph 82 of NPA 2009-02 the detail of these transitional measures will be defined having acquired the comments and suggestions by stakeholders. The final decision will be taken through the Commissions comitology procedure.

### **1.3 An iterative process for impact assessment**

#### *1.3.1 "Better Regulation"*

According to the principles of "better regulation" EASA shall carry out a Regulatory Impact Assessment (RIA) before producing an Opinion.

Having identified the problem as reflected in sub-paragraph 1.3.2 below, the work has been organised in order to reduce duplication of effort. The Commission has in fact already carried out an initial impact assessment focusing on "whether" the competences of EASA should have been extended to air operations.

Furthermore the Agency has already produced:

- a RIA attached to its A-NPA 14-2006<sup>14</sup> focusing on non-commercial operators of other than complex motor-powered aircraft;
- the already mentioned RIA attached to NPA 2008-22 on the general structure and approach to rules for the safety of aviation services.

The following sub-paragraphs therefore summarize, for ease of reference, the previous work for this iterative impact assessment. This work included extensive consultation with stakeholders (See paragraph 2.2.2).

#### *1.3.2 Identification of the problem*

According to the already mentioned COM (2005) 579 (final)<sup>15</sup> for a long time the Joint Aviation Authorities (JAA) had been developing rules on the operation of aircraft for the purpose of commercial air transportation and flight crew licensing, but their application had been left to the discretion of the States which had signed up to them and which afterwards implemented them in very different ways, or did not implement them at all. Consequently, there was no uniform level of safety in Europe with significant national disparities.

The inclusion of the JAR-OPS 1 in Community legislation<sup>16</sup> has been a step forward but not yet sufficient, since only covering commercial air transport by aeroplanes. Other categories of aircraft and non-commercial operations remained not covered by the "EU-OPS" common rules; neither the latter covered flight crew licensing nor third country operators.

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<sup>14</sup>Advanced Notice of Proposed Amendment (A-NPA) No 14-2006: A concept for better regulation in General Aviation:

[http://www.easa.europa.eu/ws\\_prod/r/doc/NPA/final%20A-NPA%2014-2006%20General%20Aviation%20\(15.08.06\).pdf](http://www.easa.europa.eu/ws_prod/r/doc/NPA/final%20A-NPA%2014-2006%20General%20Aviation%20(15.08.06).pdf)

<sup>15</sup> Paragraph 2 therein.

<sup>16</sup>Already mentioned Commission Regulation (EC) No 859/2008 of 20 August 2008.

That's why the Commission proposed to the legislator to extend the mandate of EASA to air operations, flight crew licensing and safety of third country operators. This has now been achieved by the revised Basic Regulation.

Therein<sup>17</sup> the legislator delegated to the Commission to issue supplementing measures in the field of air operations. However, Article 8(2) of the BR leaves to these measures to determine if a certificate is needed or not for some categories of commercial operators: "Unless otherwise determined in the implementing rules, operators engaged in commercial operations shall demonstrate their capability and means of discharging the responsibilities associated with their privileges."

This legal provision may lead to different choices such as:

- simplified rules for commercial operators of other than complex motor-powered aircraft (e.g. less than 5.7 tons and no turbo jet engine);
- simplified rules for A to A flights (similar to EU-OPS i.e. Appendix 1 to OPS 1.005 (a) giving variations and alleviations to the requirements of EU-OPS);
- proportionate rules for small/medium sized air operators in order to avoid economic burden disproportionate in respect of the social safety risk.

The issue is further complicated by the great variety of activities to be considered: from classical scheduled public transport of paying passengers from airport A to B, to commercial cargo operations, commercial aerial work, air taxi, corporate aviation, fractional ownership, commercial VFR day flights and so on.

In the implementing rules the Agency uses the term "commercial operations other than commercial air transport" when referring to aerial work although the scope of commercial operations other than commercial air transport is understood to be much wider than what is generally considered as aerial work. Therefore, when using the term "aerial work" in the present document, it should be understood as being "commercial operations other than commercial air transport".

It has to be noted that in recent years the demand for the types of flights concerned substantially increased.

For non-commercial operators, Article 8(3) of the Basic Regulation establishes that "unless otherwise determined in the implementing rules, operators engaged in the non-commercial operation of complex motor-powered aircraft shall declare their capability and means of discharging the responsibilities associated with the operation" (including e.g. also any organisation managing aircraft on behalf of owner/owners, as in the case of "fractional ownership").

Also here, a range of options is possible with different impacts on society. It has to be further analysed.

Furthermore, no Community legislation exists for helicopter operations, while JAR-OPS 3 was not uniformly implemented in Member States.

It is therefore necessary to carefully evaluate, not "whether" the JAR-OPS should be turned into EASA rules, but mainly the impact of the regulatory solutions envisaged when they are not based on accepted JAA material.

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<sup>17</sup> Article 8(5) and 8(6) of Basic Regulation

Finally, Article 8(4) of Basic Regulation establishes that cabin crews shall comply with the essential requirements and in particular be periodically assessed for medical fitness<sup>18</sup>, to safely exercise their assigned safety duties. Compliance of individuals with medical requirements must be shown by appropriate assessment based on "aero-medical best practice". Which is the most appropriate "best practice" will be fixed by the implementing rules and, since different options may exist in this case, a RIA is due to explore the matter.

Furthermore, any possible implementing rules shall:

- contribute to respond for the ever increasing demand for safety from society, which includes not only scheduled commercial air transport, but also protection of property and people on the ground;
- maintain regulatory harmonisation at global and EU level and possibly offer Europe the possibility to influence world-wide developments;
- not be over prescriptive, which could jeopardize the progress of the state of the art.

### *1.3.3 The Initial Impact Assessment*

In paragraph 1.2 above it has been recalled that the Commission has already carried out its impact assessment in 2005, before proposing the extension of the competencies of EASA to air operations, flight crew licensing and safety of third country aircraft.

In particular two options were examined by the Commission:

- extending the scope of the Basic Regulation, and hence of the Agency's remit;
- transposing into Community law, via Regulation (EEC) No 3922/91<sup>19</sup>, the rules defined through intergovernmental cooperation within the JAA.

The study showed clearly that, although the second alternative had already been progressed for "EU OPS", it would have been better for high and uniform aviation safety in the medium/long term, and for the functioning of the internal market, to introduce specific Community measures: the Commission therefore opted to extend the scope of the Basic Regulation and this was endorsed by the legislator.

The present RIA will therefore not repeat the exercise already carried out by the Commission, but on the contrary it will focus on the different options possible at the level of implementing rules.

### *1.3.4 RIA attached to EASA A-NPA 14-2006 of 16 October 2006*

A RIA for operations of aircraft other than complex motor-powered aircraft used in non-commercial activities was attached to A-NPA 14-2006, issued on 16 October 2006. Three options were identified therein:

- Option 0 "No regulatory action": If no action is undertaken, the only applicable regulations will be those included in the basic principles and essential requirements contained in the Basic Regulation. There would be no implementing rules to further elaborate on essential requirements;
- Option 1: Only the Basic Regulation with the essential requirements would apply (i.e. no implementing rules); other provisions in "soft" rules, i.e. Acceptable Means of Compliance (AMC) which may also be industry standards;

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<sup>18</sup> Paragraph 7.b.(ii) of Annex IV to Basic Regulation

<sup>19</sup> Council Regulation (EEC) No 3922/91 of 16 December 1991 on the harmonization of technical requirements and administrative procedures in the field of civil aviation (*OJ L 373, 31.12.1991, p. 4*).

- Option 2: "Light" (i.e. proportionate) implementing rules and AMC applicable to this segment of general aviation.

That RIA then concluded that, although option 1 had the highest potential for development of general aviation, Option 2 had to be preferred; despite it could perhaps create higher costs, because it seemed to allow for proper level of safety to be guaranteed across Europe in a standardised manner. Option 2 was also the one departing less from present regulatory principles. Option 0 would leave too much flexibility. Furthermore, Options 0 and 1 would have introduced equity and fairness issues as they would allow for local interpretations that could lead to unfair treatment.

In conclusion Option 2 had to be preferred.

The present RIA will therefore not duplicate the work already done before publishing A-NPA 14-2006, but on the contrary it will focus on the various alternatives which these "light" implementing rules may entail.

#### *1.3.5 Drafting group of experts for task OPS 001*

The group of external experts of task OPS.001 acknowledged that the Commission had clearly defined what it intended to do, when communicating its proposal for the extension of scope of the Basic Regulation. This led in particular to the following choices that could be made for operators of Commercial Air Transport (CAT) by helicopters:

- Option A: Transpose JAR-OPS 3 text as it was (i.e. open to different interpretations, and including acceptable means of compliance and exemptions in the rule text);
- Option B: Formulate performance based IRs for helicopters based on existing accepted JAA material (JAR-OPS 3, TGL's and NPA's agreed within the JAA business plan) aligned with state of the art and providing a basis for uniform implementation.

It was concluded that legal material providing a certain basis for uniform implementation had to be preferred, i.e. Option B.

#### *1.3.6 RIA attached to NPA 2008-22 of 31 October 2008*

A RIA, encompassing the rules proposed for competent authorities and those for organisations was attached to NPA 2008-22, issued on 31 October 2008.

Having assessed therein 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 with other policies, the Agency proposed to:

- Adopt a general structure for its rules concerning aviation services, which aims at standardising the requirements for all kind of organisations (e.g. air operators, aerodrome operators and Air Navigation Service Providers), keeping only specific requirements in separate subparts. This is in line with the requests of stakeholders to avoid duplication of certification processes;
- foster performance based rulemaking, thus allowing to adopt standardised rules, but keeping the necessary flexibility in the implementation;
- offer continued validity to approvals, thus providing smoother oversight, with significant benefits in economic and social terms;
- implement safety management systems (SMS) under proportionate rules. This option, which outscored the other ones proposed, will enable small organisations in particular, to fully comply with SMS;

- equally require compliance monitoring systems under proportionate rules. This option is fully in line with the selected option for SMS;
- report all significant safety occurrences to the Agency. Notwithstanding its other advantages, this option is far the best in safety terms, as it is the only one allowing a proactive approach to safety management;
- grant a single certificate to an organisation. Although this option does not imply specific improvements in safety terms, it will induce economic and social benefits;
- foster systematic collective safety oversight. This option proved to be, by far, the best in safety terms, as well as better than the others in economic or social terms.

The above proposals are also in line with the positions expressed by many authorities or stakeholders, emerged during the extensive consultations and in particular from the principles outlining the work performed on consistency of organisation approvals<sup>20</sup>. In general, the selected options will be more economical than solutions formerly implemented in the JARs.

The issues analysed in that RIA need not to be analysed again herein.

### *1.3.7 The present Regulatory Impact Assessment*

In summary, the Regulatory Impact Assessment (RIA) on the extension of EASA remit to air operations has been an iterative process, comprising four steps:

- The initial impact assessment carried out by the Commission which had indeed concluded that extending the EASA's competencies was the best option;
- The RIA attached to A-NPA 14-2006 which concluded that "light" legally binding and common rules for the non-commercial operations with other than complex motor-powered aircraft were the most appropriate alternative;
- The RIA attached to NPA 2008-22 which has analysed general aspects for safety rulemaking in the perspective of the "total system approach" across all aviation domains;
- And the present RIA which goes in to a further level of detail for matters specific to air operations.

Stakeholders have been extensively consulted as presented in paragraph 2.2.2 below.

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<sup>20</sup> See [http://www.easa.europa.eu/ws\\_prod/r/doc/CRD%2015-2006.pdf](http://www.easa.europa.eu/ws_prod/r/doc/CRD%2015-2006.pdf)

## 2. Regulatory Impact Assessment

### 2.1 Approach to impact assessment

#### *2.1.1 Qualitative and quantitative assessment*

A RIA is an evaluation of the pros and cons of an envisaged set of rules or modifications to legislation, taking into account various possible options to reach the expected community goal (i.e. more effective and efficient safety regulation of air operations). The impact of said rules on all categories of affected organisations should be quantified as much as feasible.

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<sup>21</sup>.

These impacts shall be analysed from different “perspectives” (also called “Key Performance Areas” = KPAs). Therefore, this RIA affecting the aviation sector and in particular air operations, considers in particular the following KPAs for impact assessment:

- safety;
- environment;
- economy;
- social;
- and regulatory harmonisation, at EU and global level, which in the case of air operations means compatibility with existing EU rules (i.e. already mentioned “EU OPS” and former JAR-OPS), ICAO SARPS (e.g. Annex 6) and with the regulatory regime of the most important international partners (e.g. Federal Aviation Administration – FAA - of the USA).

More in particular the impacts in the KPAs listed above have been assessed qualitatively or quantitatively as order of magnitude in terms of K€ for economic impact and in terms of Full Time Equivalents (1 FTE = 1 man/year of work) for social aspects. A summary of the qualitative or quantitative assessments is presented in Table 1:

Assessment	I M P A C T					
	Safety		Economy	Environment	Social	Regulatory harmonisation
	Past	Future impact				
Quantitative	X	X	X		X	
Qualitative		X	X	X	X	X

**Table 1: Qualitative and quantitative impact assessment**

Each of those five KPAs for impact assessment will be reviewed in detail for the most relevant identified issues, from § 2.6 onwards in this document.

<sup>21</sup> [http://ec.europa.eu/governance/impact/docs/key\\_docs/sec\\_2005\\_0791\\_en.pdf](http://ec.europa.eu/governance/impact/docs/key_docs/sec_2005_0791_en.pdf)

### 2.1.2 Economic flows

Any new aviation safety rule may imply expenditure, income or other economic effects for a number of entities, and typically:

- the regulated persons in this case the involved air operators (including their cabin crews);
- the direct employment generated by the former (if any);
- the competent authorities;
- the Agency (and European Commission for comitology);
- all the citizens in the society at large;
- the tax payers.

It has to be noted that from the air operator perspective there could be additional costs created by the safety requirements in the form of internal regulatory adjustment costs and direct charges to the authorities. More or less labour may be required inside the organisation, thus leading to higher or reduced internal costs. An increased level of safety or environmental protection of air operations represents a "safety dividend" to society as a result of avoided aviation accidents or emissions. This will be relevant for all citizens/tax payers. Finally, some activities of EASA (e.g. safety analysis, rulemaking and standardisation) are paid by tax payers through the Community budget.

The above description on economic flows is not exhaustive but is merely intended to highlight the need for a thorough economic assessment in order to compare the various options.

### 2.1.3 Assessment methodology

The applied methodology for the impact assessment is structured in eight steps:

- Identification of the problem (as in 1.3.2 above);
- Identification of the relevant Key Performance Areas (as in 2.1.1 above);
- Problem analysis described in paragraph 2.3 below, which identifies a number of issues requiring a solution;
- Definition of objectives (general, specific and operational) and indicators as presented in paragraph 2.4;
- Identification of alternative options for the main issues identified in paragraph 2.5;
- Identification and estimation of the size of the target group for each issue;
- Identification and assessment of impacts of each possible option for all five KPAs in order to determine the most significant ones, versus the applicable specific objectives;
- Conclusive Multi-Criteria Analysis (MCA) for each issue.

In particular the specific objectives and the MCA methodology are the tools to compare the identified options. The indicators linked to the operational objectives can be used to monitor the progress of the initiative.

After all impacts for each main issue and each related policy option have been identified in relation to specific objectives, the results are presented in summary in an impact matrix in the conclusive sub-paragraphs from 2.6.8 to 2.11.8. The procedure to develop such a matrix is the Multi-Criteria Analysis (MCA), carried out through the following detailed steps:

- Identification of specific objectives applicable in general to the solution of all issues;
- 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);
- Expressing how well each option meets the criteria, whether measured quantitatively or assessed qualitatively, expressing the impact in a non-dimensional manner ("scoring"):
  - -3 for high negative impact,
  - -2 for medium negative,
  - -1 for low negative impact,
  - 0 for no impact
  - +1 for low positive impact
  - +2 for medium positive impacts
  - +3 for high positive impact
- Assigning "weights" to each impact item to reflect its relative importance, according to the "weights" established in paragraph 2.4.2 below;
- Finally, compare the options by combining their respective weighted scores.

## **2.2 Organisation of the process**

### *2.2.1 Task OPS.001*

Following the legislative proposal by the Commission to extend the competencies to air operations, the Agency has published Terms of Reference for task OPS.001<sup>22</sup>. The objective<sup>23</sup> was to develop rules for the implementation of the extended Basic Regulation as regards air operations. These implementing rules should encompass requirements and related acceptable means of compliance/guidance material for:

- commercial air transport, based on existing EU-OPS/JAR-OPS 1 and 3 requirements;
- commercial operations other than commercial air transport using as appropriate the draft of JAR-OPS 0 and 4;
- non-commercial operations with complex-motor-powered aircraft using as appropriate the draft of JAR-OPS 0 and 2;
- non-commercial operations with other than complex motor-powered aircraft, for which use had to be made of the input from task MDM.032<sup>24</sup>;
- Flight Time Limitations and Rest Requirements;
- training and medical fitness of cabin crew, initially based on JAR-OPS 1/EU-OPS;
- rules for competent authorities based on the appropriate JAA Joint Implementation Procedures (JIPs) and harmonised with similar provisions included in other implementing rules.

For the latter a specific RIA has been published with NPA 2008-22.

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<sup>22</sup> [http://www.easa.europa.eu/ws\\_prod/r/doc/final%20ToR%20OPS.001%20\(20.07.06\).pdf](http://www.easa.europa.eu/ws_prod/r/doc/final%20ToR%20OPS.001%20(20.07.06).pdf)

<sup>23</sup> See [http://www.easa.europa.eu/ws\\_prod/r/doc/final%20ToR%20OPS.001%20\(20.07.06\).pdf](http://www.easa.europa.eu/ws_prod/r/doc/final%20ToR%20OPS.001%20(20.07.06).pdf)

<sup>24</sup> MDM.032 had to provide elements for the NPA for general operational rules to the OPS.001 group for the operation of other than complex motor-powered aircraft used in non-commercial operations [http://www.easa.europa.eu/ws\\_prod/r/doc/TORs1/EASA\\_ToR\\_MDM\\_032.pdf](http://www.easa.europa.eu/ws_prod/r/doc/TORs1/EASA_ToR_MDM_032.pdf)

For all the other topics listed above, in the scope of the present RIA, the task OPS.001 has been carried out through a group of external experts<sup>25</sup> and through subgroups, respectively for commercial air transport, commercial operations other than commercial air transport and non-commercial operations with complex motor-powered aircraft. Many experts from relevant stakeholder organisations have been involved in the group or subgroups, which already constitutes an element of the stakeholder consultation.

No preliminary RIA was developed as it had been assumed that the legislator has left no choice than developing the necessary rules for implementing the extended Basic Regulation. It was therefore considered necessary only to carefully evaluate the impact of the regulatory solutions envisaged at the level of IRs/AMCs when they were not based on accepted JAA material.

### 2.2.2 Consultation of stakeholders

A structured and iterative consultation of the stakeholders (in addition to mails and informal exchanges) has been planned and substantially already carried out via the mechanisms summarised in Table 2 below:

N.	Responsible	Consultation period	Target Group	Mechanism	Results
1	EASA	2005	Advisory Group of National Authorities (AGNA)	Consultation on EASA annual rulemaking plan	Task OPS.001
2	EASA	2005	Safety Standards Consultative Committee (SSCC)		Task OPS.001
3	EASA	1 <sup>st</sup> half 2006	AGNA	Consultation on ToRs for Task OPS.001	ToRs adopted 20 Jul 2006
4	EASA	1 <sup>st</sup> half 2006	SSCC		ToRs adopted 20 Jul 2006
5	EASA	End of 2006	Public consultation	A-NPA 14/2006	8054 comments received by stakeholders. Taken into account for the CRD
6	EC	From 01 February 2007	Public consultation	Discussion paper on general aviation <sup>26</sup>	74 contribution received
7	EASA	End of 2007	Public consultation	CRD 14/2006	9 reactions received by 9 stakeholders
8	EASA	28/29 April 2008	All stakeholders	Public Workshop on the first extension of EASA	Around 200 participants
9	EASA	2008	AGNA & SSCC	Consultation on NPA schedule	Updated schedule
10	EASA	05/06 November	All stakeholders	Public Workshop on	Around 280 participants

<sup>25</sup> [http://www.easa.europa.eu/ws\\_prod/r/doc/GC%20iss.2.pdf](http://www.easa.europa.eu/ws_prod/r/doc/GC%20iss.2.pdf)

<sup>26</sup> [http://ec.europa.eu/transport/air\\_portal/internal\\_market/general\\_aviation/consultation\\_en.htm](http://ec.europa.eu/transport/air_portal/internal_market/general_aviation/consultation_en.htm).

		2008		the draft OPS rules	
11	EASA	Starting 30 January 2009	Public consultation	NPA 2009/02 published 30 January 2009	Comment period until 30 May 2009
12	EASA	10-11 March 2009	All stakeholders	Public Conference on the draft OPS rules	to be determined
13	EASA	Planned	Public consultation	CRD	Stakeholders' reactions possible until 60 days after publication of the CRD; to be taken into account for the Opinion
14	EASA	2006-2009	All stakeholders	Presentations at various venues, such as EBACE, AIRMED, EHOCC conference, ILA, etc.	General feedback

**Table 2: Consultation of stakeholders**

The Agency, as mandated by its rulemaking procedure, has initially consulted twice AGNA and SSCC on the inclusion of task OPS.001 into the rulemaking programme and then on the detailed ToRs for its progress. Since 2006, the Agency has also spared no effort for liaising not only with the competent authorities but with key stakeholders involved in any type of air operations. These stakeholders included commercial air transport (CAT) operators, pilots, cabin crews, the business and corporate aviation community, helicopter operators and a number of NAAs. This effort has contributed to the development of NPA 2009/02.

All comments received to the NPA will be analysed, and the result presented in a Comment Response Document (CRD). The stakeholders will have two months to react to the CRD according to the EASA Rulemaking Procedure. Such reactions will be analysed in preparation of the Opinion on the implementing rules for air operations.

In conclusion, and obviously within the limits of the available resources, all stakeholders already had (and will still have more in preparation of the Opinion) multiple opportunities for interacting with the Agency.

## **2.3 Problem analysis**

### *2.3.1 Issues to be addressed*

For each of the issues listed below a full Regulatory Impact Assessment follows in paragraphs 2.6 to 2.10.

1. Commercial Air Transport
2. Commercial Operations other than Commercial Air Transport ("aerial work")
3. Non-commercial operations with complex motor-powered aircraft
4. Non-commercial operations with other than complex motor-powered aircraft
5. Competence of cabin crew including medical fitness

The following section gives an overview of the current safety situation in air operations.

### 2.3.2 OPS Safety level in Europe

#### 2.3.2.1 Source of safety information

According to Article 15(4) of the Basic Regulation, the Agency publishes every year an "Annual Safety Review" report. To do so, the Agency has created a data base with information stemming from various sources such as:

- the ICAO Accident/Incident Data Reporting system (ADREP) in particular with reference to commercial air transport by large aeroplanes;
- the European Civil Aviation Conference (ECAC) and the EASA Member States with reference to smaller airframes; and
- any other possible and credible data source (e.g. "independent accident/incident investigators") when available.

For the purpose of the present RIA, the Safety Analysis and Research Department of the Agency has made available preliminary data which has then contributed to the "Annual Safety Review 2007" (published in October 2008) and, in addition, produced a specific internal document IPR 01/2008 on 04 July 2008, containing information about accidents, in the period 1998-2007, in the EASA Member States and in the USA, for the following groups:

- commercial air transport by large aeroplanes (i.e. MTOM > 5700 kg and certified under CS-25 or equivalent);
- complex motor-powered aircraft<sup>27</sup> with MTOM less than 5700 kg;
- other than complex motor-powered aircraft.

Furthermore, information originating from the Agency's "Annual Safety Review" 2006, from the UK CAA CAP 776 "Global Fatal Accident Review 1997–2006"<sup>28</sup> and from IBAC<sup>29</sup> has been used in the following subparagraphs, when appropriate.

#### 2.3.2.2 Commercial air transport by large aeroplanes

The internal document mentioned above contained a comparison of safety data in the EU 27 + 4 Member States versus the USA. This is considered appropriate for the present safety review since:

- aircraft types, volumes and complexity of operations for CAT are comparable in the mentioned geographical areas;
- in the USA for historical, geographical, cultural, fiscal and regulatory reasons, there is a much greater volume of general aviation activity: therefore any assessment of the causal factors will be based on a larger base of data, if considering also the USA;
- the technical features of general aviation are anyway similar in the two considered areas.

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<sup>27</sup> As defined by Article 3(j) of Basic Regulation.

<sup>28</sup> <http://www.caa.co.uk/docs/33/CAP776.pdf> , focusing on commercial air transport by large aeroplanes (i.e. MTOM > 5700 Kg).

<sup>29</sup> Business Aviation safety Brief – Summary of global accident statistics 2003-2007, issue N.7, dated 15 September 2008, by International Business Aviation Council (IBAC):

<http://www.ibac.org/Library/EF2/Safety/Business%20Aviation%20Safety%20Brief%20-%20Issue%207.pdf>

The yearly number of accidents occurred to aircraft registered in the US or Europe, from 1998 to 2007, during commercial air transport operations by large aeroplanes (i.e. MTOM greater than 5700 kg), is presented in Table 3 below:

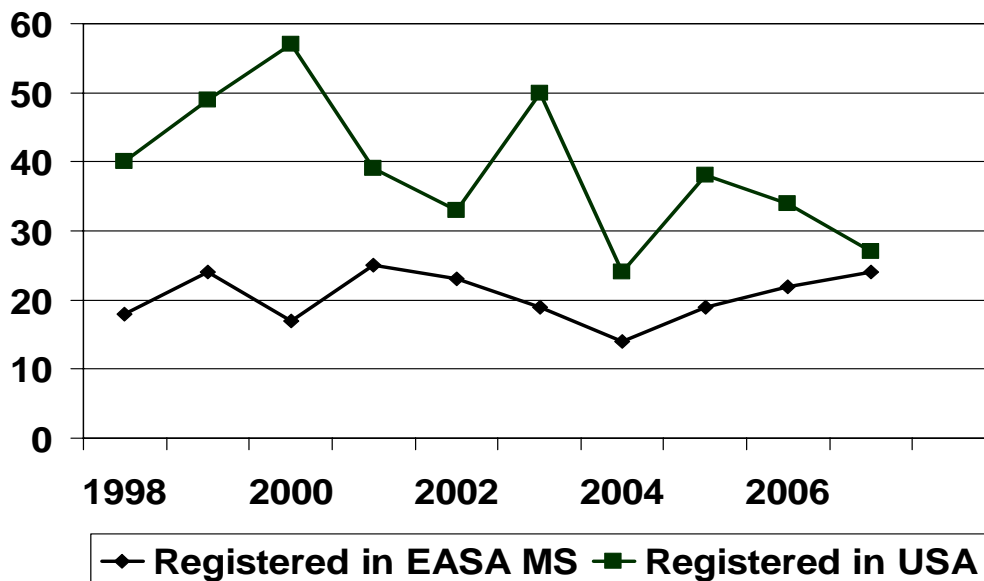
EASA MS		USA	
Year	No	Year	No
1998	18	1998	40
1999	24	1999	49
2000	17	2000	57
2001	25	2001	39
2002	23	2002	33
2003	19	2003	50
2004	14	2004	24
2005	19	2005	38
2006	22	2006	34
2007	24	2007	27
<b>TOTAL</b>	<b>205</b>	<b>TOTAL</b>	<b>391</b>
<b>AVERAG E</b>	<b>20.5/year</b>	<b>AVERAGE</b>	<b>39.1/yea r</b>

**Table 3: Number of accidents/year for commercial air transport by large aeroplanes**

It has to be noted that the large majority of these “larger” aircraft are used for Commercial Air Transport (CAT) operations. Thus in the present RIA the safety analysis for large aeroplanes is assumed to reflect the safety situation for CAT.

The above data can also be presented in graphical form as in Figure 1 below:

Accidents (No/year) to aircraft used for commercial air transport (certified under CS-25; MTOM > 5.7 ton)



**Figure 1: Number of accidents/year for commercial air transport by large aeroplanes**

From Figure 1 it can be observed that in the US along the considered decade, there has been a visible reduction in the absolute number of accidents. On the contrary, in the EU 27 + 4 the same number remained constant: around 20.5 accidents per year. It is true that according to EUROCONTROL data the number of IFR flights over Europe increased from about 7 million/year in 1998 to about 10 million in 2008 and therefore the average rate decreased from 2.93 (i.e. 20.5/7) accidents per million IFR flights in 1998 to 2.05 in 2007. However, the above trend shows that there is still room for improvement of air safety in Europe.

This is even more necessary in consideration of the expected further traffic increase (= no reduction of the rate, in presence of more traffic, will lead to more accidents).

As regards large aeroplanes (above 5.7t MTOM), the UK CAA document CAP776 reports 2511 fatalities in 83 fatal accidents for the regions Europe, North America and Oceania during the period 1997-2006.<sup>30</sup> For the EU there are 20 fatal accidents reported over a 10 year period.

It is therefore assumed that

- On average there are 30 victims per fatal accident for large aeroplanes (2511 fatalities / 83 fatal accidents);
- On average there are 2 fatal accidents of large aeroplanes in EASA Member States per year, i.e. roughly 10% of the total accidents are fatal;
- On average there are 60 fatalities in EASA Member States per year related to large aeroplanes.

This changes for commercial air transport by aeroplanes with a MTOM > 2.25t. The accident data for EASA Member States is summarised in Table 4 below, as reported in the Agency's Annual Safety Review 2007:

Period		Number of accidents		Ratio Total/fatal accidents	Fatalities			Ratio fatalities/fatal accident
		Total	Fatal		On board	Ground	Total	
1996 - 2005	Av.	31	6	5.2	79	1	80	13
	Tot.	310	60	5.2	790	10	800	13
2006		39	6	6.5	146	0	146	24
2007		34	3	11.3	25	1	26	9
<b>Total 10 years (1998 to 2007)</b>		<b>321</b>	<b>57</b>	<b>5.6</b>	<b>803</b>	<b>9</b>	<b>812</b>	<b>14</b>

**Table 4: Overview of accidents for commercial air transport by aeroplanes in EASA Member States (MTOM above 2.25t)**

It is therefore assumed that:

- There are on average 32 accidents per year involving fixed-wing aircraft with a MTOM above 2.25t in the EASA Member States;
- One accident out of about 5.6 accidents is fatal for aeroplanes;
- On average there are 14 victims/fatal accident for aeroplanes.

