



Project N°: **ASA3-CT-2004-511047**

Project acronym: **ASTERA-2**

Project title: **Aeronautical Stakeholders Tools for the European Research Agenda 2**

Instrument: **Specific Support Action**

Thematic Priority: **Aeronautics and Space**

## **FINAL REPORT**

Period covered: **from 01/10/04 to 31/12/06**

Prepared: **16 March 07**

Start date of project: **01/10/04**

Duration: **27 Months**

Project coordinator: **Luigi Bottasso**

Organisation: **ASD**

(**AeroSpace and Defence Industries Association of Europe**)

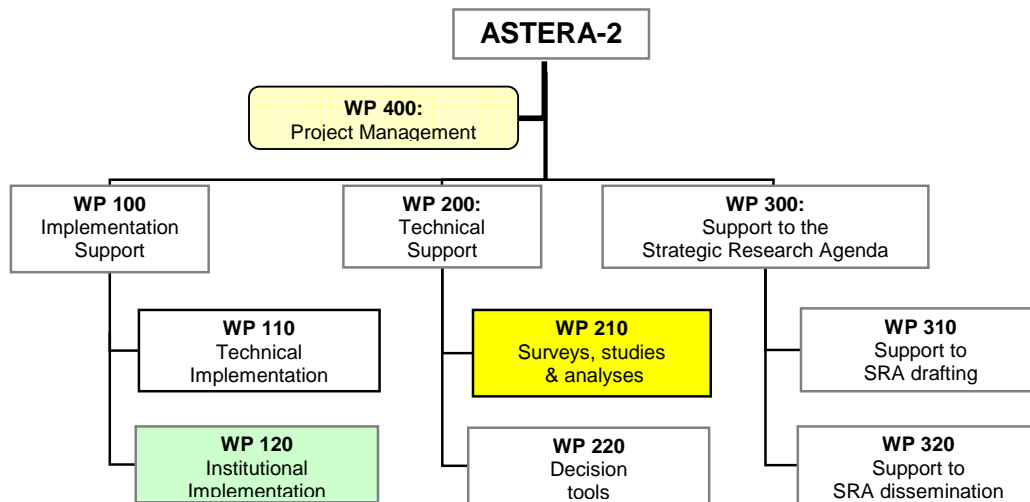
Revision: **Draft**

## Table of contents

<b>1. EXECUTIVE SUMMARY.....</b>	<b>3</b>
<b>2. PROJECT EXECUTION.....</b>	<b>8</b>
<b>2.1. <i>Overview of the Project's Objectives</i> .....</b>	<b>8</b>
<b>2.2 <i>Contractors Involved</i> .....</b>	<b>9</b>
<b>2.3. <i>End Results</i> .....</b>	<b>10</b>
<b>3. PLAN FOR USING AND DISSEMINATING THE KNOWLEDGE .....</b>	<b>37</b>

## 1. Executive Summary

The diagram below shows the structure of the ASTERA-2 work packages.



- |   |  |
|---|--|
| <input type="checkbox"/> ASD Support Activities | <input type="checkbox"/> EREA Support Activities       |
| <input type="checkbox"/> ASD Management         | <input type="checkbox"/> ASD / EREA Support Activities |

The main achievements for the whole duration of the project are summarised hereafter for the two partners:

### ASD Activities

#### **Work Package 110 – Technical Implementation:**

- The Technical Observation Platform (TOP) database system had been developed under ASTERA-1 and aimed at collecting data on the status of nationally-funded aeronautics research. In order to protect confidentiality of the data, each National Contact Point who agreed to collaborate was provided with an empty password-protected stakeholder database and a data-entry template to guide him/her in the process. Starting in January 2005, the stakeholder's databases were distributed to the national contact points in the EU Member States. An initial set of data was received from France, UK, Belgium and Sweden, allowing a real-world testing of the functionality of the OP system and a first analysis of the results.
- Later in the project the long-awaited data from Germany became available. Contrary to the other National stakeholders, who themselves introduced their data in the database template Germany provided a pre-defined format. The data were extensive and detailed but lacked, as expected, the required linkages to the SRA terminology. The hardwiring of each project had then to be done within ASTERA with guidance by ACARE.
- Another milestone in the development of the TOP was the mapping of the data for the Framework Programmes 5 and for the first two calls of FP 6 (the third call data were not available back then but are being collected at the time of writing). This was done jointly with the EC, who provided the electronic raw data, as well as an assessment of the relevance of each project to the various ACARE goals, challenges, HLTCs etc.

- The progress achieved in the development of the TOP at the end of ASTERA-2 can be summarised as follows:
  - Mapping of national programmes for UK, France, Germany, Belgium and Sweden
  - Mapping of European Framework Programmes 5 and 6
- In some cases the data lack some useful pieces of info. Furthermore, very high level aggregation of data in a few large budget lines sometimes precludes detailed analysis. Finally it has to be said that a certain element of personal judgement is involved in the association of a given project to the relevant ACARE goals, challenges etc. since these are not always explicit from the project abstract.
- However the available data allowed a real-world test of the functionality of the OP system and a first high-level analysis of the results.
- The data gathered were periodically presented to the ACARE working groups for validation and review. In these occasions some useful feedback was received concerning i.e. suggestions on how to improve the classification of certain engine-related projects.
- The current TOP captures an estimated 50% of the total EU aeronautics R&T. This percentage will grow when more stakeholders will submit their data. The only R&T which totally escapes the mapping is the one entirely privately funded, where there is little prospect to access the data due to competitive reasons.

#### **Work Package 210 – Surveys, Studies and Analyses (Out Of The Box):**

- The original ASTERA-2 proposal didn't include ASD's direct involvement in this type of activity. However a re-planning of the project was done in the second half of 2006 in order to make best use of some resources that became available as a consequence of the cancellation of WP 310. The decision was taken to perform within ASTERA-2, and under ASD's leadership, the first of the two Out Of The Box workshops. This project was aimed at gathering visionaries together in a brainstorming exercise on radical ideas which may transform the Air Transport System in the long-term future. This action was fulfilling the part of the SRA-2 looking at the frontier-research. A report collecting the outcome of the workshop was prepared. The document illustrates, also with the aid of computer graphics, the numerous concepts developed during the project but without endorsing any one of them. A next phase, proposed under ASTERA-3, will follow by analysing more in detail the technological implications, the potential impact and the feasibility of the concepts emerged in the first workshop.

#### **Work Package 220 – Decision Tools:**

- The original scope of WP 220 consisted in a further development of the ASTERA Sensitivity Tool. The proposal consisted in focusing the decision-support software toward sector-specific needs (e.g. airports, ATM, airlines). However it was quickly recognised that the value added of such a tool would be very limited (no adequate resources in ASTERA), and the project manager proposed to re-direct the work scope towards a new objective. The new proposal consisted in building a web-based "SRA-Navigator" tool to let the user explore the interrelations between SRA-1 and SRA-2 and translate the "language" of the second edition into that of the first edition.
- The development of the SRA Navigator tool started in Aug 2006. During the course of the development the ACARE Communication Group decided to create an ad-hoc steering committee for the communication tools, which opted for the development of two separate items: the SRA Navigator first, followed by an ad-hoc tool dedicated to an external audience of non-experts.
- The rationale behind the choice is to be found in the recognition that a proficient use of the SRA Navigator requires some familiarity and previous knowledge of the Strategic Research agenda of ACARE. The SRA Navigator was therefore seen as a useful instrument for communities already aware of the air transport system and its specificities. A total beginner or someone simply not interested in aviation may not use or understand properly the tool and its associated messages.

- It was therefore recognised that the original so-called “SRA narrative” (one of the functionalities of the SRA Navigator) would lend itself better to communicating aviation-related messages to a wider community and could be properly developed into a separate self-contained item.
- The two separate tools were completed on time.

**Work Package 310 – Support to SRA Drafting:**

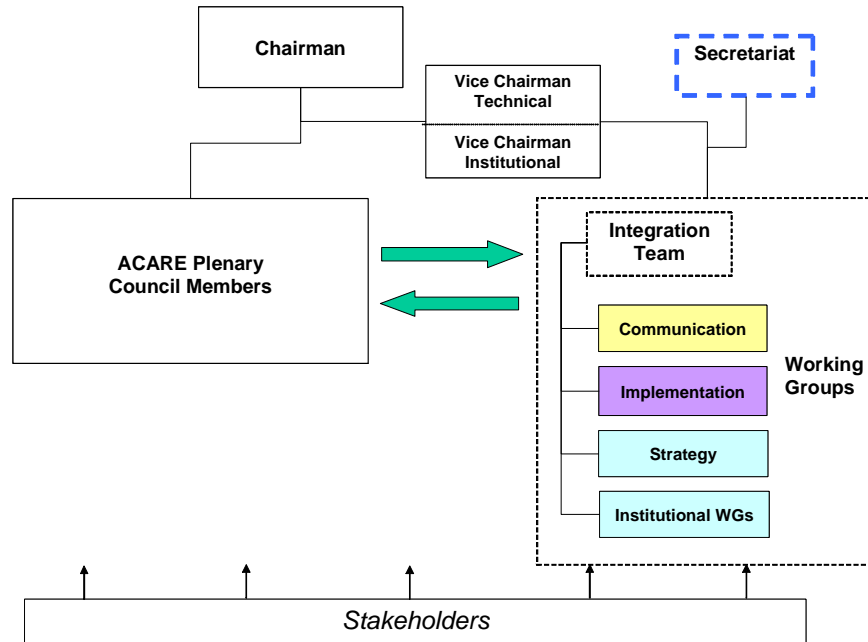
- Due to ACARE’s decision not to develop a new Strategic Research Agenda (SRA-3) in the short-term, the work package was cancelled. The allocated resources have been re-used for the organisation of the “Out Of the Box” workshop.

**Work Package 320 – Support to SRA Dissemination:**

- The communication activities were initiated by the organisation and completion of the ACARE Aerodays workshops at the EC Charlemagne Building in Brussels on the 30-31 March 2005. This two-day event was organised to officially launch the second edition of the Strategic Research Agenda (SRA-2) and to provide a unique opportunity to exchange pan-European views on its implementation. The first day consisted of commentary by top personalities from the European Council of Ministers and European Parliament, as well as by the European Commissioner for Research Mr. Janez Potočnik. These were joined by senior ACARE stakeholders coming from the worlds of manufacturing, airlines, airports, ATM and research presenting their views on the future challenges of Air Transport. The first day was concluded with a reception and cocktail which provided all delegates with the opportunity for meeting and discussion and for contact with the press. The second day was an in-depth analysis of the technical and institutional content of the Agenda, its implications and implementation.
- In relation with the above, ASTERA designed and developed a substantial amount of promotion material in the form of leaflets, fact sheets, display boards and videos. This material has proved to be a valuable support tool facilitating the communication of the SRA-2 messages and the importance of European aeronautics to a broad audience.
- The completion of several national-level ACARE workshops aimed at disseminating the messages of the second edition of the Strategic Research Agenda (SRA-2). Dedicated events took place in France, Spain, UK, Italy, Germany, Poland etc. while SRA / ACARE presentations were delivered in the context of several other events during the course of 2005 and 2006.
- A final report was prepared of all the different events which took place during the project (workshops, seminars, conferences etc.) where ACARE played, in one form or another, a communication role.
- ACARE took part in national aerodays, NMS workshops, EC seminars on European Technology Platforms, JTI events, air shows and many other happenings where a representative was sent to deliver a speech.
- ACARE also organised activities aimed at increasing public awareness on aeronautical topics. These were the subject of a dedicated report.

## Work Package 400, Management and support to the Working Groups

Hereafter a diagram of the current structure of ACARE is shown:



The figure above is a simplification and neglects the ad-hoc groups which were created for specific purposes.

During the project, ASTERA has provided routine administrative and secretarial support to all working groups of ACARE. These activities should not be underestimated since they constitute a large portion of the total effort of the ASTERA team. They can be broadly categorised as follows:

- Communication Group:** WP 320 (Support to SRA dissemination)  
 The group is also responsible for planning and executing all aspects of ACARE communication plan (participation to events, development of communication tools and support material).
- Implementation Group:** WP 110 & 120 (Technical and Institutional implementation)  
 The group is focused on all implementation-related matters, and this includes advice to the definition of the FP7 work programme, advice to the preparation of the Clean Sky JTI proposal, steering the development of the Technical and Institutional Observation Platforms etc.
- Integration Team:** WP 400 (management)  
 ASTERA has always provided support to the IT group which is in charge of co-ordinating the activities of the working groups.
- International Collaboration ad hoc group:** WP 320 (Communication)  
 ACARE gave the group a mandate to elaborate a common position on international collaboration, following a request from the European Commission. The activities of the group formally terminated in Oct 06.
- Progress Evaluation Team ad hoc group:** WP 110 (Technical Implementation)  
 ACARE gave the group a mandate to elaborate a plan for the periodical assessment of the progress being achieved in meeting the ACARE goals of SRA-1. This assessment is seen as an essential interim step towards the planning of a third edition of the SRA and of a possible new Vision document.

