

Bridging the gap between **real Science & Technology **opportunities** and EU S&T policies**

A brief discussion of H2020

**European
Parliament - ITRE
Hearing**

josemarianogago@gmail.com

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IST – LIP – IP

BRIDGING THE GAP BETWEEN SCIENCE AND POLICY

HORIZON 2020 first proposal for a regulation (by the EC)

H2020: A (very) good start in need of careful revision and (some) radical improvements

The world of knowledge is changing rapidly

Science & Technology Policies in Europe at a turning point

A first reading of the proposed H2020 framework programme for research and innovation (2014-2020)

Ethics and Risks: threats versus opportunities

Third countries and International organisations

Performance indicators: human resources should be key

Social Sciences and Humanities – and Science & Society- unacceptably minimized. Collaborative frontier research is urgently needed as well as...

...ERC – Prizes for excellence in all MS

The promises of the FET programme are to be further exploited and

Marie-Curie actions for advanced training and mobility should match new opportunities in Higher Ed and R&D

Need for a more realistic policy for infrastructure: EU network research infrastructures, open access to be defined as top priorities

European societies, EU national policies, the EU new economic and budgetary environment are (unfortunately) not to be found (unable to comment within available time: Budget...Rules of Participation...GMES?... ITER?...focusing the JRC?...)

Learning from real research & innovation: new opportunities as driving forces to renew S&T policies

Landmarks to improving H2020: Stem Cells, Social Sciences and Humanities, Science & Society, Excellent research in ALL member states, collaborative research in the basic sciences, R&D and advanced education together with Universities and industry, Space and ESA, Health - a EU Council for Health Research, SESAME.

ERA – a good old concept now degraded and in need of revision

An opportunity for Action

BRIDGING THE GAP BETWEEN SCIENCE AND POLICY

The world of knowledge is changing rapidly – for the better

**a larger fraction of humanity aspires to education and
higher education is increasingly perceived as tomorrow's general education**

in 2007: 151 M (+53% since 2000)

students enrolled outside their country of origin: 0.5% in 1975, 3% in 2006

higher education has become an aspiration for all, and not exclusively for the social elites

higher education is increasingly perceived as a social, economic and political driving force for progress in developing countries
– providing a renewed constituency for scientific development, political democracy and justice, and for the quality of general education

higher education is becoming an emerging political actor in part of the developing world

**science is increasingly global
and increasingly perceived as linked to human, social and economic progress**

2002 > 2007

5.7 > 7.1 M researchers (+25%)

780 > 1150 b US\$ (+45%)

1.1 > 1.6 M publications (international cooperation: 8% in 1987, 20% in 2007)

Where? Asia, Latin America, Africa

major trends of change in science (policy) agendas:

.Risk Governance (prevention, mitigation, response) is a new driver of science policies: natural disasters, ageing and chronic diseases, industrial and other major public risks, quality and availability of water and food, energy.

.Data intensive science has spread from particle physics and astrophysics to the biological sciences. ICT and Science become closely interlinked (but: infrastructure, IPR, inequalities)

. Science & Academic networking at world level: institutional networking for capacity building is becoming key; new patterns of institutional capacity building programmes are now added to the traditional fluxes of individual students and researchers.

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RESEARCH AS A DRIVING FORCE FOR THE RENEWAL OF EU VALUES AND ECONOMIES?

Science and Technology Policies in Europe at a turning point?

- as they need to respond to the fast changes in knowledge production at world level
- as they wish to combine the response to societal challenges with increased innovation and industrial competitiveness
- (and pursue increased attractiveness for talent in S&T, while reinforcing its science base)
- As they must cope with new serious budgetary constraints and economic crisis

However, in H2020

- cross-border collaboration seems to have lost some of its original and fundamental role
- it is not clear how research capacities in all member states really matter
- economic constraints and prospects for the economy of the EU are invisible
- no clear priority is given to the urgent need to strengthen the constituency for scientific development in Europe
- the essential role of research in the sustainability of the European social model is not sufficiently recognised as an opportunity
- the political, catalyst role of EU FP has not yet attained a coherent institutional expression

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A PRACTICAL APPROACH TO IMPROVING H2020

Opportunities not to be missed

Stem cells – a missed opportunity?

Social Sciences and Humanities for the construction of Europe: imagine that ICT was no longer considered a specific field in H2020?!

Science & Society : strengthening the social and political constituency for S&T development in Europe: science centres, science education and the promotion of a culture of science

Excellent research in ALL member states: ERC prizes for (European) excellence in each MS

Collaborative Research in Frontier (bottom-up) Research: a new role for the ERC – promoting excellence and collaboration

Collaborative research as a privileged ground for advanced training in industry and academia, and for University joint doctoral programmes

Space and Health research as essential drivers to science-based innovation, response to societal challenges and international competition

Space: helping ESA by developing basic technologies (non dependence); long term storing, disseminating and exploiting spatial data; development of innovative services

Health: a EU Council for Health Research is urgently needed (long-term programmes, scientific leadership, addressing inequality, personalised medicine, supporting industry, curbing health related costs to society and improving efficiency)

Science for Peace: SESAME

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ERA - A “European Research **Area**” or a European Research **Ambition**?

