

**Challenges of the Future:
Reflections of ALLEA on ERA**

ALLEA | All European Academies

CHALLENGES OF THE FUTURE: REFLECTIONS OF ALLEA ON ERA

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Introduction

The European Research Area concerns the whole of society - Europe, its constituent States, the research community - and is not simply about research. New knowledge and its implementation are prerequisites for the future welfare of society. ALLEA as the European Federation of National Academies of Sciences and Humanities has gathered its members' ideas on the present and future state of the ERA.

1. The idea of ERA

On January 18, 2000, the European Commission adopted the Communication 'Towards a European Research Area' – an invitation to better investment in knowledge as the main tool for a better Europe as a whole, and for the European Union in particular. The Communication (COM (2000)6, 18.01.2000) summarized the objectives and envisaged the actions needed for creating ERA. In outline, the objective was to create a knowledge society in Europe. A target of 3% of GDP for research and development

investment in the EU is set as an indicator of progress in achieving the objectives. However, behind this target a complicated process is embedded which includes people, research structures, infrastructures, innovation, education, links between science and society, and more broadly the cultural aspect that is the attitude of Europeans towards knowledge and its implementations. The strategic goal set by the EU is to become by 2010 “the most competitive and dynamic knowledge-based economy in the world”.

How far have we come? A debate on ERA, its targets and instruments is going on, many high-level expert groups have reported on the various stages of progress, much has been done by the Member States, by the EC and the DG Research, and European organizations. Now, at the moment of launching the FP7 for 2007 – 2013, the need to consolidate all efforts to build up ERA is obvious. This is why ALLEA asked all its member-academies to report on their opinions about the present situation and the future of ERA (see Annex).

ALLEA is the European Federation of National Academies of Sciences and Humanities. It has 53 members from 40 countries and is thus wider than the European Union. It could be said that ALLEA represents science in an ‘ideal’ Europe. Clearly research is breaking down walls and borders before in advance of political changes.

The reflections of ALLEA on ERA are collected below.

2. Knowledge-based society

Although the notion ‘knowledge-based society’ is nowadays widely used in politics, in economics, in society, etc., its interpretation may vary and may cause misunderstandings. Such a situation arises not from a lack of interpretative agreement but from the wide context and fast-changing world. Instead of seeking a short definition, it is better to list the ideal characteristics of the knowledge-based society:

- knowledge is a prerequisite for the quality of life and welfare of society;
- knowledge is based on good education and well-organized research structures;

- knowledge is disseminated fast and there are equal possibilities for everyone to obtain information;
- links between academia, society, industry and government are well-organized;
- a knowledge-based economy uses all the potential of scientists and scholars, engineers and other specialists;
- innovation is encouraged at every level including industry-academia collaboration, social welfare, fiscal incentives, etc.;
- knowledge is a basis for policy decisions in society;
- dialogue between science and society is promoted.

Does the construction of ERA bring us closer to these characteristics? The constituent States of Europe and the EC in particular are responsible for creating the conditions for research, education, innovation, and knowledge management in order to enhance public and private partnerships for creating a knowledge-based Europe: the Europe of knowledge.

3. Progress towards ERA

Despite the efforts made, the general target of 3% of GDP for research and development investment in EU27 is an aspirational one, and will not be easy to reach. Present estimates show that by 2010 the target clearly cannot be reached, although today's level – about 2% - will be exceeded. In preparing the FP7, the EC has made definite progress, not least in increasing the FP7 budget. The agreement says that “EU funding for research should be increased such that by 2013 the resources available are around 75% higher in real terms than in 2006”; sadly, the outcome so far does not match the aspirations.

So the present situation is not what we would have liked when the idea of ERA was formulated in 2000. Given all the constraints, FP7 is a good step forward. The keywords for FP7 are: excellence, coherence, and simplification – ALLEA definitely agrees with those. In terms of excellence, launching the European Research Council – ‘the first pan-European funding agency for frontier research’ – is the most important step taken by the EC in this direction. The scientific community approves the mission

and the strategy of the ERC and has high hopes for the future of frontier research in Europe. The recent Aho Report ‘Creating an Innovative Europe’ has listed the challenges for the EU in that direction: innovation-friendly market conditions, mobility and key technology sectors. However, all recent debates and analyses indicate the presence of many bottlenecks, among them the shortage of trained people, of infrastructure for research, and a need for more coherent R&D policies across the Member States. It seems also that more attention should be given to the societal dimension and a culture of innovation rather than to utilitarian policy measures. One reason for the relative lack of progress towards planned goals, according to Academies, is the fact that the influence of the process of globalisation was not taken fully into account when the strategy of ERA was designed. There is further some danger that bureaucratic processes, both local and at European level, will hinder progress towards intensified scientific collaboration across Europe.