## **EREA Activities**

### **Work Package 120 – Institutional Implementation:**

- The Terms of Reference of the IOP (Institutional Observation Platform) were prepared and agreed upon. The late start of this work package's activities can be attributed to two sets of causes: delays in recruitment of the ASTERA representative person for EREA (who officially took his position in February 05) and objective difficulties in defining the work goals.
- With respect to the first period the main achieved goals are described in the First Activity Report and reported in detail in the related Intermediate Report. Mainly the ToR were defined, through a refinement work for the ACARE endorsement. Ten Institutional Enablers (Institutional Areas of influences on ATS) were identified and described, basically classified according to their main goals as stated in the SRA2. The ten areas were after described in their way of functioning mainly through all potential action/mechanism related to the identified institutional field. The ten areas were covered by 43 main actions granting their spreading over Europe and at National/Regional level over the 25 MS.
- The second phase, related to the activity covered by this report, was mainly devoted to developing the monitoring part. An attempt was made to collect all valuable info at EU level and possibly for some MS on the targeted 43 actions. We defined also a specific metric for assessing the level of development of the actions. 6 Institutional Readiness Level were identified describing the action status from "not existing" to "fully developed", stepping through intermediate phases of constrained or developing situations. Then for specific actions (basically a dozen) we organised the info-data as Synopsis Tables summarizing the present Institutional Framework and situation wrt the SRA2 Background. Actually we analysed and ranked these actions on the basis of the gathered synthesis data w.r.t. the compliance with their SRA2 main goals. Finally some recommendations were issued, suggesting possible 'way to proceed' and improvements for moving on in the scale toward better functioning, efficiency and effectiveness of the actions wrt to the main goals of the tackled Institutional Area.

### **Work Package 210 – Surveys, Studies and Analyses:**

- The original ASTERA-2 proposal explicitly mentioned that the specific content for this work package would be defined only at a later stage due to the need for ACARE to first identify the objectives. Some delay in the start of this activity can therefore be attributed to the above reason. EREA have developed a work scope for a range of five different study topics and submitted them to the ACARE Integration Team for analysis and selection. The topics proposed include: European accreditation systems for higher-education, technology watch functions, research infrastructure needs, workforce training and mobility, think tanks and incubators. The IT evaluated and endorsed the study proposals in late 2005.
- The studies started as planned in the recovery plan in Nov 06. During the course of the first six months a perception arose that some studies were facing difficulties in the timely delivery of the planned results. The Integration Team of ACARE advised the set-up of review panels for each study to assess how best to proceed. The result of the consultation was the following:

#### **Studies that were cancelled:**

- Education, Training and Mobility
- Technology Watch

#### **Studies to continue:**

- Think Tank and Incubator
- Accreditation System

#### **Study to continue after issue and review of a detailed recovery plan with updated timetable:**

- Voucher System
- The three remaining studies proceeded towards a successful completion in Nov / Dec 06.

## 2. Project Execution

This final report of ASTERA-2 aims at describing the overall work achieved during the 27-month extent of the project, i.e. from the first of October 2005 to the 31<sup>st</sup> Dec 2006. This will include the achievement against the planned objectives, milestones and deliverables.

### 2.1. Overview of the Project's Objectives

The overall objective of ASTERA 2 is to provide the requisite management support, administrative services and technical support to facilitate the activities of ACARE (the Advisory Council for Aeronautics Research in Europe).

In order to briefly recall the background of ACARE it suffices to remember that in its January 2001 report "*European Aeronautics: A Vision for 2020*", the Group of Personalities chaired by former Commissioner Philippe Busquin established a number of recommendations for fulfilling the European Aeronautics' ambition to better serve society's needs and strengthen its quest for global leadership. In particular, the Group recommended the creation of ACARE to develop and implement a strategic approach to European aeronautics research.

Public web site of ACARE: [www.acare4europe.org](http://www.acare4europe.org)

ACARE is now recognised as the pioneer and prototype of the so-called Technology Platform concept, i.e. an organisation drawing all stakeholders (industrial, institutional etc.) of a given technology sector around a table to develop a commonly agreed long-term strategic planning.

The overall objective of ASTERA 2 was to provide the requisite management support, administrative services and technical support to facilitate ACARE in its assessment of European aeronautical research needs, the formulation, updating and implementation of the Strategic Research Agenda.

The specific objectives of ASTERA 2 were as follows:

- To monitor for ACARE the implementation of the SRA in each of the stakeholders research programmes, particularly (but not exclusively) the public funded programmes. Such monitoring should facilitate the secondary objective which is to provide guiding information to the stakeholders in the planning of research programmes.
- To undertake specific studies so as to provide the guidance on issues that are likely to drive future needs in aeronautics. In addition such studies will also provide insights into the institutional or policy subjects which impact either the effectiveness or efficiency of European research.
- To develop IT tools facilitating the decision-making and / or the dissemination of information on the ACARE activities.
- To provide administrative support to the drafting, production and / or updating and dissemination of the SRA, in order that its scope and benefits are communicated effectively to the relevant parties.
- To provide the requisite project management support for the efficient and effective execution of the ASTERA 2 contract. This involves the usual project planning, control and reporting but also technical co-ordination and support to ACARE and its members.



## **2.2 Contractors Involved**

The ASTERA 2 Team is composed of two partners: ASD and EREA which are jointly responsible for the effective management of the project. They form the Participants' Group which provides guidance and support to the Project Manager, who is in turn responsible for the routine management and administration of the project. ASD acts also as project co-ordinator.

Hereafter a brief overview of the two partners is given:

### **ASD**

ASD (the AeroSpace and Defence Industries Association of Europe) is the new umbrella association of the European Aerospace and Defence Industry. ASD was formed by a merger between three existing organizations: AECMA (aerospace industry), EDIG (defence industry) and EUROSPACE (space industry).

The overall mission of ASD is to enhance the competitive development of the aeronautic, space and defence industries in Europe. ASD represents 33 national associations in 20 countries across Europe.

The value that ASD brings to the project is that the association represents the industry in almost its entirety in the areas of aircraft, systems, engines and equipment. It is thus not only capable of providing a consolidated response from the manufacturing industry but also, when required, of providing to ASTERA-2 skills that would not ordinarily reside within the ASD secretariat.

The work carried out by ASD ranges from simple co-ordination and secretarial support (for which is it is well experienced) through to the development of models and contract delivery. Through its member associations and central secretariat staff, ASD has broad and detailed experience in the management of large international projects and in the conduct of leading-edge aeronautical research. It has also played a key role in the establishment of ACARE.

### **EREA**

The members of EREA (the Association of European Research Establishment in Aeronautics) constitute the major national research centres in the Western European countries. Many have a long and distinguished history in aeronautics and space research and technology development. In most European countries, central research institutes were established to combine and concentrate knowledge and large scale testing facilities.

The research establishments (REs) represented by EREA bridge the gap between university research, which has a long-term character, and the industrial application (represented by ASD). Some REs also function as the prime advisor to their governments to prepare legislation related to aviation.

The focus of the REs has been to serve national interests. As integration of industrial activities, Air Traffic Control functions, legislation and oversight (EASA) is becoming more and more a European focus, the REs have decided to join forces and pool capabilities.

### **Co-ordinator's Contact Details**

Luigi Bottasso

Tel : +32 2 775 9379

ASD (AeroSpace and Defence Industries Association of Europe)

Fax : +32 2 763 3565

Gulledelle 96

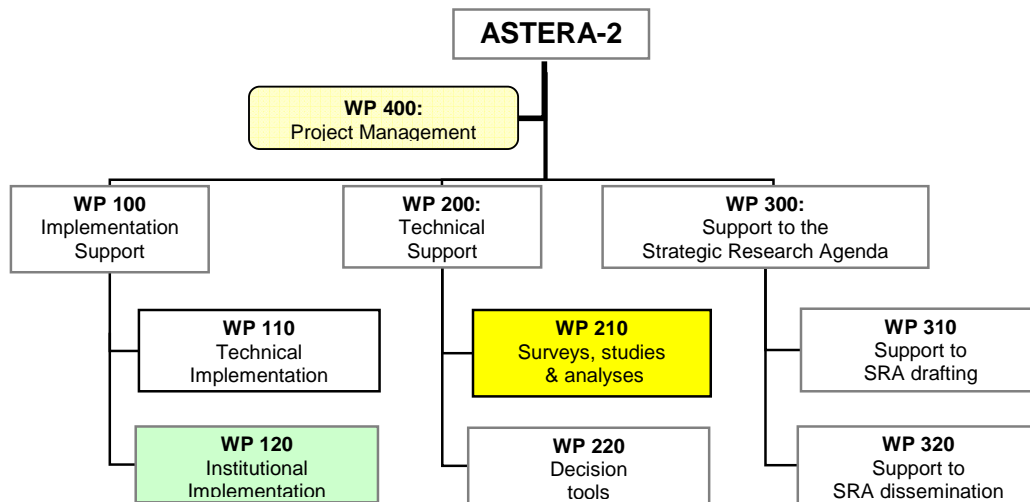
e-mail : [luigi.bottasso@asd-europe.org](mailto:luigi.bottasso@asd-europe.org)

B-1200, Brussels

Belgium

### 2.3. End Results

The diagram below shows the structure of the ASTERA-2 work packages.



- |   |  |
|---|--|
| <input type="checkbox"/> ASD Support Activities | <input type="checkbox"/> EREA Support Activities       |
| <input type="checkbox"/> ASD Management         | <input type="checkbox"/> ASD / EREA Support Activities |

Over the past 27 months the work has covered all work packages. A brief overview of the progress includes: programme management (described in the separate *Periodic Management Report*), the start and continuation of data collection and analysis for the Observation Platform (Technical Implementation), delayed start-up of the Institutional Implementation monitoring, initiation of five support studies on institutional enablers and completion of three of them (two were cancelled), the completion of several SRA-2 promotional workshops including the prestigious *ACARE Aerodays* event which officially launched SRA-2 and continuation of communication activities including the delivery of two communication tools (the SRA navigator and the public awareness tool), the successful completion of the first Out of The Box workshop on breakthrough ideas for the Air Transport System.

The following sections are meant to describe in detail the methodology, approaches and achievements which took place in each work package over the whole reporting period:

## ASD Activities

### Work Package 110 – Technical Implementation:

#### a) Objectives

The Observation Platform (OP) database system, technically developed under ASTERA-1 and aimed at collecting data on the status of nationally-funded aeronautics research, was distributed to the national contact points in the EU Member States.

In order to review the background and motivations behind the OP, let's remind that ACARE recognised that the achievements of SRA 1 and 2 will be fruitless unless they are accompanied by an **appropriate implementation** of the agenda in research activities around Europe.

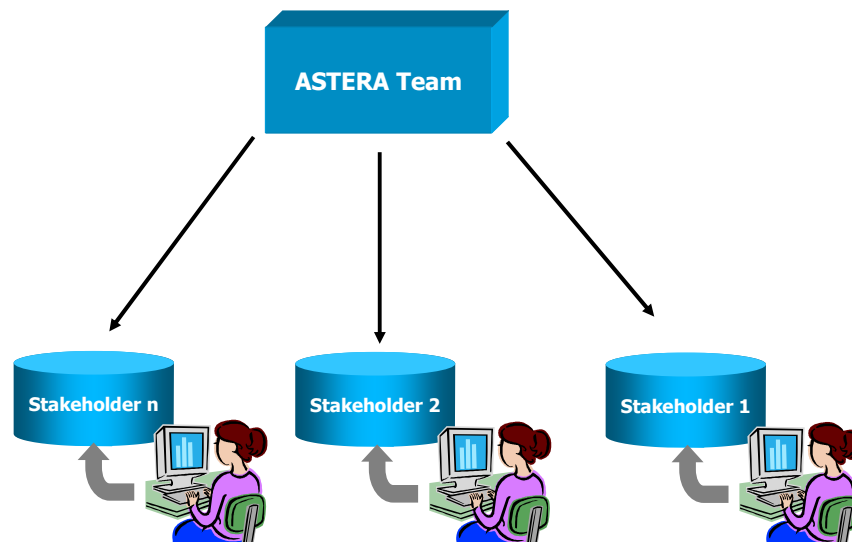
At its plenary on the 23<sup>rd</sup> of October 2002, ACARE recognised the importance of implementation and agreed to set up an Observation Platform.

