

acatech - NATIONAL ACADEMY OF SCIENCE AND ENGINEERING

POSITION PAPER

> COMMON STRATEGIC FRAMEWORK
FOR RESEARCH AND INNOVATION

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CONTENTS

I. PREAMBLE	3
II. OBJECTIVES AND AIMS	3
III. FRAMEWORK	4
1. Participation of all member states	4
2. New models of the interplay between structural funds and the Strategic Framework for Research and Innovation	4
3. Radical simplification and acceleration of funding system processes	4
4. Increased participation of industry	5
IV. INSTRUMENTS	6
5. Accounting for the growing importance of social sciences and humanities	6
6. Human capacity building and intensified support of young scientists	6
7. Strengthening an independent European Research Council (ERC)	7
8. Establishment of a European Innovation Council (EIC)	7
9. Promotion of international cooperation	7
10. Budget increase to 100 billion € over 5 years	7
V. CLOSING REMARKS	8
EXPERT GROUP	9
CONTACT	10



I. PREAMBLE

acatech embraces the objectives of the Europe 2020 Growth Strategy. In particular, acatech considers the integrative approach of interlocking research and innovation as an excellent strategy to support European competitiveness ("Innovation Union"). A holistic understanding of innovation is necessary to achieve this goal: innovations must be seen as results of the interaction between scientific discoveries, technological applications, economic strategies, political decisions and social preferences. The interplay of these forces allows the successful introduction of new products, processes and services into the market.

The concept of unifying research and innovation reflects the essence of the mission of acatech. acatech provides a forum for exchange between academia, business and industry, politics and the public, and thus unites the impulses that drive innovation. Therefore, acatech is committed to promoting the integrative innovation policy of the EU.

This position paper is intended to help define the scope, structure and content of the Common Strategic Framework for Research and Innovation. In preparing this, acatech has taken advantage of the combined expertise of its members, who represent industrial companies, research organizations and higher education institutions.

II. OBJECTIVES AND AIMS

acatech supports the prime objectives of the Europe 2020 Strategy, in particular to address the Grand Challenges, such as the ageing society, energy, security, migration and health, that will increasingly confront the citizens of Europe in the years ahead. These Grand Challenges represent both scientific and economic opportunities. They are global challenges, and thus compel Europe to act on a worldwide scale, with both academia and industry assuming their respective responsibilities. The principle of excellence must be unequivocally respected and an adequate balance between curiosity-driven and demand-driven research should prevail. Thus, both basic and applied research is required and bridges between them have to be built so that Europe may attain its ambitious goals.

A clear signal for emphasizing this strategy is to rephrase the term "Innovation Union" to "**Research and Innovation Union**". This new term signifies on the one hand the need for a closer interaction between research and innovation, and indicates on the other hand the significance of research and innovation for the European Union member states.



III. FRAMEWORK

1 *Participation of all member states*

Europe has defined the EU-Strategy 2020, which aims at intelligent, sustainable and inclusive economic growth with high levels of employment and productivity. To achieve these goals and to support European competitiveness, it is absolutely necessary to engage the scientific and industrial excellence **of all** European Union member states. It appears, however, that the wealth of expertise of the EU12 member states is not yet fully mobilised. The joint participation of all member states is in the scientific, economic and political interest of each individual member state. Thus, the involvement of EU 12 member states should be increased.

Measures to improve participation of the EU 12 member states comprise:

- Development of tandem initiatives to promote research and innovation which involve at least one EU 12 and one EU 15 member state, e.g. new structures, joint research and/or innovation projects, mobility measures, best-practice exchange. A financial incentive should be established to motivate the EU 15 member states to participate in those initiatives. Successful tandem projects or other forms of cooperation's could constitute a basis for funding structural capacities of the involved EU 12 member states.
- Promotion of human capacity building and entrepreneurship development.
- Strengthening of bilateral joint innovation and technology transfer structures.
- Stimulation of networking activities to foster cooperation in a variable geography.
- Offering special assistance in the field of application proposals and management of projects funded by the European Commission.

2 *New models of the interplay between structural funds and the Strategic Framework for Research and Innovation*

Substantially more structural investment in research and innovation is essential in order to achieve the ambitious goals set out by the EU 2020 strategy. acatech recommends providing additional financial support using a portion of the structural and other European funds to foster structural investments in research and innovation. However, acatech does not advise establishing an institutional link between the Common Strategic Framework for Research and Innovation and the structural funds.

Measures to use resources of structural and other funds for investments in research and innovation structure comprise:

- Projects funded by the Research and Innovation Union could apply for the local development of research and innovation structures supported by structural funds. In close collaboration with the respective participants, the member state is responsible for the application and proper allocation of structural investments.