<sup>30</sup> UK CAA (2008): Global Fatal Accident Review 1997-2006, page 18.

In order to derive how many of the total accidents are related to air operations, the following table 5 shows the most frequent accident categories in EASA Member States between 1998 and 2007 for commercial air transport by large aeroplanes (MTOM above 5.7t). Note that more than one "accident category" (as defined by the ICAO taxonomy) can be assigned to a single accident, so the total in the following table is higher than the actual number of accidents presented above for large aeroplanes in the period 1998-2007 (i.e. 205).

<b>EASA Member States</b>			
<b>Category</b>		<b>OPS related</b>	<b>No accidents</b>
<b>ARC</b>	<b>Abnormal runway contact</b>	<b>Yes</b>	<b>58</b>
SCF-NP	System Component Failure [non-power plant]	No	48
<b>RE</b>	<b>Runway excursion</b>	<b>Yes</b>	<b>31</b>
RAMP	Ground Handling	No	28
<b>GCOL</b>	<b>Ground Collision</b>	<b>Yes</b>	<b>20</b>
TURB	Turbulence encounter	No	17
ADRM	Aerodrome	No	12
<b>LOC-G</b>	<b>Loss of control – ground</b>	<b>Yes</b>	<b>11</b>
WSTRW	Windshear or thunderstorm	No	10
SCF-PP	Power plant	No	9
<b>LOC-I</b>	<b>Loss of control – in flight</b>	<b>Yes</b>	<b>9</b>
F-POST	Fire/smoke (post-impact)	No	8
UNK	Unknown or undetermined	No	7
ATM	ATM/CNS	No	6
<b>USOS</b>	<b>Undershoot/overshoot</b>	<b>Yes</b>	<b>5</b>
F-NI	Fire/smoke (non-impact)	No	5
OTHR	Other	No	5
<b>EVAC</b>	<b>Evacuation</b>	<b>Yes</b>	<b>5</b>
<b>CFIT</b>	<b>Controlled flight into terrain</b>	<b>Yes</b>	<b>4</b>
<b>RI-VAP</b>	<b>Runway incursion</b>	<b>Yes</b>	<b>3</b>
SEC	Security related	No	3
<b>GROSS TOTAL</b>			<b>304</b>
<b>Sum OPS Related</b>			<b>146</b>
<b>% OPS</b>			<b>48%</b>

**Table 5: Most frequent accidents categories for commercial air transport by large aeroplanes in EASA Member States**

Among all the categories listed above and based on the findings stemming from investigations on past accidents, causal factors linked to air operations have been identified for at least the following categories:

- ARC: Abnormal runway contact;
- RE: Runway excursion;
- GCOL: Ground Collision;
- LOC-G: Loss of control ground
- LOC-I: Loss of control in-flight
- USOS: Undershoot/overshoot
- EVAC: Evacuation
- CFIT: Controlled flight into terrain
- RI-VAP: Runway incursion

Based on this approach, it is indicated that 48% of all accidents in EASA Member states can be related to air operations. This is not exclusive as other factors may also play a role.

In order to validate these results, the same approach was applied to data from the UK CAA CAP 776 report. The report also identifies "top individual primary causal factors"<sup>31</sup>, for fatal accidents with aircraft with a MTOM > 5,700 kg, world-wide, in the period 1997 to 2006. These primary causal factors are summarised in Table 6 below:

Rank	Primary causal factor	No. of fatal accidents	% of fatal accidents	Possibly linked to OPS factors		
1	Omission of action or inappropriate action	63	22%	Y	63	22%
2	Lack of positional awareness – in air	40	14%	Y	40	22%
3	Flight handling	39	14%			
4	Poor professional judgement/ airmanship	16	6%	Y	16	6%
5	Maintenance or repair errors/ inadequacy of oversight	12	4%			
6	Windshear/Turbulence/Gusts	6	2%			
7	Loading error/ ground handling	5	2%	Y	5	2%
8	Other	105	37%			
<b>TOTAL</b>		<b>286</b>	<b>100%</b>		<b>124</b>	<b>43%</b>

**Table 6: Primary Causal Factors**

Out of the most important categories, all except for flight handling (3) and windshear (6) are considered to be related to air operations. This approach returns a similar result to above: 43% of all accidents can somehow be linked to air operations issues.

Taken the above indication, it is therefore assumed that about 45% of the accidents are to some extent related to air operations issues.

Thus, regarding large aeroplanes, of the 20.5 accidents/year in the EASA Members States in the period 1998-2007, about 45% are estimated to be linked to air operations causes: i.e. 9.2 accidents/year. 10% of these are assumed to be fatal, i.e. 0.9 accidents/year. The latter leads to around 27 victims per year (30 victims per fatal accident x 0.9 fatal accidents related to OPS), following accidents linked to air operation factors.

As regards aeroplanes with a MTOM above 2.25t used in commercial air operations, 14.4 accidents per year are assumed to be related to air operations (45% of 32 annual accidents). Of these 14.4 accidents, 2.6 are assumed to be fatal (14.4/5.6). This leads to about 36 victims per year in accidents (14 victims per fatal accident x 2.6 fatal accidents) related to air operations with aeroplanes above 2.25t MTOM.

### 2.3.2.3 Cabin crew contribution to safety

Very few, if any, data exist to assess the cabin crew contribution to flight and passenger safety during normal flight operations (e.g. pre-flight cabin safety checks, passenger management, information to flight crew in case of any observed hazard).

<sup>31</sup> Table 4 on page 4 of Chapter 3 therein.



Cabin crews are also trained to quickly execute emergency tasks, such as fire-fighting and evacuation, in order to mitigate the severity of survivable accidents, as in the following two cases:

- At Toronto (Canada) international airport on 2 August 2005, when the Airbus A 340 F-GLZQ operated by Air France, overran the runway under a severe thunderstorm<sup>32</sup>. The aircraft caught fire immediately after stopping and was destroyed, also because the downpour diluted the fire-fighting foam agent and reduced its efficiency in dousing the fuel-fed fire. Nevertheless, 297 passengers had been safely evacuated, with no significant injuries, under the supervision of cabin crew, before the fire and smoke had invaded the cabin.
- At Heathrow airport (UK) on 17 January 2008, when the Boeing 777 G-YMMM, operated by British Airways, landed about 300 metres short of the paved surface<sup>33</sup>. The aircraft was not repairable after the accident and hence written off, while 136 passengers had been evacuated, under supervision of cabin crew and suffering only minor injuries.

An analysis of the top-five “consequences” of fatal accidents occurred in Europe (commercial air transport by aeroplanes above 5,700 Kg MTOM in the period 1997-2006) is contained in the already mentioned CAP 776<sup>34</sup> and summarised in Table 7 below. The severity of these accidents can be mitigated by cabin crews (e.g. emergency evacuation difficulties; emergency evacuation after runway excursion) or by cabin crews and Rescue and Fire Fighting Services (RFFS) in case of post crash fire:

Rank	Consequence	No. of fatal accidents	% of fatal accidents	Possibly mitigated by cabin crews or RFFS	
				Y	%
1	Loss of control in flight	30	43		
2	Post crash fire	28	40	Y	40%
3	Controlled Flight Into Terrain (CFIT)	16	23		
4	Runway excursion	8	11	Y	11%
5	Ground collision with object/obstacle	7	10		
	Emergency evacuation difficulties	7	10	Y	10%
<b>TOTAL</b>		<b>96</b>			

**Table 7: Top-five consequences of fatal accidents in Europe**

Considering the percentages (i.e. 40%, 11% and 10%) in the right most column of Table 7 above and the fact that in case of post-crash fire also the contribution by RFFS is relevant, for the purpose of this RIA it is assumed that cabin crews can contribute to mitigate the consequences of around 15% of the accidents occurring to large aeroplanes: i.e. 15% of around 20 accidents/year in the EASA Member States as estimated above = 3 accidents/year whose consequences can be mitigated by cabin crews. Assuming a potential of 30 victims/accident, it can be estimated that cabin crews can save, in the EASA Member States, around 90 lives/year.

Since the above analysis which is further used for this RIA has been developed on the number of fatal accidents only, it should be noted that the resulting estimation of the contribution of cabin crew to safety is partial and therefore assumed to be pessimistic. Data on fatal accidents

<sup>32</sup> <http://aviation-safety.net/database/record.php?id=20050802-0>

<sup>33</sup> <http://aviation-safety.net/database/record.php?id=20080117-0>

<sup>34</sup> Table 4 on page 7 of Chapter 6 therein.

excludes the survivable accidents that did not have any fatality and during which cabin crew could perform their duties and assist passengers.

The European Transport Safety Council (ETSC)<sup>35</sup> reports that 90% of aircraft accidents can be categorised as survivable. Table 3 under paragraph 2.3.2.2. indicates that 205 accidents with large aeroplanes occurred in the EASA Member States in 10 years between 1998 and 2007. It can therefore be assumed that cabin crew were in capacity to perform their emergency tasks and mitigate the consequences of at least 185 of the 205 accidents reported in Table 3, thus contributing to save more lives.

The ETSC also highlights in the above mentioned report that *'For this reason not only the issues concerned with the prevention of the occurrence of accidents, but also issues related to improving the survival rate in the event of an accident will have major importance in the years to come'*.

<sup>1</sup> *'Increasing the survivable rate in aircraft accidents'* December 1996  
<http://www.etsc.eu/oldsite/survival.pdf>

<sup>1</sup> *'Survivability of Accidents involving Part 121 U.S. Air Carrier Operations 1983-2000'* Safety report March 2001 <http://www.nts.gov/Publictn/2001/SR0101.pdf> and *'Emergency evacuations of Commercial Airplanes'* June 2000  
<http://www.nts.gov/publictn/2000/SS0001.pdf>

<sup>1</sup> CAA Paper 2006/01 *'The Aircraft Accident Statistics and Knowledge Database (AASK)'*  
[http://www.caa.co.uk/docs/33/2006\\_01.pdf](http://www.caa.co.uk/docs/33/2006_01.pdf)

#### 2.3.2.4 Commercial air transport by helicopters

The data collected by the Agency for accidents occurred to helicopters registered in the EASA Member States, with a MTOM greater than 2250 kg, during commercial air transport operations, are summarised in Table 8 below:

Period		Number of accidents		Ratio Total/fatal accidents	Fatalities			Ratio fatalities/fatal accident
		Total	Fatal		On board	Ground	Total	
1996 - 2005	Av.	7.6	2.9	2.6	11	0	11	3.7
	Tot.	70	30	2.3	110	0	110	3.7
2006		15	4	3.7	13	0	13	3.2
2007		7	1	7	7	0	7	7
<b>TOTAL</b>		<b>92</b>	<b>35</b>	<b>2.6</b>	<b>130</b>	<b>0</b>	<b>130</b>	<b>3.7</b>

**Table 8: Helicopter accidents in EASA Member States**

From the data presented above, the following can then be estimated for helicopters used for commercial air transport:

- Average number of accidents in the EASA Member States: 7.6/year
- Average number of fatal accidents in the EASA Member States: 2.9/year
- Ratio total accidents/fatal accidents: 2.6

<sup>35</sup> *'Increasing the survivable rate in aircraft accidents'* December 1996  
<http://www.etsc.eu/oldsite/survival.pdf>.

- Average number of victims per helicopter fatal accident: 3.7

Assuming again that 45% of the above accidents are related to air operation factors, the latter can possibly lead to:

- 3.4 (i.e. 45% of 7.6) helicopter accidents per year, linked to air operation factors;
- 1.3 (i.e. 45% of 2.9) fatal helicopter accidents per year, linked to air operation factors;
- 4.8 (i.e. 1.3 x 3.7) victims/year following fatal helicopter accidents, linked to air operation factors.

#### 2.3.2.5 Safety of business aviation

According to ICAO Annex 6, "Commercial Air Transport (CAT) operation" is an aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire. It should be noted that the term "business aviation" is neither defined in Annex 6, nor included in the ICAO vocabulary (Doc 9569). Nevertheless, this expression is widely used in the aviation community world wide. Business aviation, one of the components of general aviation, consists of companies and individuals using aircraft as tools in the conduct of their business.

Business aviation is used by a whole range of persons, from individuals who often fly rented, single-engine, piston-powered aircraft, to sales or management teams in large corporations, many of which own fleets of multi-engine, turbine-powered aircraft and employ their own flight crews, maintenance technicians and other aviation support personnel.

The International Business Aviation Council (IBAC) adopted a **definition of business aviation** in 1998:

*"That sector of aviation which concerns the operation or use of aircraft by companies for the carriage of passengers or goods as an aid to the conduct of their business, flown for purposes generally considered not for public hire and piloted by individuals having, at the minimum, a valid commercial pilot license with an instrument rating."*

Business Aviation is divided into three categories which are subject to different sets of rules according to the Basic Regulation:

#### 1. Business Aviation – Commercial ("Air Taxi")

The commercial operation or use of aircraft by companies for the carriage of passenger or goods as an aid to the conduct of their business and the availability of the aircraft for whole aircraft charter, flown by a professional pilot(s) employed to fly the aircraft. As regards European legislation, this sector of aviation is part of Commercial Air Transport.

#### 2. Business Aviation - Corporate

The non-commercial operation or use of aircraft by a company for the carriage of passengers or goods as an aid to the conduct of company business, flown by a professional pilot(s) employed to fly the aircraft. As regards European legislation, this activity is considered non-commercial air operations (largely) with complex motor-powered aircraft.

#### 3. Business Aviation – Owner-operated

The non-commercial operation or use of aircraft by an individual for the carriage of passengers or goods as an aid to the conduct of his/her business. As regards European legislation, this activity is considered non-commercial air operations (largely) with complex motor-powered aircraft.

An estimation of the accident rate (based on statistics from 5 years) for this type of operations is published on page 16 of the IBAC "Brief" mentioned in paragraph 2.3.1.1. These data are reproduced in Table 9 below:

Accidents rates per 100,000 departures						
Operator type	Departures		Total		Rate (per 100,000 flight hours)	
	total 5 years	% of total	Accidents	Fatal acc.	Accidents	Fatal acc.
Air Taxi	15,112,412	30.4%	314	91	2.08	0.6
Corporate	27,490,667	55.3%	40	9	0.15	0.03
Owner operated	7,108,798	14.3%	121	37	1.7	0.52
All "Business Aviation"	49,711,877	100%	540	158	1.09	0.32

**Table 9: Business aircraft accident rates by operator type**

In the context of the present RIA, the majority of aircraft flown by "business aviation" defined as above by IBAC, are considered complex motor-powered aircraft.

According to the EUROCONTROL report on "Business Aviation in Europe in 2007"<sup>36</sup>, about 764,000 IFR flights have been carried out in Europe in 2007 by business aviation. Assuming 800,000 flights/year and using the data in table 9 above, the following figures are estimated:

Item	Air taxi	Corporate	Owner operated
Total number of business aviation flight/year over EU	800,000		
%	30.4%	55.3%	14.3%
Number of flights/year	243,200	442,400	114,400
Accident rate (per 100,000 hours)	2.08	0.15	1.7
Average number of accidents/year	5	0.7	1.9
Ratio total accidents over fatal ones	5.5	5.5	5.5
Average number of fatal accidents/year (total/5.5)	0.9	0.1	0.3
Victims/fatal accident	7	7	3*
Percent of accidents linked to OPS factors	45%	45%	10%
Average number of accidents/year linked to OPS factors	2.25	0.3	0.2
Average number of fatal accidents/year linked to OPS factors	0.4	0.045	0.04
Average number of victims/year linked to OPS factors	2.8	0.3	0.1

\*a smaller aircraft size is assumed for this type of operation

**Table 10: Estimations for business aviation**

#### 2.3.2.6 Non-complex motorized general aviation

Beyond business aviation (typically operating complex motor-powered aircraft like business jets and turbo-props with two engines), general aviation involves non-commercial operations of aircraft other than those defined in Article 3(j) of the Basic Regulation (e.g. a single engine propeller aeroplane, flown by one pilot, with no more than 19 passenger seats and with MTOM of less than 5,700 kg).

According to A-NPA 14/2006 there were no consolidated European wide statistics covering a sufficient number of years, as there were no common ICAO standards for collecting and

<sup>36</sup> [http://www.eurocontrol.int/statfor/gallery/content/public/analysis/TAT4\\_290408\\_2.pdf](http://www.eurocontrol.int/statfor/gallery/content/public/analysis/TAT4_290408_2.pdf)

sharing data for this segment of aviation. Available studies originating from Member States and other countries at the time had however shown that the design related failure rate had been very low in all accidents. Human performance (in particular pilot decision making) and weather were the most common contributing factors.

Since then the Agency has collected and systematically published the available data in the "Annual Safety Review". The data for general aviation operations (i.e. non-commercial) by motor-powered aircraft with a MTOM of more than 2,250 kg covers 12 years (i.e. 1996 to 2007).

Furthermore, the Agency has published data for lighter aircraft, but so far only for the years 2006 and 2007. This data encompasses also aircraft beyond the scope of EASA's rules (e.g. micro light excluded by the Annex II of the Basic Regulation). In the absence of a wider set of consolidated data, this data will however be used, as summarised in Table 11 below for the aircraft categories relevant in the present RIA:

Period	Number of accidents		Ratio Total/fatal accidents	Fatalities			Ratio fatalities/fatal accident	
	Total	Fatal		On board	Ground	Total		
<b>General aviation aeroplanes registered in EASA MS with MTOM &gt; 2,250 kg</b>								
1996 - 2005	Av.	15	5	17	0.5	18		
	Tot.	150	50	170	5	175		
2006		19	7	16	0	16		
2007		13	4	5	0	5		
Part. TOTAL		182	61	2.9	191	5	196	3.2
<b>Average per year</b>		<b>15.2</b>	<b>5.1</b>	<b>2.9</b>	<b>16</b>	<b>0.4</b>	<b>16.3</b>	<b>3.2</b>
<b>General aviation helicopters registered in EASA MS with MTOM &gt; 2,250 kg</b>								
1996 - 2005	Av.	4	1	2	0	2		
	Tot.	40	10	20	0	20		
2006		8	2	7	0			
2007		4	3	10	0			
Part. TOTAL		52	15	3.5	37	0	37	2.5
<b>Average per year</b>		<b>4.3</b>	<b>1.2</b>	<b>3.5</b>	<b>3.1</b>	<b>0</b>	<b>3.1</b>	<b>2.5</b>
TOTAL aircraft > 2,250 Kg		234	76	3.1	228	5	233	3.1
Average per year aircraft > 2,250 Kg		19.5	6.3	3.1	19	0.4	19.4	3.1
<b>General aviation aircraft registered in EASA MS with MTOM below 2,250 kg (Average between 2006 and 2007 data)</b>								
Aeroplanes		530	67		116	1		
Helicopter		85	9.5		18.5	2		
Gyroplane		5	2		2.5	0		
Motor-glider		54	11		17	0		
<b>Part. Total Average per year &lt; 2,250</b>		<b>674</b>	<b>90</b>	<b>7.5</b>	<b>154</b>	<b>3</b>	<b>157</b>	<b>1.7</b>
<b>Grand Total</b>		<b>693</b>	<b>96</b>	<b>7.7</b>	<b>173</b>	<b>3</b>	<b>176</b>	<b>1.8</b>

Average per year							
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**Table 11: Summary of accidents in EASA Member States for other than complex motor-powered aircraft within the scope of the Basic Regulation**

The data presented above is not exhaustive and may not be 100% correct, as well as it covers for the lightest aircraft only two years. The Agency will progressively strive to collect more systematically safety data in the coming years and publish it (e.g. distinguishing between aircraft in the scope of the Basic Regulation and those excluded from it in Annex II).

However, for the time being, the following estimations can be derived from the table above for "non-complex" aircraft registered in EASA Member States and used for non commercial operations:

- Average number of accidents with motor-powered aircraft other than those defined as complex in EASA Member States: 693/year
- Average number of fatal accidents in the EASA Member States, for said aircraft: 96/year
- Ratio total accidents/fatal accidents: 7.7
- Average number of victims per fatal accident: 1.8.

Among the top accident categories for aircraft with a MTOM of more than 2,250 Kg, the Agency highlighted<sup>37</sup> some which could relate to operational factors, such as loss of control in flight (LOC-I), low altitude operations (LALT), controlled flight into terrain (CFIT) to whom flight preparation and navigation could contribute.

These three categories accounted for 9 analysed fatal accidents out of 50 = 18%. However the data is not totally reliable. Furthermore, in many cases the same natural person in this segment of aviation is the pilot, the owner and the operator, and hence it is very difficult to distinguish between related causes.

In this RIA it is assumed that air operations causes are relevant only in 10% of the accidents occurred to non-complex motorized aircraft.

#### 2.3.2.7 Sailplanes and balloons

The available data has been published in the Agency's "Annual Safety Review" for 2006 and 2007. It is summarised in table 12 below:

Type of aircraft	Year	Number of accidents		Ratio Total/fatal accidents	Fatalities	Ratio fatalities/fatal accident
		Total	Fatal		Total	
Sailplanes	2006	195	22		24	
	2007	173	17		20	
Total sailplanes		368	39			
<b>Average per year</b>		<b>184</b>	<b>19.5</b>	<b>9.4</b>	<b>44</b>	<b>2.2</b>
Balloons	2006	29	0		0	
	2007	15	0		0	
Total balloons		34	0		0	
<b>Average per year</b>		<b>17</b>	<b>0</b>		<b>0</b>	<b>N.A.</b>

<sup>37</sup>Figure 16 in paragraph 4.1 in "Annual Safety Review 2007".

**Table 12: Summary of accidents (years 2006 and 2007) in EASA Member States for sailplanes and balloons**

Even if the data available is not exhaustive, since covering only two years and maybe only partially reported, for the time being the above estimations on the averages will be used in the present RIA.

For balloons or sailplanes, it has to be recalled that in paragraph 2.3.2.6 of NPA 2008-22f, the Agency concluded that around 80% of the total accidents were due to FCL causes. Consequently, around 20 % of the accidents is assumed to be caused by operational causal factors.

### 2.3.2.8 Summary of OPS safety analysis

The most significant figures presented in the above paragraphs from 2.3.1.2 to 2.3.1.7 can be summarised as follows, with reference to the EASA Member States:

Item	CAT by large aeroplanes	CAT by H	CAT > 2.25t	"non-complex" motor aircraft	Air taxi	Corporate	Owner operated	Sail planes	Balloons
Average number of accidents/yr	20.5	7.6	32	693	5	0.7	1.9	184	17
Average number fatal accidents/year	2	2.9	5.7	96	0.9	0.1	0.3	19.5	0
Ratio total accidents over fatal	10	2.6	5.6	7.7	5.5	5.5	5.5	9.4	∞
Victims/ fatal accident	30	3.7	14	1.8	7	7	3	2.2	N.A.
<b>Percent of accidents for OPS</b>	<b>45%</b>	<b>45%</b>	<b>45%</b>	<b>10%</b>	<b>45%</b>	<b>30%</b>	<b>10%</b>	<b>20%</b>	<b>20%</b>
<b>Average number of accidents/yr for OPS</b>	<b>9.2</b>	<b>3.4</b>	<b>14.4</b>	<b>69</b>	<b>2.3</b>	<b>0.2</b>	<b>0.2</b>	<b>36.8</b>	<b>3.4</b>
<b>Average N. fatal accidents/yr for OPS</b>	<b>0.9</b>	<b>1.3</b>	<b>2.6</b>	<b>9</b>	<b>0.5</b>	<b>0.03</b>	<b>0.04</b>	<b>3.9</b>	<b>0</b>
<b>Average number of victims/yr for OPS</b>	<b>27</b>	<b>4.8</b>	<b>36</b>	<b>16</b>	<b>3.2</b>	<b>0.2</b>	<b>0.1</b>	<b>8.6</b>	<b>0</b>
Percent accidents mitigated by cabin crews	15%	Not estim.	Not applicable	Not applicable	Not est.	N.A.	N.A.	N.A.	Not applicable
Average number of accidents/ year mitigated by cabin crews	3	Not estim.	Not applicable	Not applicable	Not est.	N.A.	N.A.	N.A.	Not applicable
Average number of saved lives/year by cabin crews	90	Not estim.	Not applicable	Not applicable	Not est.	N.A.	N.A.	N.A.	Not applicable

**Table 13: Summary of safety analysis**

### 2.3.2.9 Cost of safety events

In order to estimate the "cost of accidents" it is necessary to first establish some basic figures. The main sources for this have been:

- Economic Values Handbook prepared by the US Federal Aviation Administration (FAA)<sup>38</sup>;
- The EUROCONTROL publication "Standard Inputs for EUROCONTROL Cost Benefit Analyses" edition 2007<sup>39</sup>.

From the former, the inflation rates applicable in the US have been copied, as in Table 14 below:

Year	Inflation rate
2000	2.180
2001	2.409
2002	1.750
2003	2.131
2004	2.837
2005	3.025
2006	3.186

**Table 14: Inflation rate in the USA<sup>40</sup>**

Then the exchange rate (2007) of 1.370 US \$ per 1 € has been applied.<sup>41</sup>

In the FAA data all the figures were obviously in US \$ and in many cases calculated in past years (so they had to be corrected taking into account the inflation). The EUROCONTROL data were expressed in € and edited in 2007, so they have been used as published.

The most relevant parameters used in the following are contained in Table 15:

Parameter	USA FAA				ECTL	EASA
	kUS \$	Referred to year	Value in 2007			
			kUS \$	k€	k€	k€
Residual value of a large aeroplane	11,460	2002	12,795	9,336		
Residual value of a "complex" aircraft	2,022	2003	2,215	1,616		
Residual value of a "non complex" motorized aircraft						100
Residual value of a sailplane						50
Residual value of a balloon						10
Repair cost of large aeroplane	3,700	1999	4,399	3,210		
Repair cost of a "complex" aircraft	85.15	1999	101.23	73.86		
Repair cost of a "non complex" motor-powered aircraft						10
Investigation cost for large aircraft	449	2002	501.32	365.8		
Investigation cost for lighter motorized aircraft	35.1	2002	39.2	28.6		
Investigation cost for sailplane or balloon						2

**Table 15: Economic parameters to assess the "cost of accidents"**

<sup>38</sup> <http://www.faa.gov/>

<sup>39</sup> [http://www.eurocontrol.int/corporate/public/subsite\\_homepage/index.html](http://www.eurocontrol.int/corporate/public/subsite_homepage/index.html)

<sup>40</sup> Economic values [www.faa.gov](http://www.faa.gov)

<sup>41</sup> European Central Bank [www.ecb.eu](http://www.ecb.eu)



The report "US Air Carrier Operations – Calendar year 2003"<sup>42</sup> issued by the National Transport Safety Board (NTSB) of the US contains data about the consequences of accidents occurred to commercial operators of large aeroplanes (regulated by FAA "Part 121" in the US) for the period 1994-2003. These data is summarised in Table 16 below:

Consequences of accidents					
To aircraft	To humans				TOTAL
	Fatal	Serious injuries	Minor injuries	No injuries	
Destroyed	16	1	5	0	22
Substantial damage	2	11	37	160	210
Minor damage	6	278	0	8	41
None	2	159	0	2	163
<b>TOTAL</b>	26	198	42	170	<b>436</b>
<b>Percentage</b>	6	45	10	39	100

**Table 16: Consequences of accidents 1994-2003 (NTSB)**

From the above data it can be observed that:

- Aircraft were normally destroyed only in conjunction with a fatal accident;
- A significant number of injuries occurred with no damage to aircraft: this is the typical case caused by turbulence in flight, this (159), due to OPS causes, represents 36 % of the total 436 accidents; It is assumed that this can be applied to the EU as well. However, in this case only 2 (not 22) injured persons per occurrence will be assumed for large aeroplanes and 1 for helicopters.
- Around 45 % of the accidents (over the total of 436) lead to minor (37) or no (160) injuries but substantial damage to the aircraft.

Based on this data, assumptions and estimations, the cost of non-fatal accidents can be estimated as follows:

<sup>42</sup> <http://amelia.db.erau.edu/reports/ntsb/arg/ARC07-01.pdf> . pp 10-12, Tables 4-7

Item	CAT by large aeroplanes	CAT by H	Airplanes >2.25t	Non complex motor	Business Aviation			Sailplanes	Balloons	TOTAL COST
					Air taxi	Corporate	Owner operated			K€/year
Average N. OPS of accidents/yr	9,2	3,4	14,4	69	1,5	0,2	0,2	37	3,4	
Average N. OPS accidents/yr with serious injuries & no damage (36%)	3,3	1,2	5,2	N.A.	0,5	0,07	0,07	N.A.	N.A.	
Number of serious injuries/accident	2	2	2	N.A.	2	2	2	N.A.	N.A.	
Serious injuries/year	6,6	2,4	10,4	N.A.	1,1	0,1	0,1	N.A.	N.A.	
Average N. OPS accidents/yr with minor injuries & subst. damage (45%)	4,1	1,5	6,5	69,0	0,7	0,1	0,1	37,0	1,5	
Number of minor injuries/accident	22	3,7	7	1,8	7	7	1,8	2,2	2,2	
Minor injuries/year	91	3,7	8,4	124	4,9	0,7	0,3	81	7,5	
Cost of substantial damage (k€/year)	13.289	113	480	5.106	50	7	7	1.850	15	<b>20.917</b>
Cost of investigation (k€/year)	3.358	97	412	1.973	43	6	6	74	7	<b>5.976</b>
<b>TOTAL COST (k€/year)</b>	<b>16.647</b>	<b>210</b>	<b>891</b>	<b>7.079</b>	<b>93</b>	<b>12</b>	<b>12</b>	<b>1.924</b>	<b>22</b>	<b>26.892</b>

**Table 17: Cost of non-fatal accidents**

The above data does not consider other costs related to injuries. Neither it includes costs which could emerge as a consequence of an accident, such as used fire extinguishing agents, disruption of schedule, disruption of operations at aerodromes, damage to third party property on the ground, search and rescue and so on.