The general objective of the activity is two-fold: the mapping of the nationally-funded European research effort in aeronautics and the development of recommendations or guidelines. The objective within the total reporting period was

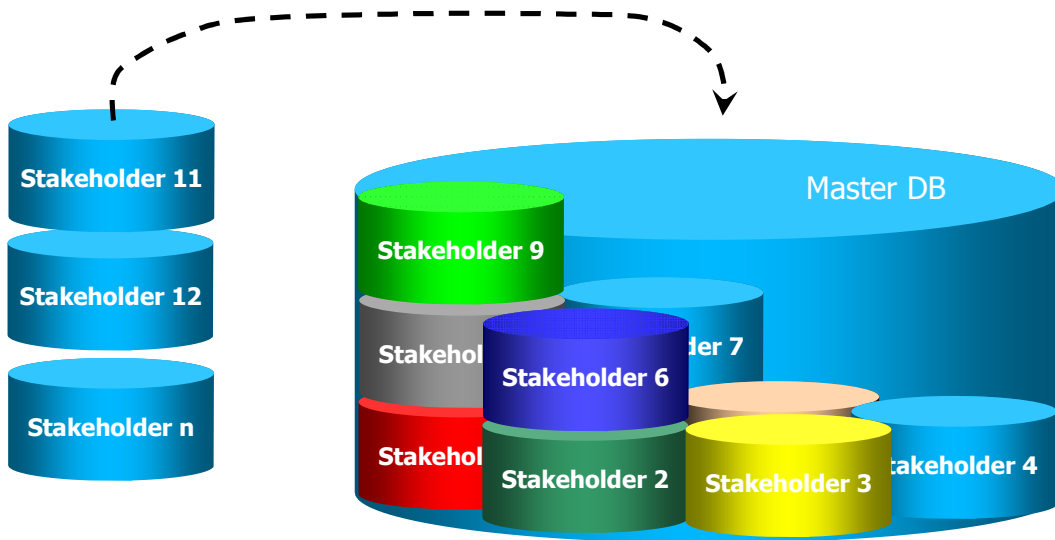
- 1) To collect and analyse nationally funded research projects
- 2) To collect and analyse the EU aeronautics research data on FP5 and FP6
- 3) To submit the outcomes to ACARE for review
- 4) To deliver the final report

The TOP is based on an MS Access database. The system is flexible and not all data are mandatory. The level of information depth can be customised to each stakeholder.

More technical details on the Observation Platform architecture are outlined in the Technical Observation Platform Report D110.1 submitted on 28/10/05. A schematic summary of the main steps involved in the TOP operational process is shown in the following figures.



**STEP 1:** Each stakeholder receives a copy of the stakeholders database, where they can add, edit or remove projects records. The completed database is then sent back to ASTERA.



**STEP 2:** All databases provided by stakeholders are imported into the Master Database. During this operation, the different “Member State categories” are merged into a single one to avoid data traceability and preserve data confidentiality. Furthermore, actions are taken to ensure data harmonization and to fill-in information gaps when possible.



**STEP 3:** The Master DB data are stored in spreadsheets for display and analysis.

**b) Achievements**

As far as the progress during this first period is concerned, an initial set of data was received from France, UK, Belgium and Sweden, allowing a real-world testing of the functionality of the OP system and a first high-level analysis of the results. Mapping of the EC funding is undergoing, with hundreds of Framework Projects from FP5 and FP6 inserted into the database.

Substantial progress was made during the second reporting period through the collection of the long-awaited data from Germany. Contrary to the other National stakeholders, who themselves introduced their data in the database template, Germany provided their pre-defined LUFO format. The data were extensive and detailed but lacked, as expected, the required linkages to the SRA terminology. The hardwiring of each project had then to be done within ASTERA with guidance by relevant PoC.

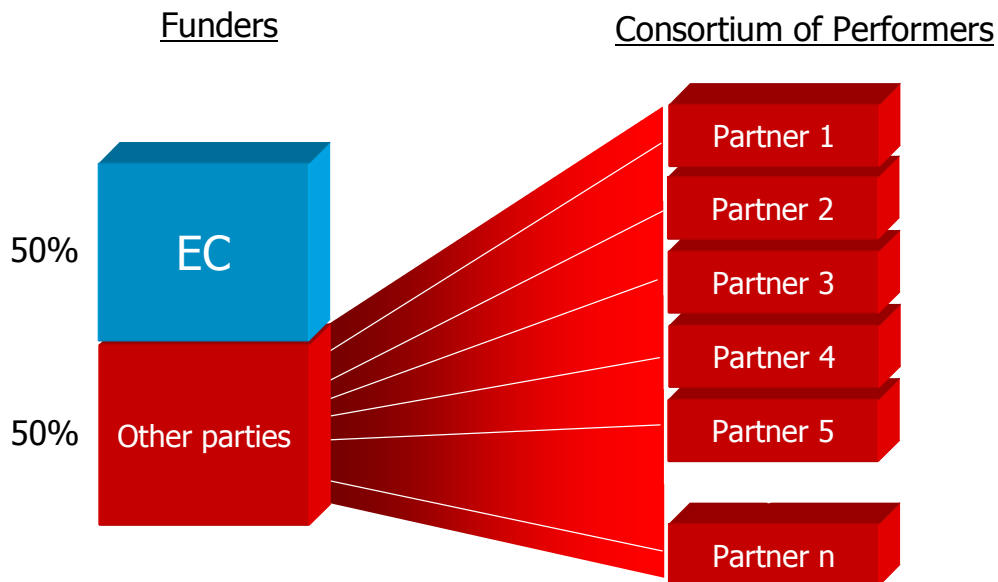
Another milestone in the development of the TOP was the mapping of the data for the Framework Programmes 5 and for the first two calls of FP 6 (the third call data were not available back then but are being collected at the time of writing). This was done jointly with the EC, who provided the electronic raw data, as well as an assessment of the relevance of each project to the various ACARE goals, challenges, HLTCs etc.

The status of the TOP can now be represented as follows:

- Mapping of national programmes for UK, France, Germany, Belgium and Sweden
- Mapping of European programmes for FP5 and FP6

It is noteworthy to observe that the TOP, even in its current incomplete status, still captures a substantial percentage of the overall R&T funding across Europe.

Let's not forget that the EC programmes are in-fact matched in general by an equivalent amount of private / public money from the partners undertaking the research (data available to us). This is shown schematically in the following figure. Therefore the mapped FP activities amount to about € 350 Mio worth of R&T per year.



*Typical EU R&T project structure*

A similar argument applies to the national programmes, where often projects are co-funded by the performers of research, i.e. private companies, research establishments, universities, airports etc. The mapped R&T amounts to about € 200 Mio per year.

Thus we capture a total of roughly € 550 Mio per year of European R&T.

The total (public + private) R&D expenditure in civil aeronautics in Europe amounts to about € 5 bn per year (from ASD Facts & Figures), out of which the amount of R&T (excluding development) is roughly 20% i.e. about € 1 bn. This means that the current TOP already captures over 50% of the total EU aeronautics R&T. This percentage will grow when more stakeholders will submit their data.

We can therefore say that the only R&T typology which totally escapes the mapping above is the one fully privately funded, where there is no real hope to access the data anyhow for competitive reasons.

#### c) Deviations from work programme

From the start this work package was recognised as entirely dependent on the collaboration of the ACARE stakeholders. ASTERA developed a databases system with data templates designed in collaboration with the stakeholders. The objective was to set up realistic goals in terms of depth and breadth of the information to be captured.

Each MS agreed to provide to ASTERA a National Contact Point who would act as the provider of information on national programmes. However, given the sensitivity of the data also at the national level, the collaboration was based on the understanding that ASTERA will not disclose to the outside world the information collected.

In-fact during the course of the project some MS expressed concerns on their ability to contribute despite the agreements mentioned. Notwithstanding repeated requests from ASTERA and ACARE, several countries never returned any data.

#### d) Deliverables

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Estimated indicative person-months <sup>1</sup>	Used indicative person-months <sup>1</sup>	Lead contractor
D110.1	Analysis report - R1	110	31/07/05	28/10/05	12.5	18	ASD
D110.2	Analysis report - R2	110	30/06/06	28/06/06	12.5	7	ASD

The mapping of the national programmes and European programmes for FP5 and FP6 has been integrated in a TOP navigator tool and is partly available on the [acare4europe.org](http://acare4europe.org) website.

#### e) Milestones

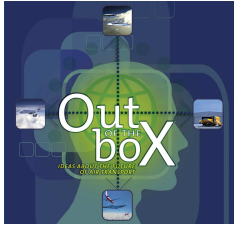
Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
M110.1	Periodic IT meeting to review progress	110	Every 3 months	Every 3 months	ASD
M110.2	Collection of base data completed	110	30/04/05	31/05/06	ASD
M110.3	Analysis report - R1	110	31/07/05	28/10/05	ASD
M110.4	Analysis report - R2	110	30/06/06	28/06/06	ASD

#### f) Impact

The Observation Platform provides through the **monitoring** of the implementation of the SRA **guiding information** (analysis) to the stakeholders

**Work Package 210 – Out Of The Box workshop:**

**a) Objectives**



The objective of the WP 210 consists of the preparation of support studies for ACARE on topics considered interesting for the continued development of the SRA. In particular, during the reporting period, ACARE agreed to re-direct some funds made available in ASTERA-2 by the decision to postpone the development of the SRA-3. With full support from ACARE and the Commission, these funds were used for the organisation of a workshop dedicated to the development of breakthrough ideas (therefore the name “Out Of The Box”). This objective complies with the recommendations highlighted in the SRA-2 under the section “Towards the Future”. The Commission expressed a specific need to address the longer-term R&T in the context of FP7.

**b) Achievements**

The activity was organised in a time-efficient way, with the workshop taking place a mere one and a half months after the contract signature. Aeronautics consultants were engaged for the administrative organisation of the event, which was attended by a large number of experts from a wide range of aeronautical backgrounds. Also NIVR, the Netherlands Agency for Aerospace Programmes was part of the consortium of partners responsible for the work package; in particular NIVR had secretarial and administrative tasks but also contributed to the workshop management and to the writing of reports. ASD was the leader of the work package. The two-day workshop took place on the 10-11 Oct 06, following the invitation of the delegates and the preparation of an extensive info package to brief the participants on the background and rationale of the event. The workshop was successful, with over one hundred ideas developed on a range of subjects. A rationalisation process then started, in order to streamline the concepts and improve their presentation. The most interesting ideas were also translated into graphical representations, which will be used as communication tools for ACARE. The final outcome was a report summarising the findings.

It shall be remembered that a second OOTB workshop is planned for the future phase ASTERA-3. In this second phase the concepts developed in the first event will be analysed in more detail in terms of their enabling technologies.

**c) Deviations from work programme**

Considering the original work programme, OOTB represents a deviation because it was not planned in the original content of ASTERA-2. However, the OOTB plan was followed without major deviations.

**d) Deliverables**

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Estimated indicative person-months	Used indicative person-months	Lead contractor
D210.3	OOTB Final report	210	N/A (new)	09/12/06	3	4	ASD

A glossy brochure of the Final Report is available for distribution under the ACARE members.

**e) Milestones**

Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
M210.3	Preparation of initial doc.	210	12/09/06	12/09/06	ASD
M210.4	Completion of the workshop	210	11/10/06	11/10/06	ASD
M210.5	Delivery of the OOTB final report	210	30/11/06	09/12/06	ASD

**f) Impact**

The OOTB views able to revolutionise the Air Transport System in the very long-term future, as opposed to the current evolutionary approach of most research activities.

## **Work Package 220 – Decision Tools:**

### **a) Objectives**

Having re-oriented the objectives of the work package as described in the previous activity report, the objectives for the second reporting period consisted in the development of the SRA Navigator which is a communication tool that allows users to bridge the gap between the two current editions of the Strategic Research Agenda. The tool translates the “language” of the first edition (challenges, goals) into that of the second edition (alternative world scenarios, HLTCs) and vice-versa.

This tool assumes some familiarity with the SRA and is therefore more targeted towards an audience of “insiders” of aviation.

A second parallel objective agreed upon during the reporting period consists in the conception and development of a second public awareness tool dedicated to the general public was. Its purpose is to address people with no previous knowledge of aviation issues and inform them of the value added by this sector to Europe and the world.

### **b) Deviations from work programme**

Considering that the change to the original work programme had been already mentioned in the first 12 month report, the only deviation from the new plan may be considered the disentanglement of the two tools from the original concept that involved having the same SRA Navigator combining both the public awareness and the specialist audiences.

