



**CESAER position towards the Commission proposal for HORIZON 2020  
The Framework Programme for Research and Innovation (2014 – 2020)**

**February 2012**

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**CESAER** - the Conference of European Schools for Advanced Engineering Education and Research - is a non-profit-making international association of leading European universities of technology and other higher education institutions oriented towards research-based engineering education, research and innovation.

**CESAER** stands for scientific excellence in engineering education and research, and the promotion of innovation through close cooperation with industry in order to ensure the application of cutting-edge knowledge in industry and society. It maintains and promotes the highest quality standards.

**CESAER** has a current membership of 57 institutions, representing 25 different countries (see p. 10).

<http://www.cesaer.org>

## 1. Objectives and structure

CESAER collectively endorses the proposed structure of HORIZON 2020 according to three clearly defined policy objectives strengthening the European science base, safeguarding the competitiveness of European industries and small and medium enterprises, and tackling major societal challenges. These objectives are interesting and attractive to all relevant research and innovation actors and to universities in particular. They provide clear focuses on different key priorities for the European Research Area (ERA) and the Europe 2020 strategy and flagship initiatives. CESAER welcomes the fact that the new orientation of HORIZON 2020 can also be communicated to and understood by the general public.

CESAER fully supports the clear orientation of HORIZON 2020 on excellence. However, we emphasise that this orientation holds for the whole programme. Therefore, the title of the first pillar “Excellent science” is misleading because it may indicate that “excellence” is applying only to this part of the programme and the European Research Council (ERC) in particular. Therefore, CESAER suggests that the first priority should be renamed to “World-class frontier science”.

We welcome the increased support for bottom-up research by arranging the respective schemes of the programme under one heading. CESAER stresses the importance to strengthen the complementarity between the ERC and the Marie Curie actions. We fully support the widening of the scope of the Future and Emerging Technologies (FET) activities beyond ICT.

Research infrastructures (RIs) form a backbone of the European Research Area. CESAER underlines the importance of strong RIs and regional partner facilities in Europe and the cooperation of universities with RIs in the support of excellence of science and technology in Europe as important elements of initiatives and activities forming the European Research Area. RIs should provide open spaces and platforms including financial support facilitating cooperation with universities, SMEs and large multinational companies. Also education and training activities should be considered in the effort to integrate research infrastructures into local, regional and global innovation ecosystems. We suggest including financial support

CESAER supports the ambition to use pre-commercial procurement for developing RIs.

CESAER welcomes that the whole innovation process will be covered by activities under HORIZON 2020. With regard to “Industrial leadership” we welcome the ambitions to use pre-commercial procurement as a driver for innovation. The new approach for SME support by the “Small Business Innovation and Research” scheme is an important step in the right direction. It has to be emphasised that the “Access to risk finance” scheme addresses not only the “Industrial leadership” pillar but is open for the whole programme.

CESAER appreciates the problem oriented approach of the pillar “Societal challenges” and the areas it addresses. Universities of technology are used to be deeply involved in developing solutions for complex problems. This will stimulate interdisciplinary cooperation and, therefore, will also contribute to the organisational development of universities in accordance with the modernisation agenda for higher education institutions. CESAER has reservations against the presentation of the last challenge “Inclusive, innovative and secure societies” which seems to be a collection of “left overs” which is not an appropriate recognition of the important elements it encompasses. Therefore, we propose to reconsider the structure of this part of the programme.

CESAER acknowledges the importance HORIZON 2020 is devoting to the knowledge triangle of education, research and innovation. Universities of technology are key actors in that frame. In addition, we underline also the importance of the triangle science, engineering and design.

We welcome the integration of the European Institute of Innovation and Technology (EIT) into the new framework programme as a move in the right direction. The EIT bears the potential to act as a model for bridging the gaps between education, research and innovation. In order to accelerate the integration of the knowledge triangle, the first wave of the next KIC calls, anticipated for 2014, should be expanded to include more of the six potential themes identified in the EIT's Strategic Innovation Agenda even when only KICs for three themes will be selected.

CESAER underlines the importance for coordination between EIT activities and actions in other parts of HORIZON 2020 particularly with the "Societal challenges" and Joint Programming Initiatives as well as ERA-NETs. However, in that context, CESAER is concerned that the separation of the EIT from the other pillars of HORIZON 2020 as a separate programme might act as a barrier. There will be a need for intensive and targeted interaction and alignment.

