



EuroHORCs and ESF response to the EC Green Paper: From Challenges to opportunities: Towards a common strategic framework for EU Research and Innovation funding.

EuroHORCs and ESF would like to contribute to the consultation on the Common Strategic Framework for EU Research and Innovation.

Scientific research plays a crucial role in the development of a competitive European economy and the development of solutions to tackle the major societal challenges the EU faces. All kinds of research are to be valued in this crucial role and are inextricably connected and mutually reinforcing activities. New knowledge, effective application of knowledge and recognition of their linkages, feed-back and feed forward are essential for European innovation, wealth and wellbeing.

The EuroHORCs and ESF contribution to the European Research Area is synergetic to the Europe2020 vision: to ensure an open, effective, efficient and transparent ERA that is truly united in its research priorities, procedures and integrity.

Good communication, coordination and cooperation between the various national parties is essential to ensure optimal use of what essentially is European taxpayers' money. A coherent ERA will benefit all European nations in the global research economy, and we must work together to ensure that the long-term benefits of the ERA are well-understood and felt at European, national and regional levels. Whilst the CSFRI has a clear coordination role, it should be based upon the subsidiarity principle and should be designed to act in support of the private sector and national capabilities, creating added value, not as a replacement for them. The available budget should be sufficient to fulfil this task. Therefore we propose that the budget for EU research and innovation programmes for the period 2014-2020 should be increased. The figure below illustrates how we envision the structure of the Common Strategic Framework as well as its relationship with relevant national activities:

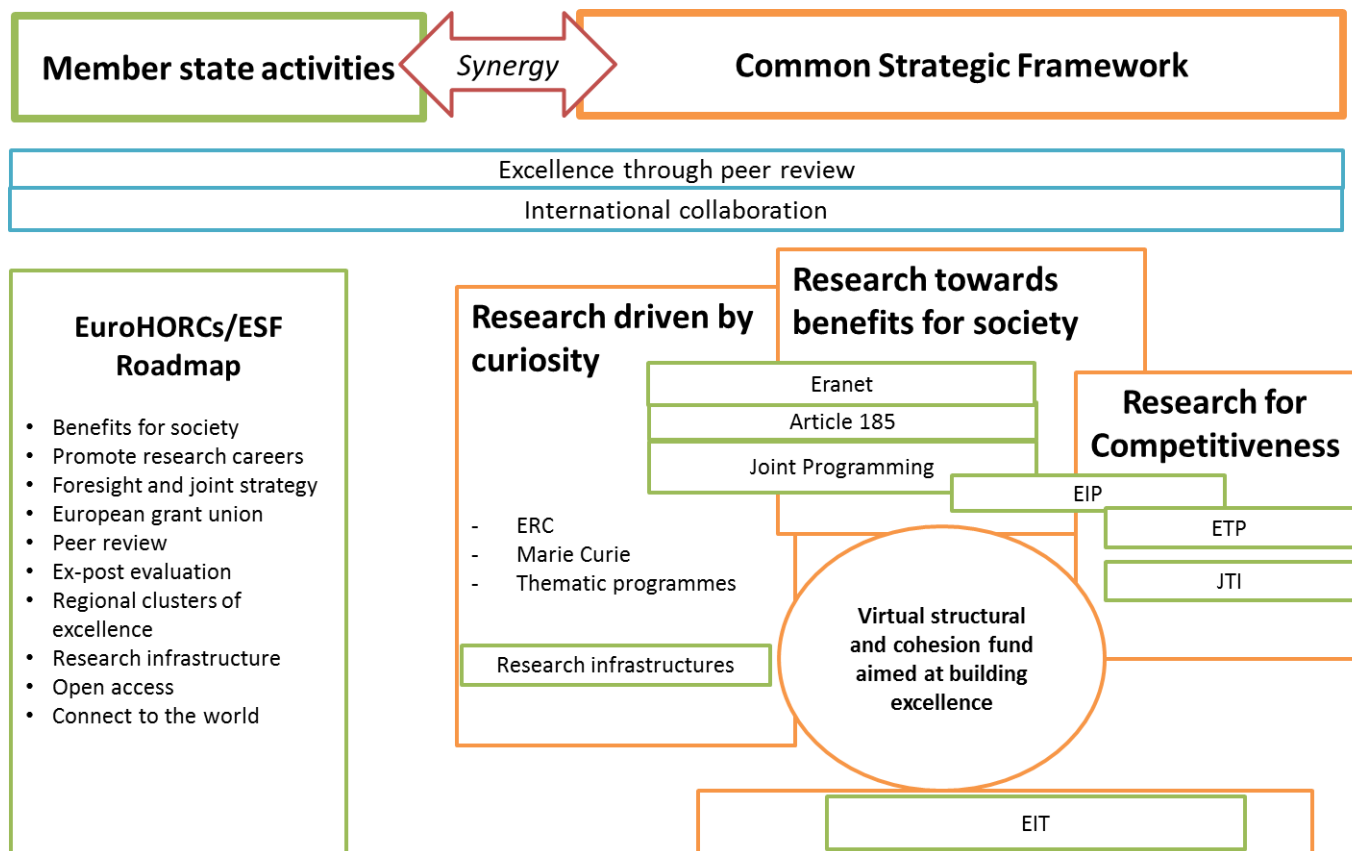


Figure 1. In order to maximize the effectiveness of the Common Strategic Framework it should allow synergetic links with national programmes. The EuroHORCs and ESF Roadmap provides the present framework for these links. The Common Strategic Framework contains three research areas. One is driven by the dynamics of scientific research itself. ERAnets and Research Infrastructures bring European added value. Benefits for society are the explicit goal of Joint Programming. Research for increased competitiveness is explicitly addressed through Joint Technology Initiatives, etc. The European Institute of Technology supports both 'benefits for society' and 'competitiveness'. In addition to these elements a virtual structural cohesion fund should be established aimed at building excellence in the new Member States. The green boxes illustrate Member State activities whereas the orange boxes illustrate EC funded activities. Joint activities include Joint Programming, EIP and EIT.

The main structure of the Common Strategic framework:

Research driven by curiosity: Strengthening Europe's Science base

- **ERC and Marie Curie**

Excellent researchers should continue to get the opportunity to thrive by the support of bottom up research. The EuroHORCs founders have contributed to the conception of the European Research Council (ERC) and EuroHORCs and ESF continue to be a staunch supporter of its objectives, its role in the ERA and its broad goal to fund research proposals from the best scientists in Europe. Excellence, as identified by critical, independent peer-review processes, should continue to be the main selection criterion. In fact the ERC Peer Review evaluation should serve as a model for the selection process in all programmes of the CSFRI.

It should be understood that the creative and exploratory nature of this the of research funded by the ERC does involve an inherent degree of uncertainty with respect to its outcome. Thus, leniency towards risks should be displayed in the funding regulations (grants, not contracts). In order to enhance mobility of researchers, the Member States and EC should work together to improve tax,

pension and social security issues associated with working in another country. Both the ERC as well as the Marie Curie scheme should be reinforced in response to the growing demand across the ERA and to develop the next generation of research leaders for academia and industry. Marie Curie should remain a part of the Common Strategic Framework as it targets one of its objectives. Excellent research should not be confined to the ERC however; it should be recognised that excellent transformative basic, strategic and applied research is essential for the whole innovation landscape if we are to realise the ambitions of EU 2020.