### **c) Achievements**

#### **SRA Navigator**

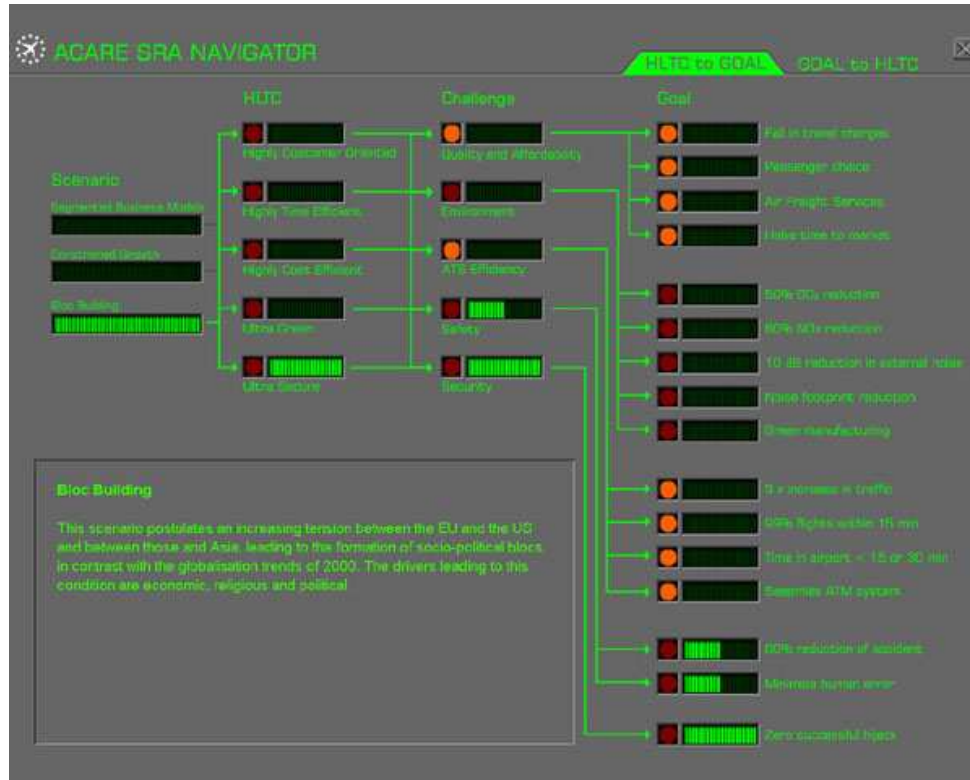
The development of the SRA Navigator has achieved the following main objectives:

1. Bridge the gap between the two current editions of the Strategic Research Agenda by translating the “language” of the first edition (challenges, goals) into that of the second edition (alternative world scenarios, HLTCs) and vice-versa through the use of visualisation tools (buttons, progress indicators etc.).
2. Provide within one single screen an overview of the key ingredients of both SRAs and their relations.
3. Provide an easy way to visualise all implications that Scenarios have on different HLTCs, Challenges and goals.
4. Provide an easy way to explore the implications of a total or partial achievement of the SRA-1 goals and related challenges in terms of the relevant HLTCs which would be “activated” by that selection of challenges.
5. Develop an electronic library of the technologies for easy access from the different HLTCs

The Communication Group recognised that the above goals have been met and in June 06 it advised to bring to an end possible further developments / tweaking and rather concentrate on the next steps.

The following are some screen shots showing the functionality of the final tool.

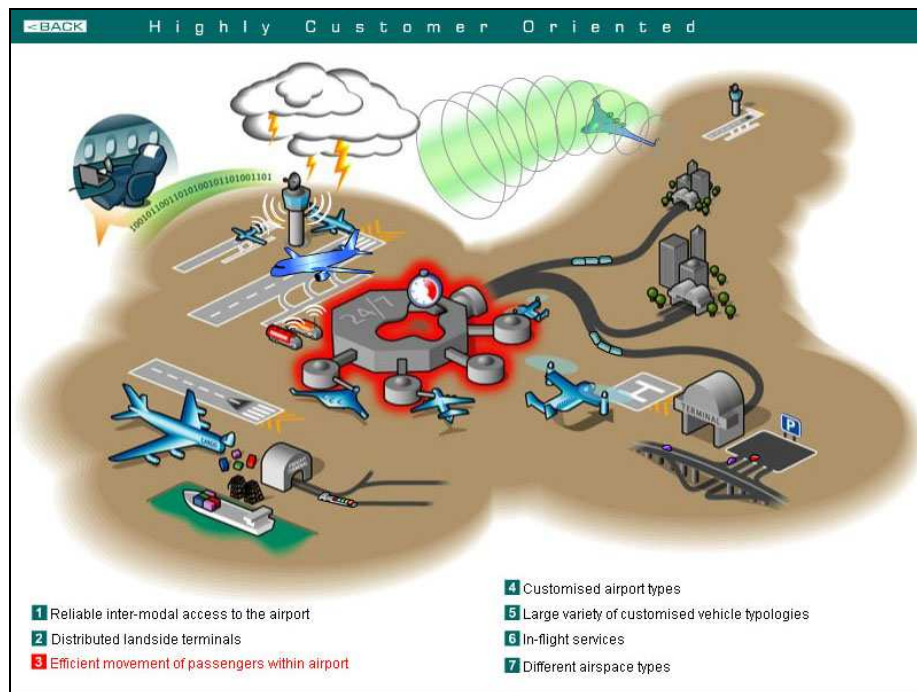




Main screen: HLTC to Goal mode



Pop-up window for the explanation of projects relevant to challenge areas



Graphic visualisation of the HLTCs

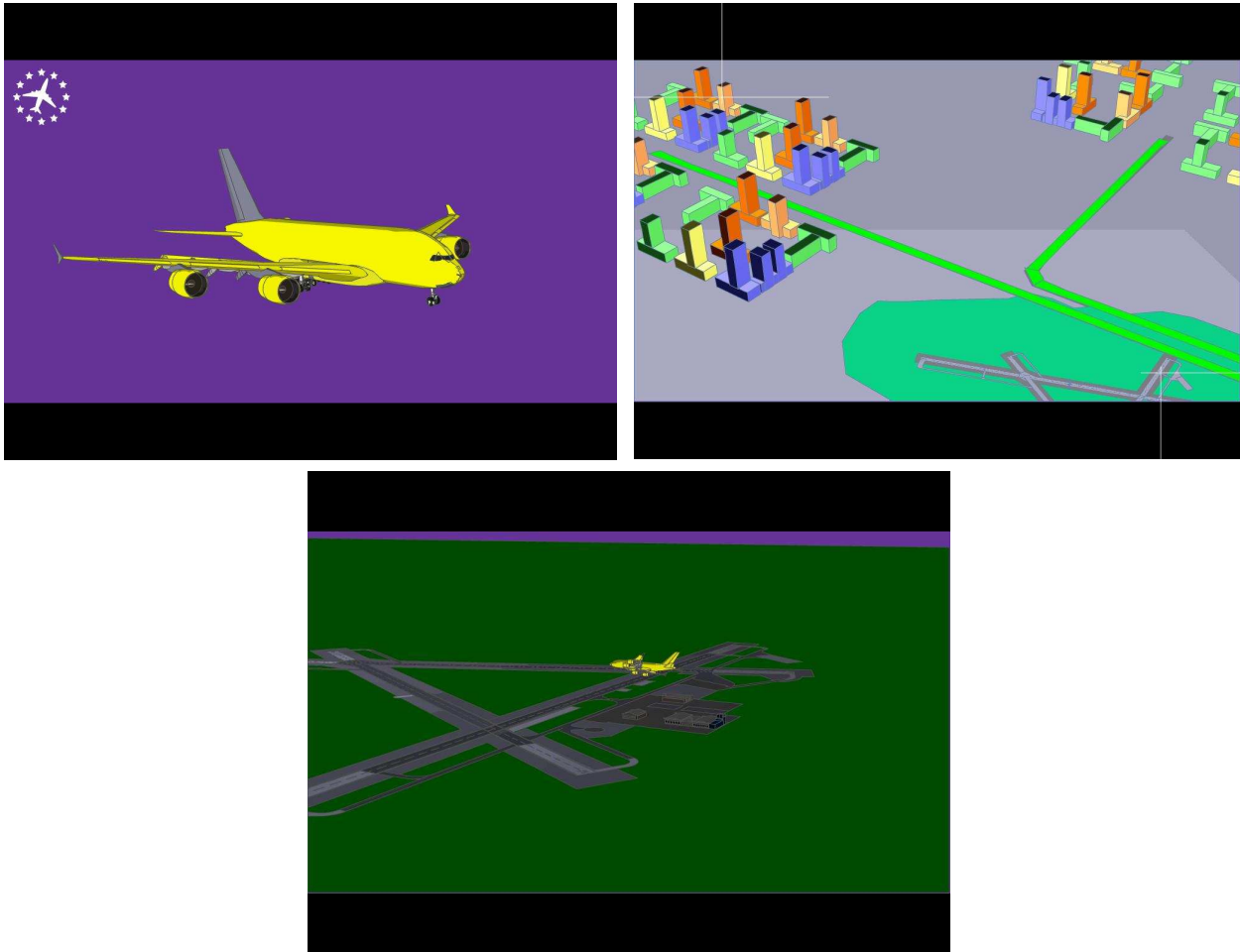
### Tool for public awareness on aviation

As explained briefly above, it was decided to create a separate tool oriented towards a more general audience of non-specialists. This instrument would consist of a series of predefined storyboards with graphical animations, each one focused on a specific target audience (e.g. the student, the politician, the passenger etc.). The task would involve for each of those potential audiences the preparation of a few clear promotional messages aimed at informing the user about aviation while at the same time improving the general perception of this sector in the public eye.

The development was based on the following basic principles:

1. The tool should be suitable for different audiences.
2. Some of these audience typologies do not have prior knowledge of the aviation sector and its unique characteristics.
3. The attention span of the user will vary from about 10 min up to 20 min.
4. The messages should use modern communication techniques that concentrate on a limited set of main points.
5. The language used should be audience oriented and avoid as far as possible aviation jargon.

Work performed consisted in the definition of target audiences, topics, development of the storyboards and of the graphic animations. The tool was completed in October and presented to the Communication Group for review. Minor comments were incorporated.



Some snap shots from the tool animations

**d) Deliverables**

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Estimated indicative person-months <sup>1</sup>	Used indicative person-months <sup>1</sup>	Lead contractor
D220.1	SRA Navigator interim report	220	31/03/06	10/03/06	6	5	ASD
D220.2	SRA Navigator final report and conclusions	220	30/06/06	23/06/06	2	2	ASD
D220.3	Public awareness tool report	220	N/A (new)	04/12/06	N/A (new)	1	ASD

A new version of the SRA navigator and the Public Awareness tool will be made available on the [acare4europe.org](http://acare4europe.org) website under the ASTERA-3 project.

**e) Milestones**

Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
M220.1	SRA Navigator initial model available	220	31/03/06	10/03/06	ASD
M220.2	SRA Navigator final model available	220	30/06/06	23/06/06	ASD
M220.3	Public awareness tool approved	220	N/A (new)	04/12/06	ASD

**f) Impact**

-SRA Navigator is a communication tool that allows users to bridge the gap between the two current editions of the Strategic Research Agenda.

- Tool for public awareness on aviation is oriented towards a more general audience of non-specialists.

**Work Package 310 – Support to SRA Drafting:**

**a) Objectives**

The original objective of the work package was to provide professional support to the drafting of the third edition of the Strategic Research Agenda (SRA).

**b) Achievements**

Due to ACARE's decision not to develop a new Strategic Research Agenda (SRA-3) in the short-term, the work package was re-oriented.

**c) Deviations from work programme**

Under recommendation from ACARE and with the agreement from the Commission, parts of the funds allocated to WP 310 were used for the organisation of the "Out of The Box" workshop described above.

**d) Deliverables**

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Estimated indicative person-months	Used indicative person-months	Lead contractor
D310.1	SRA edition 3	310	31/07/06	Cancelled	14	N/A	ASD

**e) Milestones**

Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
M310.1	Editorial work starts	310	31/03/06	Cancelled	ASD
M310.2	Completion of SRA-3	310	31/07/06	Cancelled	ASD

## Work Package 320 – Support to SRA Dissemination:

### a) Objectives

The objective consisted in the organisation of a series of workshops throughout the EU to promote the objectives and scope of the SRA. In-fact, the actual activity has been broader and covered the general support to the communication activities of ACARE.

### b) Achievements

#### ACARE Aerodays workshop

Held at the EC Charlemagne Building in Brussels on the 30-31 March 2005, this two-day event was organised to officially launch the second edition of the Strategic Research Agenda (SRA-2) and to provide a unique opportunity to exchange pan-European views on its implementation. The first day consisted of commentary by top personalities from the European Council of Ministers and European Parliament, as well as by the European Commissioner for Research Mr. Janez Potočnik. These were joined by senior ACARE stakeholders coming from the worlds of manufacturing, airlines, airports, ATM and research presenting their views on the future challenges of Air Transport. The first day was concluded with a reception and cocktail which provided all delegates with the opportunity for meeting and discussion and for contact with the press. The second day was an in-depth analysis of the technical and institutional content of the Agenda, its implications and implementation.



All costs pertaining to the event (with the exception of the Charlemagne facilities, offered by the EC) were covered by the ASTERA-2 project. The event involved the use of specialized subcontractors for the event management and the filming.

It has to be remarked that this large-scale workshop had not been foreseen in the original proposal of ASTERA-2, but was carried out under the directive of ACARE following the Plenary Meeting held in Brussels on October the 12<sup>th</sup> 2004. This is one example where changes in the work programme have led by necessity to changes in the originally planned split of man-months and budget by work package.

In relation with the above, ASTERA designed and developed a substantial amount of promotion material in the form of leaflets, fact sheets, display boards and videos. This material has proved to be a valuable support tool facilitating the communication of the SRA-2 messages and the importance of European aeronautics to a broad audience. Under request of ACARE, ASTERA has engaged a professional communications & event management company to film the Aerodays workshop and produce a nicely packaged “video card” of the event. At the same time the company was asked to produce a sort of video-clip on success-stories in European aeronautics research, tying together several project-related videos into a consistent whole. These two videos represent a quantum leap in terms of promotional capabilities available to ACARE, and proved to be very effective in reaching out and stimulating interest in the general public.