## **2. Budget**

Taking into account the context of the financial crisis, CESAER appreciates the Commission proposal for a budget of € 80 billion as maintaining the financial level of the last years of FP7. CESAER urges the European Parliament and the Council to follow and support this proposal or to go for an even higher budget. Actually, we had expected a higher budget considering the key role of research and innovation supporting the highly ambitious objectives of the Europe 2020 strategy and the flagship initiatives especially the Innovation Union but, at the same time, also as a means for coping with the current economic situation.

CESAER sees, however, substantive room for optimizing the balance between and re-calibrating of the financial provisions for the different lines and schemes of HORIZON 2020. We welcome that an increase is proposed for the budget of the ERC. The budget for the Marie Curie Actions (MCA) is by far too moderate and does not adequately consider the key role of the MCA and the continued strong demand this scheme is enjoying. Also the financial provisions for Research Infrastructures don't reflect the importance of these structures that form attraction and crystallising points in the European Research Area. The level of the budget for Research Infrastructure should also reflect the importance given to them by the Innovation Union and the 2015 60% target for infrastructures on the ESFRI list defined by the Innovation Union flagship initiative.

CESAER believes that a better balance should be sought between "Societal challenges" and "Industrial leadership". While the first enjoys a substantial increase, the second does not and the proposed budget is about the same level as in FP7. The most welcome effort to attract more business participation in HORIZON 2020 – especially Small and Medium Sized Enterprises (SMEs) - should also be reflected in the related budget allocations.

The amount foreseen for "Access to risk finance" seems to be too low for achieving substantial impact in a seven year programme.

CESAER supports the further development and strengthening of the EIT. CESAER understands that an increase of financial means has to be provided. However, an adequate balance has to be ensured between the budgets of the EIT that still has to prove its potential and other important programme

lines such as the Marie Curie Actions that have a proven long-term track record. Therefore, we welcome that a mid-term evaluation of the EIT and the KICs is foreseen before the full budget will be released.

### **3. Continuity and change**

The proposal for HORIZON 2020 presents a good balance between continuity and novelty building on the lessons learned from previous experiences and considering the results of past evaluations and consultations.

CESAER welcomes the importance put on innovation by the new programme. Covering the full innovation process wherever possible and appropriate will contribute to making optimal use of the full potential of the European research and innovation communities in universities and business. The new financial instruments are well designed to support this approach by different means as appropriate for the different phases of the innovation cycle.

Researchers and engineers in CESAER member institutions are pleased to see the continued support for collaborative research which forms the core part of the programme and is the basis for addressing both major challenges and key industrial and enabling technologies. The EU framework programmes are playing an important role for developing the capabilities and skills of European researchers and engineers to work in interdisciplinary and intersectoral teams which are necessary for coping with the complexities of the grand challenges we are facing. This presents a clear competitive advantage of Europe compared to other regions in the world such as the US<sup>1</sup>.

Strengthening the links between education and innovation will probably be the greatest challenge. In that area, coordination and cooperation with the future “ERASMUS for all” programme will be important.

### **4. Bottom-up and top-down**

CESAER strongly supports the bottom-up approach followed by the science pillar and the strategic or top-down orientation of the two other priorities. We welcome also the perspective that, in general, work programmes will be less detailed and prescriptive.

CESAER appreciates that the Future and Emerging Technologies scheme (FET) is open for all technological fields as an area for high risk projects that may lead to scientific and technological breakthroughs. We recommend considering also thematic networks under this scheme offering spaces where research groupings in newly emerging areas can be formed and also young researchers and researchers from less connected organisations may find access to the European research communities.

For the priority “Societal challenges”, CESAER sees a leading role of universities and research organisations in close cooperation with companies. We see a need for providing appropriate platforms for identifying priorities and preparing the ground for the formation of strategic alliances between education, research and innovation.

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<sup>1</sup> US Council of Competitiveness: *Competitiveness Agenda –New Challenges, New Answers*. 11 November 2008, p. 9

For the priority “Industrial leadership”, industry should be in the lead. This will call for an enhanced role of European Technology Platforms (ETPs) and also for Joint Technology Initiatives (JTIs) led by industry. However, CESAER emphasises that a close involvement of and cooperation with universities has to be ensured. Defining appropriate rules for the management of intellectual property will be a must taking into account the changed roles of universities in knowledge transfer and the related obligations of universities in this regard in many countries.

