



**Tender Specifications  
annexed to**

**Invitation to Tender**

**Ref. SJU/LC/0082-CFT**

**Performance of an economic study to  
elaborate Business Cases associated to a  
pilot common project**

Date August 9, 2012

Edition 00.01.00

## 1. INTRODUCTION

### 1.1. Acronyms and terminology

<b>ATM</b>	Air Traffic Management
<b>SESAR</b>	Single European Sky ATM Research Programme
<b>SJU</b>	SESAR Joint Undertaking (European Union body under Council Regulation (EC) No 219/2007 as amended by Council Regulation (EC) No 1361/2008)
<b>ANSP</b>	Air navigation service provider
<b>ATM Master plan</b>	The European ATM Master plan (version adopted in principle by the SJU Administrative Board on 3 July 2012)
<b>ICAO</b>	International Civil Aviation Organisation
<b>IR</b>	Implementing Rule
<b>EU</b>	European Union

### 1.2. Introduction to the SJU

The purpose of the SJU created under Article 187 of the Treaty on the Functioning of the European Union, is to ensure the modernisation of the European air traffic management system through the coordination and concentration of all relevant research and development efforts.

The SJU is responsible for the implementation of the ATM Master Plan and for carrying out specific activities aimed at the development of a new generation air traffic management system capable of ensuring the safety and fluidity of air transport worldwide over the next thirty years. Further information on the activities of the SJU is available at [www.sesarju.eu](http://www.sesarju.eu).

### 1.3. Presentation of SESAR®

The Single European Sky Air Traffic Management Research Programme (SESAR®) is a European initiative aiming at modernising and harmonising the European Air Traffic Management (ATM) systems ensuring sustainable, safe and efficient air transport development through a performance driven approach. The Programme is composed of three phases: *(for more detailed information please see the Fact sheet n°1 attached hereto)*.

- the **definition phase (completed in 2008)** whose objective was to define the future concept of operations based on the 4D trajectories, time based operations and wide information sharing system among all the relevant stakeholders. The cost of this phase was 60 million EUR, financed with 50% funding from the EU and 50% from EUROCONTROL.
- The **development phase (initiated in 2008)** of the Programme is characterised by coordinated and focussed research, development and validation activities that aim at developing the equipment, standards and procedures that will constitute the new systems. This phase is currently on-going and is managed by the SESAR Joint Undertaking, a Union body established by Council Regulation (EC) 219/2007 of 27.02.2007, as amended by Regulation (EC) 1361/2008. The estimated cost of the development phase is 2.1

billion EUR. The EU, Eurocontrol and the ATM industry have committed to fund each 33% (700 million EUR each) of the estimated cost of development.

- The **deployment phase (in preparation)**, based on the results of the development phase, will consist of large scale production, procurement and implementation of the new ATM infrastructure and the corresponding aircraft equipment.

### ***A. The European ATM Master plan***

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Within the Single European Sky (SES) initiative, the European ATM Master Plan (Master Plan) is the agreed roadmap driving the modernisation of the Air Traffic Management system and connecting SESAR research and development with deployment. It is the key tool for SESAR deployment, providing the basis for timely, coordinated and efficient deployment of new technologies and procedures.

The first edition of the European ATM Master Plan was endorsed on 30 March 2009 and adopted on 12 June 2009 by the SESAR Joint Undertaking (SJU) which is responsible by EU Council Regulation for the maintenance of the Master Plan.

A major update of the ATM Master Plan was performed in 2012 (adopted in principle by the SJU Administrative Board on 3 July 2012) identifying in particular essential operational changes that need to be as part of the so-called SESAR Deployment Baseline and Step 1 (first set of solutions resulting from R&D).

This 2012 edition of the Master Plan embeds major updates which mark a clear distinction compared to the initial document:

- it takes benefit of the first results achieved by the SESAR Programme to prioritise a set of essential changes that either provides significant performance benefits and/or forms a pre-requisite towards the implementation of the target concept;
- it prepares for the SESAR deployment phase, developing high-level stakeholder roadmaps which provide a temporal view (up to 2030) of the ATM technology changes required and updating the Business View, providing a basis for timely and synchronised deployments;
- it promotes and ensures interoperability at global level, in particular in the context of ICAO.

The document also presents clearly what are the performance needs and targets, how to achieve them through deployment, once research and development results are validated and the necessary industrialization processes started. Finally, it introduces the high level business cases supporting the technological and operational alternatives.

