



THE ERAB 2030 MILESTONES

Building the European Research Area is a long and difficult task - and for that we need a plan. ERAB's strategic vision is described in its report, 'Preparing Europe for a New Renaissance.'

To put it in concrete terms, here we list **26 goals and 76 recommended actions** which we believe to be important steps on the road to a united and innovative ERA by 2030. They are **divided into four broad themes**, corresponding to scheduled sessions in the Seville conference. For all these milestones, we ask whether they are ambitious enough, and how they would be implemented.

Read the full ERAB strategy paper here: http://ec.europa.eu/research/erab/pdf/erab-first-annual-report-06102009_en.pdf

THEME I: UNITED ERA IN A GLOBAL WORLD

ERAB Vision: goals by 2030	Recommended Actions	Impact by 2030
<p>1. The EC's share of ERA-wide public, non-military research funding doubles to 10%.</p>	<p>1.1 The current funding for thematic research programmes is maintained to at least the present levels (Cooperation programme).</p>	<p>The innovation gap with the US and other innovation leaders is reduced to zero and Europe acts as a role model in research and innovation with respect to addressing the "Grand Challenges", such as climate change, energy supply and ageing societies.</p> <p>Europe increases its share of top-ranked universities (see theme IV) and becomes more attractive for private investment on research.</p>
	<p>1.2 The overall research budget is increased by adding a tenth of a percentage point to VAT, for the benefit of research into grand challenges.</p>	
	<p>1.3 30% of the Structural Funds are used for research, development and innovation (RDI), 10% of the Common Agricultural Programme budget goes specifically to agricultural research dedicated to agri-based issues in food, health and energy.</p>	
<p>2. There is a significant increase in the coordination of scientific research grant programmes across the ERA, to at least 10% of funding.</p>	<p>2.1 A European grant union between member states and the EU exists with a global outlook, driving joint initiatives.</p>	<p>Europe maximises the impact of research and innovation.</p>
	<p>2.2 Strengthen EIT in coordinating grant programmes in specific fields.</p>	
	<p>2.3 Increase investment on European Research Infrastructures.</p>	
	<p>2.4 An ERA-wide monitoring system tracks all joint initiatives (from bi-national to all), joint programming, intergovernmental organisation and cross-national shared infrastructures.</p>	
<p>3. Mobility triples, with up to 20% of EU doctoral candidates working outside their home country.</p>	<p>3.1 Funding for Marie Curie-type programmes increases.</p>	<p>Young researchers develop a truly European career in research and innovation in order to strengthen the ERA and Europe's competitiveness.</p> <p>At least 30% of young researchers come from outside of Europe.</p>
	<p>3.2 English is the standard for PhD and other postgraduate studies whenever relevant.</p>	
	<p>3.3 Barriers to the cross-national movement of scientists and families no longer exist. Financial incentives are there for researchers willing to be mobile.</p>	
	<p>3.4 A European research passport/visa for successful non-European researchers exists which enables them to move easily around Europe and which encourages non-Europeans to come to ERA centres of excellence.</p>	

4. The fiscal regime for R&D and innovation incentives is optimised across the EU.	4.1 Optimise fiscal and social benefits for industries employing significant numbers of researchers.	A dynamic and truly European climate for research investment exists so that more companies will choose Europe as their hub for RDI.
	4.2 The design and implementation of state aid and procurement rules are optimised to have the biggest impact on entrepreneurial activities. Create a strong European innovation demand (Aho Report).	
	4.3 A pan-European unified market for cross-national, research-related investments (including risk/venture capital) is created.	