4. ALLEA and the creation of ERA

4.1 *What has been done*

Creating ERA is a challenge to the scientific community, universities and/or research organisations, and governments – indeed to everybody who cares about knowledge and about creating, preserving and using it. ALLEA as the European Federation of Academies of Sciences and Humanities sees its role as being to unite and strengthen the voice of Academies, a voice which is clearly very positive in its response to ERA. Since its launching in 1994, ALLEA’s activities have been increasingly focused on uniting the academic spirit and stressing the universal values of science. The foundation stones of ERA laid by ALLEA are reflected in publications and statements (see Annex):

Basic research in society (1996)

Research training and higher education in Europe (1996)

European science and scientists between freedom and responsibility (1999)

History of science and technology in educational training in Europe (2000)

Science, society and culture: advice to the EC concerning the concept of the 6FP (2001)

Quality in science (2002)

National strategies of research in smaller European countries (2002)

Privacy protection in the information society (2002)

Memorandum on scientific integrity (2003)

Evaluating for science (2004)

Investing in knowledge in Europe: reflection of ALLEA on the proposals of the 7FP (2005)

In search of common values in the European Research Area (2006)

In particular, ALLEA has responded to the Communication on ERA with a letter where the following was stressed:

- ALLEA supports the general idea of ERA, and its ambitious and laudable objectives;
- ALLEA is in agreement with maintaining and developing a variety of policies to cater for the wide diversity in the EU. In this context national strategies will also vary owing to the different constraints in Member States;
- ALLEA shares the concern about the declining attractiveness of natural sciences and engineering for young people. Consideration should be given to measures for raising interest in the sciences at an early age, for stimulating more women to pursue their careers in science, for promoting networks of excellence, for abolishing the formal and legal obstacles to mobility, for encouraging flexible retirement, investment in infrastructures, for creating conditions to enable science-driven basic research, and for paying more attention to the public and social responsibility of scientists;
- ALLEA fully endorses the measures for improving the EU intellectual property rights legal framework.

ALLEA has also addressed the European Convention on the importance of knowledge in society. Clearly economic prosperity and other 21st-century values can only be achieved in the context of the development of a knowledge-based society.

The ALLEA Working Group on the National Strategies of Smaller European Countries formulated several recommendations (2002) that are closely in line with the ideas of FP7:

- not only increasing the funding of R&D in general but channelling it to the most prospective areas;
- not only introducing incentives for encouraging innovation per se but creating foresight programmes and formulating National Development Plans;
- not only introducing incentives for stimulating young people in S&T but estimating the long-term needs for manpower in academia and society at large;
- not only stimulating peer-reviewed research but creating centres of excellence in research and supporting the formation of collaborative international clusters;
- not only improving research infrastructures but combining them with education and innovation.

4.2 What should now be done

According to the European Academies, the scientific community approves and supports the general notion of ERA. Of the single schemes involved in the development of ERA, the role of the Marie Curie Programmes in particular has been valued by many Academies. In moving further towards ERA, the Academies stress that all stakeholders must employ their best efforts to ensure that the momentum of progress is maintained, but equally that it is essential to share information to ensure that needless duplication does not take place. Many Academies explicitly include the way forward to ERA among their objectives and have long promoted international cooperation. KNAW, for example, stresses the need “to help overcome the fragmentation of efforts in the European and broader international S&T landscapes”. This is a key problem in the construction of ERA, where well-designed instruments and multi-lateral initiatives within the EU and worldwide should form the basis for excellence in research and science-society links. But this can only effectively be achieved if there is more cooperation between nations and their Academies. In this context, the Academies welcome the proposed simplification of the procedures of FP7 as a contribution to facilitating and stimulating collaboration, but certain Academies believe that cooperation is more likely to be effective when it stems from the individual researcher or team (‘bottom up’) than when it is proposed from above (‘top down’) in the form of prescribed projects or themes.

In general, the vitality of European research is a key factor for the future of the European economy. ERA recognises this, and aims to encompass all European research activity, not just those projects led by the Commission. But this recognition now needs to 'filter down', so that it guides policies and funding arrangements at European, Member State, regional, local and even institutional levels.

In pursuit of this aim, several Academy initiatives at regional level deserve mention. In South East Europe (SEE) a regional Inter-academy Council has been formed to help to coordinate research in the region. The Vyshehrad Academies in Central Europe and the Nordic-Baltic Academies have formed networks for generating joint projects and formulating concerted opinions. The French Academy of Sciences has recently launched a series of initiatives aimed (i) at developing novel education strategies to improve the overall qualification of managerial scientific and technical staff in emerging countries, and (ii) at promoting the quality of public scientific information by bringing together scientists, journalists, civil society representatives and consumer associations on matters of current concern (nanotechnologies, GMO's, stem cells, etc.).

The creation of regional or sub-regional networks of academies would allow the organisation of a series of workshops and inter-academy summer universities which could significantly contribute to strengthening the role of Academies in the building of the European Research Area.

