



Europe of Research and International Cooperation
Brussels Office

Position on Horizon 2020

The CNRS

The *Centre National de la Recherche Scientifique* (National centre for Scientific Research) is a French public research performing organisation which is active in all fields of knowledge and favours interdisciplinarity. This knowledge is put at the disposal of society.

With more than 33.000 people (11.500 researchers and 14.200 engineers, technicians and administrative staff) located all over France, the CNRS relies on more than 1.200 research units, which are in most cases common to Universities and/or other research performing organisations.

This makes the CNRS the largest research organisation both in France and in Europe. With more than 800 contracts in FP7, it is the main stakeholder of the European Research Area; it is the first beneficiary of the ERC and one of the first beneficiaries of Marie Curie Programmes.

Coherent and balanced instruments

The CNRS welcomes the importance given to excellence in research and to the contribution of multidisciplinary approaches in the context of solving societal challenges and to social innovation. We are in favour of clarifying the equilibrium between instruments in order to give way to fundamental research. The CNRS reasserts its support to collaborative research, which is the added value of European projects. We also welcome the good integration of gender issues within research and innovation.

Organisation between initiatives

The CNRS wishes for a clearer definitions and delimitations between instruments such as Joint Programming Initiatives (JPI), Knowledge and Innovation Communities (KIC) of the European Institute of Innovation and Technology, the European Technology Platforms (ETP), as well as the European Innovation Partnerships (EIP).

An effective organisation of mechanisms is needed to solve current coordination difficulties in the Commission services, as well as on the part of the research and innovation stakeholders.

The coordination between the *Excellence of Science* and *Societal Challenges* pillars will have to be implemented in the work programmes in order to take into account the specific needs in terms of infrastructures, of FET and of researchers' mobility.

Innovative research and targeted research

The CNRS acknowledges the fact that research and innovation programmes are to be shaped around societal issues and that results are to be made available to diverse categories of users.

The balance between research and innovation must be clearly stated and will have to remain consistent in the work programmes. The CNRS supports the idea that the best answers to societal challenges will be given by teams who will lead projects based on methods and results originating from the best fundamental research.

Inside the Societal Challenges pillar, a balance is needed between the societal challenges as identified by the Commission and research questions as identified by scientists. It seems important in this respect that the phrasing of the challenges should avoid targeting examples which could narrow down research questions. What could be put in place are calls for proposals which would not be targeted but would be relevant to a topic.

The success of the answer to challenges will depend upon the right balance between upstream research and the support to applications.

International cooperation

International cooperation should not be solely focused on the societal challenges pillar, and not only on the sixth one, but must, on the contrary, be more transversal to the three pillars. A specific budget line should be dedicated to it. Special attention should be given to the coherence between horizontal and vertical approaches within the pillars.

The proliferation of cooperation instruments is to be avoided. It has been noted with interest by the CNRS that the current evolution is going towards an improved coherence between instruments such as INCONET, BILAT and ERA-NET.

Certain regions could be more specifically targeted, such as The Mediterranean.

Gender

The commitment shown by the Commission towards the effective promotion of equality between women and men is in accordance with the CNRS's commitment and its "Mission for the role of women". In this regard, the CNRS wishes to see prolonged in Horizon 2020 the support to research organisations which are involved in a process of structural change through the implementation of professional equality action plans. Important points related to gender are to be found hereunder which relate to the ERC (non-discriminatory evaluation), and topics in Human and Social Sciences (inclusion of gender in societal challenges).

Pillar 1: Excellence

The CNRS is satisfied with the importance given to instruments which aim at putting European research at a top level worldwide by supporting further excellent research. As the main beneficiary of the European research Council, and being amongst the first beneficiaries of the Marie Curie programmes, the CNRS is particularly concerned by the first pillar.

ERC

The ERC projects are the main driving force behind innovative fundamental research projects lead by researchers. The CNRS welcomes the announced doubled budget for the ERC, but worries about a possible dilution of this support amongst too many instruments. The ERC must indeed remain an individual project funding tool; it must not aim at covering the whole spectrum of Horizon 2020. The CNRS also wants to see renewed the adopted plan on gender equality which is aimed at emulating excellent female applications and guarantees fair evaluation.

Marie Curie

The Marie Curie actions are an irreplaceable way to help researchers to be more mobile and to improve their careers. The CNRS approves of their being maintained under their individual and collective forms. We regret however that support to mobility has decreased. It must also be seen to that the co-funding

(COFUND) does not lead to reducing the budget aimed at improved and more mobile careers for researchers.

In consequence, the CNRS asks for the Marie Curie programme to be funded at the same level during the first year of Horizon 2020 as during the last year of FP7. We also ask for a growing budget throughout the duration of Horizon 2020. Allowances paid in the frame of projects co-funded by COFUND must be indexed to the Marie Curie Actions pay scale. A "fixed rate fellowship" has to be possible only if the beneficiary can prove to be affiliated to a social benefits system.