Along the same lines the cost of fatal accidents can be estimated in Table 18 below:

Item	CAT by large aeroplanes	CAT by H	CAT >2.25t MTOW	Non complex motor	Air taxi	Corpo rate	Owner operated	S	TOTAL COST
									K€/year
Average number of fatal accidents/yr linked to OPS	0,9	1,3	2,6	9,0	0,5	0.03	0.04	3.9	
Victims/ fatal accident	22	3.7	7	1.8	7	7	3	2.2	
Average number of victims/yr linked to OPS	20	3.3	3.5	16	2.1	0.2	0.1	8.6	
Residual value of destroyed aircraft (k€)	8.402	2.101	4.202	900	808	48	65	195	<b>16.721</b>
Cost of investigation (k€)	404	38	75	261	15	1	1	8	<b>803</b>
<b>TOTAL COST (k€)</b>	<b>8.807</b>	<b>2.139</b>	<b>4.277</b>	<b>1.161</b>	<b>823</b>	<b>49</b>	<b>66</b>	<b>203</b>	<b>17.523</b>

**Table 18: Cost of fatal accidents<sup>43</sup>**

Finally, the number of lives possibly saved by cabin crews after an accident can be estimated as follows:

<b>Contribution by cabin crews to mitigate the consequences of accidents for large aeroplanes</b>	
Percent accidents mitigated by cabin crews	15%
Average number of accidents/ year mitigated by cabin crews	3
Average number of saved lives/year by cabin crews	90

**Table 19: The contribution of cabin crew**

#### 2.3.2.10 Conclusions on OPS safety analysis

In the above paragraphs the number of yearly accidents and victims related to air operation factors has been estimated. The figures were based on data collected so far. Neither extrapolation has been attempted to cater for the increase of traffic, nor the total costs have been considered (e.g. extinguishing agents used): this means that the estimations are very conservative.

Around 20 accidents per year can be expected in the EASA Member States for CAT by large aeroplanes. 9 of them can be linked to air operations factors. In addition, 894 accidents/year in total (i.e. not necessarily linked to air operations factors) can be expected for non-complex aircraft (motorized, sailplanes or balloons).

According to the above statistical estimate 5.3 fatal accidents per year can be linked to air operations factors for CAT (i.e. 0.9 by large aeroplanes + 1.3 by helicopters + 2.6 for CAT >2250 + 0.5 for air taxi), resulting in 71 victims/year. Furthermore, a total number of 27 victims/year can be expected for the other segments of aviation, in relation to OPS causal factors. The cost of accidents caused by sailplanes is not negligible.

Cabin crews can mitigate the consequences of accidents, by saving around 90 lives/year.

<sup>43</sup> This figure does not include any measure of the "Statistical Value of Life". The Agency currently does not use any monetary value of life, but only the fatality rates for its Regulatory Impact Assessments.

### 2.3.3 Increase and diversification of air traffic

According to the last published EUROCONTROL long term forecast<sup>44</sup> (scenario C, i.e. sustained economic growth, but also more stringent environmental rules), a continuous growth is expected in air traffic in the next decades (until 2025). 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 from 2003 to 2007 the yearly growth rate touched even the level of 5,4 %.

Also SESAR concurred on a continuing air traffic increase, stating that the challenge is to create a new system to meet an expectation relative to today's performance, whereby its potential capacity must be able to cope with an overall 3-fold increase in air traffic movements<sup>45</sup>. This roughly means 30 millions of IFR flights in Europe per year, compared with 10 millions at present.

However, air operations are not constituted by commercial air transport only. And in fact at the end of 2007, the Commission took the position<sup>46</sup> that until recently, addressing the specificities of general and business aviation at the Community level had not been necessary. However, with the extension of the Community competences in the areas of safety and security<sup>47</sup>, upgrade of the Single European Sky and deployment of the new Air Traffic Management system for Europe, the expected "capacity crunch"<sup>48</sup> and concerns about environmental impacts of aviation<sup>49</sup>, EU activities have an increasing relevance also for this sector.

General and business aviation is operationally very diverse, encompassing activities ranging from recreational flying with non-powered aircraft to complex operation of high-performance business jets and specialised aerial work. This creates challenges as implementing rules cannot be based on the "one size fits all" approach. Furthermore, a significant part of general and business aviation are Small and Medium sized Enterprises (SMEs) or not-for-profit organisations also relying on volunteers. Very often, these individuals or small firms have limited resources to keep up with changes in regulatory or technical requirements.

In addition, to effectively fulfil its role, general and business aviation needs to operate under different, often quite complex, economic or legal schemes. For instance, as private aircraft ownership is quite costly, there is a present tendency to outsource aircraft management services to specialised companies. Such outsourcing can be supplemented by shared ownership or pooling of aircraft ownership shares for more efficient asset utilisation. In such schemes as fractional ownership programmes, often there is no contract of carriage between the service provider and the customer. Operations are conducted on the basis of a management agreement. While these arrangements can be exempted from the requirement of

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<sup>44</sup> EUROCONTROL long term forecast 2006-2025:

<http://www.eurocontrol.int/statfor/gallery/content/public/forecasts/Doc216%20LTF06%20Report%20v1.0.pdf>

<sup>45</sup> SESAR Deliverable D1, version 3.0, dated July 2006: <http://www.sesar-consortium.aero/deliv1.php>

<sup>46</sup> COM (2007) 869 final of 11 January 2008 "An Agenda for sustainable future in General and Business Aviation: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0869:FIN:EN:PDF>

<sup>47</sup> Regulation (EC) No 300/2008 of the European Parliament and Council of 11 March 2008 on common rules in the field of civil aviation security and repealing Regulation (EC) No 2320/2002.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:097:0072:0084:EN:PDF>

<sup>48</sup> An action plan for airport capacity, efficiency and safety in Europe, COM (2006) 819 final.

<sup>49</sup> Directive 2008/101/EC of the European Parliament and Council of 19 November 2008 amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:008:0003:0021:EN:PDF>

the operating license, which stems from economic regulation, their operators remain nevertheless subject to any Community rules concerning safety or security of aviation.

According to COM (2007) 869, analysis of traffic trends, aircraft shipments and orders suggests that demand for highly flexible, private and business air transportation will continue to grow strongly in the years to come.

In this respect, EUROCONTROL also noticed<sup>50</sup> that in 2007 the first models of "Very Light Jets" (VLJ) entered into service and that these VLJ are also contributing to introduce new business models, at least in the US. According to Chapter 4 of this report, since 2001 the number of movements logged by aircraft typically used by business aviation and registered by EUROCONTROL, has in fact been growing more than twice as quickly as the rest of the traffic (49 % more flights in 2007 than in 2001, compared to "only" a 19 % increase for the rest of the traffic)<sup>51</sup>, bringing this segment to represent around 8 % of the yearly traffic.

Initially, VLJ operations will be subject to the proposed OPS rules. In the future, should the need arise and this be feasible, amended rules more tailored to VLJs could perhaps be proposed by the Agency, following its rulemaking procedure. In any case, the development of air taxi (by VLJs or by heavier aircraft) shall not be jeopardized by disproportionate rules while its safety, as analysed in paragraph 2.3.1, shall be enhanced.

### *2.3.4 The Regulatory Framework*

#### *2.3.4.1 The international regulatory framework*

According to Article 8(1) of the Basic Regulation, operation of the following aircraft shall comply with the essential requirements for air operations, as laid down in Annex IV of the Basic Regulation:

- Aircraft which are registered in a Member State, unless their regulatory safety oversight has been delegated to a third country and they are not used by a Community operator.
- Aircraft which are registered in a third country and used by an operator for which any Member State ensures oversight of operations, or used in to, within or out of the Community by an operator established or residing in the Community.

The essential requirements apply to international and domestic operations, both commercial and non-commercial, conducted with either complex or other than complex motor-powered aircraft.

ICAO Annex 6 only applies to international CAT, general aviation and helicopter operations. However, in the EU, ICAO Annex 6 provisions should be applied, even for non-commercial non-complex operations which cross international borders. The latter requires legal certainty through reasonable and proportionate provisions.

EU common rules on air operations beyond the scope of ICAO Annex 6, including non-commercial domestic operations, are necessary to provide sufficient legal certainty for all air operations in the EU.

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<sup>50</sup> Chapter 1 in volume 4 of EUROCONTROL "Trends in air traffic – More to the point: Business Aviation in Europe in 2007" [http://www.eurocontrol.int/statfor/gallery/content/public/analysis/TAT4\\_290408\\_2.pdf](http://www.eurocontrol.int/statfor/gallery/content/public/analysis/TAT4_290408_2.pdf)

<sup>51</sup>In addition it has to be noted that a vast majority of General and Business aviation flights are not registered by EUROCONTROL as they are moving under VFR in non-controlled airspace. For example most of the recreational and sport aviation operations are not captured by the EUROCONTROL IFR statistics.

Furthermore, a number of air operators, in addition to CAT operators, may wish to operate outside the EU. Therefore, harmonisation should be considered, where appropriate, not only with respect to ICAO provisions but also with the rules established by non-EU agencies, e.g. the FAA.

In this context, it would not be enough for the Community to simply adopt standards which have been defined elsewhere: the high volume of aviation activity in the EU and inevitable future expansion supports a legitimate ambition for the EU to influence international standards.

#### 2.3.4.2 From EU-OPS to EASA rules

The Joint Aviation Authorities (JAA) developed a number of rules (JARs), spanning across different aviation domains (e.g. airworthiness, operational suitability, flight crew licensing and air operations). However, their implementation was left to the discretion and to the time of decision by the JAA Member States. Consequently, this was likely to create non-uniform implementation of safety codes across the EU, with significant national disparities.

Hence, the decision to establish and apply EU-OPS, which is currently established under Community law for CAT with aeroplanes (based on JAR-OPS 1).

However, EU-OPS will be repealed by the establishment of implementing rules, as prescribed in the Basic Regulation. In addition:

- EU-OPS only applies to CAT operations with aeroplanes, while a marked increase in the volume of other types of air operations is expected. This will be addressed by the implementing rules;
- There will be a transition from a highly prescriptive and extended set of legally binding rules to a more streamlined series of performance-based rules. This will leave the majority of detailed provisions at the level of Acceptable Means of Compliance (AMC). Operators will also be able to apply alternative ways of satisfying the legal requirements, provided that an equivalent level of safety is attained;
- Alignment with the ICAO SARPs on safety management systems was not elaborated on in EU-OPS. This will be addressed by the implementing rules;
- A solid basis will be provided for the standardisation of competent authorities, based on Article 54 of the Basic Regulation;

#### 2.3.4.3 From JAR-OPS 3 to EASA rules

Currently, national rules apply for CAT with helicopters (based on JAR-OPS 3).

However, not all of the JAA Member States have transposed JAR-OPS 3 CAT (Helicopters) into national law, and variations exist in the amendment status implemented. This does not support the objective of uniform application of standards throughout the Community.

Establishment of implementing rules under Community law would provide the means to support standardised implementation of common rules and would therefore resolve the current situation for helicopter operations.

#### 2.3.4.4 Cabin crews

The cabin crew contribution to safety has already been discussed in paragraph 2.3.2.3. assuming that there may still be room for improving their contribution to accident survivability rates.

Furthermore, it should be noted that today the interpretation and implementation of the requirements applicable to cabin crews vary significantly depending on the Member States and the operators (e.g. extent and quality of training and of assessment of medical fitness). This may not only jeopardise the achievement of a high level of safety including uniform levels of competence on behalf of paying passengers during air transport operations, but also:

- Undermines the internal market, since operators in States where the rules are more stringent may incur additional cost while the other operators will have an unfair commercial advantage;
- Makes it more difficult for the labour to freely move across the 27 + 4 EASA Member States.

### *2.3.5 Conclusions and justification for EU intervention*

In conclusion, the problems identified and analysed provide justification for intervention at EU level, in order to:

- Further improve the safety of all civil air operations (i.e. beyond CAT);
- Reasonably improve the safety of all air operations, including general aviation;
- Reduce the cost deriving from operation-related accidents and incidents within the EASA Member States;
- Maintain improved levels of safety, despite the increase in volume and complexity of air operations and the growing diversification of aircraft and business models;
- Extend the safety regulatory framework for EASA Member States, beyond the scope of ICAO Annex 6 (i.e. including domestic aviation with clear legal certainty and uniform and proportionate rules) ;
- Establish uniform rules for cabin crew, to increase their contribution to safety and to realise potential benefits on the internal market;
- Comply with the tasks assigned by the legislator in the Basic Regulation.

An inherent condition during the transition to a future set of common rules is that safety must not be compromised.

## **2.4 Objectives and indicators**

### *2.4.1 Taxonomy of objectives*

In broad terms, the possible impacts of any new rules can be correlated to "objectives". Their measurement is based on related monitoring "indicators" (i.e. measurable parameters). In turn, the indicators could be linked to quantitative "targets", time bound, where appropriate.

Said objectives, and related indicators and targets, can be classified according to the three levels normally used for impact assessment by the services of the European Commission, such as:

- The **general objectives**, which represent the overall policy goals;
- The **specific objectives**, which are the more immediate objectives of the planned rulemaking initiative contributing to achieve the general objectives. The indicators linked to both the general and specific objectives are influenced also by factors outside the direct control of the Commission or of the Agency. Therefore sometimes the specific result of a certain policy is difficult to measure (e.g. aviation safety may improve in the medium term, but not necessarily only because of a specific set of new rules);
- 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. However, these operational indicators (e.g. publication of an Opinion by the Agency) do not give an indication on the impact of the new rules on the entire society. They are only useful to monitor the progress of a certain task executed by the Agency.

The indicators related to the general objectives, due to their very broad nature (e.g. "number of aviation accidents per million departures"), could be influenced very significantly by other policies or factors (e.g. other EU/EASA rules, technical progress, etc.). In addition, the European legislator, since 1985, following the principles of the "new approach"<sup>52</sup>, has consistently decided to legally establish "obligation of means" (i.e. essential requirements) and not "obligation of results" (i.e. quantitative safety targets) for the protection of citizens. The same philosophy has been followed in the Basic Regulation. Therefore, while the Agency will continue to publish safety data in its "Annual Safety Review", it will not be appropriate to consider these general indicators in the future when assessing only the specific impact of the proposed implementing rules for OPS.

The **main uses of the "general" objectives are then:**

- **to support the definition of the "specific" objectives** for the proposed EASA IRs/AMCs on OPS;
- to **define the "weights"** for each of the five KPAs identified in paragraph 2.1.1 above.

In turn, the **specific objectives will then be used** in the present RIA to:

- **identify the possible alternative options**, in order to solve the issues analysed in 2.3 above;
- **compare the said options**;
- **define indicators** correlated to them to be used in the future for mid term reviews.

Finally, the operational objective indicators are not utilized for the present RIA.

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<sup>52</sup> Council Resolution of 7 May 1985 on a new approach to technical harmonization and standards (85/C 136/01).



Objectives and indicators for the newly proposed EASA rules for air operations are presented in the following paragraphs 2.4.2 to 2.4.5.

#### *2.4.2 General objectives and "weights"*

The legislator has assigned the following general objectives to EASA<sup>53</sup>:

1. The **principal objective** of this Regulation is to establish and maintain a **high uniform** level of civil aviation **safety** in Europe.
2. **Additional objectives** are, in the fields covered by this Regulation, as follows:
  - (a) to ensure a high uniform level of **environmental protection**;
  - (b) to facilitate the **free movement of goods, persons and services**;
  - (c) to promote **cost-efficiency** in the regulatory and certification processes and to **avoid duplication at national and European level**;
  - (d) to assist Member States in **fulfilling their obligations under the Chicago Convention**, by providing a basis for a common interpretation and uniform implementation of its provisions, and by ensuring that its provisions are duly taken into account in this Regulation and in the rules drawn up for its implementation;
  - (e) to **promote Community views** regarding civil aviation safety standards and rules throughout the world by establishing appropriate cooperation with third countries and international organisations;
  - (f) to provide a level playing field for all actors in the **internal aviation market**.

It can therefore be easily observed that indeed the general objectives assigned by the legislator refer to the five KPAs already identified: safety; environment; economy; social impact and global regulatory harmonization.

For environment, in addition, on mentioning this aspect among the general objectives, the legislator has also given EASA specific tasks, in order to prepare implementing rules to be adopted by the Commission<sup>54</sup>.

Vice versa, no specific tasks have been assigned to the Agency for economy, social aspects or global harmonisation.

For the above considerations, then the **following "weights" for the Multi Criteria Analysis (MCA) are assigned** herein:

- **3 to safety;**
- **2 to environmental protection;**
- **1 to the three remaining KPAs: economy, social impact and global regulatory harmonisation.**

#### *2.4.3 Specific objectives*

The specific objectives are related on one hand to the general objectives listed in the paragraph above and on the other hand linked to the EASA IRs/AMCs for OPS. Taking into account both of the factors, **15 specific objectives** have been identified for the present RIA as presented in Table 20 below:

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<sup>53</sup> Article 2 of the Basic Regulation.

<sup>54</sup> Article 6 of Basic Regulation.

Key Performance Area (KPA)	Specific Objective	
	Ident.	Description
Safety	SAF.1	<b>Improve safety</b> for all types of air operations, carried out by entities registered in the EU 27 + 4
	SAF.2	Achieve <b>uniform levels of safety</b> for any air operations across the EU 27 + 4
	SAF.3	Achieve uniform levels of <b>competence for cabin crews</b>
	SAF.4	Ensure uniform level of <b>medical fitness of cabin crews</b>
Environment	ENV.1	Do not adversely affect <b>environment</b>
Economy	ECO.1	<b>Contain costs</b> to enterprises while ensuring safety
	ECO.2	Provide a <b>level playing field</b> for commercial operators in the internal market
	ECO.3	Establish <b>proportionate rules</b> for Small and Medium sized Enterprises (SMEs)
Social	SOC.1	Achieve a positive effect on the aviation employment market
	SOC.2	Promote <b>high quality jobs</b> in the private sector for aviation
	SOC.3	Facilitate <b>free movement of cabin crew</b> in the internal market
Regulatory harmonisation	REG.1	Ensure <b>consistency with EU law</b>
	REG.2	Ensure <b>smooth transition from JAR-OPS</b> provisions and draft material
	REG.3	Ensure <b>compliance with ICAO standards</b>
	REG.4	Achieve appropriate <b>harmonisation with the FAA</b> equivalent rules

**Table 20: Specific objectives for air operations**

The specific objectives of the EASA implementing rules for OPS are then closely linked not only to the general objectives, but also addressing the problems analysed in paragraph 2.3. They have a relevant impact on society and therefore can be appropriately used in the present RIA.

#### 2.4.4 Operational objectives

The operational objectives are on the contrary related to the concrete actions necessary to establish common Community rules for OPS. Their output is easily observable and can be directly attributed to the action carried out. These observable/measurable operational objectives are:

1. Common IRs for OPS throughout the Community have been developed in accordance with the Basic Regulation and the EASA Rulemaking Procedure;
2. Common IRs for OPS have been adopted by the European Commission, through "comitology" procedure;
3. Related AMCs are available;
4. Continuous standardisation of competent authorities is carried out by the Agency for the OPS domain.

#### 2.4.5 Indicators, targets and summary of objectives

Indicators are parameters expressed in certain units of measurement (or anyway observable, like producing a deliverable).

Three different levels of indicators can respectively be identified:

- *Overall objective* indicators: related to the ultimate desired impact on society. They are usually measured by global indicators and can be influenced by many other indicators or policies (e.g. any other policies for aviation safety). In some cases it will be difficult, if at all possible, to correlate these results to the Agency common rules for OPS;
- *Specific objective* indicators: i.e. expressing the immediate objectives of the proposed policy that needs to be reached in order to achieve the general goals. Indicators have to be observable or measurable for medium term assessment of the results, although they could also be influenced by other policies (e.g. technical developments);
- *Operational objective* indicators: i.e. the precise actions or direct effects which the policy proposed by the Agency on the matter of AR and OR rules is expected to produce (e.g. rulemaking deliverables). The achievement is under direct control of the Commission/Agency and can be easily verified. But having achieved one or more operational targets provides no information on the impact on the society at large.

In summary the indicators on the level of specific and general objectives are closely related to the identified problems and the expected societal impacts, while the operational objectives result in simpler and more observable indicators related to the fulfilment of actions by Agency. All indicators need to be observable and measurable.

A summary of the indicators, versus the general objectives identified in paragraph 2.4.2 above, is presented in Table 21 below:

Objectives	Indicators	
	General	Overall
1. High uniform level of civil aviation safety 2. High and uniform level of environmental protection 3. free movement of goods, persons and services 4. cost-efficiency in the regulatory and certification processes 5. avoid duplication at national and European level 6. fulfill obligations under the Chicago Convention 7. promote Community views throughout the world 8. promote the internal aviation market	Number of fatalities per year due to civil aviation accidents involving operators registered in the EU 27 + 4	Fatalities/ year
	Number of CAT and aerial work operators	N. of such operators

**Table 21: Summary of general objectives and indicators**

A summary of the indicators versus the specific objectives identified in paragraph 2.4.3 above is presented in the following Table 22:

Objectives		Indicators	
Specific		Specific	Units of meas.
SAF.1	<b>High safety</b> of air operations	Aviation accidents linked to OPS factors	Number of such accidents/ year
SAF.2	<b>Uniform safety</b>		
SAF.3	<b>Competence of cabin crews</b>	Passengers having survived a crash, evacuated from fuselage	Number of survivors, compared with number on board
SAF.4	<b>Medical fitness of cabin crews</b>		
ENV.1	<b>Environmental compatibility</b>	Not defined	N.A.
ECO.1	<b>Contain costs</b>	Cost of regulatory processes for operators	k€
ECO.2	<b>Level playing field</b>	national variants allowed	Number of fields where variants are possible
ECO.3	<b>Proportionate rules</b> for SMEs	Number of non CAT air operators	Number in EU 27 + 4
SOC.1	<b>New jobs</b> in aviation	Jobs in the authority or operators	FTEs
SOC.2	<b>High quality jobs</b> in the private sector	Not defined	N.A.
SOC.3	<b>Free movement of cabin crew</b>	Number of cabin crew needing to be reassessed medically of retrained as a consequence of moving to a different EU State	Number of involved staff
REG.1	<b>Consistency with EU rules</b>	Non conformity with other EU legislative provisions	Number of divergences
REG.2	<b>Smooth evolution from JAR-OPS</b>	Non conformities with previous JAR-OPS	Number of divergences
REG.3	<b>Compliance with ICAO standards</b>	Differences versus the ICAO standards	Differences notified to ICAO
REG.4	<b>Harmonisation with FAA</b>	requirements diverging from the FAA ones	Number of divergences

**Table 22: Summary of specific objectives and indicators**

A summary of the indicators versus the operational objectives identified in paragraph 2.4.4 above is presented in the following Table 23:

Objectives	Indicators	
Operational	Operational	Units of meas.
1. Common IRs for OPS developed 2. Common IRs for OPS adopted 3. Related AMCs available 4. Continuous standardisation of competent authorities carried out in the OPS domain	NPA on IRs/AMCs for OPS published	N.A.
	Related CRD published	N.A.
	Agency's Opinion delivered to Commission	N.A.
	Rules adopted by Commission	N.A.
	Publish AMC for OPS	N.A.
	Regular publication of annual safety review	N.A.
	Regularly carry out at least 15 standardisation inspections of competent authorities per year in the OPS domain	Inspections/year

**Table 23: Summary of operational objectives, indicators and targets**

## 2.5 Options

For each one of the six major issues, a range of options has been identified by the Agency in order to achieve the objectives defined in 2.4.3.:

N.	Issue	Options		Par.
1	Safety of commercial air transport	1A	Certification process for all commercial air transport (CAT) operators based on EU-OPS	2.6
		1B	Certification for CAT operators based on proportionate rules	
		1C	Declaration by CAT operators of other than complex motor-powered aircraft, based on the requirements for non-commercial operations with complex motor-powered aircraft	
2	Safety of commercial aerial work	2A	Certification process for all operators of commercial aerial work based on EU-OPS/JAR-OPS 3	2.7
		2B	Certification for all commercial operators, but based on proportionate rules for aerial work	
		2C	Declaration by operators of commercial aerial work, based on the non-commercial operations with complex motor-powered aircraft	
3	Safety of non-commercial operations with complex-motor-powered aircraft	3A	Air Operator Certification of the organisation managing the aircraft, based on the process for commercial operations	2.8
		3B	Certification of the management system of the organisation managing the aircraft, but based on proportionate rules	
		3C	Declaration signed by the organisation managing the aircraft and endorsed by the owner, based on general operating and flight rules and organisation requirements	
4	Safety of non-commercial operations with other than complex motor-powered aircraft	4A	Apply all ICAO standards and recommended practices even to operations outside the scope of ICAO Annex 6 (e.g. private domestic general aviation)	2.9
		4B	Introduce sub ICAO provisions for certain operations involving non-complex aircraft	
		4C	Limit the scope to compliance with the Essential Requirement for Air Operations (Annex IV of the Basic Regulation)	
5	Medical fitness of cabin crew	5A	Requirement for regular medical assessments of medical fitness but no common medical requirements (same rules for all cabin crew)	2.10
		5B	Requirement for regular medical assessments of medical fitness by a general medical practitioner according to JAR-OPS 1 Section 2 criteria (same rules for all cabin crew)	
		5C	Requirement for medical assessments of medical fitness according to common medical criteria specified for all cabin crew at defined intervals by aero-medical examiners for cabin crew in commercial air transport (CAT) and at longer intervals by general medical practitioners for cabin crew in non-commercial operations	
		5D	Same rules for all cabin crew: regular medical assessments of medical fitness for cabin crew in non-commercial operations according to the same rules as those described in 5.C. for cabin crew in CAT	
6	Competence of cabin crew	6A	Attestation of completed initial training only for cabin crew in CAT operations and all subsequent training requirements under the responsibility of the operator	2.11
		6B	Attestation of competence issued after initial training for cabin crew in CAT operations only and training requirements under operator's responsibility for all cabin crew including those in non-commercial operations	
		6C	(1) For cabin crew in CAT operations: cabin crew attestation	

			issued after initial training with validity depending also on subsequent training and operating experience (2) For cabin crew in non-commercial operations: all training requirements under responsibility of the operator	
		6D	As 6C (1) for all cabin crew including non-commercial operations	

**Table 24: Options identified****2.6 Commercial air transport***2.6.1 Options*

The following options to possibly enhance the level of safety for CAT operations by operators registered in EASA Member States (i.e. 27 + 4), have been identified in paragraph 2.5. above:

- 1A: Certification process for all CAT operators based on provisions already contained in EU-OPS;
- 1B: Certification for CAT operators based on proportionate rules;
- 1C: Declaration by CAT operators of other than complex motor-powered aircraft, based on the requirements for non-commercial operations with complex motor-powered aircraft

In particular option 1A means that the content of the existing EU-OPS rules will be transposed in the EASA rules, basically as is, and its application extended to all CAT operators, independently from their size, the complexity of their operations or the aircraft category (i.e. encompassing helicopters and balloons). In other words, the vast majority of the regulatory material will be at the level of legally binding implementing rules (i.e. highly prescriptive and with limited flexibility, as per Article 14(6) of the Basic Regulation).

Option 1B means that, while the current EU-OPS will remain basically applicable to operators of CAT by large aeroplanes, the full scope of possibilities within the EASA system as regards levels of regulation are used. This is the solution presented in NPA 2008-22 which means that:

- The legally binding implementing rules (IRs) are written without prescribing precise methods for their fulfilment, but in a “performance based” perspective;
- Competent authorities have to carry out their safety oversight based on risk assessment, and in the end require measures proportionate to the size, scope and complexity of operations and category of aircraft used by the concerned operator;
- This will also be completed by a mechanism of control on the evolution of the AMCs (alternative AMCs achieving an equivalent level of safety), as discussed in paragraph 2.7 of the RIA attached to NPA 2008-22a.

Finally, option 1C means that CAT operators of other than complex motor-powered aircraft (e.g. balloons) will not be required to go through the certification process, which will be replaced by a declaration. The applicable safety requirements and structure of the rules (i.e. IRs and AMCs) will be as in option 1B.

## *2.6.2 Target group and number of entities concerned*

### 2.6.2.1 Competent Authorities

Commercial air operators registered in the EU 27 + 4, according to the Basic Regulation, are under oversight by the respective competent authorities. All the 31 authorities will therefore be involved by any of the options under consideration.

The European Commission will only be involved in option 1A, since this will lead to more frequent amendments of legally binding text (IRs). The Commission is much less involved in the case of options 1B or 1C since amendment of AMCs, CSs and GM are not adopted through the Commission comitology process.

The Agency is involved in all options as it adopts the AMCs, CSs and GM directly and is involved in drafting the IRs as opinion to the Commission.

### 2.6.2.2 Air operators

There is today no coherent data base or information source with information on the number of air operators in the EASA countries (EU 27 + 4). For the purpose of this RIA a range of different sources was therefore used and integrated in order to provide plausible estimations.

Firstly, the JAA data base on Air Operator Certificate (AOC) holders published in August 2008 contained 1026 operators from 24 out of the 31 EASA countries, representing 93% of the population. Thus, it is estimated that the EU 27 + 4 countries have approximately 1100 AOC holders in total. It is assumed that these include scheduled and non-scheduled CAT operators (transport of passengers, cargo or mail for remuneration of hire) including those general aviation operations conducted as CAT (typically commercial business aviation, such as charter and air taxis) as well as CAT helicopter operators.

In addition, in August 2008 the Agency extracted figures from the AirClaims data base. Therein the number of CAT operators of EU 27 + 4 was 370 in relation to aeroplanes with more than 19 seats. These CAT operators operate a fleet of 5206 aircraft. The vast majority provides scheduled services.

As regards business aviation, AirClaims reports 709 business aviation operators. A recent EUROCONTROL study "Business Aviation in Europe in 2007", reports a total number of 3000 business jets being operated in Europe. EUROCONTROL does, however, not specify how many of these aircraft are operated as commercial business aviation, non-commercial (corporate) business aviation and non-commercial owner-operated.

In order to get an idea of the share of commercial and non-commercial business aviation activity, ratios from a previous study reported by the European Business Aviation Association is used. In this study there are 866 commercial business aviation operators and 615 corporate business aviation operators. According to an IBAC brief on business aviation safety, 14% of business aviation is owner-operated. Taking the ratios thus provided and applied to the total fleet of 3000 business aviation aircraft and 709 operators the resulting estimation of 411 CAT operators of aeroplanes below 19 passenger seats was obtained.

The difference between the total of AirClaims and CAT operators of business aircraft versus the JAA data is estimated to represent operators of charter flights, CAT by helicopters, cargo or similar. All of them are today in Europe already subject to certification.

Furthermore, it has to be noticed that the scope of the proposed rules for CAT operators includes some categories of operators that before the implementation of EU-OPS (16 July 2008) might not have been subject to the AOC process, namely operators of sightseeing or "A

to A" flights, and which have not been taken into account in the above data. Similarly this applies to operators of commercial flights by balloons or sailplanes.