Academies are increasingly aware that our partners worldwide see European S&T as still fragmented, and are taking steps to remedy this. Thus a Consortium of Academies has started to cooperate with NASAC in the running of series of high-level conferences between Europe and Africa. ALLEA and NASAC have also signed a Memorandum of cooperation. Academies are also active in ERA-NET CO-REACH for coordinating European bilateral programmes of research with China.

In its concern with research, ERA is closely bound up with education and innovation. Academies do not feel that the links between academia, education and innovation are sufficiently well developed:

- Basic research is a prime concern for Academies, and one in which the future role of the ERC is of great importance.
- In the domain of education up to and including undergraduate studies, most Academies play no direct role, but many are aware of the need to play a stronger part in enhancing post-graduate education and promoting the mobility and exchange of scientists. In this respect members of the Academies have a responsibility as mentors and educators to transfer their knowledge, to create schools of thought, to train - and inspire - the next generation. These should all be key actions for the future, reinforced by the co-ordination and streamlining of European education systems, with a view to achieving greater integration of research efforts and capacities in ERA. There is one further respect in which Academies are also involved in education, and that is in promoting the understanding of science in society. This is a key function, and needs to be assumed by all the stakeholders.
- As far as innovation is concerned, it is important not to overstress the distinction between pure and applied science; besides which, Academies stress the importance of achieving balance between the exact sciences and technology on the one side, and humanities and social sciences on the other. This balance seems to be even more important for (new) Member States in Central and Eastern Europe in order to overcome distortions which have arisen in the recent past. The perception that Europe has been falling behind other world economies in innovation is shared by a number of Academies. To counter this, Academies have a significant role to play, as an extension of their educative role, in ensuring that the results of research are widely disseminated.
- Innovation clearly requires a well-defined infrastructure and instruments. It also needs clear rules for Intellectual Property Rights (IPR) and patenting. The ALLEA Standing Committee on IPR has been active in this field and has formulated several proposals. On behalf of ALLEA the Standing Committee has on several occasions advised the European Commission on adapting the Database Directive for the benefit of scientific research, *e.g.* by liberalizing access to databases and granting scientific use of material within databases. The Standing Committee on IPR has also stressed the need to sim-

plify the European Patent system and advocates the implementation of a Community Patent.

- Last but not least – Academies and ALLEA as a whole deal with fundamental ethical issues and the responsibility of scientists. These problems are even more important within the framework of global challenges. The recent ALLEA conference in 2005 (see Annex: Publications) proposed a programme for an ethics agenda for the future. In addition, Academies feel that ethics should be regarded as a part of a professional education.

Active partnerships between science and society, and principally between the scientists and academics who conduct research, the commercial and industrial bodies that exploit it, and all those members of society who benefit from it, are seen by Academies as the most effective way of strengthening the ERA and indeed Europe itself. The ALLEA Working Group on Science and Media, initiated by the Royal Flemish Academy of Sciences and Arts, has set out proposals aiming (i) to interest young people in science and (ii) to inform the public at large about science more widely. If these goals are to be realised, closer co-operation between academia, the worlds of education and industry, and the media, is essential. The recent EC project ‘Messenger’ presents valuable guidelines in this direction. It is in this context that ALLEA also collaborates actively in the European Science Open Fora, organised by EuroScience, which is proving to be an effective instrument for the dissemination of knowledge to society and the media.

5. Final remarks

ALLEA agrees with its partners (Workshop ‘European Organisations on Cooperation in the ERA’, The Hague, 15.12.2006) on possible actions, which in turn provide principles underpinning progress towards a knowledge-based society:

- only a world-class research environment can guarantee progress towards the goals of Lisbon and Barcelona;
- there is a need for a political will to develop ERA but this will must be fed by the community;
- education at all levels including that of policy-makers plays an important role;

- the self-organization of research communities should be encouraged;
- for scientists, sustainable career-paths are important, and should include re-turn, promotion, open opportunities, etc;
- in the competitive and dynamic world, research organizations should clearly define (and redefine, if necessary) their role and targets;
- regional partnerships should be strengthened by clusters of European and worldwide co-operation;
- the effectiveness of programmes should be enhanced with attention to their ‘pulling’ effects;
- attention should be focused on dismantling the barriers in research (barriers between the Member States, different schemes, etc);
- public and private partnership in funding schemes and joint programmes should be supported.

The ALLEA statements and analyses (1996-2006) are mostly on the ‘soft’ side of research – basic values in science, responsibility of scientists, codes of conduct and ethics of science, intellectual property rights, co-operation between academies, principles for national strategies of research, quality of research, etc. These are the problems on which the voice of Academies is united, regardless of their history, economic situation and cultural differences. The independence and autonomy of Academies make them unique stakeholders in society, and gives them the ability to act as think-tanks in shaping national strategies for achieving the aims of the ERA. The strategic partnership of Academies and ALLEA as a whole with other research organisations in Europe is one of the academic cornerstones of the ERA. In particular ALLEA has collaborated closely with EASAC and EuroCASE, which have tackled particular ‘science for policy’ issues, while ALLEA has focused on issues of ‘policy for science’. But more can be done: a number of Academies stress the need for new cooperative research in key areas such as climate change, energy sources, genetic sciences, etc.