THEME II: SCIENCE, SOCIETY AND POLICY

ERAB Vision: goals by 2030	Recommended Actions	Impact by 2030
<p>5. A third of public, non-military research is geared to grand societal challenges, with multi- and trans-disciplinary approaches.</p>	<p>5.1 The increase in funding as proposed under Milestone 1 is applied to this purpose.</p>	<p>ERA contributes lasting solutions to the Grand Challenges, mindful of their global impact.</p>
	<p>5.2 Europe has at least a "man/woman on the moon" project for each Grand Challenge it wants to address and gears all its instruments, including PPP, to that end.</p>	
	<p>5.3 Multi- and trans-disciplinary funding has priority for Grand Challenges research.</p>	
	<p>5.4 Training to manage multi- and trans-disciplinary projects as well as to engage the public are standard parts of research education.</p>	
<p>6. A more educated citizenry is trained in science and technology issues to be able to participate in policy debate.</p>	<p>6.1 All outputs of publicly funded research are available via 'open access' to all interested parties, and universities undertake a broader role in science communication.</p>	<p>European citizens regard the results of decision-making based on scientific research as optimal for the common good.</p>
	<p>6.2 The impact of science and technology on the innovative power of society and all kind of businesses is underpinned.</p>	
	<p>6.3 Open up universities to the public by promoting life-long membership.</p>	
<p>7. A universal code of scientific ethics is adopted by the whole European research community, enunciating social responsibilities as well as intellectual freedoms.</p>	<p>7.1 As part of the contract between science and society, a code of ethics is in place akin to the Oath of Hippocrates for medical practitioners.</p>	<p>Rigour (in decision-making), Respect (for fellow man, colleagues and world), and Responsibility (for action) drive the relationship between science and society.</p>
	<p>7.2 All scientists sign this ethical code when starting their graduate studies.</p>	
	<p>7.3 The code of ethics is part of EU treaty.</p>	
<p>8. 30% of all scientists, including those in the humanities and social sciences, are trained in research fields relevant to the Grand Challenges.</p>	<p>8.1 European funding for Masters and PhD training focuses on the Grand Challenges, including attendance at cross-disciplinary summer schools.</p>	<p>The critical mass of students educated in the Grand Challenges is increased and a better linkage between investment in research and education is a reality. The Grand Challenge researcher is an accepted and widely present researcher profile with full career opportunities.</p>
	<p>8.2 Internships in the business and public sector are part of the standard research curriculum.</p>	

<p>9. The tools of 'e-science' are deployed throughout the ERA, permitting international collaboration so that all researchers will see themselves as part of the global research system.</p>	<p>9.1 An EU central depository for publications in all areas of EC-funded research is operational.</p>	<p>Open Access and virtual science are fully embedded practices in European research.</p>
	<p>9.2 Paper transactions as a means of communication between researchers and public funding organisations are minimised.</p>	
	<p>9.3 EC funds prioritise on-line, postgraduate inter-university programmes as well as on-line joint research programmes.</p>	
<p>10. The EU and Member States spend up to three times as much as in 2005 on higher education, or 3.3% of GDP.</p>	<p>10.1 The increased funding (Milestone 1) is used to better match - by 2020 at the latest - the overall profile of higher education with all skills and competencies needed for a knowledge-based society.</p>	<p>A culture of science and innovation thrives across Europe.</p>
	<p>10.2 Budget priorities of Member States with regard to research are re-assessed to take into account the needs of the Knowledge Society. A reasonable timeline is deployed for monitoring, as this is a condition for complying with the Europe 2020 agenda.</p>	
<p>11. Irrespective of age, race or gender, ERA should exploit all available talent.</p>	<p>11.1 Half of all scientists and research policymakers, across all disciplines and at all levels of the science system, are women.</p>	<p>All knowledge resources that Europe has are maximised for the common good.</p>
	<p>11.2 Restrictions on the age of competent researchers should be lifted where they exist.</p>	
	<p>11.3 Specific grants are in place for parents taking up research after family leave.</p>	
	<p>11.4 Child-care provisions are compulsory for all higher-education and research institutes.</p>	
	<p>11.5 Enabling parents on family leave to take full advantage of the opportunities of e-science is compulsory and at zero cost for the beneficiary.</p>	
<p>12. The EU has a fully functioning, independent Chief Scientific Advisor, supporting its decision-making with the best available evidence, horizon-scanning and future scenario planning.</p>	<p>12.1 A clear functional specification and strong profile for the CSA (who has to report directly to the President of the EC) is defined immediately.</p>	<p>Policy decisions are evidence-based to bridge the gap between society and decision-making, and increases the public confidence in European political decisions related to science and innovation.</p>
	<p>12.2 Foresight and participatory technology assessment are standard in policy design and decision-making.</p>	