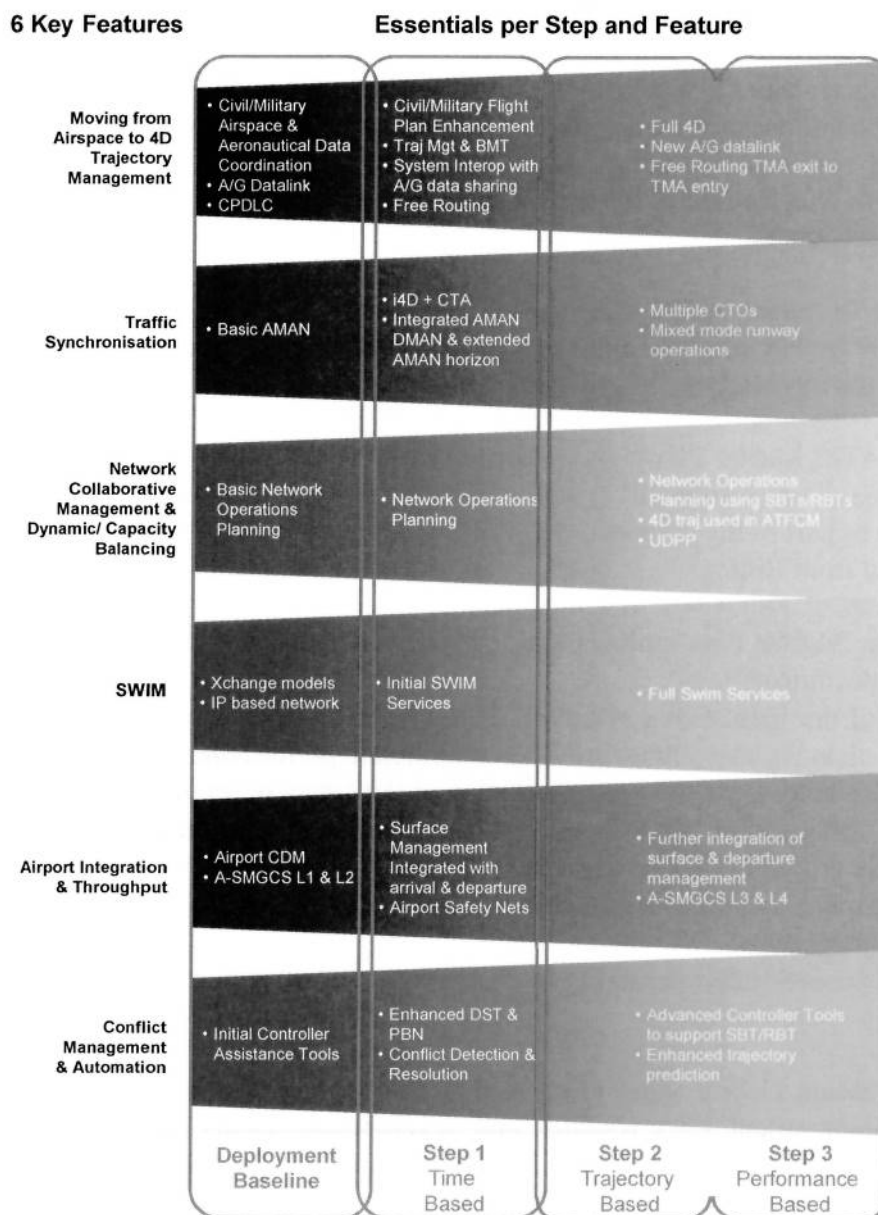
### ***B. What is the deployment of SESAR?***

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The transition towards the target Operational Concept follows three complementary Steps. Step 1, Time-based Operations is the focus of the 2012 edition of the Master Plan and progresses through Step 2, Trajectory-based Operations to Step 3, Performance-based Operations. Step 1 starts from the Deployment Baseline consisting of operational and

technical solutions that have successfully completed the R&D phase and have been implemented or are being implemented.

As shown in the figure, the Master Plan identifies essential operational changes (**Essentials**) for Step1 which should establish the foundations for the subsequent steps while responding to the performance needs. Those changes are grouped in 6 Key Features that describe the main strategic orientations and are the means to deliver performance to achieve the performance goals. The civil-military dimension is an integral part of these operational changes.



### C. The timeline for the deployment of SESAR

The essential elements of the ATM concept must be implemented timely and consistently throughout the European ATM network in order to deliver their full benefits. This requires coordination and synchronization across countries and stakeholders, and the key question of this Study is to support the elaboration of associated Business Cases taking into account the

objectives and legislative framework of the Single European Sky (SES) policy and the different instruments to support ATM infrastructure development.

## 2. TERMS OF REFERENCE

### 2.1. Subject

The SESAR Joint Undertaking (SJU) intends to select one entity for the signature of a Contract to support its activities, in the form of an economic study and complementary advisory activities, to elaborate the Business Cases associated to a pilot common project.

The present call for tenders is divided into two lots:

- **Lot 1: Performance of the economic study to support the SJU to elaborate the Business Cases associated to a pilot common project,**
- **Lot 2: Performance of complementary advisory activities.**

**Tenderers shall bid for both lots.**

Fact sheets and reference documents have been attached to these Tender Specifications to provide background information. The bidders are invited to read and consult the facts sheets and the reference documents before proceeding with reading the Tender Specifications, as the information contained therein is essential for the correct understanding of the objectives of the Study.

### 2.2. Description of required services

#### **Lot 1 – Performance of an economic study to elaborate Business Cases associated to a pilot common project**

##### *A. Context of the Study*

The first stage of SESAR implementation is approaching. A key milestone date is already set in 2014 with the establishment of the first deployment programme and related governance and funding arrangements that will be linked to the EU multiannual financial and institutional framework for the period 2014 - 2020.

The Commission – DG Move has recently presented the approach, including the governance model, it intends to adopt to ensure the deployment of SESAR R&D results. In the governance model, the Commission, representing the political level of the deployment governance, is responsible, in accordance with Article 15a of Regulation (EC) 550/2004, for establishing common projects, which will become a primary instrument for SESAR deployment.

For this purpose, common projects should cover those essential operational changes identified in the 2012 ATM Master Plan edition with the sufficient maturity and need to be deployed at European level.

While the final decision on establishing common projects remains with the Commission after appropriate consultations with Member States and with the relevant stakeholders in accordance with the procedure set in Article 10 of Regulation (EC) 549/2004, the

Commission has requested the SJU to prepare a proposal on the content of a pilot common project including the methodology to move from the implementation view in the ATM Master plan to a business view to be captured in the pilot common project. This proposal will be used by the Commission to establish its legislative proposal for the first common project in accordance with Article 15a of Regulation (EC) 550/2004.

As referred to in DG Move paper on “Establishing guidance material on common projects for SESAR deployment – DG Move orientations”, the pilot common project, once adopted, will constitute the main basis for inviting the industry to submit proposals for the selection of the deployment manager, which will be entrusted to carry out the deployment of the pilot common project and future common projects, by defining the detailed deployment programme and the related implementation projects.