The immediate challenges posed by FP7 and the ERC are exciting, but ALLEA also urges a longer perspective for reflection. Those born today – future Europeans – will live in the Europe of 2050. What will Europe be like then? “It is very difficult to make an accurate prediction, especially about the future”, according to Niels Bohr. If we

cannot predict, we should nonetheless do everything to determine the road to the future, and this too is a major concern of ALLEA. The Academies should continue to advise their national governments on appropriate policies for research and teaching; ALLEA must ensure that their united voice is also heard by the European Commission, and in the wider counsels of our emerging global village.

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Statements from ALLEA Publications on ERA

ALLEA Report 2001 (Die Rolle einer Akademie der Wissenschaften: Veränderung und Kontinuität, Pieter J.D. Drenth)

- Darüber hinaus können Zusammenarbeit und Bündelung der Kräfte die Wettbewerbsfähigkeit des darüber gelegenen Gremiums (in unserem Fall Europas) verstärken; ein überzeugendes Argument für die Europäische Kommission und den zuständigen Kommissar für die Wissenschaften, Busquin, im besonderen, in ihrem Plädoyer für einen 'European Research AREA', mit komplementärem Charakter und einem Mehrwert gegenüber den nationalen Forschungsprogrammen.
- Welche Entwicklungen im Hinblick hierauf sich auch zeigen, es bleibt die Tatsache, dass ALLEA sich das Recht vorbehält und sich die Freiheit nehmen wird, gefragt und ungefragt, Standpunkte, Urteile und Ratschläge auf dem Gebiet der Entwicklung der Wissenschaften in Europa zu formulieren. Sie wird sich eine Meinung bilden, und diese bei Bedarf äussern, zu dem sechsten Kaderprogramm, dem European Research Area, den Plänen der ESF und anderen 'science policy'-Aspekten.

ALLEA Report 2001 (Science, Society and Culture - Response to the proposal for the Framework Programme 2002-2006 of the European Community)

- ALLEA recommends that the reasons given for strengthening the European Research Area be supplemented with an observation on the intrinsically transnational character of scientific research.
- The close connection between and interdependence of research and education (no good science education without high-quality research, and no future for research without well-trained and interested young graduates) implies that the European Research Area needs a European Educational Area. This would include the promotion of science at primary and secondary schools, raising interest in science among students of the next generation, and improving the career opportunities and prospects of (young) scientists.
- Before offering our response to the 'Proposal for a decision of the European Parliament and of the Council concerning the Multi-annual Framework Programme 2002-2006', we would emphasise that the realisation of the European Research Area is not exclusively a matter of the next Framework Programme. We need to coordinate the best and most effective elements of and contributors to European research, whatever their specific context.
- Strengthening the foundations of the European Research Area offers another valuable means of stepping up the coordination of European research. It is only in such a wider setting of support for research, including the support offered by national funding agencies, that it is possible and acceptable to focus in the next Framework Programme on a limited number of priority areas, as these will exclude large areas of relevant, promising research.

ALLEA Annual Report 2001 (The role of an Academy of Sciences and Humanities, P.J.D. Drenth)

- Moreover, collaboration and collective efforts can strengthen the competitiveness of the higher level gremium (e.g. Europe), a basic argument for Commissioner Busquin to promote the 'European Research Area', with a complementary character and added value vis-à-vis the national research programs.
- ALLEA has tried to act as such an intermediary with respect to the recent proposals of the European Commission (the European Research Area, and the 6th Framework

Programme). After extensive consultation with its members ALLEA has offered a comprehensive commentary on the 6th FP proposal to EU Commissioner Philippe Busquin (ALLEA, 2001).

National Strategies of Research in Smaller European Countries, Working Group Report, 2002

- The ALLEA Working Group stresses the following (...) The consolidation of national S&T strengths and the strengthening of a proper funding system for R&D is of primary importance for meeting national needs and for meeting the goal of a European Research Area.
- Given this, a vital question arises: how to progress towards a better organisation of research in Europe as a whole? "The idea is to create a European Research Area." It is clear that all the national strategies of research play an important role on the European stage. Only by strengthening the research potential at a national level can the goals of a European Research Area be realised to their full potential.
- The broader question is, however, how to interweave national strategies into a unifying pattern of Europe. This question is extremely important (and timely) in the framework of the European Research Area.
- Certainly, beside the network of centres of excellence, a strong computer network and e-libraries should also be supported. This all could strengthen the European Research Area not by general policy but by flexible contacts.

European Research Council. Position of All European Academies (ALLEA), 2002

- The implicit goal of the ERA (the creation of a European research funding mechanism by pooling of EC funding and national resources) should be endorsed.