For the purpose of obtaining data on the operators of balloons, the Agency circulated in May 2007, a questionnaire to the aviation authorities of the 27 + 4 EASA Member States. Not all the States provided complete information. The data collected from States which have responded can be summarised in Table 25 below:

State	Number						
	Balloons			Balloon operators			
	used for non-commercial activities	used for commercial activities	TOTAL	Aerial work certified operators	CAT certified operators	Commercial non-certified operators	TOTAL
AU		100	100		30		30
CZ			134	14			14
DK	38	3	41		2		2
EE	4				0		0
FR		101	907			40 <sup>55</sup>	40
IS			0				0
IT			60	7		0	7
LT		0	76				0
NO			12		0		0
SW		31	140		7		7
NL		430	438			112	112
UK	520	219	749		62		62
<b>12</b>		<b>TOTAL</b>		<b>21</b>	<b>101</b>	<b>152</b>	<b>284</b>

**Table 25: Balloon operators in EASA Member States**

It has to be noticed that Germany and Switzerland reported a significant number of balloons (respectively 1,273 and 447), but not the numbers of operators involved in commercial activities. In conclusion, 12 States reported:

- 101 balloons operators certified for CAT and 21 for aerial work;
- Plus 152 balloon operators carrying paying passengers but not certified.

The 12 States that reported the number of commercial balloon operators **represent around 47.5% of the population in the 27 + 4 Member States** according to the "Statistical Pocket Book 2007" published by DG-TREN<sup>56</sup>. Although the number of operators over a country is not directly related to the population, and given that among those that reported back to the Agency very aeronautical developed States are present (e.g. FR, NL, UK), it is anyhow assumed herein that they represent about 50% of the commercial balloon operators, thus estimating that in the EU 27 + 4 States there were in 2007 the following commercial operators of balloons:

- **40 certified operators of commercial aerial work;**
- **200 certified operators for CAT by balloons;**
- **300 commercial non-certified operators of balloons, out of which 50 carry out aerial work and 250 CAT.**

<sup>55</sup> In France there is a "licence to operate", but it does not include safety aspects.

<sup>56</sup> [http://ec.europa.eu/dgs/energy\\_transport/figures/pocketbook/doc/2007/pb\\_1\\_general\\_2007.pdf](http://ec.europa.eu/dgs/energy_transport/figures/pocketbook/doc/2007/pb_1_general_2007.pdf)



Even less data exists for sailplane operators carrying paying passengers. The Agency therefore assumes herein that:

- No sailplanes (and no sailplane operators) are involved in commercial aerial work;
- No sailplane operators today hold an AOC;
- **Sailplane operators carrying paying passengers (i.e. CAT) without AOC are about twice as much as the analogous balloon operators, i.e. 500 in the EU 27 + 4.**

In summary the number of CAT operators active in the 27 + 4 States in 2007 can be estimated as in Table 26 below:

Type of air operations	Source	Number	
		Aircraft	Operators
<b>Present AOC Holders</b>			
Operators by large aeroplanes (> 19 seats) providing scheduled CAT	AirClaims	5,206	370
Commercial Business Aviation / Air Taxis	Estimate based on data provided by EBAA and EUROCONTROL	1514	411
Others (e.g. charter, cargo, CAT by helicopters and similar)	Estimated by the Agency as a difference between the JAA data base and the above lines		419
<b>partial TOTAL number of air operators organisations under EASA competence and presently holding an AOC</b>	<b>JAA AOC database</b>		<b>1100</b>
<b>Additional operators in the scope of proposed EASA IRs</b>			
Non-certified CAT operators of sailplanes			500
certified CAT operators of balloons	Estimated by the Agency in the present paragraph		200
non-certified CAT operators of balloons			250

**Table 26: CAT operators in EASA Member States**

**In case of any of the three options under consideration, nothing will significantly change for scheduled CAT operators by large aeroplanes:** the content of the rules applicable to them will remain basically as today in the EU-OPS. It is also assumed that the estimated 370 organisations are relatively large in terms of number of employees (> 500).

**CAT operators of charters, cargo or business aviation aircraft** are equally today largely subject to EU-OPS: nothing will change for them in case of option 1A. They will on the contrary **be affected by either options 1B or 1C**, which implies that the rules applicable to them will become more flexible. It is assumed herein that the majority of such operators are SMEs employing each less than 500 employees. Considering that CAT operators using helicopters are also SMEs, a similar reasoning would apply to those operators, since today they are subject to JAR-OPS 3.

All the 500 operators of CAT by sailplanes will be affected by any of the three options under consideration.

The 200 operators of CAT by balloons certified today will be affected by option 1A (i.e. more stringent rules) and 1C (declaration instead of certification), but not by option 1B (i.e. flexible rules as it is assumed to reflect the situation today).

Finally, the non-certificated 250 CAT operators of balloons will be affected by any of the three options under consideration.

### 2.6.2.3 Summary of affected entities

In conclusion, on the basis of the information in sub-paragraphs 2.6.2.1 and 2.6.2.2 above, the number of concerned entities is estimated in table 27 below:

OPTION		Estimated Number			
Id.	Description	Authorities	CAT operators by motorized aircraft		CAT operators by balloons or sailplanes
			scheduled (large aeroplanes)	Non-scheduled/SMEs (complex-motor powered)	
<b>1A</b>	Certification process for all commercial air transport (CAT) operators based on EU-OPS (i.e. prescriptive rules)	31 + Agency (& EC)	0	0	950
<b>1B</b>	Certification for CAT operators based on proportionate rules	31	0	830	750
<b>1C</b>	Declaration by CAT operators of other than complex motor-powered aircraft, based on the requirements for non-commercial operations with complex motor-powered aircraft	31	0	830	950

**Table 27: Number of affected entities for CAT operations**

### *2.6.3 Safety Impact*

The scheduled CAT operators by large aeroplanes will not be significantly affected by any of the options under consideration. Therefore, it is no longer necessary to consider them in present paragraph 2.6.

For the other categories of CAT operators using complex motor-powered aircraft (the vast majority of **CAT operators for non-scheduled services**) they will be affected by **options 1B and 1C**. These options in essence move a significant volume of former EU-OPS/JAR-OPS prescriptions from the level of legally binding IRs/Section 1 to more flexible AMCs, potentially more suited to be tailored to the needs of SMEs (less than 500 employees). After the familiarisation with the new rules during the transition, this new structure of the rules will allow SMEs to save some of the effort today spent on bureaucratic tasks while concentrating on really essential safety elements. The same will happen in the competent authorities which, more than "ticking boxes" in the audit protocols, will have to discuss and approve tailored AMCs to each regulated organisation.

For **CAT operators by balloons or sailplanes**, it has to be recalled that in paragraph 2.3.2.6 of the FCL RIA<sup>57</sup>, the Agency concluded that around 80% of the total accidents were due to FCL causes. Consequently, **around 20% of said accidents is assumed to be attributed to operational causal factors**. With reference to the data published in the FCL RIA, the following estimations for sailplanes registered in EASA Member States can be offered, although on the basis of very limited and possibly not complete data:

- 37 accidents of sailplanes per year, linked to OPS factors;
- 4 of them fatal;
- Representing 9 victims/year linked to OPS factors.

And for balloons:

- 3.4 accidents of balloons per year, linked to OPS factors;
- none of them fatal.

It has to be noted that in paragraph 2.3.2.8 above, it has been estimated that in one year in the EU 27 + 4 about 9.2 accidents for CAT by large aeroplanes can be expected in relation to OPS causal factors. The severity of these latter events is much higher as well as the media echo. However, in absolute number of accidents it is clear that there is scope for improving the safety of CAT, at least by sailplanes.

Any of the three options under consideration will put CAT operators of balloons and sailplanes across the EU 27 + 4 under the oversight by competent authorities (even 1C). However, option 1A, might divert part of the scarce resources available into those small organisations (typically much less than 50 full time employees), towards bureaucratic obligations, so diverting available effort from actual safety matters. **Option 1A is therefore negative** in that respect. Nevertheless, also **option 1C is marginally negative**. While the oversight in 1B precedes certification, in 1C it follows the declaration. On the contrary **option 1B (certification, but rules tailored to complexity of operations) could produce a safety benefit**.

The controlled mechanism for the evolution of the AMCs leading to collective efforts to improve them ensures that **any of the options will lead to sufficient uniformity** of the safety levels.

Since there are no instruments available at this moment to measure the extent to which the options would contribute to the level of safety, there are no means for the Agency to express the number of incidents/accidents prevented, in monetary value. The economic aspects are however considered in the paragraphs above.

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 2.4.3, scores can be attributed for the safety impact of the three options related to the safety of CAT operations, as presented in the following Table 28:

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<sup>57</sup> Published as NPA 2008-22f

Specific Objectives	Scoring of options		
	1A	1B	1C
	prescriptive rules	proportionate rules	Declaration
High safety of air operations	-2	3	1
Uniform safety	2	2	2
<b>TOTAL</b>	<b>0</b>	<b>5</b>	<b>3</b>
<b>AVERAGE SCORE</b>	<b>0</b>	<b>2,5</b>	<b>1,5</b>
<b>WEIGHTED AVERAGE (Score x 3 for safety)</b>	<b>0</b>	<b>7,5</b>	<b>4,5</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>0</b>	<b>8</b>	<b>5</b>

**Table 28: Scoring of the safety impact for CAT operators**

#### *2.6.4 Environmental Impact*

Nothing in the proposed implementing rules (and associated AMCs) aims at building new infrastructure, promoting additional motorised flight or relaxing environmental rules. The effect of any of the three considered options has therefore to be considered neutral in relation to environmental aspects.

#### *2.6.5 Economic Impact*

##### *2.6.5.1 Rulemaking and standardisation cost*

None of the options under consideration will in any way change the role and technical tasks of the Agency in respect of preparation of the rules through the rulemaking procedure. Equally the standardisation activities in the domain of air operations will not change with respect to the tasks already assigned by the legislator through the Basic Regulation.

Options 1B and 1C (i.e. the majority of the rules likely to be frequently amended at the level of AMCs) at the end of the rulemaking procedure will lead to a Decision by the Agency's Executive Director: the cost of the procedure to sign the Decision is considered negligible.

On the contrary, from the procedural point of view option 1A will imply relatively frequent legislative modifications requiring downstream of the EASA Opinion about:

- 0.6 FTEs/year in the Commission;
- 0.4 FTEs/year from the Agency to support comitology with information; and
- about 0.2 FTE/year by the 20 most active Member States to participate to comitology.

This will represent a total of 5 FTEs/year plus travel for the competent authorities to participate to Committee meetings.

Assuming 1 FTE to represent 120 k€ (2009) of labour cost and travel an additional 5% of it, this leads to an estimation of 126 k€/FTE.

**In other words, option 1A could lead to additional costs for the adoption of the rules, in the range of (5 x 126) 630 k€/year.**

### 2.6.5.2 Oversight cost

In Option 1A, all the 31 competent authorities will have to continue oversight (after initial certification) of the CAT operators of scheduled services by large aeroplanes and of the other CAT operators by complex motor-powered aircraft. In addition they will have to certify and oversee additional 950 CAT operators by sailplanes or balloons. These organisations carry out much simpler operations. However the burden of the administrative work connected to prescriptive rules cannot be underestimated. The Agency estimates that around 0.1 FTE/organisation will be required in average per year for proper oversight after initial certification. The burden for initial certification is not taken into account in the present RIA although logically it will be greater than the workload for the stabilised situation.

Since in paragraph 2.6.2.3 above the number of affected CAT operators by sailplanes and balloons has been estimated in the range of 950 and assuming again the cost of 1 FTE in the administrations equal to 120 k€ (2009)/year, the **cost of oversight in option 1A can be estimated as:**

$$950 \times 0.1 \times 120 = 11,400 \text{ k€}/\text{year}.$$

In option 1B nothing again will change for the oversight of the CAT operators of scheduled services by large aeroplanes. But the oversight for the other CAT operators by complex motor-powered aircraft will be simplified since the structure of the rules will best allow to tailor the way in which legal provisions are met to the actual volume and complexity of air operations. Authorities might save 0.05 FTEs for each of the 830 affected operators. This represent a saving of about  $830 \times 0.05 \times 120 = 4,980 \text{ k€}/\text{year}$ .

In case of same option 1B the number of newly certified CAT operators by balloons or sailplanes, has been estimated in the range of 750. Therefore, the additional cost would be:  $750 \times 0.1 \times 120 = 9,000 \text{ k€}/\text{year}$ .

**In conclusion the estimated cost of oversight for option 1B will be:**

$$9,000 - 4,980 = 4,020 \text{ k€}/\text{year}.$$

Finally in option 1C, 4,980 k€/year will still be saved for the non scheduled CAT operators by complex motor-powered aircraft. Furthermore, the declaration process, instead of the certification process, for the CAT operators by sailplanes and balloons will require less effort from the competent authorities with respect to options 1A or 1B. Assuming then that 0.05 FTEs will be required per year to oversee one CAT operator by sailplanes or balloons, and recalling that in paragraph 2.6.2.3 the number of such affected operators has been estimated at 950, one can conclude that for option 1C the cost of oversight of CAT operators by sailplanes or balloons could be estimated in the range of:  $950 \times 0.05 \times 120 = 5,700 \text{ k€}/\text{year}$ .

**In conclusion, the estimated cost of oversight for option 1C will be:**

$$5,700 - 4,980 = 720 \text{ k€}/\text{year}.$$

### 2.6.5.3 Regulatory cost for the operators

Nothing will substantially change for operators of scheduled CAT services by large aeroplanes in any of the options under consideration.

Equally nothing will change for the other CAT operators using complex motor-powered aircraft in case of option 1A. However, in case of either options 1B or 1C, most of the rules applicable to them will become more flexible so avoiding undue burden in relation to volume and complexity of their respective operations. This "tailoring" of the requirements to the actual safety needs, paralleled by reduction of unnecessary bureaucratic requirements might imply savings for each organisation in the range of 0.05 FTEs/year. Since the number of affected

operators has been estimated in the range of 830 in paragraph 2.6.2.3, it can be concluded that either option 1B or 1C, for this group of operators will represent savings in the range of:  $830 \times 0.05 = 41.5$  FTEs.

For these SMEs cost of labour is assumed to be in average 60 k€/year. **Therefore, the saving in monetary terms will be, still for options 1B and 1C and for SMEs:  $41.5 \times 60 = 2,490$  k€/year.**

The proposed IRs/AMCs on the contrary will represent an additional burden for the **CAT operators by sailplanes and balloons**, justified by the fact that their safety has margins for improvement. In case of option 1C (the simplest, based on flexible rules and declaration) this burden can be assumed in the range of only about 10 days of work/year in average. Since there are about 200 working days per year, this represent around 0.05 FTEs/year. Assuming for these small organisations a cost of 1 FTE = 30 k€, the **cost of option 1C for them can be estimated in the range of:**

$$950 \times 0.05 \times 30 = 1,425 \text{ k€/year.}$$

In case of option 1B (i.e. obligation for certification, but still flexible rules), the burden per organisation is assumed to be twice as much in comparison to option 1C. The affected organisations will be 750. Therefore the **cost of option 1B** for the operators under consideration can be estimated **in the range of:**

$$750 \times 0.1 \times 30 = 2,250 \text{ k€/year.}$$

Finally, in case of option 1A these operators will have to familiarise themselves with hundreds of legally binding pages of text and organise a more complex bureaucratic activity, in a field new for most of them. The required effort is expected to be in the range of 2 FTEs/organisation during the initial 5 years of application of the new rules. This represents for the operators under consideration, in this case 950, a **cost of option 1A** estimated **in the range of:**

$$950 \times 2 \times 30 = 57,000 \text{ k€/year.}$$

Of course organisations may incur additional costs due to the fees and charges levied by the competent authorities. However, these fees and charges are a national decision since there is no common EU policy on the matter. Furthermore, the situation today is very heterogeneous in the Member States. So in the present RIA the cost of national fees and charges schemes is not taken into account. This means that the additional costs incurred by the authorities are assumed to be paid by taxpayers.

Should States decide to charge part or the totality of the costs on the applicant, this will not change to total burden for the society which has been taken into account in 2.6.5.2 immediately above.

#### 2.6.5.4 Summary of economic impact

In summary, the costs (or saving) for the community at large can be presented in Table 29 below:

	k€/year		
	1A	1B	1C
<b>Estimated cost</b>	Certification process for all commercial air transport (CAT) operators based on prescriptive	Certification for CAT operators based on proportionate rules	Declaration by CAT operators of other than complex motor-powered aircraft, based on the requirements

	rules (i.e. EU-OPS)		for non-commercial operations with complex motor-powered aircraft
Rulemaking & standardisation	630	0	0
Oversight	11,400	4,020	720
Additional regulatory costs for large organisations	0	0	0
Savings for SMEs operating complex motor-powered aircraft	0	- 2,490	- 2,490
Additional regulatory cost for CAT operators by sailplanes or balloons	57,000	2,250	1,425
<b>TOTAL</b>	<b>69,030</b>	<b>3,780</b>	<b>- 345</b>
Additional demand	0	0	0
Additional tax	0	0	0

**Table 29: Summary of economic impact for CAT operations**

From this it can be observed that none of the options will create additional demand on the internal market. Option 1A will cost taxpayers around additional 630 k€/year to fund rulemaking activities (EC + EASA + authorities).

Oversight will in any case cause additional costs for the citizens (either taxpayers or applicant depending on national choices), in the range of 720 k€/year for option 1C, but more than 11 M€ for 1A. The latter will cause around 57 M€/year of cost for CAT operators by sailplanes or balloons.

Furthermore, it has to be taken into account that option 1A will provide for maximum uniformity while 1C will contribute less to it. Any of the options under consideration, all replacing national rules for air operations (beyond CAT by large aeroplanes) will be equally beneficial in order to reduce the burden for rulemaking at national level.

The monetary terms and the considerations immediately above, can be presented in table 30 below:

Specific Objectives	Scoring of options		
	1A	1B	1C
	prescriptive rules	proportionate rules	Declaration
Contain costs	-3	1	3
Level playing field	2	2	2
Proportionate rules for SMEs	-3	2	3
<b>TOTAL</b>	<b>-4</b>	<b>5</b>	<b>8</b>
<b>AVERAGE SCORE (Tot/3 quantified parameters)</b>	<b>-1,3</b>	<b>1,7</b>	<b>2,7</b>
<b>WEIGHTED AVERAGE (Score x 1 for economy)</b>	<b>-1,3</b>	<b>1,7</b>	<b>2,7</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>-1</b>	<b>2</b>	<b>3</b>

**Table 30: Scoring of the economic impact**

### 2.6.6 Social Impact

As regards social impact of the proposed rule, the first issue to consider is an employment effect. As described in section 2.6.5., the most significant economic impact is expected from option 1A "prescriptive rules". Significant adjustment costs are expected especially for sailplane and balloon operators. As these operators are usually small and medium size

enterprises with limited financial resources it cannot be excluded that a number of them will not be able to fulfil the requirements and go out of business. There is not sufficient data for this segment of aviation in order to make quantitative predictions, but it is considered adequate to reflect this expected negative effect in the scoring of the options below.

As the costs for the other options are limited no significant employment effect is expected here. No further social impacts (e.g. in terms of improved qualification and skills) are expected.

Specific Objectives	Scoring of options		
	1A	1B	1C
	prescriptive rules	proportionate rules	Declaration
Positive effect on the aviation employment market	-1	0	0
High quality jobs in the private sector	-1	0	0
<b>TOTAL</b>	<b>-2</b>	<b>0</b>	<b>0</b>
<b>AVERAGE SCORE (Tot/2 quantified parameters)</b>	<b>-1,00</b>	<b>0,00</b>	<b>0,00</b>
<b>WEIGHTED AVERAGE (Score x 1 for social impact)</b>	<b>-1,00</b>	<b>0,00</b>	<b>0,00</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>-1</b>	<b>0</b>	<b>0</b>

**Table 31: Scoring of the social impact**

#### *2.6.7 Regulatory harmonisation*

##### 2.6.7.1 Compatibility with other EU/EASA regulations

All three options are compatible with Community law. In fact they are:

- based on essential requirements adopted at legislative level as predicated by the “new approach”<sup>58</sup>;
- in line with the Basic Regulation which applies, as far as possible, the principles of the “new approach” also to the safety of services;
- fully compliant with the essential requirements in Annex IV to the Basic Regulation;
- compatible with Article 8(2) of said basic Regulation, which leaves to the level of implementing rules the choice between certification and alternative means (e.g. declaration).

However, option 1A leads to many provisions with force of law, contrary to the spirit of Article 3 of Decision 768/2008. It has hence to be considered slightly negative in this respect. Vice versa options 1B and 1C fully follow the letter and spirit of said Article.

Furthermore, all the options under considerations are compliant with Articles 3(1) and 6 of the revised Regulation<sup>59</sup> on the “third package” for the liberalisation of the air transport which requires an Operating Licence to operate CAT within the Community, however exempting from this obligation CAT operators of non-motorized aircraft and local flights. This exemption

<sup>58</sup> “New approach” for the safety of industrial products, first introduced by Council Decision of 07 May 1985 and then modernised by Council Decision 768/2008/EC of the European Parliament and of the Council of 09 July 2008 on a common framework for the marketing of products and repealing Council Decision 93/465/EEC (*OJ L 218 of 13 August 2008, pages 82-128*).

<sup>59</sup> Regulation (EC) N. 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community (Recast) (*OJ L 293 of 31 October 2008, pages 3-20*).



however is only applicable to the operating licence and as stated in the definition of AOC does not exempt those operations from obligations under Community law regarding the AOC.

Finally all the content is largely based on EU-OPS (former JAR-OPS 1), as well as on adopted JAA material (e.g. JAR-OPS 3) or even JAA draft material (e.g. JAR-OPS 0, 2 and 4). Therefore, they all build upon JARs in order to ensure a smooth transition.

#### 2.6.7.2 Compatibility with ICAO standards

ICAO Annex 6 requires, since 1990, CAT operators active in the field of international civil aviation, to hold an AOC. All the three options are fully compliant with this ICAO standard.

The proposed rules however cover a much wider scope than ICAO provisions, e.g.:

- intra-EU flights from/to airports not responding to the definition of "international airport" in ICAO Annex 9 (i.e. with customs, immigration and similar, not necessary in the so called "Schengen" area);
- domestic CAT operations within one Member State; and
- commercial A to A flights.

Nevertheless, the proposed rules extend the ICAO provisions, as far as appropriate, even to mentioned operations beyond the ICAO scope.

#### 2.6.7.3 Harmonisation with other foreign regulatory bodies

The proposed rules ensure to a large extent harmonisation with other foreign regulatory frameworks (e.g. FAA and Transport Canada), however some minor differences still exist due to different interpretations of ICAO SARPS and differences filed by those States where EASA is not intending to deviate from the ICAO SARPS.

However, the Agency is engaged in harmonisation efforts with the FAA and TCCA and it is considered that the rules for air operation will have a neutral effect on the mutual recognition, since the rules are for the majority based on EU-OPS. Currently those minor differences have not led to any exclusion from access to those countries.

#### 2.6.7.4 Summary of impact on regulatory harmonisation

The above considerations are then translated into scores related to the applicable specific objectives in the following table 32:

Specific Objectives	Scoring of options		
	1A prescriptive rules	1B proportionate rules	1C Declaration
Consistency with EU rules	-1	3	3
Smooth transition from JAR-OPS	3	3	3
Compliance with ICAO standards	3	3	3
Harmonisation with other Regulatory frameworks	0	0	0
<b>TOTAL</b>	<b>5</b>	<b>9</b>	<b>9</b>
<b>AVERAGE SCORE (Tot/4 quantified parameters)</b>	<b>1,25</b>	<b>2,25</b>	<b>2,25</b>
<b>WEIGHTED AVERAGE (Score x 1 for regulatory harmonisation)</b>	<b>1,25</b>	<b>2,25</b>	<b>2,25</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>1</b>	<b>2</b>	<b>2</b>

**Table 32: Scoring of impact on regulatory harmonisation***2.6.8 Multi Criteria Analysis (MCA) and recommended option*

According to the methodology described in paragraph 2.1.3 and the scores attributed in paragraphs 2.6.3 to 2.6.7, the following matrix for MCA is provided:

Weighted score of options for CAT operations		Options		
		1A	1B	1C
Key Performance Area	Weight	prescriptive rules	proportionate rules	Declaration
Safety	3	0	8	5
Environmental	2	0	0	0
Economic	1	-1	2	3
Social	1	-1	0	0
Regulatory harmonisation	1	1	2	2
<b>WEIGHTED TOTAL</b>		<b>-1</b>	<b>12</b>	<b>10</b>

**Table 33: Multi Criteria Analysis for CAT operations**

From Table 33 above it can be observed that option 1B has a score higher than the other two. In particular, while all the three options are neutral for the environment KPA, option 1B:

- Scores significantly better in safety terms than 1C, while option 1A is neutral for this KPA;
- Is clearly positive in economic terms for the society at large, although not as positive as 1C while option 1A is clearly negative;
- Is optimal in terms of social impact (as 1C);
- Is optimal (as 1C) in terms of regulatory harmonisation.

## **2.7 Commercial aerial work**

### *2.7.1 Options*

The ICAO definition for "*aerial work*" includes all aircraft operations in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc. However the ICAO definition does not make any distinction between remunerated and non-profit aerial work (e.g. contract between a customer and an operator) or specialized services carried out through State flights (e.g. search and rescue, fire fighting and similar).

At Community level, the Basic Regulation excludes from the scope of the Agency "military, customs, police or similar services". Its Article 3 (i) defines as "*commercial operation*" any operation of an aircraft, in return for remuneration or other valuable consideration which is available to the public or, when not made available to the public, which is performed under a contract between an operator and a customer, where the latter has no control over the operator. This definition includes commercial aerial work and such operations are therefore within the scope of the Agency.

According to the communication of the European Commission<sup>60</sup>, European aerial work companies provide high volume, numerous specialised services, both in the Community and third countries. These range from map charting, construction works, pipeline patrolling and conservation, agricultural flights and environment surveillance to weather research, fire-fighting, TV-Live reporting, traffic surveillance and other. The communication also states that the variety of aerial work and general aviation activities creates challenges as policy initiatives cannot be based on the "one size fits all" approach.

Finally, the extension of the Community competences in aviation will most likely increase the importance of aerial work in many areas.

Therefore, taking into account the current situation of aerial work operations and the potential growth of such activities in the future, the Agency has identified three possible alternative options for the safety regulation of commercial aerial work:

- 2A: impose a certification process for all operators of commercial aerial work (prescriptive implementing rules);
- 2B: certification for all operators of commercial aerial work, based on proportionate rules for aerial work;
- 2C: declaration attesting their conformity to requirements similar to those applicable to non-commercial operations with complex motor-powered aircraft, followed by systematic oversight by competent authorities.

### *2.7.2 Target group and number of entities concerned*

#### 2.7.2.1 Competent Authorities

Commercial aerial work operators registered in the EU 27 + 4 are under oversight by the respective competent authorities. All 31 authorities will therefore be involved by any of the options under consideration.

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<sup>60</sup> COM (2007) 869 final of 11 January 2008: "An Agenda for Sustainable Future in General and Business Aviation".

Equally, as already noted in 2.6.2.1 above with reference to CAT operations, the Agency and the European Commission will be involved since option 2A may lead to frequent amendments of legally binding text as well as frequent derogation requests while this need may be considerably decreased in the case of options 2B or 2C.

#### 2.7.2.2 Air operators

The AirClaims database contains 59 operators with 270 aircraft. Based on this database it is assumed that each aerial work operator has an average of 4.5 aircraft: **these organisations can be considered SMEs.**

Since AirClaims only contains aircraft with more than 19 seats and business jets this result is not giving a complete picture of aerial work operations in Europe. Therefore, the Agency conducted a survey among the EU 27+4 Civil Aviation Authorities in May 2007. 11 Member States reported 1,103 aerial work operators using motorized aircraft, approved, authorized or anyway known on the basis of a declaration.

AT, DE, NL and UK reported that indeed they do not know how many aerial work operators exist in their country since there is neither any form of approval nor any form of declaration. The available data are summarised in Table 34 below:

Reporting State	Civilian commercial aerial work operators		TOTAL
	Approved, certified or authorized	having signed a "self-declaration"	
BG	26		26
CZ	168		168
DK	18		18
EE	1		1
FR		745	745
IS	3		3
IT	64		64
LT	3		3
NO	13		13
SE	6		6
CH	35		35
<b>TOTAL</b>	<b>358</b>	<b>745</b>	<b>1,103</b>
<b>Percentage</b>	<b>33%</b>	<b>67%</b>	<b>100%</b>

**Table 34: Reported number of commercial aerial work operators**

The 11 States reporting the number of aerial work operators represent approximately 33% of the EU 27+4 total population. Using the share of population to extrapolate to the whole EU 27+4, the resulting estimate by the Agency is approximately a total of 3,300 civilian commercial aerial work operators using motorized aircraft. However, 4 more States with a relatively large population (i.e. AT, DE, NL and UK) reported that they do not know how much aerial work activity does exist in their countries, because it is not subject to any form of approval or self-regulation. These 4 States together represent 33% of the EU 27 + 4 population.

Based on these considerations, the Agency estimates that today approximately 50% of the commercial aerial work operators using motorized aircraft are not subject to any form of public oversight (i.e. 1,650). Among the remaining 1,650, 2/3 (i.e. 1,100) are subject to a declaration process (as in France) and 1/3 (i.e. 550) to an approval, certification, authorization or similar.

The 1,650 commercial aerial work operators which today are not subject to any form of safety oversight by competent authorities will be affected by any of the three options under consideration.

The 1,100 operators subject to some form of declaration regime today will be affected by either option 2A or 2B (which means obligation to be certified), but nothing will change in case of option 2C.

Finally, the 550 operators already subject to certification, authorization or approval will not be affected by option 2A (i.e. basically same regulatory regime), but they will be affected by either option 2B or 2C.

No State has reported any civilian commercial aerial work operator by sailplanes or balloons. However, almost the totality of sailplane or balloons operators have already been considered in paragraph 2.6 above and therefore it is not appropriate to analyse them further in 2.7.