## **5. Synergies**

CESAER sees a need and a challenge to avoid the different programme lines developing into separated pillars. This will call for appropriate measures for stimulating coordination and joint activities.

CESAER underlines the importance of the synergies with the innovation related parts of the Cohesion Policy Funds that will focus on capacity building providing “stairways to excellence”. Thus, HORIZON 2020 and the Cohesion Policy Funds will have clearly complementary profiles. However, it must be an objective of the next programming period and a clear commitment of all policy and programme management actors will be needed towards making a reality of the synergies between the two programmes. This will require the Cohesion Policy Funds to become more flexible and more coherence of their rules with HORIZON 2020. Better alignment of the two European instruments will provide enhanced opportunities for CESAER member institutions that are located in regions lagging behind. It will also provide new opportunities for strengthening strategic alliances between universities via initiatives in the follow-up of the FP7 “Research Potential” scheme, and it will contribute reaching the Innovation Union 2015 goal regarding research infrastructures and, in general, making the European Research Area (ERA) a reality.

HORIZON 2020 and the Cohesion Policy Funds should work in a complementary way supporting the implementation of the ESFRI road map for realizing new RIs but also for up-grading existing ones in accordance with the 2015 target defined by the Innovation Union flagship initiative.

In order to make the knowledge triangle a reality CESAER emphasises the importance of considering also education in HORIZON 2020. Therefore, the period of preparing the new programmes should be used to strengthening the synergies between HORIZON 2020 and the new “ERASMUS for all” programme. The Knowledge Alliances and also the new approaches towards the doctorate are schemes where close coordination, interaction and cooperation will be fruitful. This will be especially important for developing the linkages between innovation and education in the knowledge triangle.

## **6. Simplification of reimbursements rules**

CESAER welcomes and highly appreciates that the Commission proposes substantial steps towards simplification. It will be the responsibility of the European Parliament and the Council to fully support this approach. The Commission will have to ensure that the rules are interpreted and implemented in a uniform fashion by the DGs of the “research and innovation family”, executive agencies and individual officers managing the framework programme.

CESAER supports the proposed simplified and standardised reimbursement rules for direct and indirect costs defining one rate for all types of organisations. However, we propose more clear formulations in the proposal for the Rules for Participation<sup>2</sup> which is important for ensuring university participation.

- CESAER welcomes the first sentence of Art. 22, 3.: “A single reimbursement rate of eligible costs shall be applied per action for all activities funded therein.” However, CESAER proposes to delete the sentence “The maximum rate shall be fixed in the work programme or work plan”. Leaving the final rates to be defined in the Work Programmes would mean a substantial drawback for the intended simplification since different programme lines will define different rates which will present new complications for applicants.
- For Art. 22, 4., CESAER proposes the following formulation: “The HORIZON 2020 grant will be 100% of the total eligible costs for R&D and mixed projects, without prejudice to the co-financing principle.”
- For Art. 22, 5., we propose the formulation “The HORIZON 2020 grant shall be 70% of the total eligible costs for the following actions:
  - (a) actions exclusively consisting of activities such as prototyping, testing, demonstration, experimental development, piloting, market replication;
  - (b) programme co-fund actions”.

CESAER acknowledges the huge advantages of the proposal that for indirect eligible costs (overhead costs) a flat rate of direct eligible costs should be applied. However, there is a need to devote further considerations to the level of such a flat rate. CESAER members complain that co-financing of participating in EU projects is becoming more and more a problem for many universities and sustainability of financing research is more and more a challenge. For large projects, such as the activities under the Future and Emerging Technologies (FET) scheme, the co-financing problems have reached untenable levels.

Overhead costs (incl. costs of research infrastructures) for many universities of technology are relatively higher than for general universities. Therefore, many universities of technology charge actual cost already. The consequences of the HORIZON 2020 proposal of a 20% flat rate are much larger for such universities than for general universities that have less overhead and less costs for research infrastructures.