#### ACARE National Workshops

Several ACARE workshops aimed at disseminating at the national level the messages of the second edition of the Strategic Research Agenda (SRA-2) have been completed. Dedicated events took place in France, Spain, UK, Italy, Poland, etc., while SRA / ACARE presentations were delivered in the context of other events.

#### Support at communication events

A large number of communication events took place in the reporting period. ASTERA ensured an ACARE representation in many workshops, seminars, conferences etc..

Beside the above mentioned SRA-2 dissemination workshops, others were a mix of NMS workshops, EC seminars on European Technology Platforms, JTI events, air shows and many other happenings where an ACARE representative was sent to deliver a speech.

A dedicated report was assembled to document the communication activities performed. The report contains a calendar of events for the year, followed by a so-called “analysis sheet” where some standard information is provided for each workshop, when available (e.g. the topics discussed, the type of audience, the number of attendees, the feedback received etc.). Then a brief recollection of each event is provided in chronological order. Typically this consists in the inclusion of the agenda or the brochure of the event, where the topics and speakers can be traced back. In general, where ACARE or one of its stakeholders (e.g. ASD) had a specific presentation, the slides are included.

Furthermore, in case a specific event report was prepared by ASTERA or by other sources, this is included to provide some feedback information.

### **Public awareness**

Within the broader domain of communication activities performed by ASTERA for ACARE, the raising of public awareness about ACARE and the SRA deserves a dedicated reference because it helps creating an informed public opinion.

ACARE engages a wide range of different audiences in its communication initiatives. Some of these activities are more focused towards the internal ACARE community, while others are more external in their nature.

This second set of outward communication actions can in turn be seen as addressing two distinct audiences: the wider aeronautics and air transport community on one hand, and on the other hand the broader outside world, including other industrial sectors and also the general public.

During the course of the reporting period, as far as the latter audience type is concerned, distinct types of actions have been taken and can be grouped in the following way:

- 1) Participation at communication events, for those workshop open to the general public or at least to other communities than air transport. Here ASTERA organised information stands with distribution of informative material, posters, projection of multimedia material, demonstration of tools etc.
- 2) Development of tools for a better understanding of the Strategic Research Agenda (see WP 220).
- 3) Continued maintenance and development of the ACARE public web site.
- 4) Published press interviews and articles on magazines.
- 5) Development of multimedia material for communication.

### **c) Deviations from work programme**

Essentially the deviations can be described as follows:

- 1) The deliverable D320.2 “SRA 3 dissemination workshop report” was renamed “Final communication activities report”
- 2) The deliverables D320.3 and D320.4 were cancelled because no Trans-Atlantic Collaboration workshop reports were agreed upon by ACARE. However it can be reported that ACARE created an ad-hoc working group to develop a common position on International Collaboration. This group developed a report which was later presented to the ACARE plenary on the 24 Oct 06. The recommendations essentially call for a cautious approach in international collaboration issues, carefully adopting an ad-hoc approach for each country, thus the decision not to proceed with workshops until clear purposes are identified.

**d) Deliverables**

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Estimated indicative person-months <sup>1</sup>	Used indicative person-months <sup>1</sup>	Lead contractor
D320.1	SRA 2 - dissemination workshop report	320	30/09/05	05/10/05	4	7	ASD
D320.2	Final communication activities report	320	30/09/06	22/08/06	10	6	ASD
D320.3	Trans-Atlantic Collaboration report 1	320	31/02/05	Cancelled	N/A	N/A	ASD
D320.4	Trans-Atlantic Collaboration report 2	320	30/09/05	Cancelled	N/A	N/A	ASD
D320.5	Public awareness report	320	30/09/06	04/09/06	2	3	ASD

**e) Milestones**

Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
M320.1	Completion of all promotional workshops SRA 2	320	31/07/05	30/06/06	ASD
M320.2	Completion of main comm. activities	320	31/08/06	22/08/06	ASD
M320.3	First Trans-Atlantic Collaboration workshop	320	31/01/05	Cancelled	ASD
M320.4	Second Trans-Atlantic Collaboration workshop	320	31/08/05	Cancelled	ASD
M320.5	Public awareness report	320	30/09/06	04/09/06	ASD

**f) Impact**

**- Promotion of the objectives and scope of the SRA**

- Communication towards the wider aeronautics and air transport community on one hand, and on the other hand the broader outside world



**EREA Activities**

**Work Package 120 – Institutional Implementation:**

**a) Objectives**

The Institutional Observation Platform (IOP) is basically a mechanism aimed at collecting and analysing information on the status of the European and National Institutional Framework, supporting and enabling ATS RTD environment wrt the goals stated in the SRA2.

The general objective of the activity is two-fold:

- the mapping of Institutional Actions aiming at supporting and enabling ATS RTD, assessing their level of maturity/effectiveness with respect to the Institutional goals envisaged in the SRA2.
- the development of possible guidelines and recommendations in order to improve their effectiveness and their performances toward the targeted SRA2 goals.

Detailed and specific info on the adopted process and the IOP architecture are outlined in the first Mid-Term Report, submitted January 2006.

The report describes the first phase achievements in building the IOP:

- Ten major Institutional Enablers were identified.

<i>IE</i>	<i>Identification/Area</i>	<i>ACARE Ref. Group</i>
1 EDU	Education	HR Group
2 WKF	Workforce	HR Group
3 RIS	Research Infra-Structures	Infrastructure Group
4 RQC	Regulations-Qualif.-Certific.	MS Group/IG
5 SCO	Supply Chain Optimisation	MS Group/IG
6 RTD	Trans-European RTD	MS Group/IG
7 IC	International Collaboration	MS Group/IG
8 AMI	ATS Manag. & Infrast.	MS Group/IG
9 FUE	Fuel	MS Group/IG
10 OTH	Others	

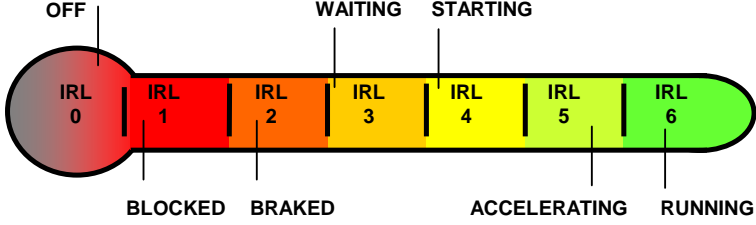
- The IEs were classified according to major objectives wrt SRA2 in order to provide useful parameters for the assessment of the progress (Detailed description tables are available in the Mid-Term Report).
- Main actions, related to the functioning of the identified IEs and to be monitored, were listed. We sorted out 43 main initiatives covering the identified ATS Institutional Enablers Framework. (A detailed list is available in the Mid-Term Report).

According to the approved (IT October 2005) ToR, describing the IOP mechanism, and the recovery plan foreseen in the First Activity Report, the main objectives within the reporting period were:

- Mapping some developed actions, among the identified ones, going on at European and MS level in order to build up a first info database on European Institutional Initiatives and test it as Pilot Case.
- Defining a metric for measuring the development status of the Institutional Initiatives, enabling RTD in the ATS, according to main SRA2 aims.
- According to this metric, assessing the status of the development, wrt to the envisaged SRA2 goals, possibly evaluating the possibilities to be ready/achievable in a short term, medium term or long term.
- Possibly issuing main recommendations and guidelines that should be undertaken for improving the mechanism effectiveness wrt the envisaged SRA2 goals and the Institutional interested framework.

An outline of the main info provided by the IOP Synopsis is shown in the following table, reproducing the main structure of the synoptic sheets:



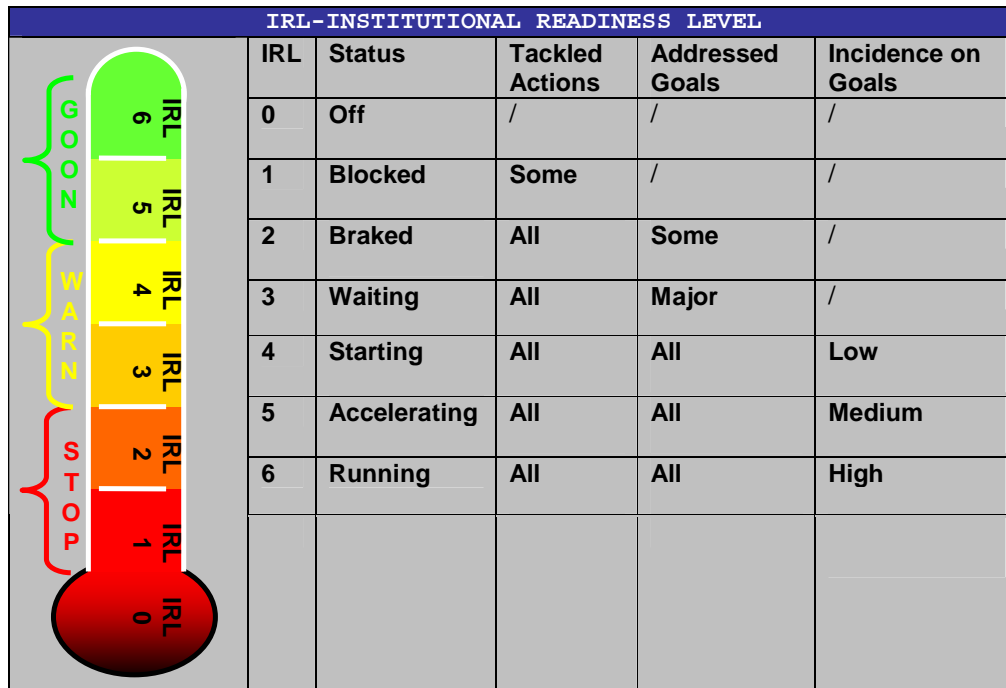
Institutional Enabler IE Action N°	ACTION	Level EU
<p style="text-align: center;"><b>SYNOPSIS</b></p> <ul style="list-style-type: none"> <li>• SRAs Background.</li> <li>• Present EU Institutional Framework.</li> <li>• Actions going-on description.</li> </ul>		
<p style="text-align: center;"><b>LINKS</b></p> <p><a href="#">Documentation, references, web info etc.</a></p>		
<p style="text-align: center;"><b>OBJECTIVES</b></p> <p>Main Objectives: Possible Final Aim:</p>		
<p style="text-align: center;"><b>EVALUATION WRT OBJECTIVES.</b></p>		
<p style="text-align: center;"><b>STATUS-IRL (Institutional Readiness Level) .</b></p> 		
<p style="text-align: center;"><b>RECCOMANDATIONS (Improvements/Suggestions)</b></p>		

**b) Achievements**

- We mapped as widely as possible at EU and MS level all the 43 targeted actions, starting to build an info database for all the actions. In particular we detailed a dozen (roughly 15) main actions pointing out all possible institutional info and initiatives useful for having a clear visibility of the situation and easily evaluating the action wrt the SRA2 objectives. Hereafter a list of addressed initiatives:

MECHANISM	MONITORED ACTIONS
Students/Graduates Exchange/Mobility	MCA+ A2-ACARE ETMSTUDY+EC mobility portal
Accreditation/Qualification System	PEGASUS+ A2-ACARE ACCREDITATION STUDY
Students/Graduates Training	MCA+ A2-ACARE ETMSTUDY (EX From UK and IT)
Award for excellence in education	MCA+ Possible Industries Award to Students Projects (Aero-design SAE Award)
Programs for setting multicultural team experiences	Joint European Projects for Students (SSEI-ESA and SAE)
Efficient/Effective spread/use of EU Simulation/Validation Facilities	EVA/ECRI workshop/ VOUCHER SYSTEM
European Authority for Safety Regulations	EASA (actual running problems- Governance).
European Authority for Environment Regulations	EEA-IEA (link to EASA?); Env. Regulations embedded in QUALITY
Aerospace Technology Incubation	A2-ACARE STUDY- (Ex. DE-Bauhaus—UK-Innovation Agency)
Aerospace Technology Watch	A2-ACARE STUDY (Ex. European Mechanics under IRC)
Efficient/Effective RTD strategies/policies in EU	Air-TN, TOP, EC Advisory Group ( US study on EU capabilities).
Efficient/Effective RTD funding across Europe	EC Advisory Group (Ex. UK-SBAC Database funding Support.).
Identifying Areas/Technologies for International Collaboration (with EU Stakeholders):	Group for evaluating
-Strategic (Only European)	-Profile Country Database (e.g. UK-SBAC survey- Japan, etc.) -Dedicated Panel Conferences in International Events
Developing/Managing Intermodality	Transport Policy/MODAIR (SEE) + TP ERAC-IEA
Alternative fuels RTD (less cost, polluting etc.)—Long Term Strategy	European Energy Policies. IEA Platform for alternative fuel
Balancing/Control Petrol costs/use—Short Term Strategy	ETS Extension.