### 2.7.2.3 Summary of affected entities

In conclusion, on the basis of the information in sub-paragraphs 2.7.2.1 and 2.7.2.2 above, the number of affected entities is estimated in table 35 below:

Entities	2A	2B	2C
	Certification based on prescriptive rules	Certification based on proportionate rules	Declaration
EU entities (EC/EASA)	2	2	2
competent authorities	31	31	31
<b>Total public entities</b>	<b>33</b>	<b>33</b>	<b>33</b>
Using motorized aircraft and already subject to certification or other form of approval	0	550	550
Using motorized aircraft and already subject to oversight by competent authority after signature of the declaration	1,100	1,100	0
Using motorized aircraft but today not subject to any safety oversight by competent authorities	1,650	1,650	1,650
Using sailplanes or balloons	0	0	0
<b>Total regulated SMEs</b>	<b>2,750</b>	<b>3,300</b>	<b>2,200</b>
<b>TOTAL</b>	<b>2,783</b>	<b>3,333</b>	<b>2,233</b>

**Table 35: Number of affected entities in relation to commercial aerial work**

### *2.7.3 Safety Impact*

The safety analysis in 2.3.2 above used data grouped per aircraft category since a clear taxonomy for air operations was neither available nor reported. Therefore, it is very difficult to single out safety data for commercial aerial work. However:

- Data reported shows that the absolute number of accidents/year recorded for aircraft other than large aeroplanes used for CAT is even higher than the number reported for those large aeroplanes;
- Most aerial work operations are carried out at low flight altitude;
- And often at short notice towards locations not previously experienced and landing out of specially adapted aerodromes.

Therefore, safety of commercial aerial work requires attention (even in relation to protection of people and property on the ground) while there are margins for improvement.

In the case of option 2A, approximately 2,750 additional commercial aerial work operators will be subject to certification and oversight. Although it is considered that this increases generally the level of safety, such increase may not be so significant because the burden connected to formally showing compliance with many rules (e.g. filling long checklists) might divert part of the scarce resources available into those small organisations (typically much less than 50 full time employees), towards bureaucratic obligations, so diverting available effort from actual safety matters. It is therefore considered that the effects may balance each other. The increase of safety jeopardises the need for flexibility. The **Option 2A is therefore neutral** in that respect (score 0).

**Option 2C is considered low negative** (score -1) because, contrary to 2B where oversight precedes certification, in 2C it follows the declaration. So there is no pre-approval of the aerial work activity. In particular for the 550 operators already subject to certification scheme, it is considered to be a regression.

**Option 2B (certification, but proportionate rules), could produce, according to the Agency's preliminary estimate, a medium safety benefit (score +2). It is considered to increase safety without jeopardising the need for flexibility for these types of operations.**

In terms of uniformity of the achieved safety levels, options 2A and 2B are optimal while the less controlled declaration process, although based on common rules, has to be considered less optimal.

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 2.4.3, scores can be attributed for the safety impact of the three options related to the safety of commercial aerial work operations, as presented in the following Table 36:

Specific Objectives	Scoring of options		
	2A	2B	2C
	prescriptive rules	proportionate rules	Declaration
High safety of air operations	0	2	-1
Uniform safety	2	2	1
<b>TOTAL</b>	<b>2</b>	<b>4</b>	<b>0</b>
<b>AVERAGE SCORE</b>			
(Tot/2 quantified parameters)	1	2	0
<b>WEIGHTED AVERAGE (Score x 3 for safety)</b>	<b>3</b>	<b>6</b>	<b>0</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>3</b>	<b>6</b>	<b>0</b>

**Table 36: Scoring of the safety impact for commercial aerial work**

#### 2.7.4 Environmental Impact

Nothing in the proposed implementing rules (and associated AMCs) is considered to have a significant impact on environment.

### 2.7.5 Economic Impact

#### 2.7.5.1 Rulemaking and standardisation cost

Like in the case of CAT operations, none of the options under consideration will in any way change the role and technical tasks of the Agency in respect of preparation of the rules through the rulemaking procedure. Equally the standardization activities in the domain of air operations will not change with respect to the tasks already assigned by the legislator through the Basic Regulation.

However, options 2B and 2C (i.e. the majority of the rules likely to be frequently amended at the level of AMCs) at the end of the rulemaking procedure will lead to a Decision by the Agency's Executive Director. The cost of the procedure to sign the Decision is already considered to be included in Agency's budget for rulemaking activities.

On the contrary, from a procedural point of view, option 2A may imply relatively frequent legislative modifications requiring (downstream of the EASA Opinion) about:

- 0.2 FTEs/year in the Commission;
- 0.2 FTEs/year from the Agency to support comitology with information; and
- about 0.1 FTE/year by the 20 most active Member States to participate to comitology.

This could represent a total of 2.4 FTEs/year plus travel for the competent authorities to participate to Committee meetings.

Assuming 1 FTE to represent 120 k€ (2009) of labour cost and travel an additional 5% of it, this leads to an estimation of 126 k€/FTE.

**In other words, option 2A could lead to additional costs for the adoption of the rules, in the range of (2.4 x 126) 302 k€/year.**

#### 2.7.5.2 Certification and oversight cost

In option 2A, all 31 competent authorities will have to carry out certification and oversight of commercial aerial work operators. These operators also often carry out special operations at low flight altitude. Around 0.1 FTE/organisation will be required in average per year for the appropriate oversight after initial certification. The burden for initial certification is not taken into account in the present RIA, although logically it will be greater than the workload for the stabilised situation.

In paragraph 2.7.2.3 above, the number of additional commercial aerial work operators affected by this option 2A has been estimated in the range of 2,750. However, from 2,750 operators 1,100 were already subject to a declaration scheme. It can therefore be assumed that some are saving costs because the authorities would have had already in place a oversight activity over these operators. It could then be estimated that approximately 0.03 FTE/year are required for each declared organisation. Assuming again the cost of 1 FTE in the administrations equal to 120 k€ (2009)/year, **the cost of oversight in option 2A can be estimated as:**

$$2,750 \times 0.1 \times 120 - 1,100 \times 0.03 \times 120 = 29,040 \text{ k€/year.}$$

In option 2B the certification and oversight of commercial aerial work operators already subject to certification or declaration today may be simplified since the rules and associated AMCs will best be tailored to the actual complexity of their operations. Authorities might save 0.05 FTEs for each of the certification and oversight activities of the 550 operators already certified today and the same for the 1,100 operators subject to a declaration regime (total 1,650) today. This

represent a saving of about  $1,650 \times 0.05 \times 120 = 9,900$  k€/year. The number of newly certified aerial work operators has been estimated in the range of 1,650. Therefore the additional cost would be:  $1,650 \times 0.1 \times 120 = 19,800$  k€/year.

**In conclusion the estimated cost of oversight for option 2B will be:**

$$19,800 - 9,900 = 9,900 \text{ k€/year.}$$

Finally, in option 2C nothing will change for the 1,100 operators already subject to a declaration. But 3,300 k€/year, as in option 2B, will still be saved by the 550 operators already certified today because they will not be subject to a certification scheme. Furthermore, the declaration process, instead of the certification process, will require less effort from the competent authorities with respect to options 2A or 2B while they will have still to conduct oversight. Assuming then that 0.05 FTEs will be required per year to oversee one of the newly regulated commercial aerial work operators, and recalling that in paragraph 2.7.2.3 the number of such affected operators has been estimated around 1,650, it can be concluded that for option 2C the cost for overseeing these newly regulated operators could be estimated in the range of:  $1,650 \times 0.05 \times 120 = 9,900$  k€/year.

**In conclusion there will be no additional cost for oversight for option 2C:**

$$9,900 - 3,300 = 6,600 \text{ k€/year.}$$

#### 2.7.5.3 Regulatory cost for the operators

Nothing will change for the commercial aerial work operators already certified today in case of option 2A. However, in case of options 2B or 2C most of the rules applicable to them will become more adapted to the complexity of their respective operations. This "tailoring" of the requirements to the actual safety needs, paralleled by reduction of unnecessary bureaucratic requirements, could, in some cases, imply savings for each organisation, in the range of 0.05 FTEs/year. Since the number of affected operators has been estimated in the range of 550 in paragraph 2.7.2.3, it can be concluded that either option 2B or 2C, for this group of operators, will represent savings in the range of:  $550 \times 0.05 = 27.5$  FTEs.

For these SMEs the cost of labour is assumed to be in average 60 k€ (2009)/year. **Therefore, the saving in monetary terms will be for options 2B and 2C and for SMEs:  $27.5 \times 60 = 1,650$  k€/year.**

Nothing will change for the operators today subject to a declaration in the case of option 2C.

On the contrary, the proposed certification process represents an additional burden for them. In case of option 2B (i.e. obligation for certification, but still flexible enough) the burden per organisation could be assumed to marginally increase by 0.05 FTEs. The affected organisations will be 1,100. 0.05 FTEs represent about 10 working days (out of 210 working days in the year). Therefore the **cost of option 2B** for the operators under consideration can be estimated **in the range of:**

$$1,100 \times 0.05 \times 60 = 3,300 \text{ k€/year.}$$

In case of option 2A, these operators will have to comply with prescriptive rules and organise a more complex bureaucratic activity, in a field new for most of them. The required effort is expected to be in the range of 1 FTE/organisation during the initial 5 years of application of the new rules. This represent for the operators under consideration a **cost** estimated **in the range of:**

$$1,100 \times 1 \times 60 = 66,000 \text{ k€/year.}$$



Finally, 1,650 commercial aerial work operators will come under certification or declaration and regulatory oversight. In case of option 2C, this burden can be assumed in the range of only about 10 days of work/year in average, which represents around 0.05 FTEs/year. Therefore, the **cost of option 2C for them can be estimated in the range of:**

$$1,650 \times 0.05 \times 60 = 4,950 \text{ k€}/\text{year}.$$

In case of option 2B (i.e. obligation for certification, but still proportionate rules) the burden per organisation is assumed to be twice as much in comparison to option 2C. Therefore, the **cost of option 2B** for the operators under consideration, can be estimated **in the range of:**

$$1,650 \times 0.1 \times 60 = 9,900 \text{ k€}/\text{year}.$$

Finally, in case of option 2A these newly certified operators will have to comply with prescriptive rules and organise a more complex bureaucratic activity in a field new for most of them. The required effort is expected to be in the range of 1 FTEs/organisation during the initial 5 years of application of the new rules. This represents for the operators under consideration a **cost estimated in the range of:**

$$1,650 \times 1 \times 60 = 99,000 \text{ k€}/\text{year}.$$

For the possible fees and charges levied by the competent authorities, the same considerations as in 2.6.5.3 above are applicable and therefore these fees and charges are not included in the calculation.

#### 2.7.5.5 Summary of economic impact

In summary the costs (or saving) for the community at large, can be presented in Table 37 below:

Estimated cost	K€/year		
	2A	2B	2C
	prescriptive rules	Proportionate rules	Declaration
Rulemaking & standardisation	302	0	0
Oversight	29,040	9,900	6,600
Savings for aerial work operators already certified	0	- 1,650	- 1,650
Additional regulatory cost for aerial work operators today subject to "self-declaration"	66,000	3,300	0
Additional regulatory cost for aerial work operators today not subject to safety oversight	99,000	9,900	4,950
<b>TOTAL</b>	<b>194,342</b>	<b>21,450</b>	<b>9,900</b>

**Table 37: Summary of economic impact for commercial aerial work**

From these numbers, it can be concluded that option 2A can cost taxpayers around additional 300 k€/year to fund rulemaking activities (EC + EASA + authorities).

Certification and oversight can cause additional costs for the citizens (either taxpayers or applicant, depending on national choices) in the range of 10 M€/year for option 2B and approx. 30 M€ for option 2A. Option 2C can cause additional cost in the range of 6M€/year. The latter

will cause around 165 M€/year of additional regulatory cost for commercial aerial work operators. In case of option 2B, the burden for operators is estimated in the range of 11 M€/year. In the case of option 2C, the estimated range is of 3 M€/year.

Furthermore, it has to be taken into account that option 2A will provide for maximum uniformity while 2C will contribute less to it. Any of the options under consideration, all replacing national rules for aerial work, will be equally beneficial in order to reduce the burden for rulemaking at national level. Therefore, it is not necessary to assess this beneficial economic effect in detail in order to compare said options.

The monetary terms and considerations immediately above, can be presented in table 38 below:

Specific Objectives	Scoring of options		
	1A	1B	1C
	prescriptive rules	proportionate rules	Declaration
Contain costs	-3	-1	1
Level playing field	2	2	1
Proportionate rules for SMEs	-3	2	3
<b>TOTAL</b>	<b>-4</b>	<b>3</b>	<b>5</b>
<b>AVERAGE SCORE (Tot/4 quantified parameters)</b>	<b>-1,33</b>	<b>1,00</b>	<b>1,67</b>
<b>WEIGHTED AVERAGE (Score x 1 for economy)</b>	<b>-1,33</b>	<b>1,00</b>	<b>1,67</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>-1</b>	<b>1</b>	<b>2</b>

**Table 38: Scoring of the economic impact**

#### *2.7.6 Social Impact*

As regards social impact of the proposed rule, the first issue to consider is an employment effect. As has been described in section 2.7.5 the most significant economic impact is expected from option 2A. Significant adjustment costs are expected for aerial work operators. As these operators are usually small and medium enterprises with limited financial resources it cannot be excluded that, potentially, a number of them will not be able to fulfil the requirements and go out of business. There is not sufficient data for this segment of aviation in order to make quantitative predictions, but it is considered adequate to reflect this expected negative effect in the scoring of the options below (score -1).

As the costs for the other options are limited no significant employment effect is expected here. No further social impacts (e.g. in terms of improved qualification and skills) are expected.

Specific Objectives	Scoring of options		
	2A	2B	2C
	prescriptive rules	proportionate rules	Declaration
Positive effect on the aviation employment market	-1	0	0
High quality jobs in the private sector	-1	0	0
<b>TOTAL</b>	<b>-2</b>	<b>0</b>	<b>0</b>
<b>AVERAGE SCORE (Tot/2 quantified parameters)</b>	<b>-1</b>	<b>0</b>	<b>0,00</b>
<b>WEIGHTED AVERAGE (Score x 1 for social impact)</b>	<b>-1</b>	<b>0</b>	<b>0,00</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>-1</b>	<b>0</b>	<b>0</b>

**Table 39: Scoring of the social impact**

*2.7.7 Regulatory harmonisation*

2.7.7.1 Compatibility with other EU/EASA regulations

All the three options are compatible with the Basic Regulation.

- Option 2A is compatible with Article 8(2) of the Basic Regulation which obliges a commercial operator to obtain an AOC. The prescriptive rules leave no room for flexibility and could lead to an uneven level playing field.
- Option 2B is also compatible with Article 8(2) of the Basic Regulation. However, the conditions to obtain the certificate are proportionate to the complexity and particularity of their activity. This would allow operators to operate equally.
- Option 2C would also be compatible with Article 8(2) of the Basic Regulation if the related implementing rules foresee that commercial operators shall only declare their capabilities and means of discharging the responsibilities associated with the operation of the aircraft.

2.7.7.2 Compatibility with ICAO standards

ICAO only provides a definition of aerial work (in Annex 6 defined as "an aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.") but has not included any SARPS specifically addressing those operations in its Annexes.

2.7.7.3 Summary of impact on regulatory harmonisation

The above considerations are then translated into scores related to the applicable specific objectives in the following table:

Specific Objectives	Scoring of options		
	2A	2B	2C
	prescriptive rules	proportionate rules	Declaration
Consistency with EU rules	2	3	2
Compliance with ICAO standards	1	1	1
<b>TOTAL</b>	<b>3</b>	<b>4</b>	<b>3</b>
<b>AVERAGE SCORE (Tot/4 quantified parameters)</b>	<b>1,5</b>	<b>2</b>	<b>1,5</b>
<b>WEIGHTED AVERAGE (Score x 1 for regulatory harmonisation)</b>	<b>1,5</b>	<b>2</b>	<b>1,5</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>2</b>	<b>2</b>	<b>2</b>

**Table 40: Scoring of impact on regulatory harmonisation**

*2.7.8 Multi Criteria Analysis (MCA) and recommended option*

According to the methodology described in paragraph 2.1.3 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 aerial work operations		Options		
		2A	2B	2C
		prescriptive rules	proportionate rules	Declaration
Key Performance Area	Weight			
Safety	3	3	6	0
Environmental	2	0	0	0
Economic	1	-1	1	2
Social	1	0	0	0
Global harmonisation	1	1,5	2	2,0
<b>WEIGHTED TOTAL</b>		<b>3,5</b>	<b>9</b>	<b>4,0</b>

**Table 41: Multi Criteria Analysis for aerial work operations**

From Table 41 it can be observed that, taking into account all the considerations mentioned above, option 2B scores about three times as much as 2C and 2A. In particular option 2B:

- Is the one with the highest score in safety terms;
- Is clearly positive in economic terms for the society at large, costing about 21 M€/year in total (mainly internal costs for the competent authorities and for aviation stakeholders,), although not as positive as 2C (cost of about 9.9 M€/year), while option 2A is clearly too expensive (total cost around 200 M€/year);
- is neutral in social terms, compared with option 2A which could have negative consequences;
- Is positive (as 2C) in terms of regulatory harmonisation.

## **2.8 Non-commercial operations by complex motor-powered aircraft**

### *2.8.1 Options*

Article 8(3) of the Basic Regulation requires that operators engaged in non-commercial operations of complex motor-powered aircraft shall "*declare*" their capability and means of discharging their responsibilities, "*unless otherwise determined in the implementing rules*". Article 3(h) therein defines the air operator as any legal or natural person, operating (or proposing to operate) one or more civilian registered aircraft, regardless of their ownership.

These legal definitions then:

- clarify that the operator can be a single natural person;
- allow clear distinction between the owner of the aircraft and the organisation (or person) taking responsibility for its operation;
- leave open the possibility for different solutions at the level of IRs, such as certification for all operators in this group, certification for some of them and declaration for the rest, declaration for some and exemption for the rest.

In recent years the issue of so called "fractional ownership", which is considered by some as being at the border between commercial air transport and non-commercial operations, has been discussed at length. In fact, such schemes for collectively owning an aircraft spread mainly in the USA and gave the possibility of bringing business travellers to the EU, without any organisation holding an AOC. Since this requirement was imposed on some EU operators, they felt that there was a disparity. The discussion focused also on the need to clearly understand and legally define roles and responsibilities.

Moreover, it is recognised that the issue is not limited to fractional ownership operations but is also concerning operations where an owner of an aircraft contracts with an aircraft management company to maintain and operate the aircraft on his/her behalf solely for his/her benefit.

According to mentioned COM (2007) 869, the European Commission stated that different forms of aircraft management services, including fractional ownership programmes, as well as operations not performed under air transport contracts, do not constitute "carriage by air of passengers for remuneration and/or hire" and therefore are not subject to the requirement of the operating license. The Commission added however, that this is without prejudice to any Community rules concerning safety of aviation. Therefore, there is scope to analyse different solutions to ensure the fulfilment of safety requirements.

At present, Fractional Ownership programmes are not standardised internationally at ICAO level since there are neither special provisions governing this type of operation in the Chicago Convention nor regional ICAO provisions.

The Agency now deems that the Basic Regulation sufficiently clarifies that any flight has to be under the responsibility of an air operator; that the latter can be a natural or legal person; and that it is not relevant, from the safety perspective, whether the operator is or not also the aircraft owner.

Having cleared the above, the Agency has identified three possible options (which are also applicable to the entity operating one or more aircraft under fractional ownership schemes):

- 3A: all organisations managing one or more complex motor-powered aircraft shall hold an Air Operator Certificate (AOC), based on the same process applicable to commercial operations

- 3B: all organisations managing one or more complex motor-powered aircraft shall be certified, however based on rules proportionate to the size and performance of the aircraft, as well as the volume and complexity of operations;
- 3C: Declaration signed by the natural or legal person managing the aircraft and endorsed by the owner(s), based on proportionate rules.

### 2.8.2 Target group and number of entities concerned

#### 2.8.2.1 Competent Authorities

The volume of rules applicable in this case will be reduced in comparison to the one for commercial air transport as discussed in paragraph 2.6. Therefore, the impact on the European Commission, the Agency and the competent authorities for rulemaking will be negligible for any of the options under consideration.

Conversely all the 31 competent authorities will be involved in safety oversight, not only in case of options 3A and 3B (i.e. certification), but even in the case of the declaration (i.e. option 3C).

#### 2.8.2.2 Air operators

According to mentioned COM (2007) 869, complete data describing general and business aviation in Europe is not available, as it seems that such data is not being gathered in a systematic and coherent way. Anyway, according to estimates by the EC in said COM, there are up to 50,000 motor-powered aircraft in Europe (including about 2,800 turbine-powered) in these segments of aviation, compared to about 5,000 aircraft in the European commercial airline fleet for scheduled or charter commercial air transport services. Furthermore, in 2006 about 9% of all aircraft movements registered by EUROCONTROL were accounted for general and business aviation but in their semantic this also includes aerial work when the flights include an IFR segment. Since 2003 the number of aircraft movements in this segment registered by EUROCONTROL has been growing almost twice as quickly as the rest of the traffic (22% more flights in 2006 than in 2003, compared to a 14% increase for the rest of the traffic).

Analysis of traffic trends, aircraft shipments and orders suggests that demand for highly flexible, private and business air transportation will continue to strongly grow in the years to come.

Based on data stemming from EUROCONTROL and from the European Business Aviation Association (EBAA), the Agency estimates that in the EU 27 + 4 the numbers of operators of complex motor-powered aircraft for non-commercial purposes are as presented in Table 42 below:

Type of air operations	Number	
	Aircraft	Operators
Corporate and Business Aviation	1095	298
Owner operated complex-motor powered aircraft (Non-commercial GA)	391	391
<b>Total non-commercial aviation with complex motor powered aircraft</b>	<b>1486</b>	<b>689</b>

**Table 42: Number of complex motor-powered aircraft and operators used in non-commercial operations**

All the 298 organisations plus 391 natural persons will be affected by any of the options under consideration.

### 2.8.2.3 Summary of affected entities

In conclusion, on the basis of the information in 2.8.2.1 and 2.8.2.2 above, the number of affected entities is estimated in table 43 below:

Entities	3A	3B	3C
	AOC based on prescriptive rules	Certification based on proportionate rules	Declaration
EU entities (EC/EASA)	0	0	0
competent authorities	31	31	31
<b>Total public entities</b>	<b>31</b>	<b>31</b>	<b>31</b>
Business aviation legal persons	298	298	298
Natural persons	391	391	391
<b>Total regulated persons</b>	<b>689</b>	<b>689</b>	<b>689</b>
<b>GRAND TOTAL</b>	<b>720</b>	<b>720</b>	<b>720</b>

**Table 43: Number of affected entities in relation to non-commercial operations using complex motor-powered aircraft**

### *2.8.3 Safety Impact*

Article 8(3) of the Basic Regulation states:

*Unless otherwise determined in the implementing rules, operators engaged in the non-commercial operation of complex motor-powered aircraft shall declare their capability and means to discharge the responsibilities associated with the operation of the aircraft.*

Furthermore, Article 8(5)(d) states:

*8(5) The Commission shall adopt, in accordance with the procedure laid down in Article 54(3), the rules for the implementation of this Article. In doing so, it shall specify in particular: [...]*

*(d) the conditions and procedures for the declaration by, and for the oversight of, operators referred to in paragraph 3 and the conditions under which a declaration shall be replaced by a demonstration of capability and means to discharge the responsibilities associated with the privileges of the operator recognised by the issuance of a certificate.*

These provisions stem from a concern that fractional ownership operations, although considered non-commercial, should be subject to a sufficient level of oversight. And in fact, Article 3(i) of the Basic Regulation clarifies that:

*"commercial operation" means any operation of an aircraft, against remuneration or other valuable consideration, which is available to the public or, when not made available to the public, which is performed under a contract between an operator and a customer, where the latter has no control over the operator".*

Since in the case of so called fractional ownership, the "customer" has control over the operator, the latter is not a commercial operator. However, even in this case, high levels of safety have to be ensured, also in relation to the protection of persons and property on the ground.

Generally speaking, the main differences between fractional ownership and traditional corporate aviation are related to the degree of the owners' involvement in the operation and their ability to exercise sufficient control. The owners in fact need neither to have any specific aviation competence, nor the need to spend time in operational aviation tasks. In case of options 3A and 3B, the owner will be assured by the AOC process that the operator possesses sufficient organisation and competence. However, also in case of option 3C this confidence will be reached since the proposed declaration, which has legal value, contains all the elements (including the name of the accountable manager or responsible natural person) necessary to demonstrate that the organisation managing the operations on behalf of the owners is taking operational control.

Furthermore, non-commercial operations of complex motor-powered aircraft are not driven by competitive pressures and the operational safety standards are to a significant degree under the control of the owners, which unavoidably take care for themselves and their invited passengers. In this case then the power (ownership) and interest (himself/herself is a passenger) of the owner can be a powerful tool to maintain sufficient levels of safety, even in the presence of the declaration instead of the certificate.

In fact, the data summarised in paragraph 2.3.2.5 on the safety of business aviation clearly shows that the rate of yearly accidents in the EASA 27 + 4 for air taxi (i.e. 5/year), corporate (i.e. 0.7/year) and owner-operated business aviation (i.e. 1.9/year) are lower than the rate for commercial air transport by large aeroplanes (i.e. 20.5). This safety record for corporate operations is at least equivalent to large scheduled airline operations and demonstrates the industry's long term voluntary application of good safety practices.

Given this safety record, there is no evidence that a more stringent certification scheme, in addition to the good practices already applied by the industry itself through its codes of practice, will lead to a substantial increase of the safety levels.

Requiring an air operator certificate may ensure an equivalent regulatory safety oversight for non-commercial operations as is provided for commercial operators. This level of safety oversight would however be far in excess of that applied to non-commercial operations in other areas of the world and contrary to international standards established by ICAO. Option 3A does not recognize the safety responsibilities of the owner which is a fundamental principle for regulating non-commercial operations in the international SARPs (score 0).

It is also important to note in this context that there is no differentiation in the rules between corporate and commercial operators in the EASA rules for FCL and airworthiness.

Option 3B would ensure a reasonable level of safety for aircraft owners who are not fully aware of the regulatory and safety responsibilities associated with aircraft ownership and operation and their fellow passengers. Given that fractional ownership operations are more complex than other non-commercial operations, some additional oversight may be justified even though the safety record of this aviation segment is excellent..

While all such operators would be required to meet the requirements specified in the Essential Requirements and associated Implementing Rules, there may be a small risk that faced with additional regulatory burden associated with certification some existing aircraft management companies may withdraw from the market which could in fact result in a degradation of safety. The safety record of aircraft management companies has been excellent, so the safety case for additional regulatory provisions for such operations beyond the Essential Requirements and associated Implementing Rules is limited (score 0).

Concerning option 3C, with only limited regulatory oversight there is some risk that aircraft managers could engage in operations without meeting the requirements for some time without being detected. As all fractional operations in Europe are now conducted under a commercial



air operator certificate, this may be considered a reduction in the level of safety only when operators choose to operate under non-commercial rules rather than commercial.

Given that managed operations are common in North America and Europe and have been conducted without requirement of any type of certificate and that there have not been identified safety problems, it would appear that there is no significant safety concern with this segment of aviation.

In summary, option 3C, although based on the declaration and not on a certification process, has to be considered sufficiently safe. It is in practice reflecting today's situation, so it will maintain but not improve the excellent safety levels already reached in this segment of aviation.

Furthermore, option 3C allows competent authorities to apply valuable resources to sectors of aviation that are considered to represent a greater risk. At the same time, the rule does not diminish the jurisdiction of these authorities and the obligation to oversee or even to take regulatory action against operators if it is determined that an operator has violated a safety rule. (score 0)

In terms of uniformity of the achieved safety levels, any of the options under consideration has a positive impact (score +2) since the clear legal framework will provide the certainty that was lacking until now.

In conclusion, applying the methodology presented in paragraph 2.1.3 above (including a weight factor of 3 for the safety impacts), and having selected the applicable result indicators linked to specific objectives from paragraph 2.4.3, scores can be attributed for the safety impact of the three options related to the safety of non-commercial operations of complex motor-powered aircraft, as presented in the following table:

Specific Objectives	Scoring of options		
	3A	3B	3C
	AOC based on prescriptive rules	Certification based on proportionate rules	Declaration
High safety of air operations	0	0	0
Uniform safety	2	2	2
<b>TOTAL</b>	<b>2</b>	<b>2</b>	<b>2</b>
<b>AVERAGE SCORE</b>			
(Tot/2 quantified parameters)	1	1	1
<b>WEIGHTED AVERAGE</b> (Score x 3 for safety)	<b>3</b>	<b>3</b>	<b>3</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>3</b>	<b>3</b>	<b>3</b>

**Table 44: Scoring of the safety impact for non-commercial operations by complex motor-powered aircraft**

#### *2.8.4 Environmental Impact*

Nothing in the proposed implementing rules (and associated AMCs) aims at building new infrastructure, promoting additional motorized flight or relaxing environmental rules. Furthermore, the contribution that general and business aviation makes to gaseous emissions is relatively small compared to that from the wider airline industry.

Any of the options under consideration has therefore to be considered environmentally neutral (score 0).

## 2.8.5 Economic Impact

### 2.8.5.1 Rulemaking and standardisation cost

As stated in 2.8.2.1 above, there will be neither additional costs nor savings for any of the options under consideration, in terms of rulemaking costs.

### 2.8.5.2 Oversight cost

In option 3C the oversight activities will remain more or less as today. Competent authorities will have to feed the declarations in their existing risk-based oversight system. Therefore, no significant additional costs for authorities are foreseen.

In Option 3A, all 31 competent authorities will have to carry out certification and oversight of operators of complex motor-powered aircraft based on prescriptive rules. These will apply in case of organisations, but also in case of natural persons (e.g. owner/operator or operator under fractional ownership arrangements).

The Agency estimates that around 0.1 FTE/organisation will be required in average per year, and 0.05 FTEs for natural persons. Assuming again the cost of 1 FTE in the administration equals to 120 k€ (2009)/year, the costs in the following Table 45 are estimated:

Operators		FTEs/operator/year	Total FTEs/year	k€/year
Type	N.			
Organisations	298	0.1	30	3,600
Natural persons	391	0.05	20	2,400
<b>TOTAL</b>			<b>50</b>	<b>6,000</b>

**Table 45: Cost of oversight in option 3A**

In option 3B the oversight will be simplified since the structure of the rules is performance-based, will best allow tailoring the way in which legal provisions are met to the actual complexity of their operations. It is estimated that the number of necessary FTEs in the authorities could be halved (i.e. 25) in comparison with 3A, and hence the cost will also be halved for this option 3B: 3,000 k€/year.