FET

The CNRS welcomes the extension the Future and Emerging Technologies (FET) mechanism to themes from the first *Scientific Excellence* pillar. However, the lack of definition of the innovation aspect leads to uncertainties about the aim of the support.

Infrastructures

The clear intention to favour the European scientific community's access to research infrastructure is approved of. Infrastructures are in many fields a need which is becoming more and more pressing and structures are being created which require strengthening. More specifically, in the area of distributed infrastructures the Commission must co-finance access costs to infrastructures. It is essential that Horizon 2020 is able to fund training for users and staff, as well as joint technological developments. The budget currently proposed by the European Commission amounts to half the sum needed to fund infrastructures able to allow success for Horizon 2020.

Pillar 3 Societal Challenges and thematic fields

The CNRS is globally satisfied with the choices made on societal challenges, even if the contents of some could do with more detail. In accordance with the French position, the CNRS backs the split of the sixth challenge into two different ones: inclusive and innovative societies, and secure societies. Mechanisms must be put in place in the funding instruments in order to guarantee a good integration of human and social sciences on the one hand, and of mathematics on the other hand.

Health, demographic change and wellbeing

For this challenge as for others, the success in terms of innovation will depend upon a right balance between upstream research and support to applications. Collaborative research complements the exploratory research which is funded in the first pillar. Upstream Collaborative research is a strategic tool which must be funded in the same extent as clinical research in order to make Europe more competitive in the health industry.

Secure, clean and efficient energy

The CNRS is especially satisfied with the coverage of the energy issues in the Horizon 2020 proposal. We regret however that the issue of modelling and simulating combustion was not taken into account. We also regret the absence of an item on energy efficiency in old buildings and the absence of an item on the use of CO₂ other than for CO₂ collection and storage. The item on hydrogen is reduced to the fuel cell aspect, a specific treatment of this vector dealing with production and storing aspects would be appreciated. The importance given to the issue of heat networks is not sufficient.

Finally, concerning the nuclear aspects, the CNRS sees as necessary to provide sufficient funding for upstream research, namely to fusion research activities, which have undergone substantial cuts in the funding in *Euratom* over the past years.

Climate action, resource efficiency and raw materials

In this challenge, the CNRS approves of the introduction of a new sub-theme on the sustainable supply of non-energetic and non-agricultural raw materials, but regrets however that the topic on natural risks has been made to disappear.

Inclusive, innovative and secure societies

Concerning this challenge, the CNRS underlines that human and social sciences are able to play a huge role in producing innovative results.

It would be more effective to split this challenge into two separate challenges in order to create a seventh challenge dedicated to secure societies. This new "inclusive and innovative societies" challenge would benefit from the contribution of social sciences and humanities (history, literature, heritages, arts, anthropology), as questions of integration are also cultural. This does not put aside collaborative work with other disciplines.

The CNRS underlines the importance of pluridisciplinary research on gender as a promoter of innovation. In addition, the CNRS is in favour of a comparative approach between Europe and other cultural areas. A good diversity should be kept inside Human and Social Sciences, and short-term innovation topics are not to be the sole objectives.

The question of security must be envisaged broadly and include, beyond information and communication technologies, the analysis of risk and vulnerability. Human security is thus analysed at different levels (technical and industrial, digital, environmental, health-related), different time scales and different space scales, while allowing for prospective and retrospective approaches.

Human and social sciences to solve societal challenges

In order to guarantee the pluridisciplinary of research which tackles societal challenges; the CNRS asks for human and social sciences to be represented in programme committees and experts' groups in charge of project and programme evaluation in all topics. This is absolutely necessary to guarantee for human and social sciences not to be marginalised nor instrumentalised by being reduced to perception or acceptability studies on innovation.

Mathematics: a pivotal role

The CNRS stresses the fact that the European level in mathematical research is very high but regrets that, until now, mathematicians have not been made able to take part to the previous Framing Programmes. Horizon 2020 should put right this failure and put in place the appropriate measures.

Mathematics provides a coherent logic frame for the industry and a universal language for analysis, simulation, optimization and control of industrial processes. It takes an essential part in creating industrial value and is a driving force for innovation, but its contributions are often not visible in the final industrial products.

At the same time, mathematical research *per se* must also be seen as an independent priority, in order not to take the risk of becoming mere users of critical evolutions.

With theory and experimentation, a third pillar has emerged in scientific investigation under the shape of a combination of modelling, simulation, optimization and visualization. In most cases, complex phenomena cannot be reproduced in labs. Some tools provided by mathematics allow for the management of huge amounts of data in a swift and cost-effective manner.