- **Thematic programmes**

Thematic research programmes should focus on providing opportunities for cooperative international, intersectorial and interdisciplinary research in response to important challenges in European society and economy. They should focus on shared priorities of the Member States and/or issues at the European Commission, but are not necessarily large-scale. Upward synergy should be sought with the societal Grand Challenges identified in the Lund declaration as well as the Europe 2020 strategy and its flagships. However, while we are not clear how the EC proposes to address the societal Grand Challenge approach. EuroHORC and ESF believe it essential that the scientific community should be closely involved in identifying the research priorities and agendas, while fully recognising there will be a wider and essentially political process to identify the common priorities. With respect to the funding instruments for thematic cooperation, close attention should be paid to the results of the midterm review of the Seventh Framework Programme. In particular, instruments should be designed to fit the dynamics and scale of effective international scientific cooperation, simplify applications, procedures and number of instruments and as much as possible avoid large consortia, heavy governance and management structures. The EC should examine the current range of instruments across the FP and assess which have been most effective. No new instruments should be introduced without an understanding of the value of existing instruments and a clear rationale for their introduction. The EC should take the opportunity to stop those which aren't working.

- **Research Infrastructure**

Providing an attractive cutting edge research environment by investing in large scale Research Infrastructure is essential for a fully blossoming ERA. Research infrastructures are a mandatory pathway to innovation and training of researchers. In order to attract and retain excellent research and research talent, high quality cutting edge infrastructure is vital. It is also important for private companies and industries. Common research infrastructures promote European cohesion and international collaboration, and can bridge the gap towards the private sector through public-private partnerships.

EuroHORC and ESF advocate full coordination between national and European initiatives to ensure that the necessary infrastructures are realized and researchers from all disciplines have access to them. As previously stated by the EuroHORCs, we strongly believe in the need for invigorating the ESFRI process, which is too static. The Common Strategic Framework should enable cooperation with Member States to fund projects on the ESFRI roadmap and to liaise with national research infrastructure Roadmaps. Beyond development and upgrades of facilities, the costs of exploitation and utilization should be addressed as part of the design phase. Transnational access should be promoted and simplified, as it is an important and successful instrument for free use of European user facilities. The scientific community should be closely involved in priority setting and strategy development through establishing foresighting activities. Other stakeholders including EIROFORUM (representing the European Intergovernmental Research Organisations CERN, EFDA-JET, EMBL, ESA, ESO, ESRF, European XFEL, ILL), should be consulted and included in the process. Finally, in particular in the domain of Research Infrastructures, global coordination and cooperation is essential, as are the political dimensions associated with that.

- **ERAnet**

Successful coordination schemes such as ERAnets/ERAnets+ should be continued, as they may be effective, small scale networks that can contribute to a Joint Programming approach. While it is evident that networks of national funding organisations should in the long run rely on their own financial commitments for their coordination activities, EU funding has been demonstrated to be a strong catalyst of such inter-institutional coordination allowing ambitions to be reached more effectively. ERAnet calls for proposals are linked to the EuroHORCs Grant Union especially the Lead Agency Scheme because they share a similar goal: enabling research in small multinational groups.

Research towards Benefits for Society

- **Joint Programming and article 185**

Some of the challenges Europe faces require a leadership role for the public sector. Joint Programming could be the vehicle to deliver these challenges to the next level. Structured foresight processes involving all relevant stakeholders and transparent evidence-based decision structures for the identification of Grand Challenges should be established. All scientific disciplines should work together to generate new knowledge based on foresight analysis to identify and address societal Grand Challenges. The Common Strategic Framework should stimulate Joint Programming by providing incentives and framework conditions to encourage Member State organisations to coordinate their activities, whilst recognising the need for flexibility and creativity in implementation and no rigid 'one size fits all approach'. The Common Strategic Framework should provide co-funding for proposed activities. The exciting value of JPIs is that they allow a mixed mode of operation including smaller policy initiatives and variable geometry participation from a few to many partners. Article 185 could be a legal framework to implement the required activities. However, our previously indicated mixture of optimism and concern with respect to the evolution of the Joint Programming Initiatives (JPI) has not entirely ceased. Issues that need to be clarified include the available budget as well as the question of how to ensure excellence. Continued attention is needed for the processes associated with Joint Programming and EuroHORCs and ESF aim to work closely with the Commission as well as other national governments to ensure implementation in a profound and practical manner. The lessons learned from the Networks of Excellence scheme should be carefully studied in this respect.