### ***B. Scope and objective of the Study***

The scope of the Study is to perform an economic study to elaborate Business Cases associated to a pilot common project focusing at essential operational and technological solutions that need to be implemented from 2015, taking into account the possible gaps until then.

This will include:

- The economic impact assessment of the technological and/or operational changes selected so as to establish individual stakeholder groups<sup>1</sup> Cost-Benefit Analysis (hereinafter CBA(s)) and a global European CBA;
- The assessment of the deployment risks attached to the technological and/or operational changes selected;
- The consolidation of the methodology applied by the SJU in order to move from the implementation view in the ATM Master plan to a business view.

Please note that the pilot common project is expected to include up to 5 individual or groups of essential SESAR solutions (technological and/or operational changes to the ATM System baseline) that will be pre-identified by the SJU and confirmed during the study. These solutions will have to be assessed at the appropriate level of granularity as part of the study.

The work to be undertaken will be framed by the following guidelines presently defined as part of the mandate given to the SJU:

- The pilot common project shall be based on one or several essential operational changes identified in the ATM Master plan, whose need and maturity are demonstrated taking into account the following aspects:
  - i. Technological and economical maturity for implementation stemming in particular from SJU development results;
  - ii. Significant contribution to performance;
  - iii. Added value compared to “business as usual” through synchronisation;
- The technological and operational content shall be supported by:

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<sup>1</sup> Reference to stakeholder groups as defined in the European ATM Master Plan 2012



- i. the relevant technological and/or operational change resulting from the R&D activities;
- ii. the demonstration of a positive CBA, while identifying local/individual negative business cases;
- iii. the definition, for each of the implementation objectives in the pilot common project, of a geographical scope (e.g. in terms of target FAB, FIR, TMA, airports) and industrial scope (e.g. in terms of target stakeholders) and a precise planning, including air/ground synchronisation dates as needed;
- iv. the identification of links with existing implementing rules or of potential needs for new regulatory actions to facilitate the implementation of the common project;
- v. an assessment of compliance with clear and agreed safety requirements;
- vi. an assessment of standardisation needs and timelines;
- vii. an assessment of the potential risks that would hinder the implementation of the pilot common project and of the possible mitigation measures, such as incentive mechanisms, in particular to address local/individual negative business cases;
- viii. an assessment of global interoperability/coherence with ICAO's Global Air Navigation Plan and Aviation System Blocks Upgrades.



### *C. Project Management, Timeframe, meetings, deliverables*

#### **Project management**

<b>Activity</b>		<b>Responsible Party</b>
Project Steering Committee		The SJU appointed representatives, a senior partner of the Contractor to advise the Steering Committee in its decision making
Project Management		SJU appointed persons & the Contractor dedicated project manager
Subject Matter Experts		The Contractor is expected to provide personnel with the expertise to cover the spectrum of knowledge for the deliverables in this contract

The Contractor shall be responsible for organizing all activities necessary to achieve the objectives described in these technical specifications and in the proposed offer unless indicated otherwise by the SJU.

The SJU will:

- Organise stakeholder consultation(s);
- Associate relevant stakeholders in particular in the elaboration of the CBA and ensure their endorsement of the results;
- Manage conflict of interest;
- Nominate experts to support the study, in particular to provide technical expertise and ensure an effective interface with relevant stakeholders and links relevant SESAR activities/projects.

#### **Meetings**

Meetings shall normally take place in Brussels at the SJU premises. Any other proposed meetings must be approved by the SJU.

#### **Deliverables**

The Contractor shall deliver the following:

##### 1. Reports and presentation material:

- a) A Project Management Plan defining the project work plan, including deliverables, milestones, and stakeholders'/experts involvement required for the study;
- b) A Final publishable report<sup>2</sup> containing the results of the study which shall answer the objectives specified in point 2.2 B) above, providing, in dedicated sections, at least:

<sup>2</sup> in MS Word or compatible software.

- a. the global European CBA analysis results,
- b. the individual stakeholder groups<sup>3</sup> CBAs results,
- c. the assessment of the deployment risks attached to the technological and/or operational changes selected,
- d. a consolidation of the methodology applied by the SJU in order to move from the implementation view in the ATM Master plan to a business view;
- e. an executive summary.

c) A final publishable presentation<sup>4</sup>.

## 2. Supporting CBA analysis model:

- a) A validated CBA analysis model<sup>5</sup> on the economic impact of up to 5 groups of essential SESAR solutions that will have to be assessed as part of the study (including integration and consolidation).

The final deliverables shall be finalized at the latest by **the end of April 2013**, except if mutually agreed otherwise in writing by the parties.

The deliverables shall be provided to the SJU in English language in 5 paper copies, as well as a CD ROM containing the electronic version of the reports, presentations and models in Microsoft Office format (or similar compatible formats).

### **Lot 2: Performance of complementary activities**

The services which may be requested by the SJU under Lot 2 would consist of activities such as:

- Follow-up activities related to the study performed under Lot 1;
- Support to dissemination activities related to the study performed under Lot 1;
- For some of the technological and/or operational changes selected, an environmental impact assessment;
- Complementary services related to the model, validation of the model, or new requirements (e.g. additional assessments to be performed at more granular level).

The activities under Lot 2 will be implemented through work orders depending on the SJU needs and budget availabilities (please refer to the draft Contract attached to the Invitation to tender). Please note that signature of the Contract imposes no obligation on the SJU to purchase the services under Lot 2. Only implementation of the Contract through work orders is binding on the SJU.

### **2.3. Variants**

Variants on the terms of reference are not permitted.

<sup>3</sup> Reference to stakeholder groups as defined in the European ATM Master Plan

<sup>4</sup> in MS PowerPoint format or compatible software.