CESAER supports the Commissions intention to define one single funding rate for all and sees the substantial simplification for project management but also for financial control and auditing. Offering different options for funding might reduce the effects of simplification. Therefore, in order to take into account of the problems described CESAER proposes, as a compromise, to apply a flat rate for indirect eligible costs higher than 20%.

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<sup>2</sup> Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL laying down the rules for the participation and dissemination in ‘Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020)’, COM(2011) 810 final, Brussels, 30.11.2011, Article 22, 3., 4. and 5, pp. 21-22

One potential problem arising from the single reimbursement model is that participants probably will be less prone to act as coordinator, since the management part of the project will be reimbursed at a lower level than in the case of FP7. One possible way of solving the issue could be to allocate to the consortium an extra lump sum for covering management costs as they are now defined in FP7, on top of the reimbursement for implementing the action, without the need to report any corresponding costs. As a suggested level this lump sum should be in the order of 5 % of the direct costs of the action.

The ambition to implement more of the agenda setting and research and innovation actions through different kinds of public-private and public-public partnerships is positive, as it will likely accelerate the realisation of the European Research Area. However, efforts should be made to coordinate the format of currently developing implementation structures, such as JPIs, JTIs, Article 185s, etc., and to avoid a too wide array of rule sets, reimbursement rates and administrative procedures. Defining a clear set of rules for Joint Undertakings which are co-funded by national funds under different rules will be very important. Appropriate IPR rules have to be foreseen acknowledging the specific requirements of universities.

We are pleased about the eligibility of the VAT for institutions that cannot recover it, a provision that is already applicable to other programmes (for example CIP) and now is proposed to be extended to all the Horizon 2020 components.

Finally, CESAER welcomes the new rules for time recording.

## **7. Evaluation criteria**

In Art. 14, 1. of the Rules for Participation the selection and award criteria are defined as:

- (a) Excellence,
- (b) Impact,
- (c) Quality and efficiency of the implementation.

CESAER has several points to make regarding the evaluation criteria:

- We assume that the definition of the scores will not be changed from FP7 to HORIZON 2020 and will remain: excellent, very good, good, fair, and poor. Therefore, using the term “excellence” for the first criterion seems not optimal. CESAER proposes to use the formulation “S&T quality”;
- Art. 14, 2. says “The sole criterion of excellence shall apply for proposals for ERC frontier research actions.” CESAER proposes to delete this sentence. First, the evaluation criteria applied for ERC Starting Grants and for Advanced Grants address also impact and implementation (“feasibility of the scientific approach”). Secondly, any discrimination between the ERC and the other parts of HORIZON 2020 should be avoided.

- Regarding “Impact”, CESAER recommends to use the formulation “Impact and/or societal relevance” since that seems more appropriate for and consistent with the orientation of HORIZON 2020.

In addition, CESAER recommends reviewing the present approach of defining “Expected impacts” in the Work Programmes. Experience in FP7 shows that the formulations currently used are not providing substantial additional guidance for proposers and evaluators.

As a consequence, CESAER proposes the following wording for the evaluation and selection criteria:

- (a) S&T Quality,
- (b) Implementation,
- (c) Impact and/or societal relevance.

## **8. Intellectual Property Rights**

In the proposal for the rules for participation<sup>3</sup> the expression “use” has been changed to “exploitation”. However, “exploitation” is defined, and as a consequence it is now unclear if the rules imply a right to use a partner’s foreground or background in cases where they are needed in order to use one’s own foreground for other purposes than exploitation, e.g., further research or education. Further, it is unfortunate that the rules have been changed in the way that “fair and reasonable conditions” explicitly imply “royalty-free conditions”, since this can make it difficult for researchers to demand compensation in cases where it otherwise would be appropriate. These two expressions should therefore be separated as was the case previously.

Considering the above, CESAER proposes the following changes:

- Article 2 Definitions:

“Exploit” should be defined and given the same meaning as “use” in FP7, namely: “means the direct or indirect utilisation of results in further research activities other than those covered by the action, or for developing, creating and marketing a product or process, or for creating and providing a service.”

In the same article, the following expression should be defined to enhance clarity:

“Fair and reasonable conditions” should be given the same meaning as in FP7, namely: “means appropriate conditions including possible financial terms taking into account the specific circumstances of the request for access, for example the actual or potential value of the results or background to which access is requested and/or the scope, duration or other characteristics of the exploitation envisaged.”