### 2.8.5.3 Regulatory cost for the operators

The European Civil Aviation Conference (ECAC) created a task force on the subject of fractional ownership which has delivered its report in 2006. Said task force had been informed by the European industry that clarity on how it could compete on level terms with the rest of the world was essential.

In particular the industry representatives pointed out that should European non-commercial operators be required to hold an AOC would greatly impinge on the European industry's ability to compete internationally.

Nothing will substantially change for the non-commercial operators of complex motor-powered aircraft in case of option 3C, taking into account that a certain regulatory framework is already established at the level of the Basic Regulation.

However, in case of option 3B, although most of the rules applicable to them will be flexible, these operators will have to support the certification process which today is not in place. This is assumed to represent about 0.3 FTEs/year per organisation. Natural persons might well

need to hire a consultant for this purpose. Cost of labour inside this organisation is assumed to be in the range of 60 k€ (2009)/year. Cost of consultants is assumed to be 90 k€ (2007)/year.

Therefore, the costs for option 3B can be calculated as in table 46 below:

Operators		FTEs/ operator/ year	Total FTEs/ year	k€/FTE	k€/year
Type	N.				
Organisations	298	0.3	89	60	5,340
Natural persons	391	0.3*	117	90	10,530
<b>TOTAL</b>			<b>206</b>		<b>15,870</b>

\*external consultant

**Table 46: Cost for operators in option 3B**

In case of option 3A (i.e. more requirements and more prescriptive ones, in addition to the obligation to achieve the AOC), the required effort may almost double as presented in Table 47:

Operators		FTEs/ operator/ year	Total FTEs/ year	k€/FTE	k€/year
Type	N.				
Organisations	298	0.5	149	60	8,940
Natural persons	391	0.5*	195	90	17,550
<b>TOTAL</b>			<b>344</b>	<b>150</b>	<b>26,490</b>

\*external consultant

**Table 47: Cost for operators in option 3A**

These levels of expected additional costs may even force a number of small/private operators to sell their aircraft. This, albeit not quantified herein, might have the effect of reducing the internal demand (in connection with aircraft operations and maintenance) as well as to generate unemployment. This has to be taken into account when scoring options 3A and 3B.

#### 2.8.5.4 Additional demand

Option 3C will create neither additional demand in the internal market, nor additional tax. Conversely, option 3B will create around 17,550 k€/year of additional demand (from aircraft owners to consultants) and consequently about 3,510 k€/year of additional tax (i.e. 20 %). Finally, option 3A will create additional demand in the range of 10,530 k€/year and additional tax in the order of 2,106 k€/year.

#### 2.8.5.5 Summary of economic impact

In summary, the costs (and the additional internal demand) for the community at large are presented in Table 48 below:

Estimated cost	k€/year		
	3A	3B	3C
	AOC based on prescriptive rules	Certification based on proportionate rules	Declaration
Rulemaking & standardisation	0	0	0
Oversight	6,000	3,000	0
Organisations	8,940	5,340	0
Natural persons	17,550	10,530	0
Variation of cost of damages	0	0	0
<b>TOTAL</b>	<b>32,490</b>	<b>18,870</b>	<b>0</b>
Additional demand	17,550	10,530	0
Additional tax	3,510	2,106	0

**Table 48: Summary of economic impact for non commercial operators of complex motor-powered aircraft**

Furthermore, any of the three options under consideration will reduce the need for national rules due to the existence of common EU rules.

The monetary terms and the qualitative considerations above are presented in Table 49 below:

Specific Objectives	Scoring of options		
	3A	3B	3C
	AOC based on prescriptive rules	Certification based on proportionate rules	Declaration
Contain costs	-3	-2	2
Proportionate rules for SMEs	-3	-2	3
<b>TOTAL</b>	<b>-6</b>	<b>-4</b>	<b>5</b>
<b>AVERAGE SCORE (Tot/3 quantified parameters)</b>	<b>-3,00</b>	<b>-2,00</b>	<b>2,50</b>
<b>WEIGHTED AVERAGE (Score x 1 for economy)</b>	<b>-3,00</b>	<b>-2,00</b>	<b>2,50</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>-3</b>	<b>-2</b>	<b>3</b>

**Table 49: Scoring of the economic impact**

### 2.8.6 Social Impact

As regards social impact of the proposed rule, the first issue to consider is an employment effect. As has been described in section 2.8.5. above, the most significant economic impact is expected from option 3A "AOC based on prescriptive rules". Significant adjustment costs are expected for non-commercial operators with this option. As these operators are usually small and medium enterprises with limited financial resources it cannot be excluded that a number of them will not be able to fulfil the requirements and go out of business. There is not sufficient data for this segment of aviation in order to make quantitative predictions but it is considered adequate to reflect this expected negative effect in the scoring of the options below (score -2).

As the costs for option 3B is limited (score -1) and for option 3C neutral (score 0), no significant employment effect is expected here. No further social impacts (e.g. in terms of improved qualification and skills) are expected (score 0).

Specific Objectives	Scoring of options		
	3A	3B	3C
	AOC based on prescriptive rules	Certification based on proportionate rules	Declaration
Positive effect on the aviation employment market	-2	-1	0
High quality jobs in the private sector	0	0	0
<b>TOTAL</b>	<b>-2</b>	<b>-1</b>	<b>0</b>
<b>AVERAGE SCORE (Tot/2 quantified parameters)</b>	<b>-1</b>	<b>-0,5</b>	<b>0</b>
<b>WEIGHTED AVERAGE (Score x 1 for social impact)</b>	<b>-1</b>	<b>-0,5</b>	<b>0</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>-1</b>	<b>-1</b>	<b>0</b>

Table 50: Scoring of the social impact

### *2.8.7 Regulatory harmonisation*

#### *2.8.7.1 Compatibility with other EU/EASA regulations*

All three options are compatible with Community law. In fact they are:

- based on essential requirements adopted at legislative level as predicated by the “new approach”;
- in line with the Basic Regulation which applies, as far as possible, the principles of the “new approach” also to the safety of services;
- fully compliant with the essential requirements in Annex IV to the Basic Regulation;
- compatible with Article 8(3) of the Basic Regulation, which leaves to IRs the decision between certification and declaration.

However, option 3A leads to many provisions with force of law, contrary to the spirit Article 3 of Decision 768/2008. It has hence to be considered slightly negative in this respect. Vice versa, options 3B and 3C fully follow the letter and spirit of the Article.

Finally, all the content is largely based on the applicable JAR-OPS for any of the options under consideration, which ensures a smooth transition.

Furthermore, option 3C is in line with the report presented to the ECAC DGCA meeting on 05 May 2006, where the task force established for the purpose strongly believed that a European safety regime for fractional ownership operations should provide for specific requirements similar to the safety standards applied to commercial operations but without the need to impose an AOC. Options 3A and 3B depart from this line.

#### *2.8.7.2 Compatibility with ICAO standards*

ICAO Annex 6 is structured in three parts:

- I for international CAT;
- II for international general aviation;
- III for international helicopter operations.

Amendment 27 to Part II, which covers the non-commercial operators, was adopted by the ICAO Council on 7 March 2008 to enter into force on 18 November of the same year. This amendment introduces into ICAO provisions requirements for complex motor-powered aeroplanes although the threshold slightly differs from that of the Basic Regulation. It does not introduce a requirement for an AOC since "corporate aviation has been largely self-regulated and has enjoyed an excellent safety record"<sup>61</sup>. Option 3C is fully in line with these recent ICAO provisions, while options 3A and 3B would depart from them.

### 2.8.7.3 Harmonisation with the FAA rules

The most comprehensive national regulations on fractional ownership exist in the US according to which fractional ownership programmes are treated as general aviation, i.e. non-commercial operations. Programme Managers (the operators in EU terms) offering these services are hence not required to possess an Air Operator's Certificate (AOC). However, the Management Services Specifications constitute a legal authorisation which can be revoked by the authority.

Option 3B and 3C go into the same direction, although option 3C with different details, allowing the competent authority to take safety measures if and when necessary. Options 3A will not be harmonised with the FAA approach.

### 2.8.7.4 Summary of impact on regulatory harmonisation

The above considerations are translated into scores related to the applicable specific objectives in the following table:

Specific Objectives	Scoring of options		
	3A	3B	3C
	AOC based on prescriptive rules	Certification based on proportionate rules	Declaration
Consistency with EU rules	-2	2	2
Compliance with ICAO standards	-3	-3	3
Harmonisation with FAA	-2	1	-1
<b>TOTAL</b>	<b>-7</b>	<b>0</b>	<b>4</b>
<b>AVERAGE SCORE (Tot/4 quantified parameters)</b>	<b>-2,33</b>	<b>0,00</b>	<b>1,33</b>
<b>WEIGHTED AVERAGE (Score x 1 for regulatory harmonisation)</b>	<b>-2,33</b>	<b>0,00</b>	<b>1,33</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>-2</b>	<b>0</b>	<b>1</b>

**Table 51: Scoring of impact on regulatory harmonisation**

### *2.8.8 Multi Criteria Analysis (MCA) and recommended option*

According to the methodology described in paragraph 2.1.3 and the scores attributed in paragraphs 2.8.3 to 2.8.7, the following matrix for MCA is provided:

<sup>61</sup> Paragraph 6C of ICAO State letter AN 11/6.3.21-08/27 of 02 April 2008, informing about Amendment 27 to Annex 6, Part II.

Weighted score of options for non-commercial operations with complex motor-powered aircraft		Options		
		3A	3B	3C
		AOC based on prescriptive rules	Certification based on proportionate rules	Declaration
Key Performance Area	Weight			
Safety	3	3	3	3
Environmental	2	0	0	0
Economic	1	-3	-2	3
Social	1	-2	-1	0
Global harmonisation	1	-2	0	1
<b>WEIGHTED TOTAL</b>		<b>-4</b>	<b>0</b>	<b>7</b>

**Table 52: Multi Criteria Analysis for non-commercial operations with complex motor-powered aircraft**

From Table 52 above it can be observed that only option 3C shows a definitely positive score, and in particular it:

- Has a positive safety impact;
- Is neutral in environmental terms;
- Has a positive impact in economic terms for the society at large, while the others are negative due to their cost on SMEs or natural persons;
- Is neutral in social terms while the two other options are slightly negative;
- Is positive in terms of regulatory harmonisation, while the other two are negative in this respect.

## **2.9 Non-commercial air operations with other than complex motor-powered aircraft**

### *2.9.1 Options*

The legislator required the Agency to issue an opinion on supplementing measures to Annex IV of the Basic Regulation through the requirements in Articles 8(1), 8(5) and 19<sup>62</sup>, also with respect to non-commercial operations with other than complex motor-powered aircraft..

This category includes:

- Motor-powered aircraft below the thresholds set by the definition in Article 3(j) of the Basic Regulation;
- Non-motorized aircraft: sailplanes and balloons.

Also airships fall under the latter category however, since the Agency is not proposing any air operations rules for airships with the present NPA, they are also excluded from this RIA.

An appropriate regulatory system needs to be designed to minimise the risk for regulatory gaps and overlaps. Consequently, all common issues should be addressed only once. Part-OPS seems to be the most appropriate legal vehicle to achieve this requirement. The provisions in Part-OPS applying to other than complex motor-powered aircraft used for non-commercial operations should be identical with the core regulatory elements applying to any flight with any aircraft, except those excluded from Community competence.

Having this in mind, the Agency has identified the following three options:

- 4A: Apply ICAO standards and recommended practices (Annex 6 Part II) even to operations outside the scope of ICAO Annex 6 (e.g. private domestic general aviation) through "light" IRs and AMCs, with the possibility for developing the latter also by the industry;
- 4B: Introduce sub ICAO provisions for certain operations involving non-complex aircraft;
- 4C: "Do nothing", i.e. do not introduce any specific IRs for non-commercial operations with other than complex motor-powered aircraft. In this case, the only applicable provisions would be those of the Essential Requirements in Annex IV of the Basic Regulation. Industry may add codes of best practice or similar, if so desired (i.e. "self-regulation").

A detailed comparison of these three options is offered in Table 53 below:

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<sup>62</sup> In fact Article 8(5) delegates to the Commission the competence to adopt implementing measures for the operation of all aircraft under the scope of the Basic Regulation. These aircraft, according to Article 8(1) include also types other than complex motor-powered aircraft (unless excluded by Annex II to the same Regulation). Article 19 mandates the Agency to develop opinions for this purpose.



Items	4A	4B	4C
	ICAO SARPs	sub ICAO provisions	only ERs
	Applicability of Essential Requirements	YES	YES
Safety Oversight (direct or delegated)	YES	YES	YES
EASA Implementing Rules (legally binding)	Light	Light	None
Certification of non-commercial operators	NO	NO	NO
Declaration signed by non-commercial operators	NO	NO	NO
Acceptable Means of Compliance (AMCs) adopted and published by the Agency	Light	Light	None
Fire extinguisher on board	YES	NO	NO
ELT on board	YES	NO	NO
Rules on minimum fuel	YES	YES	Partly

**Table 53: Comparison of options**

*2.9.2 Target group and number of entities concerned*

*2.9.2.1 Competent Authorities*

According to Article 10 of the Basic Regulation, all air operators (commercial and non-commercial) registered in the EU 27 + 4, are subject to safety oversight under the responsibility of the respective competent authorities. According to Article 10(2), Member States shall conduct investigations, including ramp inspections, and shall take any measure, including the grounding of aircraft, to prevent the continuation of an infringement.

For all three options the involvement of Member States can be considered equal. The Agency assumes that Member States already have non-commercial operations with other than complex motor-powered aircraft included in their oversight programme. Therefore, Article 10 may not have any impact on NAAs.

Options 4A and 4B would involve Agency resources for developing and sustaining AMCs and have a minor impact. In case of option 4C, the Agency will not be involved since there will be no further rules additional to the ERs adopted by the legislator.

Finally, since in the most demanding option 4A there will only be "light" IRs, the impact on the European Commission and the Regulatory Committee will be minor.

*2.9.2.2 Air operators*

As non-commercial operations with other than complex motor-powered aircraft have never been required to be certificated or declared, there are no official data available on the number of air operators involved. Taking into account the definition in Article 3 of an operator as "any legal or natural person, operating or proposing to operate one or more aircraft", it can be assumed that in the case of non-commercial operations with non-complex aircraft also natural persons (i.e. aircraft owners and pilots) are involved.

According to A-NPA 14/2006, there are approximately 300,000 private pilots and 80,000 other than complex motor-powered aircraft in Europe within the scope of the Basic Regulation, excluding those aircraft exempted by Annex II.

Thereof, the number of non-complex motor-powered aircraft operated non-commercially is estimated in the range of 52,000 (around 65 % of 80,000). Among those are about 46,800 aeroplanes and 5,200 helicopters.

The Agency estimates that 75 % of all non-commercial other than complex motor-powered aircraft are operated by organisations (e.g. aero clubs). Assuming that each aero club manages on average about 8 aircraft, the number of such clubs in Europe is estimated to be 7,500. The remaining 25 % of other than complex motor-powered aircraft (20,000) are assumed to be managed by owner/pilots.

Option 4A would imply standard ICAO on board equipment for all 52,000 non-complex motor-powered aircraft (aeroplanes and helicopters). The Agency estimates that about 75 % of this fleet is already equipped with fire extinguisher while the remaining 25 % will need to be retrofitted (=13,000 aircraft). For the ELT, the need to equip could impact around 50 % of the same fleet (=26,000 aircraft).

Option 4B or 4C would not imply that a fire extinguisher or an ELT must be installed for non-complex motor-powered aircraft.

### 2.9.2.3 Summary of affected entities

In conclusion, on the basis of the information in sub-paragraphs 2.9.2.1 and 2.9.2.2 above, the number of concerned entities is estimated in Table 54 below:

OPTION		Authorities	Estimated Number		Number of aircraft affected for retrofit
			Non-commercial operators of other than complex motor-powered aircraft		
Id.	Description		Aero clubs	Owner/pilots	
4A	ICAO SARPs	31 NAA Agency EC	7,500	20,000	13,000 (retrofit for fire extinguisher) & 26,000 (retrofit for ELT)
4B	sub ICAO provisions	31 NAA Agency EC	7,500	20,000	0
4C	Only ERs	31 NAA	7,500	20,000	0

**Table 54: Number of affected entities for non-commercial operations with other than complex motor-powered aircraft**

### *2.9.3 Safety impact*

According to A-NPA 14/2006, there were no consolidated European wide statistics covering a sufficient number of years covering non-commercial operations with other than complex motor-powered aircraft, as there were no common ICAO standards for collecting and sharing data for this segment of aviation. Available studies coming from Member States and other countries however had shown that, among the causal factors linked to aviation accidents for this category of aircraft, the design related failure rate was very low. Human performance (in particular pilot decision making) and weather were the most common contributing factors.

The General Aviation Regulatory Review conducted by CAA UK<sup>63</sup> in the same time frame of the above mentioned A-NPA concluded that the *“estimated fatal accident rates per 100 000 hours for the group of aircraft in the conventional aeroplanes full regulation category were statistically better than those in the devolved and self-regulation group”* (i.e. the segment under consideration in this paragraph 2.9). The review recommended further study *“to investigate the possible correlation between regulatory regime and general aviation fatal accident rates and causal factor”*s. This suggests the need for possible better regulation, in the first place in the domain of training/licensing standards for pilots.

In the case of option 4C only the Essential Requirements would apply. Although other means such as training could compensate the risks linked to airmanship, the absence of specific OPS requirements, e.g. more specific equipment carriage and specific minimum fuel requirements may have a medium negative impact on safety (score -1).

If option 4B is followed, some IRs (provisions less demanding than the ICAO SARPs) would be adopted to mitigate the safety risks. However, it would not require an ELT nor a fire extinguisher on board. Nevertheless, it could well contribute to the prevention of accidents linked to fuel causal factors. This option would therefore have a minor positive impact on safety (score 1).

Finally, in the case of option 4A the same beneficial effect of option 4B could be achieved in terms of occurrence of accidents. Furthermore, this option would make mandatory the ICAO requirement to have Emergency Locator Transmitter (ELT) and a fire extinguisher on board of non-complex motor-powered aircraft. None of these equipments contributes to avoiding accidents. However, both of them could contribute to mitigate the severity of the effects of accidents, in particular the ELT. Overall, this option would have the strongest safety impact (score 3).

The controlled mechanism for the evolution of the AMCs, leading to collective efforts to improve them, ensures that options 4A and 4B would lead to a sufficient uniformity of safety levels (score 2). Whereas, the same result could not be achieved by option 4C (score -1).

In conclusion, applying the methodology presented in paragraph 2.1.3 above (including a weight factor of 3 for the safety impacts), and having selected the applicable result indicators linked to specific objectives from paragraph 2.4.3, scores can be attributed for the safety impact of the three options related to the safety of non-commercial operations with other than complex motor-powered aircraft, as presented in the following Table 55:

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<sup>63</sup> See CAP 763 – “Regulatory Review of General Aviation in UK” on the CAA UK website: <http://www.caa.co.uk/application.aspx?catid=33&pagetype=65&appid=11&mode=detail&id=317>

Specific Objectives	Scoring of options		
	4A	4B	4C
	ICAO SARPs	sub ICAO provisions	only ERs
High safety of air operations	3	1	-1
Uniformity of safety level	2	2	-1
<b>TOTAL</b>	<b>5</b>	<b>3</b>	<b>-2</b>
<b>AVERAGE SCORE (Tot/2 quantified parameters)</b>	<b>2,5</b>	<b>1,5</b>	<b>-1</b>
<b>WEIGHTED AVERAGE (Score x 3 for safety)</b>	<b>7,5</b>	<b>4,5</b>	<b>-3</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>8</b>	<b>5</b>	<b>-3</b>

**Table 55: Scoring of the safety impact for non-commercial operations with other than complex motor-powered aircraft**

#### *2.9.4 Environmental Impact*

Nothing in the proposed implementing rules (and associated AMCs) aims at building new infrastructure, promoting additional motorised flights or relaxing environmental rules. The effect of any of the three considered options has therefore to be considered neutral in relation to environmental aspects (score 0).

#### *2.9.5 Economic Impact*

##### 2.9.5.1 Rulemaking and standardisation cost

Option 4C would not require any rulemaking effort inside the Agency (score 0).<sup>64</sup>

Although for both options 4A and 4B there would be some need to develop IRs and AMCs, the additional effort by the Agency and by competent authorities, in comparison to that already accounted in above paragraphs 2.6.5.1, 2.7.5.1 and 2.8.5.1 is considered to be negligible (score 0). The same will apply to standardisation inspections.

##### 2.9.5.2 Oversight cost

For any option, around 7,500 aero clubs and 20,000 owner/pilots would be subject to oversight actions.

For calculating the oversight costs, the following assumptions are taken:

- The oversight of one aero club would require on average 3 days per year;
- The oversight of 1 owner/pilot would require on average 2h per year;
- A year provides for 200 working days;
- The average annual labour costs amount to 120,000 €.

<sup>64</sup> The amendment of essential requirements is not considered within this section as it affects all operators.

As a result, the total cost of authorities for the oversight of aero clubs is assumed to be 13.5m€ per year and the total costs for the oversight of owner/pilots would amount to 12m€ per year.

The Agency assumes that Member States already have non-commercial operations with other than complex motor-powered aircraft included in their oversight programme. Therefore, no additional costs are assumed for national authorities.

#### 2.9.5.3 Regulatory cost for the operators (recurrent)

For any option, the costs for operators (7,500 aero clubs and 20,000 owner/pilots) through oversight actions by NAAs would be equal.

For calculating the oversight costs, the following assumptions are taken:

- The oversight of one aero club would require on average 3 days per year;
- The oversight of 1 owner/pilot would require on average 1 day per year;
- A year provides for 200 working days;
- The average annual labour costs of an aero club amount to 30,000 €;
- The average annual cost of time of an owner/pilot is assumed to be 100,000 €.

As a result, the total regulatory cost of aero clubs is assumed to be 3.4M€ per year and the total regulatory costs of owner/pilots would amount to 10M€ per year.

The Agency assumes that Member States already have non-commercial operations with non-complex aircraft included in their oversight programme. Therefore, no additional costs are assumed for operators.

#### 2.9.5.4 Regulatory cost for the operators (non recurrent)

Neither option 4B nor 4C will impose additional costs for on-board equipment.

In case of option 4A, 13,000 motor-powered aircraft would need to be equipped with fire extinguishers. The Agency estimates that installing the fire extinguisher may cost on average around 1,000 €. The total investment cost would amount to 13.0M€.

In case of option 4A, 26,000 motor-powered aircraft would need to be equipped with an ELT. The Agency estimates that installing an ELT may cost on average around 2,000 €. The total investment cost would amount to 52M€.

Assuming that this investment would be depreciated over a period of 5 years, the annual total depreciation costs would amount to 13.0M€.

#### 2.9.5.5 Additional demand

Option 4B and 4C, not requiring any additional equipment on board will neither create additional demand on the internal market, nor associated additional tax.

Conversely, option 4A will create an additional demand of 13.0M€ per year, and a related additional tax of (20 %) 2.6M€ per year.

#### 2.9.5.6 Summary of economic impact

In summary, the option 4A would have a minor cost impact on operators (score -1). Whereas options 4B and 4C would have no additional cost impact on operators or authorities (score -1).

All three options would provide a balanced level playing field for operators (score 2).

Option 4A would be proportionate in the sense that there are different rules between complex motor-powered and other than complex motor-powered aircraft as well as between commercial and non-commercial operation (score 0). Option 4B would provide a slightly enhanced differentiation for equipment requirements (score 1). Whereas 4C would provide a significant difference for non-commercial operation with other than complex motor-powered aircraft in comparison to other commercial operations and operations with complex motor-powered aircraft (score 2).

The monetary terms and the considerations immediately above, are presented in Table 56 below:

Specific Objectives	Scoring of options		
	4A	4B	4C
	ICAO SARPs	sub ICAO provisions	only ERs
Contain costs	-1	0	0
Level playing field	2	2	2
Proportionate rules for SMEs	0	1	2
<b>TOTAL</b>	<b>1</b>	<b>3</b>	<b>4</b>
<b>AVERAGE SCORE (Tot/3 quantified parameters)</b>	<b>0,33</b>	<b>1,00</b>	<b>1,33</b>
<b>WEIGHTED AVERAGE (Score x 1 for economy)</b>	<b>0,33</b>	<b>1,00</b>	<b>1,33</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>0</b>	<b>1</b>	<b>1</b>

**Table 56: Scoring of the economic impact**

#### *2.9.6 Social Impact*

All options under consideration are assumed not to involve additional oversight activities and would therefore not create demand for additional resources by national authorities or operators.

Option 4A may have a minor positive social impact resulting from the need to invest in retrofit equipment (score 1).

#### *2.9.7 Regulatory harmonisation*

##### *2.9.7.1 Compatibility with other EU/EASA regulations*

The objective of the Agency when developing rules for this category of aircraft is to subject non-commercial operations with other than complex motor-powered aircraft to common rules tailored to the complexity of the aircraft used.

The compatibility of the options proposed with regard to EU/EASA regulations must be assessed in particular against the two following Articles of the Basic Regulation.

- Article 2(2)(d) of the Basic Regulation stipulates that it must assist Member States in fulfilling their obligations under the Chicago Convention [...] and by ensuring that its provisions are duly taken into account in this Regulation and in the rules drawn up for its implementation.

- Article 8(6) of the Basic Regulation specifies that the requirements and compliance demonstration must be proportionate to the complexity of the operations and the risk involved.

Having specified that, it should be underlined that the scope of the proposed rules is wider than the scope of the ICAO provisions as the latter only takes into account aeroplanes and helicopters. However, the scope of the EASA rules also includes other type of aircraft such as balloons and sailplanes, for which Article 2(2)(d) does need to be assessed.

Having the above in mind, the Agency concludes as follows:

- Option 4A is obviously compliant with Article 2(2)(d) of the Basic Regulation and Article 8(6) (score 3);
- Option 4B is not fully in compliance with Article 2(2)(d), since some rules are weaker than ICAO provisions (e.g., equipment to be on board: fire extinguisher, ELT) (score 1);
- Option 4C is not fully consistent with the Basic Regulation since most of the ICAO SARPs are not accounted for, except for those which are implemented through the Essential Requirements (score -2).

#### 2.9.7.2 Compatibility with ICAO standards

As said above, on the basis of Article 2(2)(d) of the Basic Regulation, the Agency must take into account the obligations resulting from the Chicago Convention by providing a basis for a common interpretation and uniform implementation of its provisions and by ensuring that such provisions are taken into account in the implementing rules. The compatibility however, has only to be demonstrated for those aircraft which fall into the scope of the ICAO SARPs.

Option 4A is for the relevant types of aircraft (aeroplane, helicopters) obviously compatible with ICAO standards (score 3).

Option 4B (score -1) and 4C (score -2) are for these types of aircraft less consistent with ICAO standards for the same reasons mentioned in the compatibility with EU rules.

#### 2.9.7.3 Summary of impact on regulatory harmonisation

The above considerations are translated into scores related to the applicable specific objectives in the following Table 57:

Specific Objectives	Scoring of options		
	4A	4B	4C
	ICAO SARPs	sub ICAO provisions	only ERs
Consistency with EU rules	3	1	-2
Compliance with ICAO standards	3	-1	-2
<b>TOTAL</b>	<b>6</b>	<b>0</b>	<b>-4</b>
<b>AVERAGE SCORE (Tot/2 quantified parameters)</b>	<b>3</b>	<b>0</b>	<b>-2</b>
<b>WEIGHTED AVERAGE (Score x 1 for regulatory harmonisation)</b>	<b>3</b>	<b>0</b>	<b>-2</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>3</b>	<b>0</b>	<b>-2</b>

**Table 57: Scoring of impact on regulatory harmonisation**

### 2.9.8 Multi Criteria Analysis (MCA) and recommended option

According to the methodology described in paragraph 2.1.3 and the scores attributed in paragraphs 2.9.3 to 2.9.7, the following matrix for MCA is provided:

Weighted score of options for non-commercial operations with other than complex motor-powered aircraft		Options		
		4A	4B	4C
		ICAO SARPs	sub ICAO provisions	only ERs
Key Performance Area	Weight			
Safety	3	8	5	-3
Environmental	2	0	0	0
Economic	1	0	1	1
Social	1	1	0	0
Regulatory harmonisation	1	3	0	-2
<b>WEIGHTED TOTAL</b>		<b>12</b>	<b>6</b>	<b>-4</b>

**Table 58: Multi Criteria Analysis for non-commercial operations with other than complex motor-powered aircraft**

From Table 58 above it can be observed that option 4C is clearly negative, in particular, from the safety perspective. Among the remaining two, option 4A scores significantly higher than 4B.

4A is therefore the preferred option.



## **2.10 Assessment of cabin crew medical fitness**

### *2.10.1 Options*

Aviation requirements for medical fitness of personnel performing safety duties and responsibilities are based on the following four elements:

- the medical criteria on which the medical assessments are based;
- the frequency of the medical examinations and related assessments;
- the qualifications of the medical practitioners conducting the examinations and related assessments;
- the means to show compliance (e.g. issuance of a medical certificate).

In Europe, medical fitness has historically been required for cabin crew. However, situations vary significantly as regards the issuance of a medical certificate as proof of compliance. Medical certificates are, and/or used to be, required at national level by a number of the EU 27 + 4 Member States, while not required by others. The Basic Regulation requires medical fitness, periodical assessments and compliance to be assessed according to aero-medical best practice but does not specifically prescribe a medical certificate to be issued.

The means to ensure uniform compliance with the requirement for medical fitness have in fact to be fixed at the level of implementing rules. Starting with the currently applicable EU-OPS requirements, the following options have been considered in this RIA:

- 5A: requirement for regular medical assessments of medical fitness but no detailed common criteria (same rules for all cabin crew, in CAT and in non-commercial operations): i.e. no common rules on the medical examiners; no fixed periodicity; no description of medical conditions, analysis or examinations to be checked;
- 5B: requirement for regular medical assessments of medical fitness by a general medical practitioner (GMP) according to JAR-OPS 1 Section 2 criteria (same rules for all cabin crew, CAT and non-commercial; frequency not specified; "self assessment" not allowed);
- 5C: requirement for regular medical assessments of medical fitness at defined intervals, according to common medical criteria specified in a sufficient level of detail for all cabin crew and to be checked by Aero-Medical Examiners (AME) for cabin crew in CAT. Longer intervals and assessment by GMP for cabin crew in non-commercial operations;
- 5D: Same requirements as in 5C for all cabin crew. In other words requirements for regular medical assessments of medical fitness for cabin crew in non-commercial operations according to the same rules as those for cabin crew in CAT.