## 2.4. Price

The maximum allocated budget for this Service Contract as whole is **550.000,00 EUR**.

This amount is broken down as follows:

- Maximum allocated budget for **Lot 1: 400.000,00 EUR**
- Maximum allocated budget for **Lot 2: 150.000,00 EUR**.

## 3. ASSESSMENT OF THE OFFERS AND AWARD OF THE CONTRACT

### 3.1. Introduction

Proposals for Lots 1 and 2 will be assessed **jointly and as a whole** in accordance with the criteria laid down below. The assessment will be strictly based on the content of the received offers and in the light of the criteria set out hereunder.

The assessment procedure will be carried out in three consecutive stages:

- Stage 1 – assessment in the light of exclusion criteria (see section 3.2. below),
- Stage 2 – assessment in the light of selection criteria (see section 3.3. below) and
- Stage 3 – assessment in the light of award criteria (see section 3.4. below).

The aim of each of these stages is:

- To check on the basis of the exclusion criteria, whether tenderer can take part in the tendering procedure;
- To check on the basis of the selection criteria, i.e. legal, economic and financial, technical and professional capacity of each tenderer;
- To assess on the basis of the award criteria each offer which has passed the exclusion and selection stages.

### 3.2. Assessment in the light of exclusion criteria

To be eligible for participating in this contract award procedure, the tenderer<sup>5</sup> cannot be in any of the following exclusion grounds:

- (a) They are bankrupt or being wound up, are having their affairs administered by the courts, have entered into an arrangement with creditors, have suspended business activities, are the subject of proceedings concerning those matters, or are in any analogous situation arising from a similar procedure provided for in national legislation or regulations;
- (b) They have been convicted of an offence concerning their professional conduct by a judgement which has the force of *res judicata*;
- (c) They have been guilty of grave professional misconduct proven by any means which the contracting authority can justify;
- (d) They have not fulfilled obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which they are established or with those of the country of the

<sup>5</sup> Where parts of the services are intended to be subcontracted the tenderer has also to ensure that the subcontractors satisfy the exclusion criteria as indicated in section 15 of invitation to tender Ref. SJU/LC/0082-CFT.

contracting authority or those of the country where the contract is to be performed;

Accordingly, tenderers must provide a **Declaration on Honour** (see Annex I), duly signed and dated, stating that they are not in one of the situations referred to above.

*Nota Bene:*

The tenderer to which the contract is to be awarded shall provide, within 15 days following notification of award and preceding the signature of the contract, the following documentary proofs (**originals**) to confirm the declaration referred to above:

- For points a) and b) above a recent extract from the judicial record or, failing that, an equivalent document recently issued by a judicial or administrative authority in the country of origin or provenance showing that those requirements are satisfied.
- For point d) recent certificates issued by the competent authorities of the States concerned.

Where the document or certificate referred to above is not issued in the country concerned, it may be replaced by a sworn or, failing that, a solemn statement made by the interested party before a judicial or administrative authority, a notary or a qualified professional body in its country of origin or provenance.

The SJU may waive the obligation of a tenderer to submit the documentary evidence referred to above if such evidence has already been submitted to the SJU for the purposes of another procurement procedure and provided that the documents are not more than six (6) months old starting from their issuing date and that they are still valid. In such a case, the tenderer shall declare on his honour that the documentary evidence has already been provided in a previous procurement procedure and confirm that no changes in his situation have occurred.

Please refer to the following web page for additional information regarding the relevant requirements and model documents under national laws of the EU Member States:  
[http://ec.europa.eu/internal\\_market/publicprocurement/2004\\_18/index\\_en.htm](http://ec.europa.eu/internal_market/publicprocurement/2004_18/index_en.htm).

### **3.3. Assessment in the light of selection criteria**

The tenderer must have the overall capabilities (legal, economic, financial, technical and professional) to perform the contract. All the requirements listed below must be met in order to enter the next phase of the assessment in the light of award criteria.

Please note that in the selection phase, assessment focuses on the quality of the track record and not on the quality of the (technical) offer.

#### **3.3.1. Legal capacity**

Tenderers are requested to prove that they are authorised to perform the contract under the national law as evidenced by inclusion in a trade or professional register, or a sworn declaration or certificate, membership of a specific organisation, express authorisation or entry in the VAT register.

The tenderer shall provide a dully filled in and signed Legal entities' form (see section 7 b) of the invitation to tender Ref. SJU/LC/0082-CFT).

### **3.3.2. Economic and financial capacity**

In order to prove its sufficient economic and financial capacity to perform the contract, the tenderer shall present one or more of the following documentation:

- Evidence of professional risk indemnity insurance;
- Balance sheets (or extracts from balance sheets) for at least the last two years for which accounts have been closed;
- Statement of overall turnover during the last three financial years;
- If the tenderer relies on the capacity of other entities, a written undertaking (e.g. letter of intent) on the part of those entities confirming that they will place the resources necessary for performance of the contract at the tenderer's disposal, shall be provided (see section 16 of the invitation to tender Ref. SJU/LC/0082-CFT).

If, for some exceptional reason which the SJU considers justified, the tenderer is/are unable to provide the references requested here above, the tenderer may prove the economic and financial capacity by any other means which the SJU considers appropriate.

### **3.3.3. Technical and professional capacity**

Tenderer is required to prove that he has sufficient technical and professional capacity to perform the contract. To that end, he shall provide the following information:

- A detailed description of the main current activities of the tenderer,
- Detailed CVs of the team that will be responsible for carrying out the project.
- Evidence of counselling governmental agencies in the field of economic development, complex programme implementations, aerospace and defence, technology
- Evidence of skills and expertise to develop studies on similar subjects with a decisive impact on the decision making process.