3 *Radical simplification and acceleration of funding system processes*

Implementation of a simple funding system is of particular importance for making participation in projects funded by the European Commission more attractive. This funding system must be governed by rules and procedures which are absolutely transparent, convincing and realistic and, over time, stable and trustworthy, thereby providing an adequate and reliable legal framework as well as the incentives necessary to attract the best. In this sense, Europe should strive to institute a funding system for the Common Strategic Framework for Research and Innovation which is even more attractive for science and industry than advanced systems currently used by experienced member states. **The implementation of this simple funding**

system requires political decisions, including the acceptance of a regulatory framework by all EU 27 member states and the European Parliament.

The new funding system should rest on three pillars:

1. Fostering a trust-based relationship between the EU administration on the one hand and science and industry on the other hand.
2. Accountability based on evaluation and feasibility
3. Acceptance of defined/managed risk levels.

Measures for simplification and acceleration comprise:

- Limitation of time from proposal submission to signature of framework grant agreement: no longer than 6 months.
- Acceptance of national definitions (e.g. for public bodies).
- Acknowledgment of recognised national accounting and management systems.
- Incorporation of clear, transparent and traceable ex-post audit practices.
- Increased deployment of a two-stage application procedure.
- Early inclusion of industry representatives' expertise.
- Funding decisions based on appropriate, target-oriented and transparent criteria.

broad scientific network and the enlargement of intercultural understanding are of high importance for companies.

It is a common and successful practice for large corporations to contract with small and medium size enterprises (SMEs). The former should be motivated to cooperate with SMEs and the latter to participate in such joint endeavours.

Measures to increase participation of industry comprise:

- Focusing on technological excellence, convincing market entry plans and the potential market impact in the selection of projects.
- Removal of constraints restricting the formation of consortia best suited to deliver results, e.g. third party participation in a flexible way; smaller project teams; funding of international cooperation.
- Permission for large-scale projects, but also for smaller consortia.
- Allowing SMEs to be associated partners/subcontractors.
- Respecting industry-specific long-term objectives.
- Leaving IP regulations to the cooperation partners, i.e. waiver of the requirement of general "open access" to results.

4 Increased participation of industry

In order to strengthen the EU's innovation potential, to implement the Research and Innovation Union and to increase Europe's competitiveness, greater emphasis must be placed on the entire value chain from basic research to innovation, demonstration and market deployment stages. Against this background the active participation of industry including SMEs is of high priority – **as there is no innovation without business and industry**. In order to increase the participation of the industry significantly, its particular needs should be given greater attention than heretofore. Industry uses the access to creativity and ideas of external partners and the bridge between basic and applied research for the development of innovative products. Furthermore, the creation of a



IV. INSTRUMENTS

5 *Accounting for the growing importance of social sciences and humanities*

The outstanding importance of technical and natural sciences for the Common Strategic Framework for Research and Innovation is beyond dispute. acatech as the National Academy of Science and Engineering is, however, aware of the fact that technical innovation can be even more successful through innovation processes in other areas of society as well. A better public understanding of science, improved acceptance levels for technological change, innovation culture, lifelong teaching and training, effective governance and public administration, meeting the challenges of demographic change and migration, and a modern concept of knowledge management for the knowledge society: these are but a few of the key issues we are facing. Beyond that, traditional values such as the high level of scientific, cultural, artistic, linguistic and historic competence have been an asset to Europe in the past. We consider them even more essential factors for Europe's future competitiveness in a world of globalised markets.

The humanities play a key role in tackling these issues. In view of the importance of the non-technical aspects of innovation, their eligibility for EU research funding should be improved. This needs to be achieved by tailoring FP8 programme structures and participation rules to the needs of the humanities, which, as the ERC has already acknowledged, differ considerably from those of the technical disciplines.

Measures to heighten the importance of social sciences and humanities comprise:

- Encouragement of co-operative and interdisciplinary research in the humanities. They should therefore not be restricted to individual grants, but should have access to other cooperative programmes within or beyond ERC funding.
- Expansion and improvement of the changes that have been made in the ERC to meet the requirements of the humanities (less focus on "critical mass" and large networks, appropriate understand-

ing of disciplines, adequate assessment) and transfer to the other Research and Innovation Union programmes.

- Requesting the Commission to create a platform for high-level trans-disciplinary projects, which will enable the humanities to contribute substantially to research on the Grand Challenges.