THEME III: OPEN INNOVATION

ERAB Vision: goals by 2030	Recommended Actions	Impact by 2030
<p>13. A pan-European Open Innovation Charter is signed by all major stakeholders.</p>	<p>13.1 The Open Innovation Charter is in place and is a reference in the selection criteria and guides for applicants in Framework Programme 8. Key enablers for open innovation are the guidelines of the Responsible Partnering Handbook.</p>	<p>Open Innovation is the default position for European research and the Open Knowledge Institution is an ISO standard for higher education and research.</p>
	<p>13.2 State aid rules and their interpretation are reviewed and redrafted to enable maximum flexibility in the support of research and innovation.</p>	
	<p>13.3 We achieve full implementation of the existing recommendations on intellectual property and partnership - e.g. the 2008 EC Recommendation on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organizations.</p>	
	<p>13.4 A pan-European label, "Open Knowledge Institution", for higher education and research, acts as a gold standard for excellence in innovation in the ERA.</p>	
	<p>13.5 A single, strong and credible European patent is established by 2015.</p>	
<p>14. Overall R&D funding rises to 5% of GDP, of which industrial R&D accounts for two-thirds.</p>	<p>14.1 Implement the wide range of policy measures necessary at European and national levels to improve framework conditions - and hence expected returns - for private investments (including venture capital) in R&D and innovation. Promote Private Public Partnership (PPP) to stimulate investments in the development of new technologies.</p>	<p>The Grand Challenges create a strong market demand for innovative products and services to "pull through" innovation and trigger more public and private investments in the Knowledge Triangle.</p>
<p>14.2 A reasonable time line is deployed (and monitored) to make sure there is a doubling of government expenditure on R&D to reach 1.7% of GDP by 2030, and a tripling of business expenditure on R&D to reach 3.3% of GDP by 2030. In these calculations the contributions of EU funding are included.</p>		

<p>15. 2% of public procurement ERA-wide is earmarked for innovative and pre-commercial technologies, and is open to European-wide competition.</p>	<p>15.1 Expand the EU Lead Market Initiative (also addressing societal challenges) and stimulate Member States to participate more actively, while developing similar initiatives at national level. Develop metrics to monitor public procurement of innovative technologies that are commercially viable and do not require further R&D, and systematically gather data on public procurement of R&D.</p> <p>15.2 Explicitly make public procurement a policy vehicle to promote R&D and innovation, comparable to the Green Public Procurement approach. Encourage governments to bundle public procurement among Member States in order to create more interesting markets. Specify functional performance rather than technical details in procurement tenders.</p> <p>15.3 2020: Pre-Commercial Procurement (PCP) of R&D is mainstreamed at national, regional and local levels and public procurers have tools for managing rather than avoiding risks.</p> <p>15.4 Complement Pre-Commercial Procurement at national, regional and local levels with the introduction of an SBIR scheme at European level, fully open to participation by procurers and suppliers across the EU.</p> <p>15.5 Make (part of) EU co-funding in the context of the Structural Funds conditional on procurement of innovative technologies and R&D. This is also a means of gearing cohesion policy more towards stimulating R&D and innovation.</p>	<p>New technologies are available and used for dealing with the Grand Challenges.</p>
<p>16. Mobility of researchers between the public and private sector is high.</p>	<p>16.1 A doubling in industrial funding of academic research from 6.7% in 2006 is achieved by changing the structural interactions between private and public funding.</p> <p>16.2 Marie Curie schemes are expanded to support professional or industrial doctorates.</p> <p>16.3 Industrial achievements are fully taken into account for academic career paths. A code of best practice is there to monitor this.</p> <p>16.4 Legal and fiscal barriers no longer disadvantage the movement between public and private sectors.</p>	<p>Public-private research portfolios and careers are common.</p>

17. Risk capital available for early-stage technology rises up to 0.15% of GDP.	17.1 Large pan-European venture capital funds, co-financed by the private financial sector, are active, and funding of the EIF is expanded to match other continents (taking into account increased support from the European Commission, EIB and other public funding sources).	More start ups can grow out of the "valley of death".
	17.2 Fiscal, regulatory and bureaucratic obstacles to cross-border risk capital investments are removed.	
	17.3 In addition to the EIB a pan-European seed capital fund supports proof of concept and early stage development.	