## **3.4. Assessment in the light of award criteria**

### **3.4.1. Technical evaluation of the offers**

Only the offers meeting the requirements of the exclusion and selection criteria will be evaluated in terms of quality and price for the award of the contract.

The contract will be awarded on the basis of the economically most advantageous offer.

The quality of each technical offer covering the services will be evaluated in accordance with the award criteria and the associated weighting detailed in the table below:

N°	Award criteria (covering both Lots)	Weighting
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1.	<b><u>Understanding:</u></b> <ul style="list-style-type: none"> <li>- Understanding of the overall assignment</li> <li>- Understanding of the challenges and possibilities</li> <li>- Understanding of SESAR</li> </ul>	20
2.	<b><u>Presentation:</u></b> <ul style="list-style-type: none"> <li>- Clarity and precision of the proposal</li> <li>- Quality of the ideas proposed to achieve the assigned objectives</li> <li>- Quality of the approach to ensure the successful achievement of the assignment</li> </ul>	30
3.	<b><u>Tenderer Expertise:</u></b> <ul style="list-style-type: none"> <li>- Previous experience in similar studies in the sector or sector with similar complexities</li> <li>- Evidence of counselling governmental agencies in the field of economic development, complex programme implementations, aerospace and defence, technology</li> <li>- Evidence of competence in all fields relevant for the study, such as strategy, finance, economics, risk and innovation/technology deployment</li> <li>- Global representation or network, with experience in serving civil airspace users, air navigation service providers, airports and military in particular (consulting and research capabilities)</li> <li>- Quality and relevance of the team and of the team members (through detailed CV's of relevant personnel).</li> </ul>	50
<b>Total number of points</b>		<b>100</b>

### 3.4.2. Financial evaluation of the offers for Lot 1& 2

The offer must reach **60 %** or more per criterion and **70 points** or more globally in order to be admitted to the financial evaluation.

### 3.4.3. Recommendation for award of the contract

The contract will be awarded to the offer which offers the highest ratio quality/cost by applying the following formula:

$$\begin{aligned}
 &\textbf{Ratio quality/price of tender "Y"} \\
 &= \\
 &(\text{Lowest price for Lot 1/price of tender Y for Lot 1} \times \text{total quality score of tender Y}) \times \textbf{90\%} \\
 &+ \\
 &(\text{Lowest price for Lot 2/price of tender Y for Lot 2} \times \text{quality score of tender Y}) \times \textbf{10\%}
 \end{aligned}$$



## ANNEX I

### DECLARATION ON HONOUR

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*The undersigned:*

*Name of the individual/company/ organisation:*

*Legal address:*

*Registration number/ID Card No.:*

*VAT number:*

Declares on oath that the individual/company/organisation mentioned above is not in any of the situations mentioned below:

- a) they are bankrupt or being wound up, are having their affairs administered by the courts, have entered into an arrangement with creditors, have suspended business activities, are the subject of proceedings concerning those matters, or are in any analogous situation arising from a similar procedure provided for in national legislation or regulations;
- b) they have been convicted of an offence concerning their professional conduct by a judgement which has the force of *res judicata*;
- c) they have been guilty of grave professional misconduct proven by any means which the SJU can justify;
- d) they have not fulfilled obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which they are established or with those of the country of the contracting authority or those of the country where the contract is to be performed;

I the undersigned understand that contracts may not be awarded if during the procurement procedure the individual/company/organisation mentioned above:

- is subject to a conflict of interest;
- is guilty of misrepresentation in supplying the information required by the contracting authority as a condition of participation in the contract procedure or fail to supply this information;

**Full name:**

**Date & Signature:**



## ANNEX II

### Template for submission of the Financial Proposal for Lot 2

Tenderers shall submit their Financial Proposal for Lot 2 by filling in the table below.

Please note that in applying Section 3.4.2 of the Technical Specifications (*“Financial evaluation of the offers”*), the following weighting factors will be used to determine your final price for Lot 2. :

- for the category “Partner”: **15%**
- for the category “Manager”: **20%**
- for the category “Consultant”: **65%**

Consequently, your financial price for Lot 2 will be calculated by adding up the unit fees per category of personnel, after applying the corresponding weighting factors set forth hereabove. For more details on the financial evaluation, please refer to Section 3.4.2 of the Technical Specifications.

Staff by category	Unit	Unit price in Euro (excl. VAT)
Partner	man-day	<i>[to be completed by the tenderer]</i>
Manager	man-day	<i>[to be completed by the tenderer]</i>
Consultant	man-day	<i>[to be completed by the tenderer]</i>

## **ANNEX III**

### **FACT SHEETS**



## Fact sheet 1: The SESAR Programme

The SESAR Programme is one of the most important research and development projects ever launched by the European Union in the field of air traffic management (ATM). Its objective is to provide technological solutions in the area of the Air Traffic Management for the full and successful achievement of the Single European Sky legislation. While the Regulation 1070/2009 will provide a revised legal framework for a more efficient, performance driven, safer and greener procedures for the air traffic management, the SESAR Programme will deliver technological solutions, functionalities, systems and proposals for standards, which will be deployed in Europe.

The whole ATM Network R&D SESAR Programme activities will develop and deliver the necessary operational and technical materials (specifications, procedures, mock-ups, prototypes, validation reports, etc.) for the progressive industrialisation, deployment and operation of a new ATM system.

The SESAR Programme is composed of three phases:

- a) **The definition phase (completed in 2008)**, whose aim was to define the roadmap for the achievement of ATM performance levels and to establish a high level work plan defining the content of the next generation of ATM systems, and identifying the necessary elements for its realisation. The consortium of the definition phase was composed of 30 organisations including the Air Navigation Service Providers, the industry and the airlines. The technological coordination was entrusted to Eurocontrol.