- Article 43 Access rights principles, item 4:

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<sup>3</sup> Op. cit., pp. 29 ff.



The current phrase is unclear and can make it difficult for researchers to demand compensation in cases where it would be appropriate. For this reason, “For the purposes of access rights, fair and reasonable conditions may be royalty-free conditions”, should be deleted in its entirety.

- Article 45 Access rights for exploitation

In the purpose of enhancing clarity and conformity with other proposed changes, this article should be changed as follows:

Item 1, second paragraph

We suggest adding (in italics): “Subject to agreement, such access shall be granted *either* under fair and reasonable conditions *or be royalty-free*.” This text is used in present rules, Article 50 Access rights for use, and we see no reason to change it.

Considering that “exploitation” is not defined, our view is that a clarification is needed in this article. Therefore, we propose the following addition in item 1 as a new paragraph: “Access rights to results for internal research purposes shall be royalty free.”

Item 2, second paragraph

We propose the same addition (in italics) as in item 1 above: “Subject to agreement, such access shall be granted *either* under fair and reasonable conditions *or be royalty-free*.”

## 9. Final remarks

CESAER emphasises that HORIZON 2020 should be less risk-averse and build on mutual trust between researchers and the Commission. Researchers have to commit themselves to a code of sound scientific and financial conduct and the Commission has to keep to the rules and arrangements defined during contract negotiations.

CESAER will closely follow the negotiations between the European Parliament and the Council and will provide further input and comments as appropriate. CESAER underlines the need for the political actors, in the process towards the decision establishing HORIZON 2020, to take into account the opinions of organisations that represent the science and business community in Europe.

**CESAER Member institutions  
(as of Feb. 2012)**

**Austria**

Vienna University of Technology

**Belgium**

Ghent University, Faculty of Engineering  
KU Leuven, Faculty of Engineering Science  
UCL, Ecole polytechnique de Louvain

**Czech Republic**

Brno University of Technology  
Czech Technical University in Prague

**Denmark**

Aalborg University, Faculty of Engineering and  
Science  
DTU Technical University of Denmark

**Estonia**

Tallinn University of Technology

**Finland**

Aalto University

**France**

Ecole Centrale Paris  
Grenoble INP  
INSA de Lyon  
ParisTech  
GEA - Groupe des Ecoles Aéronautiques  
INSA de Toulouse  
SUPELEC - Ecole Supérieure d'Electricité

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Rheinisch-Westfälische Technische Hochschule  
Aachen  
Technische Universität Berlin  
Technische Universität Braunschweig  
Technische Universität Darmstadt  
Technische Universität Dresden  
Technische Universität Hamburg-Harburg  
Leibniz Universität Hannover  
Technische Universität Ilmenau  
Karlsruher Institut für Technologie (KIT)  
Technische Universität München

**Greece**

National Technical University of Athens  
Technical University of Crete  
Aristotle University of Thessaloniki, School of  
Engineering

**Hungary**

Budapest University of Technology and Economics

**Ireland**

University College Dublin, College of Engineering  
and Architecture

**Israel** Technion, Israel Institute of Technology  
(associate member)

**Italy**

Universita' degli Studi di Firenze, Facolta' di  
Ingegneria  
Politecnico di Milano  
Politecnico di Torino

**Lithuania**

Kaunas University of Technology

**Netherlands**

Technische Universiteit Delft  
Technische Universiteit Eindhoven  
Universiteit Twente

**Norway**

NTNU The Norwegian University of Science and  
Technology

**Poland**

Politechnika Poznanska  
Warsaw University of Technology

**Portugal**

Instituto Superior Técnico, Lisbon  
Universidade do Porto, Faculty of Engineering

**Romania**

Universitatea Politehnica din Bucuresti

**Russia**

Tomsk Polytechnic University

**Spain**

Universitat Politècnica de Catalunya  
Universidad Politécnica de Madrid  
Universidad Politécnica de Valencia

**Sweden**

Chalmers University of Technology  
Lund University, Faculty of Engineering LTH  
The Royal Institute of Technology (KTH)

**Switzerland**

Ecole Polytechnique Fédérale de Lausanne  
Eidgenössische Technische Hochschule Zürich

**Turkey**

Istanbul Technical University

**United Kingdom**

Heriot-Watt University