THEME IV: AN ERA TO DELIVER EXCELLENCE AND COHESION

ERAB Vision: goals by 2030	Recommended Actions	Impact by 2030
18. 50% of EC research funding is going to frontier, high-risk research and development.	18.1 Develop a pan-European Training Programme that helps reviewers, auditors and researchers to identify and select promising high-impact research even if there is an associated risk.	The more complex needs of excellent frontier research, providing maximum benefit, are understood.
	18.2 A protocol stipulating a level of tolerable risk in research is agreed upon and applied to research performance-related auditing processes.	
19. Europe increases its share of top-ranked universities to up to 40% of the top 20 & 100 rankings, and increases its most-cited research world wide by a third.	19.1 The European higher education system is functionally diversified (teaching, research, technical skills). Fact-based metrics flag those groups that have high impact in R&D specifically in Grand Challenges. The EC supports this accordingly.	Europe's higher education system is globally competitive.
	19.2 Member States revisit the statutes/governance of their universities with a perspective to contribute to a competitive and excellent ERA.	
	19.3 To achieve a European-wide increase of standards, collaboration between higher and lower ranked universities is supported in all areas.	
20. The governance system for European research funding will be based on a set of arms-length agencies, as part of an 'ERA of Agencies'.	20.1 A functional system of coordinated agencies to support ERA is created, with the establishment of agencies for fundamental research, applied research, research infrastructures, training and mobility, policy and strategy and exploitation/valorisation of research.	The ERA is operational on a distributed agency model, governed on the basis of excellence and flexibility.
	20.2 Co-ordination is strengthened while governance is attributed on the basis of competence and not necessarily source of financing.	
21. Funding for public, non-military research is increasingly concentrated in research-intensive institutions.	21.1 A restricted number of European research institutes with enough critical mass for research and an ambition of global excellence is agreed on.	At least 50 of our innovation clusters, out of about 2,000 clusters large and small today, are world leaders in scale and quality.
	21.2 The potential of locating infrastructures in countries that have a deficit of representation in top-ranked institutions should be explored also through the use of structural funds.	

<p>22. The share of the EU budget devoted to research triples to 12%.</p>	<p>22.1 More Structural Funds progressively go to support leading-edge research.</p> <p>22.2 A 10-year funding scheme (diminishing over that time period) is in place by 2015 to support specific collaboration between research centres and universities in emerging economies with top EU centres elsewhere.</p> <p>22.3 Grant and project competitions targeted to Member States with GERD below the EU average are put in place to stimulate quality groups through competition and thus bridge the gap with Europe's leading research locations. Selection however will be on the basis of excellence criteria only as in the current ERC competitions.</p>	<p>Current deficits, in comparison to countries that are leaders in enterprise, are corrected. All European talent, irrespective of its geographical location, contributes to a successful European economy.</p>
<p>23. At least 30% of the Structural Funds are used exclusively for RTD (fostering partnerships, supporting pre-commercial procurement and investing in large-scale research infrastructures where needed) – double the current allocation.</p>	<p>23.1 Actions aimed at delivering this goal should be initiated without delay with particular emphasis on investing in Infrastructures that are accepted by the ESFRI system.</p> <p>23.2 Cost-benefit analysis on any expenditure for RTDI should fully take into account the significant contribution of intangible assets of research that contribute significantly to tangible outcomes such as jobs etc.</p>	<p>Excellent research facilities and research activities are equally distributed and accessible across Europe.</p>
<p>24. More than 75% of the overall EU budget is oriented towards investing in its future as a knowledge-based society.</p>	<p>24.1 Funds for successful partnering models that foster good governance and innovation are available.</p> <p>24.2 A roadmap outlining a holistic approach to get to this target is needed by 2012. European Society and Enterprise will need RTDI in all sectors and RTDI therefore cannot be considered in a siloed manner associated with a single Directorate General. Hence each Commissioner will have to integrate RTDI into their plans, and the budget associated with it included in the calculation of overall RTDI expenditure.</p>	<p>The EU budget effort fully reflects the needs of a knowledge-based society and economy.</p>
<p>25. The major research institutions of the well-developed regions of Europe work in partnerships, based on excellence, with those of the lesser-developed regions.</p>	<p>25.1 Special funds are available to support successful partnering models that foster good governance and innovation.</p> <p>25.2 Incentives to promote durable inter-university collaborations in complementary converging fields are particularly welcomed.</p>	<p>The impact of ERA is delivered by the actions of all regions of Europe.</p>
<p>26. Half of the adult population has achieved tertiary education – double today's rate.</p>	<p>26.1 This is essential to achieve an innovative EU 2020.</p>	<p>A significantly higher number of Europeans will contribute to an innovation-based economy and society.</p>