**Option 5A reflects the EU-OPS requirements**, as currently applicable in all EU Member States. It might therefore be described as the 'no regulatory action' option for CAT and would only be an extension of the scope of EU-OPS to cabin crew in non-commercial operations.

**Option 5B basically** adds to option 5A the few general medical criteria for assessing the medical fitness defined in **Section 2 of JAR-OPS 1** and does not specify frequency of the assessments at EU level. The only change would be the assessment by a medical practitioner which excludes the possibility of self-assessment/self-declaration by the individual cabin crew member.

**Option 5C leads to a more detailed set of requirements**, although less stringent for non-commercial cabin crew. In fact the difference between cabin crew in CAT and cabin crew in non-commercial operations takes into account the absence of a requirement to hold a cabin

crew attestation for cabin crew in non-commercial operations, as per Article 8.4 of the Basic Regulation.

**Option 5D extends the same requirements as in 5C to non-commercial cabin crew,** taking into account that the same safety duties and responsibilities are required from all cabin crew in whatever type of operations: i.e. CAT or non-commercial operations.

### *2.10.2 Target group and number of entities concerned*

#### 2.10.2.1 Competent Authorities

Whichever will be the option selected among those under consideration, the Agency will not be significantly affected. In fact all of them will lead to common rules maintained by the Agency and to standardisation inspections.

In March 2007 the consultant company EGOA, supported by ETF<sup>65</sup>, AEA<sup>66</sup>, ERA<sup>67</sup> and IACA<sup>68</sup>, published the final report<sup>69</sup> on "Rules and Regulations governing the Cabin Crew in the EU 25", with the financial support of the European Commission. According to that report, medical certification (and licence as well) for cabin crew existed in 9 (i.e. CZ, DK, FR, HU, IT, LT, PT, SL, SP) Member States of the EU 25, as well as in Norway. According to Agency's information the same applies to BG and RO, now Member of the EU 27: in conclusion, the requirements under consideration are already substantially established in 12 of the EU 27 + 4 States.

Not considering Liechtenstein, whose population is less than 50,000 persons<sup>70</sup>, according to the same study, no similar requirements for medical certification existed in the remaining 18 Member States (i.e. AU, BE, CY, EE, FI, DE, EL, IR, LV, LU, MT, NL, PL, SK, SE and UK, plus IS and CH).

Therefore, in case of **option 5A**, since it would reproduce the text of the EU-OPS, in turn leaving ample margins for national variants, **nothing would change for any of the competent authorities.**

In case of **option 5B**, equally almost **all authorities would not be affected, except for one**, where "self assessment" by the cabin crew member is permitted and would have to be replaced by a medical assessment by a GMP.

In case of either **option 5C or 5D**, in **18 States common EU requirements would enter into force.** The **other 12 authorities** will not be significantly affected on the substance since in their States legal requirements already exist today, except that they will be **relieved from the burden of maintaining national rules.**

#### 2.10.2.2 Air operators

In paragraph 2.6.2.2. above, the number of CAT operators by large aeroplanes in the EU 27 + 4 has been estimated 370 for scheduled air services. Out of the other estimated 419 CAT operators beyond scheduled passenger services (i.e. including cargo or passenger transport by smaller aeroplanes or helicopters), the Agency estimates that about 200 offer non-scheduled

<sup>65</sup> <http://www.itfglobal.org/ETF/>

<sup>66</sup> <http://www.aea.be/>

<sup>67</sup> <http://www.eraa.org/>

<sup>68</sup> <http://www.iaca.be/index.cfm?4BAA4D0A-7B13-4F11-BD35-088B3B6BF73C>

<sup>69</sup> <http://www.eraa.org/intranet/documents/94/2084/070707-ext-EGOA-EU-national-rules-Cabin-Crew.pdf>

<sup>70</sup> No data available for Liechtenstein

passenger services by large aeroplanes (e.g. charter flights). In total a range of 570 CAT operators have to be considered herein.

**Option 5A** would maintain the requirements presently established by EU-OPS. However, EU-OPS related requirements for cabin crew are considered "minimum" requirements while the EASA OPS rules will become common requirements with no possibility for additional rules adopted at national level since this would distort competition. Therefore, for the operators established in the 18 States where today there are no detailed requirements, option 5A would be very flexible and open to different implementations including "self assessment": in the end the impact on them would be negligible. On the contrary for the CAT operators established in the 12 Member States where detailed rules are in force today, the "light" common requirements would represent a smaller burden although a reduced medical follow-up could have secondary effects but hard to quantify such as increased sick leaves. Since these States represent around 48 % of the population, the **"lighter" requirements would apply to 48 % of the 570 CAT operators = 274.**

Conversely for some non-commercial operators, using large aeroplanes (i.e. with more than 19 passenger seats) some requirements would be established while EU-OPS does not apply to them. Out of 689 such operators, as estimated in paragraph 2.8.2.2. above, the Agency assumes that only 5 % (i.e. 35) use large aeroplanes. However, in this option the **impact on such non-commercial operators** of large aeroplanes would be **negligible** since the requirements are very flexible and open to different implementations (e.g. "self assessment" acceptable which does not represent a significant burden on the organisations).

In **option 5B**, nothing would significantly change for operators established in the 12 Member States where stringent requirements are in force. However, even for almost the totality of the other 18 States nothing would change because the traditional way of medical check and the absence of prescriptive requirements on the frequency of the assessment would allow the present situation to continue. The only exception, according to the information available, would be in one Member State where the "self assessment" would be replaced by an assessment by a GMP. Since that Member State represents around 12 % of the EU 27 + 4 population, but is one of the most developed States in respect of aviation and has roughly 25 % of the cabin crew, it is assumed that 20 % of the 570 EU CAT operators (scheduled and non-scheduled) by large aeroplanes would be affected by said **option 5B** in that State = **114 CAT operators.**

In the case of option 5B, equally 20 % of **non-commercial operators would be affected: 7** (= 20 % of 35).

In case of **option 5C**, for the 12 Member States where medical certification of cabin crew is required today, according to information available, in many of those Member States the requirements are mainly based on JAR-FCL 3 Class 2 medical requirements. In other words, since these 12 States represent around 48% of the EU population, **option 5C would be assumed as leading to a comparable set of requirements for 274 CAT operators** (i.e. 48 % of 570). **Conversely, for the remaining 52 % operators (i.e. 296) established in States with no detailed requirements, the change would be sensible but hard to quantify since it will vary depending on the national rules of each concerned Member State. As an example, in those Member States where very stringent rules are in force in the domain of occupational safety, it is assumed that there would be mitigated effects for the concerned operators. As well more legally binding requirements would be introduced for the 35 non-commercial operators using large aeroplanes.**

Finally, the same would happen **in case of option 5D: 274 CAT operators subject to limited change compared to the currently applicable requirements; 296 to more stringent and equally for 35 non-commercial operators.**

2.10.2.3 Cabin crews

According to Agency estimates based on ICAO and EUROCONTROL data, the number of aviation personnel in the 27 + 4 EASA States can be summarised as in Table 59 below:

<b>Flights and personell</b>	<b>ICAO Reporting Airlines<sup>1</sup></b>	<b>Total EASA country airlines<sup>2</sup></b>
<b>Total No. of Flights</b>	<b>5.809.932</b>	<b>8.443.251</b>
<b>Personell</b>	<b>267.194</b>	<b>388.298</b>
Pilots and co-pilots	29.140	42.348
Other flight crew	287	417
Cabin crew	83.697	121.632
Maintenance and overhaul personnell	27.992	40.679
Ticketing and sales personnel	16.818	24.441
All other personnel	109.260	158.781

<sup>1</sup> Total number of flights and personnel of airlines registered in EASA Member States and reporting to ICAO

<sup>2</sup> Extrapolated using the share of reporting countries in total EASA flights (68%)

**Table 59: Aviation personnel in the EU 27 + 4**

The number of cabin crew<sup>71</sup> employed in non-commercial operations by large aeroplanes is estimated by the Agency to be extremely low and in the range of 100 persons across the EU 27 + 4.

In case of **option 5A for the cabin crew** involved in CAT, for the same reasons exposed in the paragraph immediately above, **relaxed requirements** would apply to 48 % of the cabin crew = 48 % of 121,632 = **58,400**. However, this option would allow any implementation, including a "self assessment". Therefore, for the cabin crew in service in non-commercial operations the impact would be very minor.

In case of **option 5B and according to the information available, more stringent requirements** (i.e. assessment by GMP instead of "self assessment") would apply to the cabin crew working for operators of a particular Member State only: around **31,600 people**.

In case of either **option 5C or 5D**, for the same reasons exposed for the operators in 2.10.2.2 above, **more stringent requirements** would apply to around 52 % of the **cabin crew** involved in CAT operations: 52 % of 121,632 = 63,200. The same would apply to around 100 cabin crew employed for non-commercial operations: **total 63,300 cabin crew subject to more stringent requirements**. Conversely, the requirements would not change significantly **for 48% of the cabin crew involved in CAT operations: 58,400**.

2.10.2.4 Medical examiners

The Agency distributed in 2007 a questionnaire to the competent authorities in order to assess the number of Aero-Medical Examiners (AME) and General Medical Practitioners (GMP) involved in medical assessment of civil aviation personnel. The received replies from 22 + 3 EASA MS are summarised in Table 60 below. Only UK provided a number of the GMPs. This latter information can be extrapolated to the entire EU 27 + 4, based on the fact that UK represents about 12 % of the total population. Similarly, since the 25 reporting States

<sup>71</sup> Individual person employed as cabin crew member

represent about 85 % of the total population, the data can be extrapolated to the totality of the Member States.

State	Nr of CI 1 and 2 AMEs	Nr of CI 2 AMEs	Nr of GMPs
Czech Republic	32	26	
Denmark	18	-	-
Germany	185	226	-
Ireland	4	22	-
Greece	12	8	-
France	-	1150	-
Italy	-	80	-
Cyprus	-	3	-
Latvia	4	-	-
Lithuania	4	14	-
Luxembourg	6	-	-
Hungary	-	12	-
Malta	4	4	-
Netherlands	2	4	-
Austria	60	47	-
Poland	26	10	-
Portugal	15	44	-
Romania	4	-	-
Slovenia	5	25	-
Finland	33	26	-
Sweden	152	15	-
United Kingdom	247	38	43 000
Island	6	2	-
Norway	160	-	-
Switzerland	75	-	-
<b>Total in the replies</b>	<b>1,054</b>	<b>1,756</b>	<b>43,000</b>
	<b>2810</b>		
<b>Representing %</b>	<b>85%</b>		<b>12%</b>
<b>Extrapolation to EU 27 + 4</b>	<b>3,300</b>		<b>358,000</b>

**Table 60: Number of medical practitioners in the EU 27 + 4**

In case of **option 5A**, 58,400 cabin crew may change from a regular assessment (every two years) to a simple "self-declaration": this may impact the **1,584 Aero-Medical Examiners (AME)** (i.e. 48 % of 3,300, working in the 12 Member States where more stringent requirements are established today. GMP will not be significantly involved.

**In case of option 5B, all the 3,300 AMEs may be affected since the assessment could be carried out by a GMP.** But in addition, all **358,000 GMPs would be affected as well.**

In case of either **option 5C or 5D** the periodicity of the assessment would be reduced from 2 to 3 years in average in the Member States where medical certification does exist today: 48 % of the **AMEs (i.e. 1,584)** would again be affected in the sense that **less work** would be required from them. However, the requirements would become more stringent for the cabin crew in the rest of the Member States today not obliged to be assessed by an AME. Therefore, **1,716 AMEs (i.e. 52 % of 3,300)**, would **have more work.**

**358,000 GMPs would have some more work, in relation to cabin crew in non-commercial operations, also in case of option 5C.**

#### *2.10.2.5 Summary of affected entities*

In conclusion, on the basis of the information in sub-paragraphs 2.10.2.1 to 2.10.2.5 above, the number of concerned entities is estimated in Table 61 below:

Affected entities	OPTION			
	5A	5B	5C	5D
	EU-OPS	JAR-OPS 1 + GMP	Common requirements for all; plus additional for CAT	High common requirements for all
Agency	0	0	0	0
Competent authorities for which the requirements will become more stringent	0	1 (UK)	18	18
Competent authorities for which the requirements will become less stringent	0	0	12	12
CAT operators by large aeroplanes for which the requirements will become more stringent	0	114	296	296
CAT operators by large aeroplanes for which the requirements will become less stringent	274	0	274	274
non-commercial operators by large aeroplanes for which the requirements will become more stringent	0	7	35	35
Cabin crew for which the requirements will become more stringent	0	31,600	63,200	63,200
Cabin crew for which the requirements will become less stringent	58,400	0	58,400	58,400
General Medical Practitioners (GMP)	0	358,000	358,000	0
Aero-Medical Examiners (AME) having less work	1,584	3,300	1,584	1,584
Aero-Medical Examiners (AME) having more work	0	0	1,716	1,716

**Table 61: Number of affected entities for medical fitness assessment of cabin crew**

### 2.10.3 Safety impact

Cabin crew do not directly contribute to the probability of an aviation accident occurring. However, they can (and in fact did in many cases along aviation history) greatly contribute to reduce the severity of the consequences of the accidents (e.g. avoiding loss of lives in the minutes immediately following an accident or serious incident) and to the prevention of some occurrences (e.g. injuries/fatalities in case of severe turbulence, cabin fire and smoke, security threats, unawareness of flight crew in case of surface contamination). Since the aviation safety

risk is the combination of the probability and severity, cabin crew can indeed contribute to reduce the risk of aviation accidents.

In case of option 5A, the provisions of EU-OPS would continue to apply to CAT operators as regards medical fitness of cabin crew. These rules also require that the assessment of their medical fitness is conducted at regular intervals; but EU-OPS:

- does not specify common medical criteria on the basis of which medical assessment should be conducted;
- does not define the intervals within which the medical assessments should be conducted;
- does not prescribe who should conduct the medical assessments;
- does not specify how compliance should be shown.

In other words, option 5A could lead to spreading the practice of "self assessment" by cabin crew of their medical fitness since this is the cheapest solution for the entrepreneurs. In turn, cabin crew, besides not necessarily being totally aware of their health status, may be tempted to declare themselves fit in order not to risk consequences on their job. Furthermore, option 5A would maintain the present situation of non-uniformity of safety levels across the EU 27 + 4 States in relation to the topic under consideration. In conclusion, **option 5A** not only does not comply with the Essential requirements set in the Basic Regulation, but **has also to be considered negative in qualitative safety terms**, although it is very hard to make any quantitative estimation in relation to it.

Option 5B has a similar basis as 5A with two differences:

- the requirement for the medical assessments to be conducted by a general medical practitioner (GMP), thus contributing to ensure follow-up of medical fitness of cabin crew by medical practitioners;
- the medical assessments to be conducted according to the general medical criteria specified in JAR-OPS 1 Section 2 - AMC OPS 1.995(a)(2) sub-paragraph 3.

In the first place it would lead to discontinue the practice of "self assessment". However, looking more in detail at said medical criteria, it emerges that most of them are very general so that medical practitioners can interpret and implement in very different ways. The end result of this option 5B is therefore expected to be similar to the one described in option 5A, thus not allowing meeting the objectives set in the Basic Regulation for uniform implementation of the rules in the interest of a high uniform level of safety. As a result, situations would continue to vary significantly depending on the Member States where detailed national provisions have been developed and in the other cases depending on the operator's decision and related procedures. In conclusion **option 5B, in terms of uniformity, would be negative as 5A.**

Option 5C would address the shortcomings identified for options 5.A and 5.B, by requiring:

- sufficiently detailed common medical criteria, thus allowing the assessments to be conducted uniformly on a clear common basis;
- precise intervals prescribed to ensure that the medical assessments are conducted according to the same frequency across all EU 27 + 4, providing however for longer intervals for cabin crew in non-commercial operations compared to those for cabin crew in CAT;
- common qualifications in aviation medicine for the medical practitioners conducting the medical assessments to take into account the flying and aircraft environment in which

cabin crew perform their duties; providing here also for proportionality between cabin crew involved in CAT and those involved non-commercial operations.

Therefore **in qualitative terms, option 5C would enhance the level of safety** in the EU 27 + 4 by introducing clearer and higher requirements for medical assessment of cabin crew in CAT, thus minimising the potential risk of degraded performance particularly in case of adverse conditions and of possibly more cabin crew becoming inoperational/incapacitated in case of emergency evacuation<sup>72</sup>. In quantitative terms it is estimated that this could contribute to 0.5% improvement in terms of reduction of the severity of possible aviation accidents. Since in paragraph 2.3.2.9 above it has been estimated that today cabin crew save in average 90 human lives/year. Furthermore, **option 5C would be optimal in respect of uniformity.**

Option 5D would be even safer since extending the higher requirements also to cabin crew in non-commercial operations. However, since the total number of such staff in the EU 27 +4 is has been estimated in the range of 100, versus more than 100,000 for the cabin crew in CAT, **option 5D is comparable to 5C in safety terms as the effect is expected to be negligible.**

In conclusion, applying the methodology presented in paragraph 2.1.3 above (including a weight factor of 3 for the safety impacts), and having selected the applicable result indicators linked to specific objectives from paragraph 2.4.3, scores can be attributed for the safety impact of the three options related to safety in relation of medical fitness of cabin crew, as presented in the following Table 62:

Specific Objectives	Scoring of options			
	5A	5B	5C	5D
	EU-OPS	Section 2 JAR-OPS 1 + GMP	Common medical criteria for all; plus additional reqts for CAT	Same common requirements for all
Uniform safety	-1	-1	1	1
Level of cabin crew fitness	-2	-1	1	1
<b>TOTAL</b>	<b>-3</b>	<b>-2</b>	<b>2</b>	<b>2</b>
<b>AVERAGE SCORE (Tot/2 quantified parameters)</b>	<b>-1,5</b>	<b>-1</b>	<b>1</b>	<b>1</b>
<b>WEIGHTED AVERAGE (Score x 3 for safety)</b>	<b>-4,5</b>	<b>-3</b>	<b>3</b>	<b>3</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>-5</b>	<b>-3</b>	<b>3</b>	<b>3</b>

**Table 62: Scoring of the safety impact relating to cabin crew medical fitness assessment**

From Table 62 above, it appears evident that neither option 5A nor 5B can be selected, since they are expected to have a low negative safety impact (unweighted score: -1 and -1.5). In addition, none of the two would allow developing a set of implementing rules meeting the objectives of the Basic Regulation for a high uniform level of safety. Options 5C and 5D both are expected to have an equally low positive effect on safety (unweighted score +1).

<sup>72</sup> CAA Paper 2006/01 'The Aircraft Accident Statistics and Knowledge Database (AASK)' [http://www.caa.co.uk/docs/33/2006\\_01.pdf](http://www.caa.co.uk/docs/33/2006_01.pdf)



#### 2.10.4 Environmental Impact

Nothing in the proposed implementing rules (and associated AMCs) is expected to impact on the environment. All four considered options have therefore to be considered neutral in relation to environmental aspects.

#### 2.10.5 Economic Impact

##### 2.10.5.1 Rulemaking and standardisation cost

None of the options under consideration would require any additional rulemaking or standardisation effort inside the Agency.

In other words **none of the options under consideration would imply a significant variation of the rulemaking or standardisation costs at EU level.**

Similarly options 5A or 5B would not imply any increase or decrease of rulemaking activity at national level.

For the 18 **competent authorities** in the States where today there are no specific rules on the matter, there would be no additional rulemaking burden since the rules would be maintained at EU level. Conversely, in the 12 States where rules exist today, the same would be replaced by the EU ones. Therefore, those States would cease to maintain their regulations. Assuming that the required effort is today 0.5 FTE/State and that the cost of 1 FTE for the authorities is in the range of 120 k€ (2009)/year, the following **savings for option 5C and 5D** can be estimated as:

$$12 \times 0.5 \times 120$$

##### 2.10.5.2 Oversight cost

In **option 5A** today's situation would be maintained only with the marginal extension to cabin crew in non-commercial operations. This is assumed to lead to **no significant variation** of the oversight cost for any competent authority.

In case of **option 5B**, one authority would have to implement provisions for systematic oversight of the health status of cabin crew. This is assumed to require 1 FTE = **120 k€ (2009)/year**.

In case of either option 5C or 5D, for 12 competent authorities oversight would continue as today. Vice versa 18 authorities would have to extend their activities also to medical fitness of cabin crew. Assuming again that this would represent 1 FTE for each of them and that the cost of 1 FTE in the administrations is in the range of 120 k€ (2009)/year, the **resulting cost for oversight in case of either option 5C or 5D is estimated as:**

$$18 \times 1 \times 120 = 2,160 \text{ k€}/\text{year}.$$

##### 2.10.5.3 Regulatory cost for the operators (recurrent)

Option 5A maintains the requirements presently established by EU-OPS. However, EU-OPS are the "minimum" requirements, while the EASA OPS rules will be common requirements with no possibility for additional rules adopted at national level.

These new common requirements will apply also to cabin crew in non-commercial operations. However, the ample margins of flexibility and the acceptability of the "self-declaration" means that the cost for said non-commercial operators will not significantly vary.

In case of **option 5A**, 53,900 cabin crew may transition from a regular assessment (every two years) to a simple "self-declaration": i.e. 26,950 cabin crew/year. Assuming again that today

one assessment by an Aero-Medical Examiner (AME) costs about 100 € (2009), this means around  $26,950 \times 100 = 2,695 \text{ k€ (2009)/year}$  less cost for CAT operators.

Furthermore, less medical checks per year, assuming that one check will represent 0.5 of "lost" labour by a staff member, will lead to save  $26,950 \times 0.5 = 13,475$  man-days. Assuming 200 days of labour in one FTE, the number of saved FTEs is estimated in the range of 67. And then, estimating the cost of 1 FTE by one cabin crew in the range of 80 k€ (2009)/year, this represent a saving of:

$$67 \text{ FTEs} \times 80 \text{ € (2009)} = 5,360 \text{ k€}.$$

In case of **option 5B**, additional 114 CAT operators and 7 non-commercial operators will have to submit periodically their estimated (refer to paragraph 2.10.2.5 above) 31,600 cabin crew to assessment by a GMP, about 22 of which involved in non-commercial operations. The periodicity will be fixed at national level.

For the 7 non-commercial operators, assuming that the periodicity will be fixed in 3 years, 7 cabin crew members/year will undergo a medical visit by a GMP. Assuming a cost for it of 70 € (2009), this represents:

$$7 \text{ crew/year} \times 70 \text{ €} = 0.5 \text{ k€ (2009)/year of additional cost for medical assessment of cabin crew in non-commercial operations.}$$

Furthermore, it is assumed that each of these cabin crew will need 0.5 days/year to undergo the medical assessment, which represent for their employers a burden of 3.5 days/year. Assuming for these crew a cost of 80,000 €/year and 200 labour days in one FTE, the cost of "lost" labour can be estimated in  $400 \text{ € (2009)/day} \times 3.5 = 1.4 \text{ k€}$ .

Similarly for the 31,600 cabin crew employed by the 114 CAT operators, the cost of the medical assessment can be calculated as:

$$31,600/3 = 10,533 \text{ crew/year} \times 70\text{€} = 735 \text{ k€ (2009)/year for CAT operators}$$

In this case, the "lost" labour will total, for the CAT operators:

$$10,533 \text{ crew/year} \times 0.5 \text{ days/visit} \times 400 \text{ € (2009)/day} = 2\ 106 \text{ k€}$$

In case of option 5C, since the specific medical requirements would not require specific examinations (e.g. ECG) as a routine, and since GMP could assess cabin crew in non-commercial operations, the same cost of assessment can be assumed (i.e. 70 €/crew per visit) for the 100 crew working for the 35 affected non-commercial operators. In this case the periodicity would be in the range on once every 4 years (every 5 below 40 years of age), meaning 25 crew assessed per year for a cost of:

$$25 \times 70 = 1,7 \text{ k€ (2009)/year for the medical visits of cabin crew in non-commercial operators.}$$

Also in this case, the visit will account for 0.5 days of "lost labour/crew, for a total of:

$$25 \text{ crew/year} \times 0.5 \text{ days} \times 400 \text{ € (2009)} = 5 \text{ k€}$$

For the 274 CAT operators established in the 12 States where specific rules do exist today, employing 53,900 cabin crew, in case of option 5C, the periodicity will be reduced from once every two years (which seems to be common practice) to an average of once every 2.8 years, so not 26,950 (i.e.  $53,900/2$ ) but only 19,250 cabin crew (i.e.  $53,900/2.8$ ) will have to assessed per year = 7,700 less. For them the visit has to be carried out by an AME. It is here assumed that such a visit will cost in average 100 € (2009).

Therefore, in case of option 5C, these 274 CAT operators in relation to 8,980 less cabin crew to be assessed per year will save:

$$7,700 \times 100 \text{ € (2009)} = 770 \text{ k€}/\text{year saved for the cost of the visits; and}$$

$$7,700 \text{ crew} \times 0.5 \text{ days} \times 400 \text{ € (2009)} = 1,540 \text{ k€}/\text{year of "saved" labour}$$

Conversely for the remaining 52 % CAT operators (i.e. 296) established in States with no stringent requirements, the change will be in the opposite direction. In such a case the average periodicity of the medical assessment, which depends on the distribution of crew along age, is estimated again in the range of once every 2.8 years, affecting 58,500 crew: i.e. 20,890 crew medically assessed per year.

This represents an additional cost of:

$$20,890 \times 100 \text{ € (2009)} = 2,089 \text{ k€}/\text{year for additional cost of the visits; and}$$

$$20,890 \text{ crew} \times 0.5 \text{ days} \times 400 \text{ € (2009)} = 4,178 \text{ k€}/\text{year of "lost" labour}$$

In summary, the **CAT operators in case of option 5C will spend 1,319 k€ more (i.e. 2,089 – 770) for the medical visits by AMEs and in addition bear a burden in the range of 2,638 k€ (i.e. 4,178 – 1,540) for the "lost" hours of labour.**

In case of **option 5D**, the situation for the CAT operators will be exactly as in 5C.

For the non-commercial operators the noticeable difference would be that the assessment will be carried out by an AME and not by a GMP. The time spent by the cabin crew will remain as in 5C, but the visit will cost:

$$25 \text{ crew}/\text{year} \times 100 \text{ € (2009)}/\text{medical visit by AME} = 2.5 \text{ k€}/\text{year}$$

Estimated cost		k€			
		5A EU-OPS	5B JAR-OPS 1 + GMP	5C Common requirements for all; plus additional for CAT	5D High common requirements for all
CAT operators	Medical assessment	- 2,695	735	1,319	1,319
	Labour cost	- 5,360	2,106	2,638	2,638
	<b>TOTAL CAT</b>	<b>- 8,055</b>	<b>2,841</b>	<b>3,957</b>	<b>3,957</b>
Non-commercial operators	Medical assessment	0	0.5	1.7	2.5
	Labour cost	0	1.4	5	5
	<b>TOTAL non-commercial</b>	<b>0</b>	<b>2</b>	<b>7</b>	<b>8</b>
<b>COSTS per YEAR operators</b>		<b>- 8,055</b>	<b>2,024</b>	<b>3,964</b>	<b>2,965</b>

**Table 63: Cost of medical assessment of cabin crew for operators**

*2.10.5.4 Summary of economic impact*

In summary the costs (or saving) for the community at large, are presented in Table 64 below:

Estimated cost		k€			
		5A EU-OPS	5B JAR-OPS 1 + GMP	5C Common requirements for all; plus additional for CAT	5D High common requirements for all

Rulemaking & standardisation at EU level	0	0	0	0
Rulemaking at national level	0	0	- 720	- 720
Oversight	0	120	2,160	2,160
<b>COSTS per YEAR public sector</b>	<b>0</b>	<b>120</b>	<b>1,440</b>	<b>1,440</b>
Regulatory costs for CAT operators	- 8,055	2,841	3,957	3,957
Regulatory costs for non-commercial operators	0	2	7	8
<b>COSTS per YEAR operators</b>	<b>- 8,055</b>	<b>2,843</b>	<b>3,964</b>	<b>3,965</b>
<b>TOTAL SOCIETAL COSTS per YEAR</b>	<b>- 8,055</b>	<b>2,843</b>	<b>5,404</b>	<b>5405</b>

**Table 64: Summary of economic impact relating to cabin crew medical assessment**

From Table 64 above, it can be observed that option 5A will save to society about 8 M€/year. Option 5B will cost society about 2.8 M€/year. Either options 5C or 5D will cost about 1,4 M€/year to taxpayers for additional oversight and almost 4 M€/year to air operators.

In qualitative terms it is important to add that option 5D would not be proportionate, since in this case the same rules would apply to all cabin crew including in non-commercial operations. Options 5A and 5B will lead to less uniformity from the point of view of fair competition in the internal market while 5C and 5D will achieve the required "level playing field".

The monetary terms and the considerations immediately above are presented in table 65 below:

Specific Objectives	Scoring of options			
	5A	5B	5C	5D
	EU-OPS	Section 2 JAR-OPS 1 + GMP	Common criteria for all; plus additional reqts for CAT	Same common requirements for all
Contain costs	3	-1	-2	-1
Level playing field	-2	-2	1	1
Proportionate rules for SMEs	-1	0	0	-2
<b>TOTAL</b>	<b>0</b>	<b>-3</b>	<b>-1</b>	<b>-2</b>
<b>AVERAGE SCORE (Tot/3 quantified parameters)</b>	<b>0</b>	<b>-1,00</b>	<b>-0,33</b>	<b>-0,67</b>
<b>WEIGHTED AVERAGE (Score x 1 for economy)</b>	<b>0</b>	<b>-1,00</b>	<b>-0,33</b>	<b>-0,67</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>0,0</b>	<b>-1</b>	<b>0,0</b>	<b>-1</b>

**Table 65: Scoring of the economic impact**

From the above it can be observed that option 5C has a medium negative impact on the objective "contain costs" (above 5 million EUR). However, the positive effect on the "level playing field" compensates somewhat for this effect. Overall option 5C is considered to have slight negative effect and option 5D a negative effect. Option 5A is neutral in terms of economic impact and 5B is considered negative.

#### 2.10.6 Social Impact

As regards social impact of the proposed rule the first issue to consider is an employment effect. As described in section 2.10.5 above the cost generated by the options under consideration do not appear to represent a significant share of the turn-over of the industry. Thus, negative employment effects (e.g. loss of job due to unfitness assessment) are likely to be extremely limited. GMPs will benefit from option 5B, but again the scale of the effect at European level is expected to be limited.