ALLEA Biennial Yearbook 2002 (Foreword)

- As Europe is on its move towards the *European Research Area* the ALLEA Biennial Yearbook 2002 deals most appropriately with the issue of 'Quality in Science'. In fact the European Research Area addresses the issue of quality in science in two ways. We all know that high quality research is increasingly complex and increasingly costly. Challenges resulting from this development can only be met if adequate framework conditions are created, enabling researchers to perform work that is not only intellectually of high standard but also able to contribute to the solution of major societal or economic problems.

These favourable framework conditions range from the availability of adequate financial resources to first class research infrastructures: from well-trained, motivated and internationally orientated researchers to rules and regulations protecting their intellectual property.

The creation of such conditions lies far beyond the reach of individual research institutes and even of whole countries. This is why the issue needs to be taken up at the European level. The ambition of the European Research Area is therefore to make sure that all the necessary efforts – private and public, regional, national and European – converge towards one and the same objective, which is putting Europe in a position to become the most dynamic and most competitive knowledge-based economy worldwide. For this to happen research and technological developments of the highest quality are a *sine qua non*.

ALLEA Biennial Yearbook 2002 (Quality without Quantity, J. Engelbrecht)

- The idea of the European Research Area (EC Communication, 2000) fosters this conception. Many institutions, such as the European Science Foundation, CERN, EMBO, Academia Europaea are developing programs to support collaboration among various actors. ALLEA has an important role to unite the voices from national academies fostering science and humanities.

ALLEA Biennial Yearbook 2002 (Will/May quality suffer from moral demands, G. Toulouse)

- Our Committee has made a plea in favour of an *Amsterdam+7 Conference*, which would build on the landmark of the previous event to start the tradition of a regular series of European gatherings, devoted to collective reflection on deep and important issues, in symbiosis with the establishment of a European Research Area.

ALLEA Annual Report 2003 (Does science matter?, Pieter J.D. Drenth)

- Does science matter? In a more serious vein, affirmative answers to this question can also be heard from responsible official sources: 'Relevant science' is one of the corner stones of European Commissioner Busquin's successful plea for a European Research Area.

ALLEA Annual Report 2003 (Recent Developments in European Science Policy: ALLEA's Point of View, Pieter J.D. Drenth)

- In January 2000 the European Commissioner for Research, Philippe Busquin, launched an in the meantime well known and widely discussed grand idea: the European Research Area (ERA), a truly European vision on the promotion and furthering of research in Europe.

ALLEA Biennial Yearbook 2004 (Presidential Address to the General Assembly Brussels, March 26, 2004, Pieter J.D. Drenth)

- In this context we published a (well received) memorandum on the potential tension between the principle of competition for excellence and the objective of equal development and access to the European Research Area. On the one hand we pleaded for strict adherence to the principles of a true European competition as well as for quality as the sole criterion and, on the other hand, for the reservation - earmarked, if possible.

ALLEA Report Evaluating for Science. Processes & protocols, 2005

- In his Foreword to the ALLEA Biennial Yearbook 2002 European Commissioner Busquin complimented ALLEA for dealing with this topical issue of 'quality', which is in keeping with a central theme of the European Research Area. The creation of favourable conditions for Europe to become the most dynamic and competitive knowledge-based economy in the world lies far beyond the reach of individual research institutes or even whole countries and needs, therefore, to be taken up at the European level.

- In addition to the developments already discussed, an attempt to identify the ESF's position in Europe's S&T landscape must consider the consequences of current developments related to the building of a European Research Area (ERA). One of these consequences will involve new alignments and closer working relations between existing European initiatives and, by implication, a further blurring of the niche boundaries between such initiatives.

Excellence and equal access to the European Research Area. Position paper of ALL European Academies (ALLEA) with regard to the further development of the European Research Area after the incorporation of the Accession Countries into the European Union, 2005

- In the preliminary reactions of the European Commissioner Busquin and the Director of DG Research Mitsos to the work of the ERCEG and in their further views on the European funding of fundamental research, emphasis is repeatedly placed on the idea of fostering basic research solely on the basis of competition without a requirement of collaboration or the fair distribution of funds between member states. As the sole criterion for the acceptance and funding of research proposals, open competition, international peer review, and scientific quality undeniably comprise a *sine qua non* for the promotion of top-level research in Europe

Investing in Knowledge in Europe. Reflections of ALLEA / All European Academies on the proposals for the Seventh Framework Programme 2007 – 2013 of the European Commission, 2005

- The knowledge and the skills bases of Europe are probably its richest resource, but they need to be carefully developed and exploited if they are to provide an important and necessary stimulus to Europe's growth and development. Much of the funding for the development and exploitation will continue to be found locally, but there is a need to coordinate and develop Europe-wide competences if the knowledge base is to achieve its potential. In general, we believe that the proposals for FP7, as set out in the recent draft communication, are a major step forward in this programme's catalytic role. In particular, ALLEA strongly supports the proposal to double EU research funding and the longer-term nature of the programme. ALLEA also welcomes the proposals relating to the European Research Council, the continuation of a number of successful elements from the previous Framework Programmes, as well as the plans to bring a number of changes and improvements into force as suggested by both participants and experts.