Research for Strengthening competitiveness

- **EIP, JTI's, ETP**

Successful and effective innovation requires not only a strong science base, but relies to a large extent, on synergetic public-private interactions. The importance of fostering productive partnerships for innovation is addressed in national policies across Europe. These national efforts to promote public-private partnerships should be complemented at the European level as well, focusing on common interests and added value. The European Innovation Partnerships should provide the political framework to work on Europe's Grand Challenges and improve competitiveness. Integration of current approaches such as Joint Programming, ERAnets and article 185 as well as the EIT's Knowledge and Innovation Communities (KICs), the European Technology Platforms (ETP) and Joint Technology Initiatives (JTI) will provide the bedrock of the EIPs, but the complexity of bringing all these actors together should not be underestimated. There are some good examples of integrated approaches in member states and the EC should ensure that national best practice is sought out and extrapolated to a European context if appropriate.

- **SMEs**

Small and Medium-Sized Enterprises, often in the form of spin-offs and start-ups, play an important role in the process of converting new knowledge into innovations. Yet, because of their low critical mass and small reserves, SME's often have problems participating (investing) in public private partnerships and/or cooperative research projects. Although this issue is dealt with at the national

level in many countries, SME participation should also be supported in European research funding through existing instruments. Administrative procedures and regulations based on trust (see below) should promote value chains that involve industry, academia and government through attractive tax policies, incentives and IPR regulations.

EIT

The European Institute of Technology, which should be consolidated, should act as expert hub in the area of public-private collaborations. Theoretical knowledge on the science of innovation should be exploited and deepened. Identification of and investment in disruptive technologies will lead to new inventions and could open new avenues of research. In principle the EIT should support both 'research towards benefits for society' and 'research for competitiveness' but evidence of effectiveness awaits the current review.

Virtual structural and cohesion fund

Investments in research and innovation lead by the principle of excellence are necessary for the advancement of a modern society. The vision of the ERA put forward in the first ERAB Annual Report encouraging excellence and promoting cohesion was reinforced in its 2010 report by mandating the ERA to deliver excellence and cohesion. Another aspect is that excellent research and excellent education are closely connected. In fact research serves as a basis for higher education. The lecturers best able to engage and motivate young talents are the ones active in research themselves. Only the universities with active high-level research can organize education through the process of 'learning-by-doing'. The FP7 interim report compiled by the Expert Group confirmed that the principle of excellence has been generally accepted and pointed out and highlighted the continual need to build capacity in the new Member States.

The current landscape of European mechanisms is comprised of two distinct sets; community programmes fundamentally drawing upon and building excellence (Framework Programmes (FP) including the ERC) on the one hand, and cohesion mechanisms (e.g. ERDF, Interreg, European Social Funds, Cohesion Fund) reducing regional disparities on the other.

EuroHORCs and ESF recognize the importance of the excellence principle for the global competitiveness of Europe and fully supports its exclusiveness in FP. Further complementing the recommendation of the Expert Group to bridge the gap between excellence and cohesion mechanisms, EuroHORC and ESF propose that the new Member states, in order to tackle low success rates and under-representation of their research communities in excellence-driven community programmes, should be enabled and encouraged to use Structural and Cohesion Funds for building excellence (e.g. by funding research infrastructure development and FP project proposals that were evaluated as excellent but did not receive funding). Such good practices have already been introduced by certain new Member States without, however, using funds from cohesion mechanisms. An all-European virtual common pot could be established by and dedicated to the new Member States that would be funded using their Structural and Cohesion Funds. The proposed action could benefit from setting up a European Grant Union based on existing knowledge of cross border cooperation in Europe - Money Follows Researcher Scheme, Money Follows Cooperation Line Scheme, the Lead Agency Scheme, Infrastructure Exploitation Collaboration and Shared Funding and Common Peer Review initiative - by adopting similar grant structures in the all-European virtual common pot. Such action would allow effective harnessing of the intersection of excellence and cohesion mechanisms.