Options 5C and 5D by providing clear common requirements for all should facilitate the free movement of cabin crew, and the regular aero-medical checks improve their level of fitness. Positive impact may also be expected in terms of legal certainty for these personnel required to be fit for their job, clear medical criteria possibly allowing access to provisions compensating the imposed professional limitations.

Specific Objectives	Scoring of options			
	5A	5B	5C	5D
	EU-OPS	Section 2 JAR-OPS 1 + GMP	Common criteria for all; plus additional reqts for CAT	Same common requirements for all
Positive effect on the aviation employment market	0	0	0	0
Quality of jobs	0	0	1	1
Free movement of cabin crew	0	0	1	1
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>AVERAGE SCORE (Tot/3 quantified parameters)</b>	<b>0,00</b>	<b>0,00</b>	<b>0,67</b>	<b>0,67</b>
<b>WEIGHTED AVERAGE (Score x 1 for social impact)</b>	<b>0,00</b>	<b>0,00</b>	<b>0,67</b>	<b>0,67</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

**Table 66: Scoring of the social impact**

*2.10.7 Regulatory harmonisation*

*2.10.7.1 Compatibility with other EU/EASA regulations*

The Basic Regulation requires proportionality for the safety rules which would be compromised by option 5D. Same Regulation also requires contributing to the construction of the internal market which would not be achieved by either option 5A or 5B. Therefore, only option 5C has to be considered fully compliant with the Basic Regulation.

*2.10.7.2 Compatibility with ICAO standards*

No medical requirements for cabin crew are specified in ICAO Annex 1. Therefore, any of the options under consideration has to be deemed neutral in this respect.

*2.10.7.3 Harmonisation with the FAA rules*

Any of the option under consideration will not compromise the possibility for operators from the EU 27 + 4 to fly towards or from the USA.

2.10.7.4 Summary of impact on regulatory harmonisation

The above considerations are then translated into scores related to the applicable specific objectives in the following table:

Specific Objectives	Scoring of options			
	5A	5B	5C	5D
	EU-OPS	Section 2 JAR-OPS 1 + GMP	Common criteria for all; plus additional reqts for CAT	Same common requirements for all
Consistency with EU rules (BR)	-2	-2	3	-1
Smooth transition from JAR-OPS	2	2	-1	-1
Compliance with ICAO standards	0	0	0	0
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>-2</b>
<b>AVERAGE SCORE (Tot/4 quantified parameters)</b>	<b>0</b>	<b>0</b>	<b>0,7</b>	<b>-0,7</b>
<b>WEIGHTED AVERAGE (Score x 1 for regulatory harmonisation)</b>	<b>0</b>	<b>0</b>	<b>0,7</b>	<b>-0,7</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>-1</b>

Table 67: Scoring of impact on regulatory harmonisation

*2.10.8 Multi Criteria Analysis (MCA) and recommended option*

According to the methodology described in paragraph 2.1.3 and the scores attributed in paragraphs 2.10.3 to 2.10.7, the following matrix for MCA is provided:

Weighted score of options for assessment of cabin crew medical fitness		Options			
		5A	5B	5C	5D
		EU-OPS	Section 2 JAR-OPS 1 + GMP	Common criteria for all; plus additional reqts for CAT	Same common requirements for all
Key Performance Area	Weight				
Safety	3	-4,5	-3,0	3,0	3,0
Environmental	2	0,0	0,0	0,0	0,0
Economic	1	0,0	-1,0	-0,3	-0,7
Social	1	0,0	0,0	0,7	0,7
Regulatory harmonisation	1	0,0	0,0	1,0	-1,0
<b>WEIGHTED TOTAL</b>		<b>-4,5</b>	<b>-4,0</b>	<b>4,3</b>	<b>2,0</b>

Table 68: Multi Criteria Analysis for cabin crew medical assessment

From the above it can be observed that options 5A or 5B are negative, largely due to safety considerations.

Conversely, both 5C and 5D have a positive score and in particular identical high scores for safety aspects.

However, option 5C is slightly better in economic terms, while option 5D is negative in terms of regulatory harmonisation, since imposing disproportionate rules on non-commercial operators in relation to assessment of cabin crew medical fitness.

## **2.11 Attestation process for cabin crew competence**

### *2.11.1 Options*

In Europe, requirements for training and recent operating experience applicable to cabin crew differ from one Member State to the other as regards the way compliance is assessed. Certificates or licences are, or used to be, required to be issued by the competent authority to the individual cabin crew members as proof of compliance by 12 EASA Member States mentioned in 2.10.2.1 above (representing 48% of the EU 27 + 4 population), and not required by the other 18 (representing 52% of the population).

For these historical reasons among others, implementation of the EU-OPS requirements relating to cabin crew competence continues to vary from one Member State to the other, also because some EU-OPS requirements for cabin crew are subject to national decision and therefore considered "minimum" requirements and not common requirements, thus leading to different interpretations and implementation.

While EU-OPS requires the issuance of an attestation as evidence of the initial safety training, the Basic Regulation requires the Agency to propose common training requirements for all cabin crew and, for cabin crew involved in CAT, the same Regulation requires in addition a cabin crew attestation to be issued and maintained valid to exercise the related functions. The Basic Regulation leaves freedom to the States to decide whether the attestation has to be issued by their competent authority, by an air operator or a training organisation provided they are specifically approved to do so. Therefore the entity issuing the attestation will not be considered in present RIA.

Starting with the currently applicable EU-OPS requirements, the following options have been considered:

- 6A: Attestation of completed initial training only for cabin crew in CAT operations and all subsequent training requirements under the responsibility of the operator;
- 6B: Attestation of competence issued after initial training for cabin crew in CAT operations only and training requirements under the responsibility of the operator for all cabin crew including in non-commercial operations; processes not defined at EU level;
- 6C: (1) For cabin crew in CAT operations: attestation of competence issued after initial training with validity depending also on subsequent training and operating experience; and (2) For cabin crew in non-commercial operations: all training requirements under the responsibility of the operator;
- 6D: As 6C (1) for all cabin crew, including non-commercial operations.

**Option 6A reflects the content of the EU-OPS rules**, as currently applicable in all EU 27 + 4 Member States. In turn the EU-OPS for training requirements for cabin crew substantially follow the previous JAR-OPS 1. It might therefore be described as the 'do nothing' option for CAT and would mainly be an extension of the training requirements of EU-OPS to cabin crew involved in non-commercial operations.

**Option 6B is very similar to option 6A**, with one difference: the attestation as evidence of completed initial training, as today required by EU-OPS, would be replaced by a cabin crew attestation as proof of compliance of the individual cabin crew member with the applicable requirements. The processes for its issuance, continued validity, suspension or revocation, would however not be defined at EU level but left to national level.

**Option 6C introduces** in addition to common training and medical requirements for all cabin crew, also **the common conditions and processes relating to the attestation** foreseen for



cabin crew involved in commercial air transport by Article 8(5)(e) of the Basic Regulation. The proposed difference between CAT and non-commercial would reflect the proportionality to the risks related to commercial air transport and non-commercial operations, as foreseen by the Basic Regulation. In particular the authorities will have to exercise continuous oversight on the validity of the attestations of competence.

Finally, taking into account that the same safety duties and responsibilities are required from all cabin crew, **option 6D would be to apply the same rules as in 6C (1)** to all cabin crew whatever type of operations they would be involved, including cabin crew involved in non-commercial operations.

### *2.11.2 Target group and number of entities concerned*

#### 2.11.2.1 Competent Authorities

Whichever will be the option selected among those under consideration, the Agency will not be significantly affected. In fact all of them will lead to common rules maintained by the Agency and to standardisation inspections.

In March 2007 the consultant company EGOA, as already presented in 2.10.2.1 above, published the final report on "Rules and Regulations governing the Cabin Crew in the EU 25". According to that report not only training requirements mainly based on JAR-OPS 1, but also a certification process for cabin crew existed in 9 (i.e. CZ, DK, FR, HU, IT, LT, PT, SL, ES) Member States of the EU 25, as well as in Norway. According to Agency's information the same applies to BG and RO, now Member of the EU 27: in conclusion the requirements under consideration are established in 12 of the EU 27 + 4 States. Of course, the air operators had to maintain appropriate training records.

Not considering Liechtenstein, as said in 2.10.2.1 above, according to the same study similar training requirements existed in the remaining 18 Member States (i.e. AT, BE, CY, EE, FI, DE, EL, IR, LV, LU, MT, NL, PL, SK, SE and UK, plus IS and CH), but without any document issued to the individual cabin crew. Compliance was under the responsibility of the air operators, and even in these States, operators had to maintain appropriate records.

Therefore in case of option 6A, since the Basic Regulation leaves the States free to delegate to operators or training organisations the issuance of the attestation:

- Nothing would significantly change for the 12 authorities which today issue a certificate because the new system will be qualitatively very similar to the one in place today and because the quantitative increase (i.e. inclusion of cabin crew in non-commercial operations) will be marginal;
- Equally, but for different reasons, nothing would either change also for the remaining 18 competent authorities, which today do not issue (or not directly) such attestations. In fact the Basic Regulation allows them to delegate the issuance of the attestation to operators or training organisations provided they are specifically approved to do so.

**In conclusion no competent authorities will be affected by option 6A.**

The **same will occur in case of option 6B** since the content of the document will change but not the process to administer it from the point of view of the authorities.

In case of **option 6C**, while the training requirements will not change, all the processes connected to the validity, limitation, suspension or revocation of the attestation of competence, would be based on common EU rules, which do not exist today. Therefore, the **authorities in the 12 States** where these processes are today regulated through national law could maintain their existing processes except that they would be **relieved from the task of**

**maintaining the related national provisions** since they would be replaced by EU legislation. The remaining **18 authorities would instead be obliged to introduce an oversight system, which they have not implemented today** since enforcement measures cannot be delegated to air operators in order to avoid potential conflict of interest with their labour force.

Finally, in case of **option 6D**, the situation **would remain** qualitatively the same **as in option 6C**. In quantitative terms also the cabin crew in non-commercial operations would be subject to oversight, but this is considered to be a very limited increase in the total number of cabin crew.

#### 2.11.2.2 CAT air operators

In paragraph 2.10.2.1 above the number of CAT operators by large aeroplanes to be considered in respect of cabin crew has been estimated in the range of 570.

**Options 6A and 6B** maintain the training requirements presently established by the EU-OPS. These requirements apply also in the States where a certification system is not implemented today. Therefore, **nothing will change for said CAT operators**.

In case of either option 6C or 6D, for the 12 Member States where the certification process for cabin crew is established today, the attestation process would be very similar and therefore no impact is estimated on such operators. On the contrary, in said option 6C new common rules would be introduced, obliging the operators, although they already have training records, to align with the new system. In other words, since the 18 States where there is presently no certification process represent around 52 % of the EU population, **options 6C or 6D would lead to new administrative requirements for 296 CAT operators** (i.e. 52 % of 570).

#### 2.11.2.3 Non-commercial air operators

Since the Basic Regulation, differently from JAR-OPS 1 and EU-OPS covers the totality of aviation operations and not only CAT, **any of the options** under consideration **will impact the non-commercial operators by large aeroplanes** (i.e. more than 19 passenger seats). Their number has been estimated as **35** (refer to paragraph 2.10.2.2 above).

#### 2.11.2.4 Cabin crews

In case of either **option 6A or 6B**, for the cabin crew involved in CAT, **the training requirements and attestation issuance would not change**. Vice versa new requirements would be imposed on about 100 cabin crew involved in non-commercial operations, whose number has been estimated in paragraph 2.10.2.3 above.

In case of either **option 6C or 6D**, for the same reasons exposed for the CAT operators in 2.11.2.2 above, **more stringent requirements** would apply to around 52 % of the **cabin crew** involved in CAT operations. Their total number has been estimated in 2.10.2.3. Therefore, 52 % of 121,632 = 63,250. New requirements would instead apply to the totality (i.e. in all Member States) of 100 cabin crew employed for non-commercial operations: **total 63,350 cabin crew subject to more stringent requirements**. For the cabin crew in the remaining Member States, nothing significant would change.

#### 2.11.2.5 Training organisations

EU-OPS first adopted in 2006 gave the possibility of training cabin crew not only to air operators (like it was in JAR-OPS 1) but also to independent training organisations. Since then the market started to develop but it is too early to have a stabilised and known situation. The Basic Regulation confirms that this market could be further developed.

In paragraph 2.6.2.4 of the RIA attached to NPA 2008-22a, the total number of Approved (pilot) Training Organisations in the EU 27 + 4, offering their services beyond the "leisure" and "Private" Pilot Licence, has been estimated as being around 555.

The Agency assumes that cabin crew training, based on common EU rules, could be an attractive business possibility for about 100 of them.

#### 2.11.2.6 Summary of affected entities

In conclusion, on the basis of the information in sub-paragraphs 2.11.2.1 to 2.11.2.5 above, the number of concerned entities is estimated in table 69 below:

Affected entities	OPTION			
	6A	6B	6C	6D
	Attestation of training	Attestation of competence	Common processes for CAT cabin crew	Common processes for all cabin crew
Agency	0	0	0	0
Competent authorities for which the requirements will become more stringent	0	0	18	18
Competent authorities for which the requirements will become less stringent	0	0	12	12
CAT operators by large aeroplanes for which the requirements will become more stringent	0	0	296	296
CAT operators by large aeroplanes for which the requirements will become less stringent	0	0	0	0
non-commercial operators by large aeroplanes for which the requirements will become more stringent	35	35	35	35
Cabin crew for which the requirements will become more stringent	100	100	63,350	63,350
Training Organisations	100	100	100	100

**Table 69: Number of affected entities for the attestation process**

#### *2.11.3 Safety Impact*

**Option 6A** is the 'do nothing' option, thus it would maintain the current situation and **would not allow further harmonisation**. The reported differences between Member States and between operators would remain which would oppose any improvement as regards the objective for a high uniform level of safety.

**Option 6B** would limit the scope of the requirements to the issuance of the attestation without providing the conditions to ensure the continuous validity of the attestation. This **would not allow developing at EU level uniform conditions** under which the said cabin crew attestation would be maintained, limited, suspended or revoked. It would leave in fact the

definition of the process under the responsibility of the national authorities which would not provide on one hand a level playing field and on the other hand legal certainty to the individuals affected. As a result, the provisions set in Article 8(5)(e) of the Basic Regulation and the objective for uniform implementation of the rules would not be met.

**Option 6C** by providing common process for ensuring compliance of the individual cabin crew members with the applicable requirements, would establish harmonised conditions in this field for all CAT operations within the EU 27 + 4. It is assumed that this **should improve compliance with the applicable requirements together with the standardisation of the levels of training for all concerned cabin crew**. Option 6C also takes account of the specificity and related acceptable level of risk of the non-commercial sector and limits the common requirements to the training, thus leaving non-commercial operators the responsibility to ensure compliance with the requirements.

Option 6D would ensure wider standardisation of compliance since extending the attestation process to cabin crew in non-commercial operations. However since the total number of such staff in the EU 27 + 4 is has been estimated in the range of 100 versus more than 100,000 for the cabin crew in CAT, **option 6D cannot be considered significantly better than 6C in safety terms**.

In conclusion, applying the methodology presented in paragraph 2.1.3 above (including a weight factor of 3 for the safety impacts), and having selected the applicable result indicators linked to specific objectives from paragraph 2.4.3, scores can be attributed for the safety impact of the four options related to safety in relation of the attestation process for cabin crew, as presented in the following Table 70:

Specific Objectives	Scoring of options			
	6A	6B	6C	6D
	EU-OPS	Attestation of initial competence	Common reqts for all; plus attestation process for CAT	Common requirements + attestation process for all
Uniform safety	-2	-1	1	1
Common level of competence	-2	-1	1	1
<b>TOTAL</b>	<b>-4</b>	<b>-2</b>	<b>2</b>	<b>2</b>
<b>AVERAGE SCORE (Tot/2 quantified parameters)</b>	<b>-2</b>	<b>-1</b>	<b>1</b>	<b>1</b>
<b>WEIGHTED AVERAGE (Score x 3 for safety)</b>	<b>-6</b>	<b>-3</b>	<b>3</b>	<b>3</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>-6</b>	<b>-3</b>	<b>3</b>	<b>3</b>

**Table 70: Scoring of the safety impact of the cabin crew attestation process**

#### *2.11.4 Economic Impact*

##### 2.11.4.1 Rulemaking and standardisation cost

None of the options under consideration would require any additional rulemaking or standardisation effort inside the Agency.

In other words, **none of the options under consideration would imply a significant variation of the rulemaking or standardisation costs at EU level**.

Similarly, options 6A and 6B would not imply any increase or decrease of administrative activity at Member State level.

For the 18 **competent authorities** in the States where today there is no similar process in place, there would be no additional rulemaking burden since the rules would be maintained at EU level. Conversely, in the 12 States where rules exist today, the same would be replaced by the EU ones. Therefore, those States would cease to maintain their regulations. Assuming that the required effort is today 0.5 FTE/State and that the cost of 1 FTE for the authorities is in the range of 120 k€ (2009)/year, the following **savings for option 6C and 6D** can be estimated as:

$$12 \times 0.5 \times 120 = 720 \text{ k€}/\text{year}$$

#### 2.11.4.2 Oversight cost

In **options 6A and 6B** today's situation would be maintained. This is assumed to lead to **no significant variation** of the oversight cost for any competent authority.

In case of either option 6C or 6D, for 12 competent authorities it is assumed that oversight would continue as today. Vice versa, 18 authorities would have to develop oversight activities relating to cabin crew attestations. Assuming again that this would represent 1 FTE for each of them and that the cost of 1 FTE in the administrations is in the range of 120 k€ (2009)/year, the **resulting cost for oversight in case of either option 6C or 6D, can be estimated as:**

$$18 \times 1 \times 120 = 2,160 \text{ k€}/\text{year}.$$

#### 2.11.4.3 Regulatory cost for the operators (recurrent)

New common rules at EU level have as a consequence the mutual recognition of attestations. Operators hiring cabin crew holding an attestation, including if issued in a different Member State, will not need to provide them with initial safety training anymore as previously required by JAR-OPS 1 and not sufficiently modified by EU-OPS. The latter in fact only introduced an attestation of initial training and not an attestation of competence. Furthermore, in the States where there was no certification system in place, although there were records held by the air operator, the cabin crew members hold no document which could have been shown to a new employer. So they also had to be retrained for safety when changing organisation in the same State.

**Options 6A and 6B** would maintain today's situation. They are therefore assumed to lead to **no variation** of the cost for the operators.

In the case of **option 6C and 6D**, the oversight of the attestation process would be the responsibility of the competent authority and the recurrent recent operating experience and training requirements due to maintain the validity of the attestation would not be changed compared to the EU-OPS. It is therefore assumed that the attestation process would lead, **depending on the operators concerned, to no change or eventually to a reduction of the recurrent cost.**

#### 2.11.4.4 Regulatory cost for the operators (non recurrent)

**Options 6A and 6B** would here again maintain today's situation. It is therefore assumed that there would be **no variation** of the cost for the operators.

In the case of **option 6C and 6D**, here again for the same reasons as described in paragraph 2.11.5.3 above, the main change would be the establishment of a process to ensure compliance of the cabin crew with the applicable requirements all over the EU 27 + 4 Member States, based on uniform conditions to ensure the continued validity of the said cabin crew attestation.

It is therefore assumed that the change from the EU-OPS attestation of training to the new EASA cabin crew attestation would result into a **one time administrative cost** for all operators, which amount is difficult to quantify since it would vary depending on the Member State concerned. For the 12 Member States that already apply a similar process it is assumed that the fees and charges would remain the same. For the 18 Member States that do not currently apply such a system it is not possible to predict the future fees and charges system.

Certainly, for each operator some administrative costs arise from the need to get attestations for all crew members. It is assumed that this will take about 1 hour per crew member per year. The total additional cost is therefore for Option 6C:

$$1 \text{ hrs} \times 40\text{€} \times 121,632 \text{ cabin crew} = 4,865 \text{ k €}^{73}$$

For Option 6D, the same calculation would apply to 100 more cabin crew employed in non-commercial operations:

$$1 \text{ hrs} \times 40\text{€} \times 121,732 \text{ cabin crew} = 4,870 \text{ €}^{74}$$

#### 2.11.4.4 Summary of economic impact

In summary, the costs (or saving) for the community at large is presented in Table 71 below:

	Options (Costs in k€)			
	6A	6B	6C	6D
	EU-OPS	Attestation of initial competence	Common reqts for all; plus attestation process for CAT	Common requirements + attestation process for all
<b>Estimated cost</b>				
Rulemaking & standardisation	0	0	-720	-720
Oversight	0	0	2160	2160
Recurrent regulatory costs for Operators	0	0	0	0
<b>PARTIAL TOTAL RECURRENT COSTS per YEAR</b>	<b>0</b>	<b>0</b>	<b>1440</b>	<b>1440</b>
Non recurrent costs	0	0	4865	4870
Depreciation in 5 years	0	0	973	974
<b>TOTAL COSTS/YEAR (during the first five years)</b>	<b>0</b>	<b>0</b>	<b>2413</b>	<b>2414</b>

**Table 71: Summary of economic impact**

<sup>73</sup> The rate of 40€ of costs per working hour is based on an assumed salary for administrative staff of 60.000 € per year and effective annual working hours of 1500 (7.5 hrs \* 200 days)

<sup>74</sup> See previous footnote

The monetary terms and the considerations immediately above are presented in table 72 below as scores:

Specific Objectives	Scoring of options			
	6A EU-OPS	6B Attestation of initial competence	6C Common reqts for all; plus attestation process for CAT	6D Common reqts + attestation process for all
Contain costs	1	1	-1	-2
Level playing field	-1	-1	1	2
Proportionate rules for SMEs	-1	-1	2	-2
<b>TOTAL</b>	<b>-1</b>	<b>-1</b>	<b>2</b>	<b>-2</b>
<b>AVERAGE SCORE (Tot/3 quantified parameters)</b>	<b>-0,3</b>	<b>-0,3</b>	<b>0,7</b>	<b>-0,7</b>
<b>WEIGHTED AVERAGE (Score x 1 for economy)</b>	<b>-0,3</b>	<b>-0,3</b>	<b>0,7</b>	<b>-0,7</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>0,0</b>	<b>0</b>	<b>1,0</b>	<b>-1</b>

**Table 72: Scoring of the economic impact**

- Options 6C and 6D
  - are the most expensive ones (negative scores -1 and -2);
  - provide a level playing field (positive scores 1 and 2)
- Option 6C is the only one that allows for proportionate rules for SMEs, Option 6D is the most disadvantageous one in terms of proportionality (high burden for small non-commercial operators);
- Option 6C is the only one with an overall positive score.

#### *2.11.6 Social Impact*

It is assumed that none of the options under consideration would lead to a significant creation or destruction of any jobs. Only option 6D could have a negative effect by putting an unduly high burden on non-commercial operators.

As already mentioned, options 6A and 6B would mainly maintain the current situation with the attestation of training required by EU-OPS.

However, in terms of job opportunities, options 6C and 6D are expected to significantly facilitate the free movement of these personnel not only from one operator to another but also from one Member State to another, thus improving mobility. Taking into account the various cycles of activity the sector experiences, it should be noted that, although primarily considered as a positive social impact, a commonly recognised document as proof of compliance with the rules should simultaneously be a positive change also for the operators by facilitating recruitment when needed. Similarly, experienced cabin crew becoming unemployed would have better opportunities to find another job, thus reducing or avoiding long periods of unemployment.

Option 6D would also facilitate the free movement of cabin crew involved in non-commercial operations to CAT operations and would allow them to work for both types of operators.

Specific Objectives	Scoring of options			
	6A	6B	6C	6D
	<b>EU-OPS</b>	<b>Attestation of initial competence</b>	<b>Common reqts for all; plus attestation process for CAT</b>	<b>Common reqts + attestation process for all</b>
Positive effect on the aviation employment market	0	0	0	-1
Quality of jobs	0	0	1	1
Free movement of cabin crew	0	0	1	1
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>
<b>AVERAGE SCORE (Tot/3 quantified parameters)</b>	<b>0,00</b>	<b>0,00</b>	<b>0,67</b>	<b>0,33</b>
<b>WEIGHTED AVERAGE (Score x 1 for social impact)</b>	<b>0,00</b>	<b>0,00</b>	<b>0,67</b>	<b>0,33</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>

**Table 73: Scoring of the social impact**

*2.11.7 Regulatory harmonisation*

*2.11.7.1 Compatibility with other EU/EASA regulations*

Options 6A and 6B would not allow meeting the provisions set by the legislator in Article 8(5)(e) of the Basic Regulation. Also, since the Basic Regulation requires proportionality for the safety rules, this would be compromised by option 6D. Therefore, only option 6C may be considered fully compliant with the Basic Regulation.

*2.11.7.2 Compatibility with ICAO standards*

There is no requirement for a certificate of competence for cabin crew in ICAO Annex 1 neither in Annex 6. Any of the options under consideration may therefore be deemed neutral in this respect.

*2.11.7.3 Harmonisation with the FAA rules*

The United States have implemented in 2004 a certificate of competence issued by the FAA to the flight attendants (cabin crew) that shall also show one or two categories of aircraft type qualifications as relevant. Among the four options considered, options 6C and 6D should therefore be positive steps towards improved harmonisation with the FAA rules in this area.

*2.11.7.4 Summary of impact on regulatory harmonisation*

The above considerations are then translated into scores related to the applicable specific objectives in the following Table 74:



Specific Objectives	Scoring of options			
	6A	6B	6C	6D
	EU-OPS	Attestation of initial competence	Common reqts for all; plus attestation process for CAT	Common requirements + attestation process for all
Consistency with EU rules (BR)	-2	-1	3	1
Smooth transition from JAR-OPS	1	1	-1	-1
Compliance with ICAO standards	0	0	0	0
<b>TOTAL</b>	<b>-1</b>	<b>0</b>	<b>2</b>	<b>0</b>
<b>AVERAGE SCORE (Tot/4 quantified parameters)</b>	<b>-0,3</b>	<b>0,0</b>	<b>0,7</b>	<b>0,0</b>
<b>WEIGHTED AVERAGE (Score x 1 for regulatory harmonisation)</b>	<b>-0,3</b>	<b>0,0</b>	<b>0,7</b>	<b>0,0</b>
<b>ROUNDED WEIGHTED AVERAGE</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>

**Table 74: Scoring of impact on regulatory harmonisation**

*2.11.8 Multi Criteria Analysis (MCA) and recommended option*

According to the methodology described in paragraph 2.1.3 and the scores attributed in paragraphs 2.9.3 to 2.9.7, the following matrix for MCA is provided:

Weighted score of options for attestation process		Options			
		6A	6B	6C	6D
		EU-OPS	JAR-OPS 1 + GMP	Common requirements for all; plus additional for CAT	High common requirements for all
Key Performance Area	Weight				
Safety	3	-6,0	-3,0	3,0	3,0
Environmental	2	0,0	0,0	0,0	0,0
Economic	1	-0,3	-0,3	0,7	-0,7
Social	1	0,0	0,0	0,7	0,3
Regulatory harmonisation	1	0,0	0,0	1,0	0,0
<b>WEIGHTED TOTAL</b>		<b>-6,3</b>	<b>-3,3</b>	<b>5,3</b>	<b>2,7</b>

**Table 75: Multi Criteria Analysis for attestation process for cabin crew competence**

From Table 75 above it can be observed that option 6A is clearly negative, in particular from the safety perspective.

In any case, options 6A. and 6B cannot be selected since they would not comply with the provisions set by the legislator in Article 8 (5) (e) of the Basic Regulation.

Option 6D would allow meeting those provisions but not the objective of proportionality since the same rules would apply to all cabin crew involved in commercial and non-commercial operations.

Option 6C is therefore the most appropriate option because it allows meeting the various objectives set in the Basic Regulation including proportionality of the rules depending on the type of activities and associated level of risk.

### 3. Conclusions

Having assessed the impact of each considered option in terms of safety, economic, environmental and social aspects, as well as in relation with the policies from the Commission (e.g. "Better regulation" and "An Agenda for sustainable future in General and Business Aviation"), the Agency proposes to:

- Regarding commercial air transport (CAT) select option 1B – certification for CAT operators based on proportionate rules – as explained in paragraph 2.6.8. The MCA shows that this is the preferred option due to the positive impacts in safety, economic, and regulatory harmonisation terms.
- Regarding commercial operations other than CAT (commercial "aerial work") select option 2B - certification for all commercial operators, but based on proportionate rules for aerial work – as explained in paragraph 2.7.8. The MCA shows that this is the preferred option due to the positive impacts in safety, economic and regulatory harmonisation terms.
- Regarding non-commercial operations by complex motor-powered aircraft select option 3C - declaration signed by the organisation managing the aircraft and endorsed by the owner, based on general operating and flight rules and organisation requirements – as explained in paragraph 2.8.8. The MCA shows that this is the preferred option due to the positive impacts in safety, economic and regulatory harmonisation terms.
- Regarding non commercial air operations with other than complex motor-powered aircraft select option 4A - apply all ICAO standards and recommended practices even to operations outside the scope of ICAO Annex 6 (e.g. private domestic general aviation) – as explained in paragraph 2.9.8. The MCA shows that this is the preferred option due to the positive impacts in safety, social and regulatory harmonisation terms.
- Regarding assessment of cabin crew medical fitness select option 5C - requirement for medical assessments of medical fitness according to common medical criteria specified for all cabin crew at defined intervals by aero-medical examiners for cabin crew in commercial air transport (CAT) and at longer intervals by general medical practitioners for cabin crew in non-commercial operations – as explained in 2.10.8. The MCA for this section shows that this is the preferred option due to its high impact in safety, social and regulatory harmonisation terms.
- Regarding the attestation process for cabin crew competence select option 6C - (1) For cabin crew in CAT operations: cabin crew attestation issued after initial training with validity depending also on subsequent training and operating experience; (2) For cabin crew in non-commercial operations: all training requirements under responsibility of the operator – as explained in paragraph 2.11.8. The MCA shows that this is the preferred option due to the positive impacts in safety, economic, social and regulatory harmonisation terms.

None of the selected options have a detrimental impact on safety.

On the contrary, they all have a positive impact on safety as well as a positive impact on regulatory harmonisation.

All of the options are considered to be neutral with regard to the impact on the environment.

Also, most of the options have a positive impact on social and economic terms.

On the basis of this RIA, it is then considered that NPA 2009-02 contains those elements that may contribute to an increased level of safety, but will most certainly contribute to regulatory harmonisation.