The definition phase of the SESAR Programme ended in May 2008. It resulted in 6 documents:

- i. D1: Air Transport Framework – the current situation;
- ii. D2: the ATM Performance Targets;
- iii. D3: the ATM Target Concept;
- iv. D4: the ATM Deployment Sequence;
- v. D5: the SESAR Master plan: this document is the core stone of the definition phase. It is a commonly agreed roadmap for the research activities and for the deployment of the SESAR's technological outputs
- vi. D6: the Work Programme for 2008-2013

Upon a proposal from the European Commission based on the SESAR Master plan, the Council of the EU endorsed the "European ATM Master plan" in its Decision of 30<sup>th</sup> of March 2009. On the same date the Council adopted a Resolution confirming that the modernisation of ATM and the proposed timelines for the achievement of this modernisation remain high political priority at the EU level.

As requested by the Council in its Resolution of 30<sup>th</sup> of March 2009, the European ATM Master plan will be updated in 2010, after appropriate consultation process including the Single European Sky Committee.

- b) **Development phase (initiated in 2008)**, which will develop the necessary elements on the basis of the Definition phase findings.

#### **a. The financing of the development phase:**

The estimated cost of the development phase amounts to 2.1 billion EUR and is financed through three channels combining public and private funds. The European Union, being the founding member together with Eurocontrol, has committed 700 million EUR from two different programmes to the Joint Undertaking. Half of this amount stems from the 7<sup>th</sup> Framework Programme for Research and Development of the European Community and another half from the multi-annual programme of the Trans-European Transport Network Programme. The industrial partners, selected in a competitive process, are also expected to commit 700 million EUR. Eurocontrol also contributes 700 million EUR.

#### **b. The governance of the development phase and the current model of the private-public partnership**

The Joint Undertaking has been established under Article 171 of the Treaty establishing the European Union.

The specific mandate of the SESAR Joint Undertaking is laid down in the Article 1 par. 5 of Regulation (EC) 219/2007, as amended by Regulation (EC) 1368/2008.

To resume, the mandate of the Joint Undertaking is defined as follows:

- a) Coordinating and concentrating all relevant ATM research of the development phase, in accordance with the ATM Master plan
- b) Ensuring the necessary funding of the development phase
- c) Ensuring the involvement of the stakeholders
- d) Organising the technical work; including the validation activities
- e) Ensuring the supervision of the activities related to the development of common products

Following the amendment of the basic regulation, the Joint Undertaking statutes changed from private entity to a Union body.

The management of the Development Phase of the SESAR Programme is entrusted to the SESAR Joint Undertaking, a Union body in charge of the coordinating and concentrating all relevant ATM research, as well as of the execution of the European ATM Master plan.

The executive decisions are taken by casting the votes at the Administrative Board, composed of the three founding members, the selected members, which carry out the work, and the airlines. Please consult the list of the members of the Administrative Board of the SESAR Joint Undertaking available at <http://www.sesarju.eu/about/board>

### **c. The operational activities of the Development Phase:**

The new Concept of Operations of SESAR resulting from the definition phase aims at moving from today's airspace based trajectories to the time based operations of "4-D trajectories", where all the relevant stakeholders have access to the most up to date and precise information through the System Wide Information Management (SWIM).

The Work Programme of the SESAR Development Phase is divided into following thematic areas and Work Packages (WPs):

#### **(1) Operational ATM research will be addressed under WPs:**

- WP 4: En-route Operations
- WP 5: Terminal Management Areas (TMA) Operations
- WP 6: Airport Operations
- and WP 7: Networking Operations

#### **(2) System research considerations are addressed under WPs:**

- WP 9: Aircraft systems
- WP 10: En-Route & Approach ATC Systems
- WP 11: Flight Operations Centre System
- WP 12: Airport Systems
- WP 13: Network Information Management System
- and WP 15: Non Avionics Communication-Navigation-Surveillance (CNS) Systems