- The successful ERA-NET scheme, which commenced under the FP6 regime, should be continued and further strengthened. Given its success and advantages for the National Research Councils, the ERA-NET+ proposals deserve endorsement. ALLEA assents to EU financial support being offered to European intergovernmental research organizations if their research is beneficial to the European Union.

- It should be recognised that the Framework Programme, particularly the strategic cooperative component, is directed at supporting significant European policy issues and at developing the EU economy in its widest sense. ALLEA endorses the inducement offered to research with an international (in this case, in particular, European) *collaborative* character in view of the trans-national (EU-level) approach's added value.

- It [ALLEA] particularly wants to emphasise the importance of the embedding of the social/ethical view in the regular projects and programmes. The objectives of ensuring public confidence in European research and its applications, of strengthening the scientific workforce and providing better career opportunities in science, and of developing trust in and appreciation of science through various policy-related initiatives and well monitored communication can best be achieved by the integration of 'science in society' throughout the whole 7th Framework Programme,

Investing in Knowledge in Europe; taking up the FP7 gauntlet, 2005.

-ALLEA particularly welcomes the proposed support for fundamental, investigator-driven research in all scientific, scholarly and technological domains, including social sciences and the humanities.

- ALLEA fully agrees with the Commissioner's views that stimulation of research and development is one of the crucial conditions for the realisation of the Lisbon objectives. Europe will only achieve competitiveness and leadership in the global market if it takes the lead as a knowledge economy and society. The development of knowledge - and especially new knowledge - is a *sine qua non* for the future of Europe.

ALLEA Annual Report, 2005

- During the last 4 years the European Commissioner for Research Busquin has stimulated European scientific collaboration and performance by defining the conditions and objectives of the European Research Area and by developing the so-called Framework Programmes into its most significant incentive system.

ALLEA Document 1: History and Development. Unity in Diversity, 2006

- Since 1999, an increasing number of advisory activities and actions have become visible. The following distinction should be made with respect to the nature of the issues involved in such advisory activities: Science for Policy, and Policy for Science.

(a) A special provision with respect to Science for Policy advice has been realised through the creation of the European Academy of Sciences Advisory Council (EASAC). EASAC is an advisory council consisting of representatives (Presidents or special delegates) from the 25 European Union countries' Academies. Members are appointed ad personam, and EASAC can, therefore, act more quickly on actual policy issues for which scientific input can be important or valuable. ALLEA's President is a member of EASAC.

(b) With respect to European Policy for Science, ALLEA has become increasingly active since 2000. ALLEA:

- * developed a number of partnerships and memberships, including EuroCRIS (Current Research Information Systems in Europe), the ISE (Initiative for Science in Europe), ESF (an observing member of the Council of the European Science Foundation) and EASAC;

- * contributed to the formulation and distribution of policy statements and advice (on its own, or jointly with Academia Europaea, EuroScience, the European University Association (EUA), the European Academy of Sciences and Arts, the ISE and others) on the importance of support for science, on the indispensability of fundamental research, on the need to acknowledge science and scholarship in the European Convention, and on the need for a European Research Council (ERC);

- * communicated with the European Commission, the European Council of Ministers of Science and Education, and the European Competitiveness Council, among others, on the importance of (an increased budget for) science and research;

- * completed its task of formulating extensive reactions and reflections on the Framework Programmes on behalf of the European Academies of Sciences and Humanities; it published a reaction to FP6 in 2001, and to FP7 in 2005;

- * addressed the issue of collaboration between scientists and academies in presentations at conferences on this theme (Kiev 2001, 2004), as well as the importance of regional collaboration (SE-Europe, Budva, 2004, Baltic region, 2005) and science for détente and peace (Skopje, 2001, Paris, 2001);

* carried out an evaluative review of two Standing Committees of the European Science Foundation (2003), and published a book on science evaluation, based on this experience.

In addition, ALLEA was asked to participate in conferences, workshops or symposia, and to present ALLEA's views on matters of science policy.

Walks in the garden of science (anthology of addresses by ALLEA President Pieter Drenth, 2000 - 2006), 2006

- ALLEA has tried to act as such an intermediary with respect to the recent proposals of the European Commission: the European Research Area (Busquin, 2000), and the 6th Framework Programme (EC, 2001). After extensive consultation with its members ALLEA has offered a comprehensive commentary on the 6th FP proposal to Commissioner Busquin (ALLEA, 2001).

ALLEA Report 'In Search of Common values in the European Research Area', 2006 (J.P. Connerade)

- It is an open question whether there are common values in the European Research Area today, what these values are, and what they should be in the future. Somehow, Europeans agree more about their own diversity than about any other subject

Qualitative Analysis of the ALLEA | ERA Survey

Q 1: Are you pleased with the idea and targets of ERA?