- We defined a specific metric for measuring the development status of the Institutional Initiatives, enabling RTD in the ATS, according to main SRA2 aims. As for technological targets exist specific RTD levels for measuring status development (TRL), we elaborated for the Institutional area six IRL (Institutional Readiness Level) mainly aimed at evaluating the status of the undertaken action with respect to the SRA2 goals (detailed for each action in the Intermediate Report- January 2006). The proposed IRL scale is hereafter reported:



- We assessed, on the basis of the IRL scale, the development status wrt to the envisaged SRA2 goals, of almost all the abovementioned mechanisms.

For example as major results it turned out that for the action under the IE EDUCATION of establishing an ‘**accreditation system**’ we are still in a stopped phase that should be intended as a PREPARATION phase. Indeed we could stating to be on a **level 2 status, BRAKED**, where all major actions/discussion were faced up and tackled and some goals are starting to be addressed, but no real

mechanism is in place also on voluntary basis, though important step where done through PEGASUS and stakeholder initiatives to contact all the possible involved participants to start up finally the process. Thus we are well far away from the final objective of having an European Board for Accreditation.

On the same path we discovered that for the action under the IE-ATS Management and Infrastructures of '**Developing and Managing the intermodality**' we are in a quite promising shape. Indeed the EU transport policy was reviewed and one of its main objective remains 'Integration and Intelligent logistic' in order to enable an efficient, timely, low cost, environmental and comfortable mobility, though the word inter-modality was substituted by the most efficient Co-modality, indicating the need of an efficient coexistence of all the transport modes. Analysing the synoptic framework we could say that we are on a **level 4 status, STARTING**, because **all major actions were tackled by the stakeholders** through the creation of EIRAC, a dedicated Technology Platform for the logistical integration of transport systems with the active participation of all the stakeholders. **Moreover major goals were also addressed** through the issue of the SIRA-Strategic Intermodal Research Agenda, outlining a Technological roadmap toward the Global Transport System Integration. On the same time basically it remains that we should step forward with concrete actions, shaping effective mechanisms of developing the Co-modality, e.g. well understand and taking into account all the complex dynamics behind the transport integration, mainly related to a lot of geopolitical (Economy, Environment, International Relationships, etc.) parameters, leading to difficult predictable and readable scenarios.

- As foreseen by the IOP activities main recommendations and guidelines were provided in order to improve mechanisms effectiveness wrt the main SRA2 goals and the Institutional interested framework.

Taking as example the same two cases analysed in the previous point, for improving the outcome on shaping an Accreditation System main recommendations were to start with unified actions at MS level in order to overcoming country/cultural systems differences, enlarge as much as possible the scope internally (University-EASN) and externally with other stakeholders (Res-EREA;Industry-ASD;Associations-CEAS) to better meet their requirements, use as much as possible available cooperation instrument for improving collaboration, e.g. thematic networks, possible future task for Air-TN (being in a way a Governmental issue according to the 'subsidiarity' principle stated by the treaty on education)

About the Intermodality Development major recommendations for improving the steps forward a well developed mechanism were to involve as much as possible the ATS sector in the activities, presently too dominated by the Logistic Networks mainly leaded by Port/Railways, to orient the activities much more on the people than as presently done on cargos (more society needs than economical profits), to push MS and EC to invest in specific RTD for Co-modality but above-all to overcome the still existing enormous barrier for cooperation (Common interfaces on MS 25 borders, balancing taxes on transport for fair competition and granting the access of all competitors on the national field, etc.).

### c) Deviations from work programme

No major deviations should be highlighted with respect to the recovery plan as stated in the first activity report and hereafter reported.

As the project got a 3 months extension in order to catch up some delays, the due date of the final Analysis Report was shifted to 31/12/06.

All major tasks, foreseen in the ToR, taken as new reference for the work program, were performed:

#### First phase

- |   |     |     |
|---|-----|-----|
| • ToR definition and issue.                                       | 1   | m/m |
| • EREA and ACARE endorsement.                                     | 0,5 | m/m |
| • Identification of all major Institutional Enablers.             | 0,5 | m/m |
| • Classification wrt the SRA aims (Enabler objectives)            | 1   | m/m |
| • Listing of possible mechanisms/actions related to the enablers. | 1   | m/m |

#### Second phase

- |  |     |     |
|--|-----|-----|
| • Mapping the identified actions going on at EU and MS level.                    | 3   | m/m |
| • Assessing the status of the development, wrt to the defined objectives         | 2,5 | m/m |
| • Collect suggestions on the actions to be undertaken for possible improvements. | 1,5 | m/m |

The only remark could be that the final result is still limited to major cases (roughly a dozen). Indeed, as the IOP scope is quite large (43 actions on EU and 25-MS basis) the work could be widened: complete the mapping of the info-database, including more MS as best practices reference, evaluate and assess the status for all the 43 actions, issuing the related recommendations.

#### d) Deliverables

Del. No.	Deliverable name	WP No.	Actual/Forecast delivery date	Estimated indicative person-months	Lead contractor
D120.1	Mid-term report - R1	120	31/12/05	4	EREA
D120.2	Analysis report – R2	120	31/12/06	7	EREA

#### e) Milestones

Milestone No.	Milestone name	WP No.	Actual/Forecast delivery date	Lead contractor
M120.1	Periodic reporting to ASTERA team / IT	120	Every 3 months	EREA
M120.2	ToR issues and approval	120	31/10/05	EREA
M120.3	Mid-term report issue	120	31/12/05	EREA
M120.4	Collection of base information completed	120	30/09/06	EREA
M120.5	Analysis report-R1 completed	120	31/12/06	EREA

### Work Package 210 – Surveys, Studies and Analyses:

#### a) Objectives

Main objective of the WP 210 consists of the preparation of support studies for ACARE on topics considered interesting for the continued development of the SRA and in assessing the status of present ATS framework, both on technical and institutional side.

Indeed EREA proposed a package of topics to be deeply analysed in order to get useful information for assessing the status quo and developing ad hoc actions for improving the environmental framework.

In particular some of them should have been an integrating support to the IOP basically providing a more detailed survey of some Institutional Areas, needing more attention and wide analysis.

As previously stated and also reported in the first activity report, a package of Five Statement of Works for possible Support Studies was presented to ACARE. The IT endorsed the proposition on October 2005, though, as shaped in the recovery planning of the first activity report, a tight time-schedule was ahead (one year) in order to partially recover the delay, mostly due to the need to detail the activities and tasks, which were not defined in the WP210 ASTERA2 DoW.

The detailed description of the scope of work, with objectives etc. is available in the agreed Statements of Works, distributed as deliverable for acceptance to EC and the Astera team early 2006 during the first activity reporting phase.

Basically, for each study, the main objectives are highlighted below:

**1) Developing a voluntary European accreditation system for higher education in aerospace engineering.**

In the ASTERA-1 "Education Study" a recommendation was made to develop a voluntary European accreditation system for higher education in aerospace engineering. In SRA-2 this recommendation was supported by ACARE. The proposed study should give a follow up to the recommendation in SRA-2 and should lead to a more detailed proposal for such a voluntary quality assurance/ control /accreditation system that – in good co-operation between industry, research establishments and universities – could be used throughout Europe for the first few years and that in due time could easily be transferred into a legal system.

**2) Feasibility study for an implementation of a Technology Watch**

The study was intended to build up a proposal on the way a "Technology Watch" mechanism of non-aviation technologies could be established in Europe for European aeronautical research and development, in particular supporting the identification of arising technologies, relevant for hardware development and procedure optimisation in aviation. The TW function could be performed by a network of existing organisations or via a dedicated (outsourced) organisation.

The main objective of the study was finally to suggest a technology watch system that will provide the EU ATS stakeholders with relevant information about significant developments in other technological domains. Main foreseen tasks were:

- Identify current practices in the relevant Member States;
- Derive best practice experience;
- Identify the requirements of the Air Transport sector stakeholders;
- Identify the most effective way to implement the technology watch function;
- Propose practical arrangements;
- Estimate the funding required;
- Propose the adequate governance and management rules.

**3) Feasibility study of voucher system for use of aeronautical re-search facilities**

Main objective of the study was to investigate the possibility to introduce in Europe a voucher system for Aeronautical Research Infrastructures, providing opportunities for EU Universities and SMEs to have financial support to use the expensive experimental facilities for aeronautical RTD.

Stakeholder requirements and inventory of existing similar mechanisms were to be taken into account, leading to a proposal for implementing such a system in Europe, showing the benefits for the ERA (European Research Area).

**4) Improve RTD integration and long-life learning in EU Aeronautics through S/T ETM.**

The study was conceived to firstly describe and understand the current ETM (Education Training and Mobility) activities performed at the REs level to better respond to ETM needs of European Aeronautics stakeholders. Then, suitably combining present capabilities, requirements (REs vs Universities, Industry) and experiences, explore possible new mechanisms, supported by EU, to improve this activity to better contribute to RTD integration. European Aeronautics has already reached a substantial level of industrial integration, RTD collaboration and a good number of joint activities among stakeholders. Main objective of the survey should be to provide suggestions for an efficient use of present mechanisms and the set up of new ones to reinforce this position in the future in order to ensure the continuity of the cited integration process.

**5) Enabling the emergence and assessment of innovative technologies and solutions.**

The study was intended to build up a proposal on the way a "Think-tank" and an "Incubator" mechanism could be established in Europe for aeronautical research.

On the 'Think-Tank' main objectives were to identify:

- The perimeter of activity and the positioning.
- Main ATS stakeholder requirements (Interest, conditions, constraints, etc.).
- The way to implement a flexible mechanism with a general benefit for all ATS stakeholders.
- The way to get funding in order to stimulate the desired innovative results.

On the Incubator main objectives were to identify:

- The way to systematically identify innovative research activities (in Europe and abroad);
- The possibility to establish links between European teams having innovative approaches in order to facilitate cross-fertilization and creation of critical mass on particular topics or areas;
- IPR rules, patents and the conditions for dissemination of the research results in Europe;
- The methodology to be applied in order to select the most promising topics for future ATS.

- The possibility of sponsoring the corresponding research and technology demonstration.

The needed links between the two activities were also investigated.

## b) Achievements

As already previously stated, a Mid-term Review was instructed by ACARE on July 2007, following the issue of the mid-term reports. Indeed the tight schedule led to some concerns about the possibility to complete on time some tasks.

An internal panel review assessed the progress made till there and advised on the continuation. Basically the ETM and the Technology Watch studies were interrupted, while the Voucher System was strongly recommended to set up a recovery plan, as the available time wrt to the proposed task was too short for granting a completion on time, and the Accreditation and the Technology Enablers were advised to review some tasks in order to stick to the final proposed objectives.

The Technology Watch was interrupted because major delays were estimated, due also to a lack of interest and participation by the ATS community and to conflicting views/opinions on its final purpose, though the major objectives for the first phase were achieved.

Detailed information on progress and achievements are in the Mid-term reports (Official Deliverables-June 06) and also in the available progress reports. A synthesis of major achievements is hereafter outlined:

### 1) Developing a voluntary European accreditation system for higher education in aerospace engineering.

- A study Working Group was established (Prof. J.L. van Ingen, Delft Aerospace, Prof. G. Chiochia, Politecnico di Torino, Prof. Pascal Revel, ENAC, Dr. Bernard Reith, TU-Delft, Prof. Spiros Pantelakis, Patras University).
- Institutional material/documentation from all the 'Bologna declaration' signatory countries was analysed.
- Not institutional, private and commercial organisation (MBA, Industrial policies, US AABI and ABET) systems, very active in setting up quality control/accreditation, were taken into account as good examples for an envisaged system for aerospace, as also already strongly appreciated by the European ATS market.
- Internet studies on the various specific elements, discussions with various European stakeholders (e.g. ASD, EREA, PEGASUS, etc.) and cross-feeding with Members of the Council of PEGASUS and ACARE's Working Group on Human Resources contributed to clarify and unify EU stakeholders vision and possible recommendations.
- The final major recommendation from the report is to establish a European Society for Quality Assurance in Aerospace Engineering Education, in which the various stakeholders should be represented. The proposed society might have several committees of which one would run a specific EU supported project that would organise (e.g.) three yearly conferences on the subject of quality assurance in a broad sense, also covering the polytechnic and vocational level, reviewing best practices etc. Another committee should continuously work on the subject of accreditation to result in a more detailed proposal for a voluntary system in due time (e.g. three years).

### 2) Feasibility study for an implementation of a Technology Watch.

As stated before the study was interrupted, and thus does not cover all the envisaged scope of work but only the first two Work Packages. WP 1: Identification and Collection of stakeholder requirements and WP2: Investigation of current practices and best practice experience in relevant Member States.

Detailed reports from the two WPs are available. A final report summarizing the findings from WP1 and WP2 according to a taxonomy approach chosen by the leader DLR in proposing a possible mechanisms should be available by the end of December.