6 *Human capacity building and intensified support of young scientists*

acatech places great emphasis on the development of human resources and acknowledges the role being played by initiatives such as Marie Curie Actions in strengthening skills and enhancing experience in the research community, in both the private and public sector. Lifelong research training and mobility are vital components of research practice and should be stimulated throughout the researcher's entire career. Therefore, training, mobility and career development stimulation of researchers should be at the heart of the Research and Innovation Union in the European Research Area. To use the entire capacity and the excellence of existing human resources to attain the goals set by the European 2020 strategy, it is of great importance that the Directorate-General for Education and Culture and the Directorate-General for Research and Innovation cooperate closely. acatech recommends strengthening the support of human capacity building, especially the intensified support of young scientists.

Measures to strengthen human capacity building comprise:

- Improvement of funding for junior researchers.
- Development of research sabbaticals.
- Improving the flexibility of exchange programmes between companies and public institutions to foster their interdependence.
- Increased participation of female researchers.



7 **Strengthening an independent European Research Council (ERC)**

The European Research Council (ERC) is the first European funding body set up to exclusively support investigator-driven leading-edge research. The main objective is to stimulate scientific excellence by supporting and encouraging the very best scientists to be bold and take risks in their research. Being investigator-driven in nature, the ERC approach allows researchers to identify new opportunities and directions in any field of research.

This approach is essential for making the Research and Innovation Union a success. In view of its remarkable development, the ERC must be supported by a strong political mandate which enables it to play its role in funding European leading-edge research. To fulfil this task, the ERC needs operational freedom and a guaranteed and increased budget. The current ERC policy emphasising individual grants should be supplemented by further instruments. acatech recommends strengthening the idea of cooperation. The possibility to cooperate with outstanding scientists should extend beyond the European borders.

8 **Establishment of a European Innovation Council (EIC)**

Europe and its global partners must find efficient solutions for topics bearing significant economic relevance, such as the Grand Challenges. These global problems cannot be solved by one member state alone and require multidisciplinary, inventive, innovative and international approaches. Innovation is accepted as being the magic key to approaching these global challenges.

Therefore, acatech proposes creating a European Innovation Council (EIC). The EIC should promote the transfer of outstanding and visionary scientific results (inventions) into attractive industrial applications (innovation). This new organ could ultimately reinforce European leading-edge innovation and assume the role of an umbrella forum for other existing high-level expert boards and European bodies. Thus, this new forum could address the integration of the

European Institute of Innovation and Technology (EIT), which aims to emerge as a key driver of European sustainable growth and competitiveness through the stimulation of innovation at the global forefront, into the Common Strategic Framework for Research and Innovation.

9 **Promotion of international cooperation**

Global issues and risks are threatening our lifestyle as well as the world's stability at an alarming rate. Thus, there is an urgent need to solve these global issues in a very short time span. In this scope it is of importance to define a common strategy and to confirm common interests amongst all European member states as well as all countries of the world and to initiate effective international cooperation. acatech recommends that Europe take a lead in strengthening international cooperation with the most excellent scientists throughout the world.

Measures to foster strategic orientation of international cooperation comprise:

- Integration of the international (global) perspective into all programs and instruments.
- Provision of European funds for collaboration partners (revision of cofunding mechanisms).

10 **Budget increase to € 100 billion over 5 years**

In the post-crisis era and in view of the Grand Challenges, Europe will need to ramp up its effort to invest in research and development. In comparison to Japan (3.4 % of GDP) and the USA (2.7 % of GDP), Europe (1.8 % of GDP) underinvests into these fields. To attain the ambitious goals of scientific and innovative competitiveness, the budget for the Common Strategic Framework for Research and Innovation must be increased, as has been suggested by the expert panel reviewing the Sixth Framework Programmes for Research and Technological Development. Considering inflation and immensely increased costs for research and innovation, acatech recommends increasing the budget for the Common Strategic Framework to € 100 billion for a time of 5 years i.e. € 20 billion per year.



V. CLOSING REMARKS

acatech regards the Research and Innovation Union as a central component of the EU 2020 strategy and as a logical and necessary step to be taken after the European Research Area has been realised by 2014. The most successful instruments of FP 7 should then be carried forward, complemented with few specific instruments that foster research and innovation and combined with both radical administrative simplifications and a substantial budget increase. The European Union harbours a huge potential that could be realised by intensifying the interaction between science and industry, by expanding the integration of the EU 12 countries and by supporting women scientists and young researchers.

If these steps are realised, Europe will reach the goal of becoming the most competitive and prospering knowledge-based economy that provides innovations for the global future.

acatech offers its scientific and economic expertise as well as its networks to help achieve this objective. Whenever the commission might need support to fulfil its demanding task in implementing the Research and Innovation Union, acatech will be ready to serve as a reliable partner.



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