- In general, the respondents are pleased with the ERA project
- The target of 3 % of GDP is clearly aspirational, but rather unrealistic
- Balance between basic and applied science should be strived for. Emphasis too much on utilitarian policy measures
- The field is still very fragmented, which ALLEA should help to overcome
- ERA is more than the EU or EC and a major challenge in terms of the development of European collaboration.

Q 2: Have Academies and ALLEA as a whole helped creating the ERA?

- In general, European Academies have long promoted international co-operation, but have – with exceptions - not been extremely pro-active in terms of helping to build the ERA
- Comparatively, ALLEA is still young but has the potential to form the platform per excellence to represent the voice of Academies, using the existing networks of co-operation
- Presidents of ALLEA – past and present – have participated actively in ERA debates and related initiatives of the European Commission. Such activities lend credibility to all Academies.
- So far, ALLEA has issued a number of useful statements and position papers, of importance for ERA.

Q 3: What contribution has your Academy made to ERA?

- By creating clear political commitment, academic research has achieved greater importance. Through a system of scholarships greater mobility of researchers and international coordination is encouraged.
- Contributions through participation in several projects, *e.g.*, Science Generation, and organization of Brussels' seminars, *e.g.*, Shaping the future of Information Technology
- Contributions via European scientific co-operation, policy inputs (*e.g.* ERC), and advice government on education and research policy.
- Contribution via initiation and coordination of the CO-REACH ERA-NET
- Organization of regional conferences, *e.g.*, SEE
- Network of contacts with Europe, regularly used to support and promote international collaboration
- Through its funding role, the Academy contributes to European collaborative research
- Policy input, *e.g. re* European Research Council
- CO-REACH and ERANET
- See text of Estonian Academy of Science. Key words are: Participation in working groups and advisory bodies; Researcher's mobility; Funding and operation of scientific exchange programs, Participation in ERA-MORE; Awareness campaigns, Regrouping EU support and national funding, Partner in ERA-NET Complexity

Q 4: Are you satisfied with the progress of ERA?

- In general, Academies are satisfied, but there are also caveats: don't force the pace on such developments, or be discouraged when aspirational targets are not met
- Some progress has been made, mainly at the practical levels of cooperation and collaboration between national funding organizations and policy convergence between member states.
- However, partners, outside of Europe, still look at European S&T as a fragmented area, characterized on the whole by complex and bureaucratic procedures.
- When ERA started globalization was not taken into account
- It may be vital to have much more political support at a very high level: real governmental promotion of the ideals and practicalities of the ERA and a willingness to make national changes for the benefit of a European whole

Q 5: What is the role of education in ERA?

- In general, education is not the area on which ERA is aiming. Nevertheless, at the higher education level, research and teaching are intimately connected, and have to be taken into account when considering the overall structure and funding of European research.
- Important issues are: international student/professor mobility; need for a highly skilled workforce; (post)doctoral studies crucial for successful development of ERA; early development of European networks for doctoral students, for example, via summer schools, seminars, conferences, etc.
- Good-quality university education is an obligatory precondition for later successful research; the internationalization of higher education is an ongoing process and its role in ERA needs hardly any discussion, unless it is underestimated by some stakeholders.

Q 6: What are the weak links in the triangle: *Academy – Innovation - Education*

- In general, the Academy sees its role first and foremost in the promotion of basic sciences, and to a lesser degree in the evaluation and stimulation of potential application of technological innovations. However, the distinction between basic and applied science is rather artificial and will slowly fade away.
- Weak links are: Academy – Innovation (but see above); the graying of most Academies (for which there is no simple solution); the not very dynamic character of European business;
- Examples of strengthening weak links: development of resources for research collaborations between universities and SMEs; greater dissemination of the outcomes of research; greater communication of the importance of scholarship and science, with a view to feeding into both innovation and education

Q 7: What could Academies and/or ALLEA do for the ERA in coming years?

- Participation in the evaluation of FP7 results and further development of the coordination of R&D in Europe
- Strengthen the national interest for European collaboration
- Advise the Commission and national governments on policies for research and teaching policies
- Active collaboration with the ERC
- Promote collaborative research oriented towards the development of a European knowledge society
- Advise European policymakers about the gaps and pitfalls in ERA

- Enhance studies leading to progressive balance between fields of the sciences & technology on the one hand, and studies of culture, including humanities, social sciences and history on the other
- Develop ERC into a strong funding agency like NSF/NIH in the US
- Promote integration of South-Eastern and Eastern European Academies into ERA
- Strengthen fundamental and frontier research, cooperation in research on: climate evolution and energy sources – biological and genetic sciences
- Encourage academies to work together, preferably via bottom up approach instead of top down programmes and plans
- Provide advice to pan European organizations and ensure that ALLEA's voice is heard regularly in Europe on European and wider international issues
- Academies can act as think tanks in shaping national strategies for achieving the aims of the ERA. ALLEA could focus the Academies and provide a forum for various scenarios and formulating common strategies, also identifying the best practices in moving towards the common aims.

