

AEREA - A EUROPEAN RESEARCH INITIATIVE

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1. Introduction

AEREA, the Association of European Research Establishments in Aeronautics, was set up in October 1994 and combines Europe's major national research centers devoted to aeronautics. The following establishments are part of AEREA: The Centro Italiano Recerche Aerospaziali (CIRA), the Deutsche Forschungsanstalt für Luft- und Raumfahrt (DLR), the Defence Research Agency (DRA), the Flygtekniska Försöksanstalten (FFA), the Instituto Nacional de Técnica Aeroespacial (INTA), the Nationaal Lucht- en Ruimtevaart-laboratorium (NLR), and the Office National D'Etudes de Recherches Aerospatiales (ONERA).

As a regional European initiative AEREA has become well known within its constituency. The ICAS/96 presents a welcome opportunity to inform our international partners about the joint AEREA venture. This will be done by delineating AEREA's profile, by explaining AEREA's raison d'être and its role within Europe's aeronautical research system, and by highlighting some AEREA accomplishments. An outlook on AEREA's future development will conclude the presentation.

2. AEREA's Profile and Mission

Under the terms of the 1994 Agreement the seven establishments listed above have associated themselves with the following objectives:

- to develop a joint policy to further increase the Associates' cooperation and their interaction with external parties;
- to develop and execute joint research programmes;
- to develop and execute a joint approach towards the planning, use, and management of large facilities for aeronautical research and testing; and
- to actively promote and stimulate the exchange of personnel of the Associates.

The Association was formed in consideration of the long-standing cooperative relationship between the establishments and in recognition of the mutual advantages of a closer cooperation with respect to their activities and resources, in order to strengthen the European aeronautical technology base. It is the Associates' desire to place their future development in a common European scientific, technological and industrial perspective.

To satisfy these objectives the inauguration of a formal process between the Research Establishments was deemed necessary. This cooperative process is being shaped by a joint Strategy and Coordination Group assisted by special task forces. The overall guidance and monitoring of AEREA's activities is the responsibility of the Heads of Establishment Board composed of the Heads of the seven member organizations.

3. AEREA's raison d'être

The creation of AEREA was preceded by an intensive analytical effort carried out by the involved establishments. This exercise resulted in a „Joint Position on the Future Role of the Aeronautical Research Establishments in Europe“, which was formally endorsed in January 1994. The common policy set forth in the Joint Position document had first been discussed with all aeronautical parties concerned - industry, operators, regulators, national administrations as well as the European Commission - in form of a „Seminar on the Future Role of the Aeronautical Research Establishments in Europe“ held in Brussels on 9 September 1993.

The general conviction of all involved was that in the future certain trends and developments will force the Research Establishments to cooperate and interact in a much more determined way than in the past. The main „drivers“ in this respect were seen to be related to:

- An increase in cooperative trans-national aircraft and helicopter developments,
- an intensification of industrial trans-border alliances and integrations,
- a decrease in military funding for aeronautical R + D, and
- an ongoing, undiminished competition between US and European industry.

The strongest influence is expected to result from the progressive restructuring of the aeronautical industry on a European level, and from future joint programmes. European aeronautics has to sustain its strength and competence through unrelenting efforts of combining, pooling and integrating potentials and resources. In the industrial sector notable progress to this effect has already been made. More transformations are bound to occur. As a consequence, the RE's traditional national links with industry will

increasingly be interwoven with trans-national working relationships.

Other European developments also have their effects. Thus, the emergence of a coordinated research effort at EU level is a notable departure from strictly national support policies. In some specific sectors of aviation joint European actions are also underway. Eurocontrol's research programme reflects the growing importance of coordinated approaches to air traffic management technologies and systems. With regard to aircraft safety the Joint Aviation Authorities are proceeding towards harmonization and unification of certification standards and procedures.

As European aviation in all its aspects becomes more and more transnational, i.e. truly European, the Research Establishments will themselves remain less and less nationally confined entities. To live up to this existential challenge affecting each of the centers, the Aeronautical Research Establishments must stand united and complement their national commitments by a joint European engagement.