Main findings from WP1:

- A questionnaire was circulated among all the ATS stakeholders in order to evaluate their main requirements for such a system. All categories were taken into account in a balanced way. On 160 contacted people roughly 30 detailed replies were obtained allowing the core group to make a detailed analysis of the stakeholders requirements.
- As major aim for such a mechanism the stakeholders saw the awareness on new technologies and new effective economic solutions but also a better info flow through the European technological chain. ATS stakeholders as well as external technologies suppliers were seen as main actors of such a system both benefiting of the Technology Transfer. A public support was preferred to a private one or to a PPP in order to avoid competition. The public involvement in such a mechanism was seen as a grant of transparency and fair competition. An approach based on Discipline/Sector categories was

supported. Preferred sector/disciplines indicated as useful ATS technology tank were: Materials, Military, Manufacturing, Automotive, Electronics, Space. As level of maturity to be taken into account the majority supported a wide span approach tackling basically all the RTD scale from basic research to large demonstrators, also preferring the adoption of the same TRL NASA scale. As input, literature and workshops were supported, as output still workshops beside specific newsletters. Basically an 'On-Demand' interface was indicated, in order to obtaining specific and detailed info only when needed (Database with a contact person and specific replies to interested people). Some other working mechanisms were highlighted by the stakeholders as possible example to be taken into account in the final proposal elaboration. Possible Governances Schemes were also suggested. Benefits and drawbacks of such a system were widely shaped. The IPR issues were also taken into account suggesting way to proceed. Finally possible criteria for optimizing the info flow were proposed, the preferred basically based on the 'economic added value' and 'reinforced market positioning and competitiveness' of disposing of such a system at EU level.

Main findings from WP2:

Different kind of TW are developed with different characteristics and purposes. A survey of all relevant actions and best practices on TW going on in Europe (ES,CZ,UK,IT,FR,LU,EL,SE,AT) and some international example (US) was provided, according to all the different Typologies/Taxonomy of existing TW:

- universities – usually more theoretical approach (e.g. nanotechnology)
- the research institutes usually in cooperation with the industrial companies who support the research activities
- SME or clusters (clusters are in detail mentioned at the Czech Republic and France)
- country – specialized magazines (e.g. UK)
- patent offices - it usually informs about new products / services
- the industrial companies are often keeping some system of internal technology watch based personal information exchange and contacts.

### **3) Feasibility study of voucher system for use of aeronautical re-search facilities**

The study contains an inventory of some existing similar voucher systems in Europe and also a number of interviews with personnel from universities and SMEs regarding their needs and opinions on such a system. In the interviews specific interests in wind tunnel testing, materials and structural testing and electromagnetic testing have been expressed. Also, short lead times between discovering a need for an experimental facility and actually carrying out the test were pointed out by SMEs as very important.

Furthermore, existing European mechanisms for accessing aeronautical facilities have been studied, primarily by using the internet. The organisation EUFAR was studied in more detail since some of its activities seems to be worth copying for a voucher system.

To launch a voucher system it is proposed that a small administrative group is formed under EC to which universities and SMEs can apply for vouchers. In each country there should also be a national representative connected to the group. It is emphasized that the administration of the voucher system and the applications for vouchers should be simple. A fraction of the European funding for aeronautical research is set aside as a budget for the voucher system.

It is concluded that a voucher system will increase the level of education at universities and the competitiveness of SMEs in Europe. By more effective use of European laboratories it is also foreseen that the laboratories can be kept more up-to-date and consequently more competitive on the international market.

### **4) Improve RTD integration and long-life learning in EU Aeronautics through S/T ETM.**

As stated before the study was interrupted, having performed only the first two Work Packages.

- WP1 was devoted to set up the basic features of the study: goals, main assumptions, background definitions, working methodology and a preliminary collection of references about the scope. In particular the analysis of related literature and other ETM existing initiatives, the screening of past and present experience deserved a specific consideration in order to build up a concrete proposal.
- WP2 was devoted to prepare and circulate appropriate tools to capture the intra-mural information at each REs in order to assure the same understanding of facts and the correct data collection. A conceptual approach (definitions, magnitudes, etc.) and the operative instruments (questionnaire, matrix), were prepared and circulated.
- The results analysis should help in building up a typology of ETM activities, where the capabilities at REs are well displayed and the resulting picture could suggest some links to the "outside world". Indeed the results of the preliminary findings, condensed within an inventory of actual RE capabilities,

and combined with possible external experiences, should be compared with the needs of European stakeholders on the matter, having also in mind the existing mechanisms for enabling ETM actions (Marie Curie, etc.).

**5) Enabling the emergence and assessment of innovative technologies and solutions.**

- A small Core Group was established in order to easily carry out the work and major tasks.
- Specific interviews were conducted with all major EU ATS stakeholders (Airbus, RR, MTU, Avio, Eurocopter, Volvo, etc.) in order to gather their views and requirements for such a system.
- A survey of existing mechanisms and best practices was conducted. Also the DARPA experience was taken into account.
- Specific views from REs and their innovation policies were analysed in order to limit the boundary of the mechanism.
- On the basis of major findings from the interviews possible functioning schemes were analysed and proposed, tackling also the funding and IPR issues.
- The final major recommendation from the report is to establish a kind of European Perspective Centre, a dedicated body with strong technical expertise, for carrying out specific 'feasibility studies' for giving a technical/managerial blessing to new ideas, projects etc. Once blessed the projects should be worthy of a specific incubation grant, e.g. supported by the EC, useful to let the idea grow up faster.

**c) Deviations from work programme**

**1) Developing a voluntary European accreditation system for higher education in aerospace engineering.**

All foreseen 9 work packages of the study were carried out and are covered in the final report. The only deviation from the SoW is that sending out questionnaires as announced in the SoW has not been done. In the starting phase of the study it was realized that many possible addressees are tired of answering questionnaires and that only a very limited response was to be expected. Instead of that deeper discussions with some of the stakeholders were held.

**2) Feasibility study for an implementation of a Technology Watch.**

As already clearly stated the study was stopped July 2006. Anyway the first two WP were completely carried out according to the SoW and covered in two specific report and in the final summary.

**3) Feasibility study of voucher system for use of aeronautical re-search facilities**

The study was reviewed in July 06 and deemed late due, among other reasons, to staffing problems. The ACARE IT requested a recovery plan that was submitted in October 06 to compress the activities and meet the deadline of Dec 06. Indeed the study was reduced a bit in the scope of its activities, in order to focus on the main objective that was to propose a possible system. All major activities foreseen in the SoW were tackled and covered in the final report.

The only deviation from the SoW is that no questionnaires were circulated as originally planned due to lack of time. In order to speed up the process, it was decided to have specific interviews in order to deeply study the proposal of such a particular system with the direct interested stakeholders, in particular SME and Universities. A wide list of interviewed categories is outlined in the final report.

**4) Improve RTD integration and long-life learning in EU Aeronautics through S/T ETM.**

As already clearly stated the study was stopped July 2006. Basically only the first two WP were carried out. Only the intermediate report, issued in June 2006, is available.

**5) Enabling the emergence and assessment of innovative technologies and solutions.**

All major activities foreseen in the SoW were tackled and covered in the final report.

No major deviations should be registered in the final results wrt what was proposed.

The only deviation from the SoW is that originally it was planned that "Two additional meetings gathering all stakeholders (the 1st one to be held two weeks after the kick-off meeting and the second one 1 month later)" would be organized. The aim of this second meeting was "to have a large and open exchange of views between of all partners. This will result in a working plan and a working method". Taking into account the difficulty to rapidly obtain 'legitimate' points of contacts at the various stakeholders as well as the usual poor efficiency of large meetings especially when general topics have to be considered, it was decided to go as far as possible with the core group and the list of interviewed companies. At the beginning the Core group envisaged also to enlarge the basis of interviewed people (presently only from Industry and REs) but finally Universities, Regulatory bodies, Airlines, Airport were not taken into account in order to not widening too much the scope, risking a deviation from the final scope of proposing a mechanism.



**d) Deliverables**

Del. No.	Deliverable name	WP No.	Due date from recovery plan	Actual/Forecast delivery date	Estimated indicative person- months	Lead contractor
D210.1	Studies mid-term progress report	210	30/06/06	21/07/06	11	EREA
D210.2	Studies package in support of Acare – Final release	210	1/12/06	31/12/06	11	EREA

**e) Milestones**

Del. No.	Deliverable name	WP No.	Due date from recovery plan	Actual/Forecast delivery date	Estimated person-months	Lead contractor
M210.1	Studies mid-term progress report completed	210	30/06/06	21/07/06	11	EREA
M210.2	Studies package in support of Acare –completed	210	1/12/06	31/12/06	11	EREA

**Other Activities**

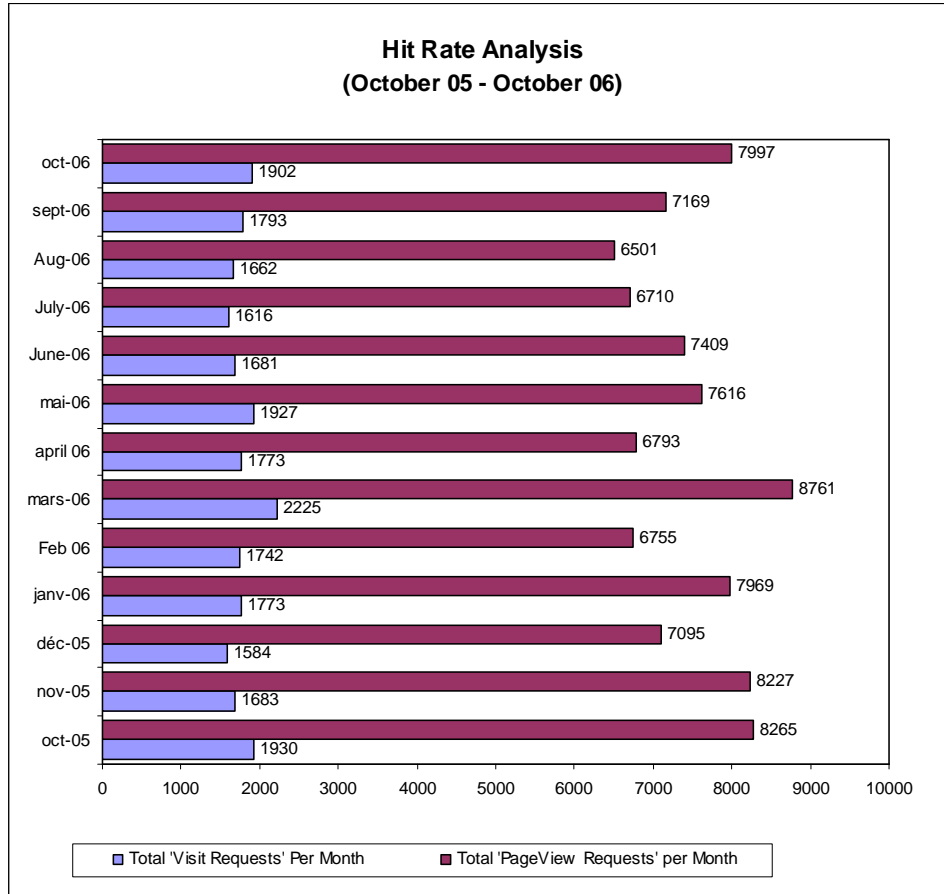
**A) Web Site**

A web site was developed under the first ASTERA phase - [www.acare4europe.org](http://www.acare4europe.org). The web site has been the object of updates mainly in the following areas:

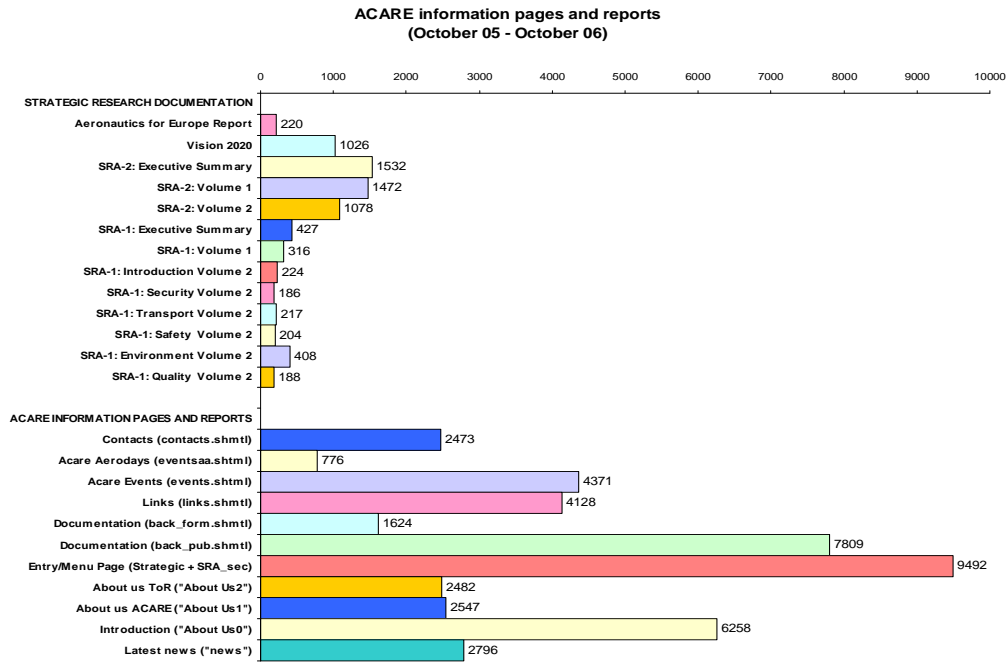
- 1) The “events” section was updated continuously
- 2) Inclusion of a link leading to the ACARE assessment of the Clean Sky Joint Technology Initiative and to the relevant JTI information on the ASD web site
- 3) Inclusion of links to the other Technology Platforms, especially to their SRAs

The charts in the following page are meant to provide an overview of the web site utilisation in the last reporting period in terms of hit rates, documentation viewed and origin of the visitors.