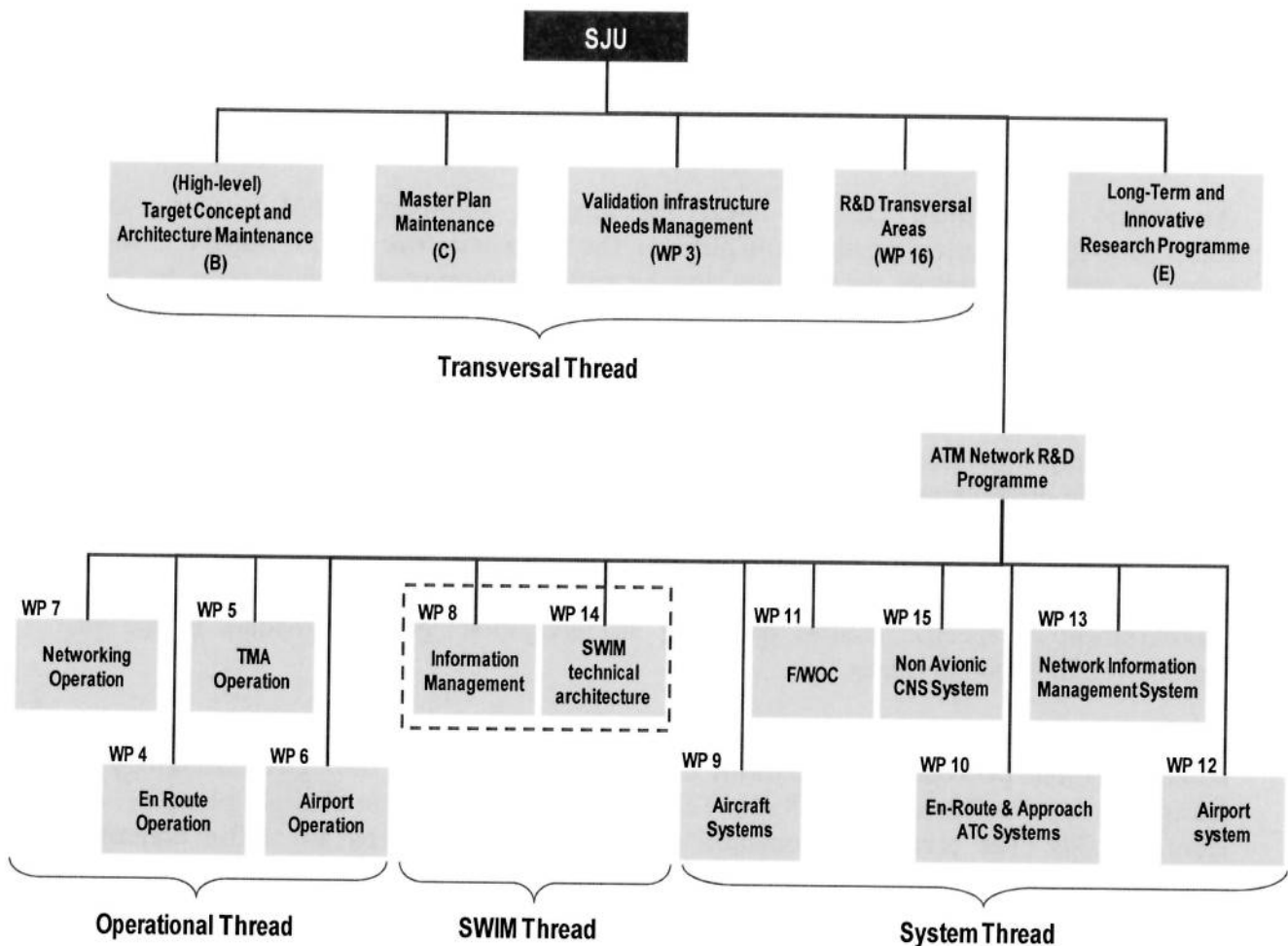
#### **(3) System Wide Information Management (SWIM) considerations are addressed under WPs:**

- WP 8: Information Management
- WP and 14: SWIM Technical Architecture

#### **(4) Transversal activities:** such as validation infrastructure, development of safety, security, environment and human performance cases, maintenance and updates of the ATM Master Plan, of the Target Concept and its Architecture, are dealt by a number of additional WPs, which are B, C, 3, 16. It is expected that transversal WPs will contribute to maximising benefits of operational and system Work Packages.

The SESAR Programme is composed of almost 300 research projects or transversal activities.

The Work Breakdown Structure is presented below:



*Figure: Work Breakdown Structure high-level overview*

Detailed description of the Work Packages can be obtained via the SESAR JU webpage under the following link:

[http://www.sesarju.eu/public/standard\\_page/wp.html](http://www.sesarju.eu/public/standard_page/wp.html)

Detailed Technical Description of Work can be obtained via the SESAR JU webpage under the following link:

[http://www.sesarju.eu/public/standard\\_page/library\\_list.html](http://www.sesarju.eu/public/standard_page/library_list.html)

**Deployment phase (in preparation)**, through which there will be large scale production and implementation of the new air traffic management infrastructure, composed of fully harmonised and interoperable components which guarantee high performance air transport activities in Europe.

## Fact sheet 2: Single Sky legislation

### 1 History and background

Air traffic management (known under the English acronym: **ATM** – Air Traffic Management) constitutes, together with airports, **the infrastructure** of air transport. Using an image of railway transport, we may say that air traffic management provides with the "rails, markings and beacons" for airplanes together with the equipment intended to ensure traffic surveillance and flight expedite flows.

Historically traffic control mission has been ensured by national civil administrations. These administrations were therefore in charge of regulating and monitoring air carriers, airports and air traffic management.

The creation of the internal market and the liberalisation of the air transport sector have led to the reorganisation of it. However, in the ATM area such a trend has prompted the establishment of specific entities gathering air navigation service providers in the vast majority of the Member States.

Air traffic management technology is in many ways **obsolete** today. Means of communications between pilot and traffic controller are carried out through a technology that dates from the 50s (NavAids and Radio Telecoms); radars, treatment of flight plans etc. date from the 70s. The level of automation is still low which keeps air traffic controllers **productivity** at a very low level (on average 0.7 aircrafts per hour are controlled by a single controller). An aircraft stays in general between 3-5 minutes in a given sector of airspace controlled by the controller, which requires a lot of coordination. To date, an increase of traffic has automatically led to a proportional increase in traffic controllers. This shows the need to speed up **technological innovation** and new ways of operational organisation.

The **Community legislation "Single European Sky I"** (adopted in March 2004) has provided several positive elements to the European ATM system:

- a. The establishment of an institutional and legal framework for Community action, within which a partnership with stakeholders has been put in place.
- b. The separation between service provision and regulation tasks, the harmonisation of the regime for licensing of traffic controllers, the transposition of the "Eurocontrol Safety Regulatory Requirements (ESARRs)" into the EU ATM body of law.
- c. More efficiency in the airspace utilisation through its flexible utilisation and coordination between the civil and military.
- d. A transparent and common system of "en route" charges.
- e. The acceleration of innovation, interoperability of equipments<sup>6</sup> with notably the implementation of the Single European Sky technological pillar: the SESAR programme.

<sup>6</sup> Important to note that each State had in the past Developed its technology in an isolated manner



## 2 The Single European Sky second package – SES II

The second legislative package (Regulation EC 1070/2009) of the Single European Sky has been adopted in October 2009 by the European Parliament and the Council and entered into force on 4<sup>th</sup> December 2009. Its implementation is now the crucial issue.