Essential conditions

Knowledge transfer

The social and economic impact of research should be a feature of all aspects of the funding cycle, from development of a programme, through designing the project, through monitoring to delivery. Whilst recognising that not all projects may deliver tangible outcomes it is still important to make researchers aware of the pathway to impact. Instruments designed to stimulate transfer of knowledge should be continued and further developed. Again lessons could be learned from similar instruments developed by national and regional funding bodies united in EuroHORCs and ESF. The respective roles and responsibilities of national and European public funding organisations, PPPs, charities and the private sector should be fully understood to ensure that the different components of the innovation landscape are interacting efficiently. Increased support to approaches such as 'Ideas Factories', bringing together researchers from academia and industry, research is by definition uncertain and risk-averse, bred by undue emphasis on output driven audit and accountability, is anathema to research.

International Collaboration

Excellent research and innovation should not be restricted by national boundaries. Many of the societal problems facing Europe similarly affect other parts of the world and are more or less interconnected with worldwide processes. Thus these challenges should not be tackled by Europe in isolation and will benefit from a global collaborative effort. Furthermore, essential knowledge required to address European challenges and to strengthen European competitiveness will be developed in other parts of the world. Therefore the ERA should extend itself into the global arena based on a strategic vision of global knowledge development and with an understanding of the role of European research in this vision. Opportunities should be provided to work with colleagues outside Europe. In many areas 'ScienceLab Europe' can contribute unique answers to global questions, through the unique diversity of its society and scientific community.

Currently, Europe is not realising its potential in international competition, being composed of sub-critical and competitive national and European building blocks. Of significant concern is the lack of coordination between activities at the national level, by dedicated ERAnets, and by policy initiatives such as the Strategic Forum on International Cooperation (SFIC) and the international programme components of FP7. Effort should be made not to create stand alone initiatives to address internationalisation, but to embed the principles of international added value into current and future initiatives as they develop, both via internationalisation of EC-funded programmes and by adding value to member-state led initiatives. Joint Programming Initiatives, for example should consider an international dimension as part of their strategic plans, and successful transparent framework approaches such as ERA-Nets should be opened up to international participation.

Global cooperation is essential in many areas and should be supported and streamlined. The ERA should include concrete coordination and cooperation schemes with partners in Russia, China, India, Brazil (the BRIC countries), the USA, the Middle East and Africa. EuroHORCs and ESF are tackling this issue in the roadmap and are currently working on ways to streamline collaboration and stimulate dialogue of its members with partners from outside Europe.

Dialogue between science and policy

The Grand Challenges Europe faces cannot be resolved by science and innovation alone. A dialogue between science and policy is needed to effectively address the Grand Challenges in society. This dialogue should be truly multi-directional. As Grand Challenges address issues of highest and global societal relevance they will provide valuable insights into societal aspects that are governed by policy. European, as well as national policies, need to be evidence-based through independent and validated inputs from the scientific community. The output of the work on the grand challenges therefore needs to be channelled to relevant policy makers at the local, regional, national and

European level in order to achieve maximum impact of the findings. New methodologies for effective science policy foresight will be required to provide decision makers with validated inputs and recommendations. On the other hand, the Common Strategic Framework should include effective policies to facilitate research and innovation. European policies should facilitate issues such as intellectual property, involvement of the private sector and SMEs as well as provide a legal framework and instruments for research. A successful example of such a policy framework is the legal framework for European Research Infrastructure (ERIC).

Trust

The Common Strategic Framework aims to continue to support public and private actors to collaborate and inspire each other on an equal footing. An ERA that truly functions as a common breeding ground for excellent research and innovation requires full trust and transparency among all actors at the national and European level. Transparency is not only required in the high level programming activities, but also through the involvement of the main actors in the definition of the detailed national and European Work Programmes and the procedures to implement them. Trust facilitates alignment, exchange and sharing of national and European review and evaluation procedures, taxonomies, transferable skills and careers. The integrity and ethical rigour of European research should become a trademark for its excellence.