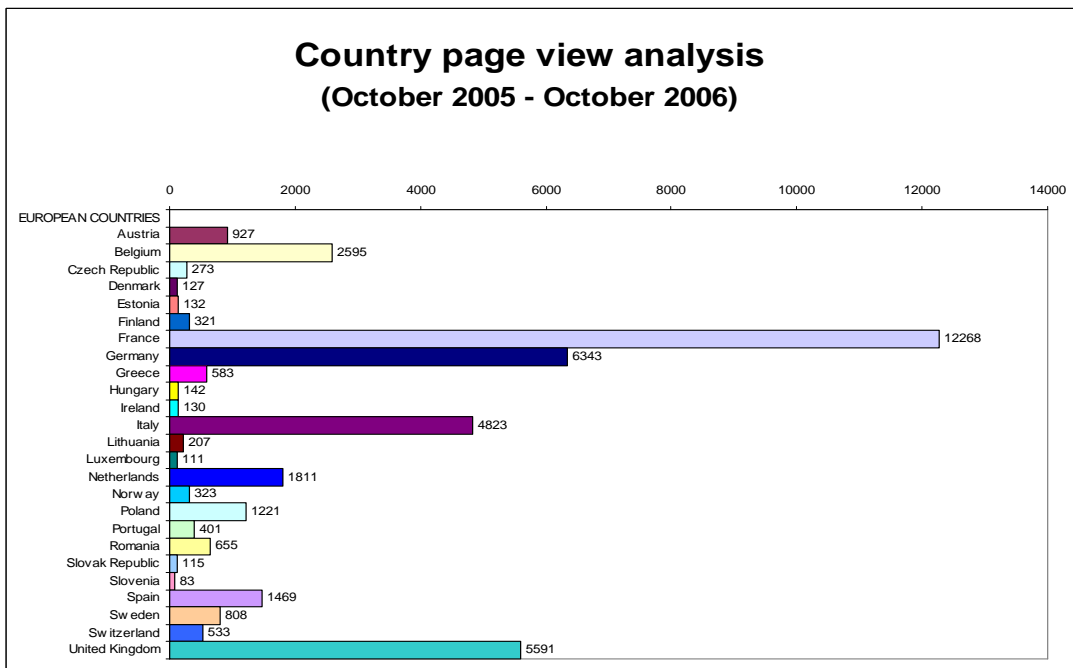
The following charts are meant to provide an overview of the [www.acare4europe.org](http://www.acare4europe.org) web site in terms of hit rates, documentation viewed and origin of the visitors in the last reporting period.



As the figure shows that the numbers of visit requests from October 2005 until end October 2006 have settled on a more or less stable level (between 1700 and 1900) though showing a lower activity in the summer months July (1616 visit requests) and August (1662 visit request). The number of pages viewed whilst visiting the site is quite constant.



Above Figure shows the areas of most interest to visitors to the site. Of the web pages themselves those providing information on the background to ACARE and documentation proved the most popular. With respect to documentation downloads it is clear that the majority of the visitors were focussed more on the documents of the SRA-2. It is also evident that those not necessarily familiar with ACARE and its work found the supporting background documents of Vision2020 useful.

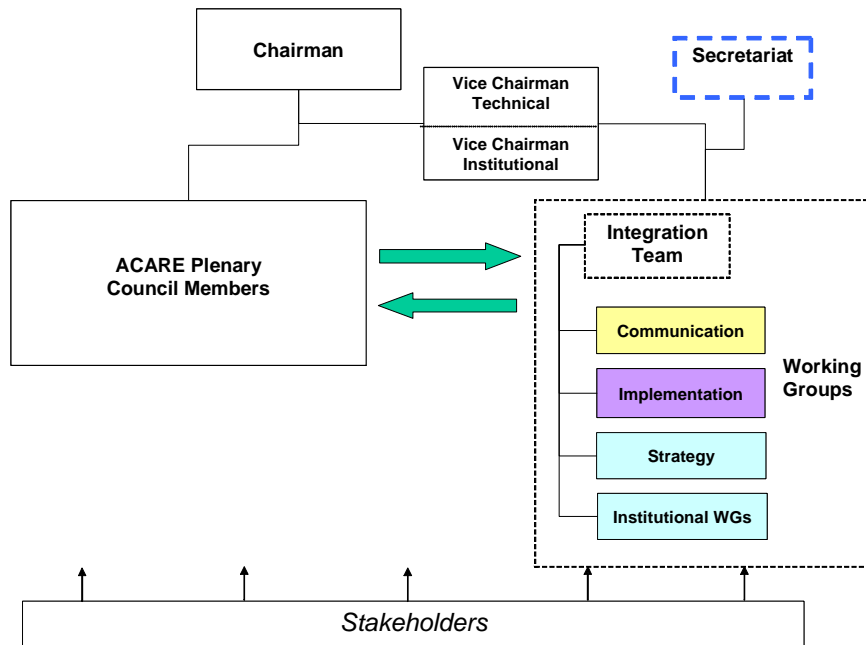


Above figure indicates that countries with a large aerospace industry base (UK, France, Germany and Italy) show the largest interest in ACARE. The low response from the new Accession States could be attributed to the relatively small aeronautical involvement of those countries. With the exception of the US (627 hits) and

Canada (540 hits), the awareness of and/or interest shown by other international countries in ACARE and its website is low.

## B) Support to the Working Groups

Hereafter a diagram of the current structure of ACARE is shown:



The figure above is a simplification and neglects the ad-hoc groups which were created for specific purposes.

During the reporting period, ASTERA has provided routine administrative and secretarial support to all working groups of ACARE and these activities can be broadly categorised as follows:

- Communication Group:** WP 320 (Support to SRA dissemination)  
 The group is also responsible for planning and executing all aspects of ACARE communication plan (participation to events, development of communication tools and support material).
- Implementation Group:** WP 110 & 120 (Technical and Institutional implementation)  
 The group is focused on all implementation-related matters, and this includes advice to the definition of the FP7 work programme, advice to the preparation of the Clean Sky JTI proposal, steering the development of the Technical and Institutional Observation Platforms etc.
- Integration Team:** WP 400 (management)  
 ASTERA has always provided support to the IT group which is in charge of co-ordinating the activities of the working groups.
- International Collaboration ad hoc group:** WP 320 (Communication)  
 ACARE gave the group a mandate to elaborate a common position on international collaboration, following a request from the European Commission. The activities of the group formally terminated in Oct 06.
- Progress Evaluation Team ad hoc group:** WP 110 (Technical Implementation)  
 ACARE gave the group a mandate to elaborate a plan for the periodical assessment of the progress being achieved in meeting the ACARE goals of SRA-1. This assessment is seen as an essential interim step towards the planning of a third edition of the SRA and of a possible new Vision document.

### 3. Plan for using and disseminating the knowledge

#### a) Communication events

In terms of communication events in the reporting period, the following table summarises the ones where:

- 1) Either the participation was open to the public (in these cases ASTERA organised a manned information desk with brochures, copies of the strategic research agenda, videos, custom-designed posters etc.).
- 2) Or where the event was a closed one but devoted to communication to audiences outside aeronautics (such is the case of the meeting with EIRAC, the ETP for inter-modal research).

In certain occasions ASTERA deployed a PC and screen for live demonstrations of the tools in development: namely the SRA Navigator and the Technical Observation Platform database.

The idea proved a success as shown by the several interested individuals from a wide range of backgrounds who actively inquired the info desk requesting explanations. Many more visitors simply came to the stand to watch the streaming videos of which they later picked a copy.

Date (Place)	Type	Type of audience	Countries addressed	Size of audience	Partner responsible
30-31 March 05	Workshop	Industry Research Government Public	International audience	400	ASD, EC
26 April 05	Workshop	Industry Research Government	France	150	DPAC
12 May 05	Workshop	Industry Research Government	Spain	100	INTA
25 May 05	Workshop	Industry Research Government	UK	150	DTI
26 May 05	Workshop	Industry Research Government	Internation	60	EUROCAE
31 May 05	Workshop	Industry Research Government	Sweden	200	FOI
6 June 05	Workshop	Industry Research Government	Italy	100	AIAD
13-19 June 05	Air Show (Le Bourget)	Industry Research Government	International	Thousands	GIFAS
8 Sept 05	Workshop	Industry Research Government	EU NMS	60	EC
15 Sept 05	Workshop	Industry Research Government	Poland + NMS	150	PZL Rzeszow SA

Date (Place)	Type	Type of audience	Countries addressed	Size of audience	Partner responsible
6-7 Oct 05	Workshop	Industry Research Government	EU	400	ASD, BDLI
10 Oct 05	Workshop	Industry Research Government	Romania	-	ROSA
12 Oct 05	Workshop	Industry Research Government	Netherlands	-	NLR, NIVR
18 Oct 05	Workshop	Industry Research Government	Poland	-	PZL
28 Feb 06 (Brussels)	EIRAC meeting with transport ETP - Workshop	Other ETPs EC	EU25	14	EIRAC
4-5 May 06 (Vienna)	In the context of the Austrian Presidency ETP Conference: Workshop	Industry Other ETPs Research Government	Mainly EU25	~20 visitors to info desk	ASTERA/BMVI T/EC
19-21 June 06 (Vienna)	Aerodays 2006: Workshop	Industry Research Government General public	Mainly EU25	~25 visitors to info desk	ASTERA/BMVI T/EC

*Overview table of public-awareness communication events*

Besides communication events, there were other ways in which ASTERA engaged the public awareness; they are described hereafter.

**b) Communication tools**

These initiatives, largely described under the relevant section on WP 220, nominally refer to a different work package than communications. However, they also have public awareness implications since they aim at the development of communication tools for a better understanding and dissemination of the key messages of ACARE's Strategic Research Agenda. In particular the SRA Navigator is a communication tool that allows users to bridge the gap between the two current editions of the Strategic Research Agenda. The tool translates the "language" of the first edition (challenges, goals) into that of the second edition (alternative world scenarios, HLTCs) and vice-versa.

The SRA Navigator, given its complexity, is more appropriate for an audience already familiar with the SRA and its subtleties; however it can still be regarded as a public awareness instrument, especially when it will be made available on the ACARE web site.

A second tool, more specifically targeted towards public awareness, has been developed. This has been oriented towards a more general audience of non-specialists. This instrument, based on DVD platform for easy dissemination at events, consists of a series of predefined messages with graphical animations. The objective is the promotion of aviation and its importance in an easy-to-grasp way.

**c) Web site**

The public web site of ACARE [www.acare4europe.org](http://www.acare4europe.org) is another way in which ASTERA is promoting communications to the outside world.

The web site, which is constantly monitored to track hit rates and other visit parameters, posts basic information on ACARE, its history, its membership, the Chairmen, the two editions of the SRA etc.

Possibly the sections most interesting for the general public are:

- 1) The *events* section presents an updated list of the major events with linkages to their web sites (when available).
- 2) The *documentation* section allows download of documents such as Vision 2020, SRA-1, SRA-2 and publications on climate change.
- 3) The *links* section provides reference to other web sites of ACARE stakeholders such as ASD, EREA, EASN, IATA, Eurocontrol etc.
- 4) Occasionally, when major events need to be announced, a banner and associated link is placed on the home page. This was the case with ACARE Aerodays in 2005, when the announcement was made available through the web site, as well as the link to the registration form and the presentation of the proceedings of the conference etc.

The monthly web site report shows continued interest from a wide range of visiting countries (inside and outside the EU), both in terms of hit rates and in terms of documentation downloaded.

**d) Published press interviews and articles**

Another way the public was addressed was through press interviews and the occasional purchase of spaces on magazines or journals for announcements or other dedicated messages. In the reporting period these dates can be reported:

- 1) April 2005 : Aviation Week and Space Technology: A full page on Expanded aeronautics R&D effort aimed at reinforcing Europe's position in aerospace
- 2) April 2005 : Aviation Daily: A full page on European Industry Unveils New Strategic Research Program
- 3) March 06: a full page article on the *Parliament Magazine* on the greening of air transport within FP7 and the relevance of ACARE and its SRA-2 in this context.
- 4) May 06: interview of the ACARE co-Chairman François Quentin on the specialised magazine *Aerospace Testing International* on ACARE and its outlook on future research in aeronautics.
- 5) June 06: interview of the ACARE Plenary Secretary Uwe Möller on the magazine *Research Europe* on technology platforms and the transport theme in the context of FP7.