The second legislative package has three pillars: (1) a legislative framework for the performance in the areas of safety, environment, capacity and flight efficiency; (2) a reinforcement of the network management; and (3) the integration of air navigation services in functional airspace blocks (FABs).

- 1) **Performance regulatory framework:** as ATM is a monopoly, a regulatory system is necessary the establishment of performance plans in support of the airspace users needs. Through a **performance** assessment body (Performance Review Body), **the Commission will act as an economic regulator and will adopt targets** for the European network, while national supervisory authorities will propose national or FAB targets, after consultation with the airspace users and the service providers. In addition the Commission will ensure the compatibility and coherence between the local and network targets. The new system will put in place financial incentives for the purpose.
- 2) **Network management:** the ATM sector provides the infrastructure for aviation, but the latter is increasingly under pressure: the smallest incident in any link of the chain will impact the whole network. The Commission shall have to designate an European ATM network manager which shall be requested to:
  - ensure that routes and airspace are managed from a true European perspective in order to have for airlines shorter routes;
  - synchronise the deployment of the SESAR infrastructure in the Member States;
  - coordinate the management of the radio spectrum allocated to aviation;
  - ensure that traffic problems are tackled from a "gate to gate" perspectives.
- 3) **Integration into Functional Airspace Blocks (FABs):** the deadline of 2012 has been retained for the effective implementation of the 9 regional ongoing initiatives. The FABs initiatives are bottom- up initiatives, depending on the will and strategy of cooperation of the Air Navigation service providers and the National Supervisory authorities of the States and aim at increasing the cost-effectiveness of the service provision in Europe and delivering operational benefits (such as for example: improving the capacity in the airspace block, improving the routes structure, providing common procurement strategy and training).

The efficiency of the Single Sky implementation depends as well on the progress made in other areas: safety, technology and airport capacity. For this reason, the new Single Sky legislative measures are integrated into an "**aviation package**". Together with the abovementioned elements, other crucial aspects are: (1) the extension of competences of the European Air Safety Agency (EASA); (2) the SESAR programme deployment; and (3) the Action Plan for the improvement of the airport capacity and safety efficiency.

The intergovernmental organisation **Eurocontrol** could be designated as the technical agency in support of the Single European Sky if it does comply with the EU requirements such as separation between regulatory and service provision related activities.

### 3 Key Data

- Air carriers finance air navigation services through two type of tariffs called 'en route' and 'terminal' (approaching the airports), calculated according to the aircraft volume. A charge is levied for each flight performed in the airspace falling within the competence of the States. This charge takes into account the distance flown and, less than proportionately, the aircraft weight. This way the air carriers pay on a yearly basis € 6 billion for "en route" services and € 2 billions for "terminal" services, therefore **€ 8 billion** in total.
- The ATM sector employs 37.000 people, out of which approximately 15.000 controllers. The traffic is about **10 million flights** in 2007, with peaks of 50.000 daily, and it is managed through more than 60 air control centres in the EU. This fragmentation of service provision causes an additional cost that has evaluated around € 3 billion. In comparison the United States manage twice as much traffic that Europe with only 20 air control centres with a similar ATM cost.
- Civil aviation is safe transportation mode. However **3 accidents linked to ATM** happened since 2000 in Milan-Linate, Paris-CDG and Überlingen ("en route" collision).
- The impact of civil aviation on **environment** has been evaluated as approximately **3%** of the total CO2 emissions. Increased flight efficiency through the rationalisation of air navigation service provision may improve the environmental efficiency per flight by a range of between 6 à 12%.

## ANNEX IV

### **Background documents to be consulted and understood before submitting the offers**

#### **1. SESAR Programme and SESAR Joint Undertaking:**

- a. Commission paper “Establishing guidance material on common projects for SESAR deployment”  
[Can be sent on request submitted to procurement@sesarju.eu](mailto:procurement@sesarju.eu)
- b. European ATM Master plan edition 2012  
[Can be sent on request submitted to procurement@sesarju.eu](mailto:procurement@sesarju.eu)
- c. SESAR Annual Report 2011  
<http://www.sesarju.eu/news-press/documents/2011-annual-report-1132>

#### **2. Structure of the SESAR's public-private partnership:**

- a. Regulation (EC) 219/2007 amended by Regulation (EC)1368/2008
- b. The list of the Administrative Board Members at:  
<http://www.sesarju.eu/about/board>

#### **3. Single European Sky legislation:**

- a. The four basic Regulations (EC) 549/2004, (EC) 550/2004, (EC) 551/2004, (EC) 552/2004, as amended by the Regulation (EC) 1070/2009 entered into force on 4<sup>th</sup> of December 2009, in particular:
  - i. Objectives of the Single European Sky
  - ii. Provision on the common projects
  - iii. Interoperability Regulation

## ANNEX V

### Glossary

- ▶ Air navigation service providers (ANSPs): means any public or private entity providing air navigation services for general air traffic;
- ▶ Civil Airspace Users: means all civil aircraft operators operating in European Airspace (e.g. commercial aircraft operators, business and general aviation).
- ▶ The Implementing Rules (IRs): are technical specifications, including binding implementation deadlines, which are formally adopted through the Comitology procedure including the vote at the Single Sky committee. They are directly binding on the Member States and stakeholders concerned.
- ▶ Essential operational changes: is defined as an operational change that either provides significant performance benefits to the performance needs associated with Step 1 and/or forms a pre-requisite towards the implementation of the target concept. It can be at Local, “Regional” or Network level. A set of Essentials has been identified as the core of the Step1 deployment in the 2012 edition of the ATM Master Plan. The Essentials identified in this edition mainly result from expert judgment. They constitute an initial basis from which to prepare for the deployment phase subject to confirmation by validation results.