Simplification

Simplifying the administrative regulations at EU level is essential. A single information single audit system should be applied to all instruments that are funded through the Common Strategic Framework. The administrative burden associated with EC funding should be proportionate with the size of the project. The balance of effort in the Common Strategic Framework should be firmly towards the execution of the research programme, with the minimum of administrative requirements. Simple solutions should be sought, such as trusting to national institutional audit procedures where these are subject to verifiable quality assurance controls. If we do not make EC funding at least as attractive in terms of its simplicity as the best of national programmes, our best researchers will not participate.

Promote diversity

The EC should continue to monitor the success rates of female scientists as well as minorities within Science and Innovation, especially within the Marie Curie Actions and ERC. Moreover, the EC should continue to pay attention to gender balance (for instance with respect to the composition of scientific committees) and any possible gender bias in all peer review and assessment procedures.

Involve SSH domain

A major characteristic of Grand Challenges as they are currently defined is that they are societal in nature and, consequently, technological solutions are not sufficient. It follows therefore that research in the fields of natural, medical and engineering sciences need strong and complementary collaboration with the humanities and social sciences. Counteracting threats to the security of the civil society, for example, relies on a knowledge and understanding of the underlying social drivers. Understanding the global implications of man's activities is instrumental in solving Grand Challenges, and influencing society's behaviour requires understanding of social and cultural values, religions and beliefs, morals and prejudices at individual, societal, national and global levels. Innovation-successful introduction of new services, products, processes and ways of working is an inherently social and economic process, with new technology most effective when accompanied by social and economic innovation.

Not only does the research enterprise itself require efforts from all scientific domains, but socio-economic analysis is needed to support evidence-based political decisions when targeting research

and innovation resources at the European level. All disciplines must be able to contribute to the EC funded research. However, the role of the humanities and social sciences is not specified in the EC Green Paper, and thus the relevant researchers' communities do not recognise places for their contribution in the next Framework Programme. These disciplines make an underpinning contribution to the solution of Grand Challenges, but also need a thematic home to ensure that individual research areas such as inequality and poverty are properly supported at the European level where there is value to be added. ERC, ESFRI, Marie Curie all need to be fully open to SSH as integral contributors to European science.

Summary: Working in synergy to deliver in Europe 2020

- Bottom-up, fundamental research and international mobility should be an integral part of the Common Strategic Framework and should be further strengthened. The ERC and Marie Curie programmes play an important role in the ERA and should be continued.
- Thematic programmes should primarily focus on shared priorities such as the Grand Challenges. Joint Programming Initiatives provide a useful instrument, provided that theme identification is based on structured, evidence based and quality controlled foresight processes, Member States demonstrate national (financial) commitment and the scientific community is on board. Upon political decision making the scientific community should be closely involved in the process of research programming.
- The Common Strategic Framework should better support the development and exploitation of large-scale, international research infrastructures than before. It is considered vital to the ERA that the ESFRI process is accelerated and completed. EU co funding can be an important incentive in implementing the European roadmap.
- The Common Strategic Framework should, in addition to strengthening the science base, foster and support public-private partnerships between research institutions and private companies and/or societal organizations as a way to ensure effective application of knowledge. Special effort is needed to allow Small and Medium Sized Enterprises (SMEs) to participate in these partnerships.
- Funding instruments and administrative procedures should fit and support the dynamics of scientific research and innovation in both scale and regulations. High trust is required and heavy governance and administration should be avoided. For this reason the Networks of Excellence should not be continued and financial regulations should be simplified and be based on trust.
- The Common Strategic Framework should be based on a vision on global knowledge development and the role of the ERA in it. Given global interconnectedness of both science and the challenges to be addressed, the ERA policies should encourage cooperation with parties outside Europe.
- The Common Strategic Framework should include mechanisms to speed-up the processes of improving scientific excellence in geographic areas that are currently lagging behind in order to bridge the gap between the old and the new member states.