ERA – a good old concept now degraded and in need of revision

The “European Research Area” as the expression of the Internal Market in the Research sector is a useless concept: mobility of researchers and ideas, and intergovernmental cooperation in research, preceded (and helped to prepare) the internal market;

The European Research Area concept was invented not to mimic the EU Internal Market, but to take stock of the variety of actors in the development of S&T in Europe. One does not “achieve” the ERA....

The ERA concept was degraded beyond recognition, as if all EU research actors were to follow rules of “ERA governance” and become subjects to Brussels infinite wisdom. That strategy was wrong: it did not contribute to the strengthening of national political priorities to research and innovation, and it was not able to steer common economic policies into counter-cycle measures of support to education and science in response to economic crisis.

National policies as well as national and international research organizations must be fully recognized as the main European actors for the future of research in the EU. Competition for power in this area is damaging for the success of Europe.

**In the Horizon of 2020 we need to share the ambition of knowledge and progress and to build together a
a renewed
European Research Ambition
(a new ERA)**

BRIDGING THE GAP BETWEEN SCIENCE AND POLICY

STEM CELLS – A MISSED OPPORTUNITY?

Article 16

Ethical principles

1. *All the research and innovation activities carried out under Horizon 2020 shall comply with ethical principles and relevant national, Union and international legislation, including the Charter of Fundamental Rights of the European Union and the European Convention on Human Rights and its Supplementary Protocols. Particular attention shall be paid to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of a person, the right to non-discrimination and the need to ensure high levels of human health protection.*
2. *Research and innovation activities carried out under Horizon 2020 shall have an exclusive focus on civil applications.*
3. *The following fields of research shall not be financed:*
 - a) *research activity aiming at human cloning for reproductive purposes;*
 - b) *research activity intended to modify the genetic heritage of human beings which could make such changes heritable;*
 - c) *research activities intended to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer.*
4. *Research on human stem cells, both adult and embryonic, may be financed, depending both on the contents of the scientific proposal and the legal framework of the Member States involved. No funding shall be granted for research activities that are prohibited in all the Member States. No activity shall be funded in a Member State where such activity is forbidden.*
5. *The fields of research set out in paragraph 3 may be reviewed within the context of the interim evaluation set out in Article 26(1) in the light of scientific advances.*

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SPACE AND THE EUROPEAN SPACE AGENCY (ESA)

Space activities and the strengthening of ESA are key to EU economy

Sharing of roles and responsibilities and coordination with ESA are urgently needed. H2020 does not address this crucial issue.

H2020 could strengthen industry's competitiveness together with ESA by (in coordination with ESA):

- **Investing in research in basic technologies (for non-dependence).**
- **Investing in research using space-based research capabilities**, building upon previous success, namely IMPRESS (Intermetallic Materials Processing in Relation to Earth and Space Solidification)
- **Investing in the exploitation, dissemination and long-term storage of data from space-based systems**
- **Developing innovative services, such as GMES for Marine monitoring or Emergency response**

Clarification is also needed for the future role of the EC in GMES

Alliance for Biomedical Research in Europe

European Council for Health Research

In the golden age of genetics, neuroscience and biomedical research as a whole, why aren't many promising discoveries benefitting patients as rapidly as expected? Why are Europe's innovators continuing to move to places where it is easier to succeed? And how are EU Member States going to deal with the grand challenges of an ever increasing health budget and in parallel an ageing population, in a time of economic gloom?

Towards this goal, the BioMed Alliance proposes the creation of the European Council for Health Research (EuCHR), an initiative that will have a structural effect in contributing to defining biomedical research and translation programmes based upon the best scientific leadership and that should ensure expert scientific input on policy from the outset and warrant savings for national health systems.

The proposed EuCHR is therefore seen as an essential delivery mechanism for Horizon 2020 (H2020) in the areas of research and innovation directly related to health.

Why is the EuCHR needed?

Because the EU added-value of H2020 in health-related areas can only be exploited if: a) strategic top-level scientific leadership can be achieved; b) strategic long-term action at EU level can be pursued in order to successfully translate research into health benefits; and c) strategic collaborations and cross-talk amongst health research stakeholders at EU level is efficiently organised.

Because the major challenges facing health research and innovation in the EU cannot be met without coordinated action at EU level. By establishing H2020 internal strategic coordination at EC level, based upon top-level scientific steering, a EuCHR will also provide the impetus and instruments needed to promote interaction and synergies at a larger scale, namely: a) voluntary convergence among national funding agencies, and with the EC, on specific objectives, whenever appropriate; b) strategic specific partnership, at EU level, between industry, national agencies and the EC and c) strategic convergence at programme level involving regulatory bodies and national health authorities.

Because EC funding for health research and innovation is scattered across H2020 itself

Because health research and innovation increasingly require networking of many other science and technology (S&T) research and innovation areas.

Science for Peace
With the European Union?
With Horizon 2020?

SESAME | Synchrotron-light for Experimental Science and Applications in the Middle East

Major Capital Funding Agreed for SESAME At a meeting in Amman on 8 March 2012, representatives of four SESAME Members (Iran, Israel, Jordan and Turkey) agreed to make voluntary contributions of US\$5 million each towards the construction of SESAME over the four years 2012-15 .

The current (2012) Members of SESAME are Bahrain, Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, the Palestinian Authority, and Turkey.

Current Observers (2012) are France, Germany, Greece, Italy, Japan, Kuwait, Portugal, Russian Federation, Sweden, Switzerland, the United Kingdom, and the United States of America.

<http://www.sesame.org.jo/sesame/>