Q 8: Any other comments, Academy statements, etc.

- Put knowledge into practice
- ERA (some add innovation to the acronym ERIA) is not only a formal mechanism, but also pointing at cooperation in general with partners in other European member states and European organizations as well
- The ERA is an extremely important concept in encouraging the development of a European single unit – not in the sense of all being a single country, but in having coherent integration of national systems. Fragmentation is a major problem, and linguistic differences tend to increase the likelihood of this. Academics and scientists do work together already, in a wide range of ways; but much more needs to be done to break down both national barriers (between institutions within a country) and international ones (between different countries). The ERANET programme has been criticized by scientists for putting money into administration rather than research, but without a much closer integration of national systems it is hard to see how the ERA ideal can be achieved.

ALLEA Publications

In Search of Common Values in the European Research Area

Proceedings of the Conference on Common Values in the European Research Area in Amsterdam, The Netherlands, 19 - 20 May, 2005.

Drenth, P.J.D., Honnefelder, L., Schroots, J.J.F. & Sitter-Liver, B.

2006 | ISBN: 90-6984-504-0 | 228 pp.

Annual Report 2005

Drenth, P.J.D. & Schroots, J.J.F. (Eds).

Contains papers and presentations (a.o. Pieter Drenth and Francois Rigaux), representations and communication and the ALLEA members list.

2006 | ISBN: 90-6984-472-9 | 177 pp.

Walks in the Garden of Science. Selected Papers and Lectures of Pieter J.D.

Drenth, President ALLEA 2000 - 2006

Drenth, P.J.D.

2006 | ISBN: 90-6984-471-0 | 254 pp.

Biennial Yearbook 2004. Critical Topics in Science and Scholarship

Drenth, P.J.D. & Schroots, J.J.F. (Eds.)

2005 | 283 pp.

Investing in Knowledge in Europe.

Reflections of ALLEA | All European Academies on the proposals for the Seventh Framework Programme 2007 - 2013 of the European Commission

Drenth, P.J.D.

2005 | 41 pp.

Annual Report 2003

Drenth, P.J.D. & Schroots, J.J.F. (Eds.)

2004 | 144 pp.

Evaluating for Science: Processes & Protocols

Hackmann, H., Drenth, P.J.D. & Schroots, J.J.F.

2004 | 174 pp.

Excellence and Equal Access to the European Research Area

Drenth, P.J.D.

2004 | 5 pp.

Biennial Yearbook 2002. Quality in Science

Drenth, P.J.D. & Schroots, J.J.F. (Eds.)

2003 | 216 pp.

Memorandum on Scientific Integrity. On Standards for Scientific Research and a National Committee for Scientific Integrity (NCSI)

2003 | 22 pp.

Annual Report 2001

Drenth, P.J.D. & Schroots, J.J.F. (Eds.)

2002 | 77 pp.

National Strategies of Research in Smaller European Countries

Engelbrecht, J. (Ed.)

2002 | 100 pp.

Privacy Protection in the Information Society

Tabatoni, P., Bell, J., Del Campo Urbano, S., Franken, H., Rigaux, F., Terré, F. & De Woot, Ph. (Eds.)

2002 | 146 pp.

Science, Society and Culture.

Advice to the European Commission concerning the concept of the 6th Framework Programme

Drenth, P.J.D. & Drees, W.B.

2001 | 16 pp.

European Science and Scientists between Freedom and Responsibility

Conference proceedings, organised by ALLEA, 2-3 December 1997.

Drenth, P.J.D., Fenstad, J.E. & Schiereck, J.D. (Eds.)

1999 | ISBN: 92-828-6873-7 | 188 pp.

Basic Research in Society

Germain, P. (Ed.)

1996

Research Training and Higher Education in Europe

Jacobson, C.-O. (Ed.)

1996

List of Acronyms

ALLEA	- All European Academies, the European Federation of National Academies of Sciences and Humanities;
AS	- Académie des Sciences, Institut de France;
BA	- British Academy;
DG	- Directorate General;
EASAC	- European Academies Science Advisory Council;
EC	- European Commission;
EIT	- European Institute of Technology
ERA	- European Research Area;
ERA-Net	- European Research Area's networking & collaboration instrument;
ERC	- European Research Council;
EU	- European Union;
FP7	- The Seventh Framework Programme for Research (EC);
GDP	- Gross Domestic Product;
GMO's	- Genetically Modified Organisms;
IPR	- Intellectual Property Rights;
KNAW	- Koninklijke Nederlands Akademie van Wetenschappen / Royal Netherlands Academy of Arts and Sciences;
NASAC	- Network of African Scientific Academies;
R&D	- Research and development;
RSA	- Royal Swedish Academy of Sciences;
RSL	- Royal Society of London;
SEE	- South Eastern Europe.