4. AEREA's Role and Place

As public research entities the aeronautical establishments have a distinct role within the European aeronautics R, T + D system. Their vocation is to conduct up-front research and to acquire technologies for use in innovative industrial developments. They also provide advice and assistance to governments, and act as custodians and operators of major national facilities.

Whilst the aeronautics industry in Europe is in the process of consolidating itself on a regional level, thus creating a gradually more consistent R + T demand, the governments of European aviation nations so far have refrained from coordinating and harmonizing their aeronautical research policies. This

leaves the research centers with a duplicitous role vis-à-vis a more and more unified customer sector on the one hand and persistently national sponsors on the other hand. Since it would be unrealistic to assume that a central European aeronautical research authority similar to the US National Aeronautics and Space Administration will be set up, the Research Establishments are called upon to provide for greater cohesion of the various individual funding efforts on the part of European governments. They can do so by actively proposing and promoting joint R+T programmes, technology initiatives and demonstrator developments, both within an ad hoc cooperative framework involving partners from several European nations, and under the aegis of the European Union. The AEREA proposal for a Long-Term Technology Plan in aeronautics submitted to the Commission is an example of such a European outreach initiative.

To further increase the chances for common, integrative actions, AEREA is seeking a re-invigoration of GARTEUR, the only wholly European research body in aeronautics, formed already in 1973 but so far mainly concentrating on the organization of collaborative programmes in fundamental research. The GARTEUR mechanism was, however, also meant to achieve a systematic program policy coordination among its member states, and to provide a common interface with industry. Once these functions are fully assured GARTEUR will, together with AEREA and AECMA, the European aeronautics industry representation, form the basic triangular structure within which European aeronautical research and technology acquisition will be planned, coordinated and executed.

5. AEREA's Achievements and Future

During its first two years of existence AEREA has already been able to make some considerable progress towards its goal of close interaction and common procedure. Thus the number of projects and programmes where AEREA members have worked together has been steadily increasing. There are nearly twenty activities grouping two or more research establishments, and covering such diverse research areas as low emission combustion, laminar flow technologies, high lift research, aircraft certification or helicopter flight mechanics. Most of these activities have been sponsored by the European Commission, some were instituted within the GARTEUR framework. The common effect of all these joint endeavours has been a growing awareness among AEREA members that more can be achieved by combining expertise and resources.

The next step in accordance with the programmatic objectives of AEREA clearly must be the creation of organizationally integrated research forces drawing together the capabilities of several centers under one distinct programme management. As an example the various research activities in the field of supersonic transport currently being carried out individually in several research establishments urgently require consolidation through central planning and guidance. Otherwise Europe's research efforts in this domain will remain subcritical. There are many other research themes and technological challenges which would profit from an integrated approach. The scattering of often overlapping and per se generally insufficient research efforts among the AEREA member organizations can no longer be justified in the world's competitive environment.

When drawing up their „Joint Position“, the Research Establishments identified

and agreed on a vision of a common future. This conception contains a number of distinct elements. It will be of paramount importance that the Establishments evolve into centers of excellence and specialization. This will enhance each organization's specific strength and potential, and create interdependencies. Next, the large pool of the Establishments' experimental facilities must be administered in a fully coordinated manner to assure efficient use and economical subsistence. Suitable facilities should be operated by separate, jointly established management entities, such as the German-Dutch Windtunnel Foundation which combines a growing number of DLR's and NLR's facilities, and is open to incorporate wind tunnels from other AEREA members, too.

AEREA is certainly moving toward these goals, although progress sometimes seems unduly slow. The establishment of a Joint Office of Aeronautics, also foreseen in the common action plan, has not yet been attempted. AEREA still is largely an associative endeavour tuned to the principle of collaboration, and only acts as a business like partnership in some limited programme areas and facility operations. To become a union of individually excellent and commonly interdependent research entities, deeper changes and transformations must occur. All AEREA members feel that new realities require such adjustments. AEREA's joint directorate, the Heads of Establishment Board, is committed to devise and to implement those adaptations which will make the European aeronautical research establishments' initiative a lasting success.