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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**Enhancing and focusing EU international cooperation in research and innovation: A
strategic approach**

(Text with EEA relevance)

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1. A CHANGING WORLD

The European Union is a world leader in research and innovation, responsible for 24% of world expenditure on research, 32% of high impact publications and 32% of patent applications, while representing only 7% of the population¹.

Over the past decade, however, the landscape has evolved rapidly. Global research and innovation were, until recently, dominated by the European Union, the USA and Japan. As the emerging economies continue to strengthen their research and innovation systems, a multipolar system is developing in which countries such as Brazil, China, India and South-Korea exert increasing influence. The share of the BRICS in global expenditure on R&D doubled between 2000 and 2009. The Union also has a clear interest in its neighbouring countries developing their research and innovation capacity.

Research and innovation are increasingly interlinked internationally, aided by rapidly developing information and communication technologies. The number of internationally co-authored scientific publications and the mobility of researchers are increasing. Research organisations are establishing offices abroad and companies are investing outside their home countries, in particular in the emerging economies.

Global challenges are important drivers for research and innovation. Our planet has finite resources which need to be cared for sustainably; climate change and infectious diseases do not stop at national borders, food security needs to be ensured across the globe. The Union needs to strengthen its dialogues with international partners to build critical mass for tackling these challenges.

As more research and innovation is performed in third countries², the Union will need to access this knowledge. To remain a major global player, the Union must promote itself as an attractive location for carrying out research and innovation and be successful in the global competition for talent, while at the same time preserving its economic interests, for instance as regards the protection of intellectual property.

With the entry into force of the Treaty on European Union (TEU) and the Treaty on the Functioning of the European Union (TFEU) the institutional setting for the Union's action on the international scene has changed. The Union's High Representative for Foreign Affairs and Security Policy, and Vice-President of the Commission, ensures the consistency of the Union's external action. The High Representative is assisted by the European External Action Service (EEAS). Research being a parallel competence, the Union and Member States shall ensure coordination of their respective activities, so as to ensure that national policies and Union policy are mutually consistent.

¹ Further information is provided in the accompanying Staff Working Document.

² In this Communication 'third country' is a country that is neither a Member State nor a state associated to the research framework programmes, unless otherwise stated.

Based on this evolving context, the commitments under the Innovation Union,³ the European Research Area (ERA) Framework⁴ and the recommendations of the interim evaluation of the Seventh Framework Programme (FP7),⁵ the Commission proposes a strategic approach to enhance and focus the Union's international cooperation activities in research and innovation, in particular with a view to preparing for the implementation of Horizon 2020⁶.

2. TAKING STOCK

Europe has a long history in promoting research cooperation across borders. Established in 1954, the European Organisation for Nuclear Research (CERN) is a research centre of excellence and the world's largest particle physics laboratory, attracting top scientists.

Since 1986, the Treaties explicitly identify cooperation with third countries as a key activity of the Union's research policy. International cooperation activities have been developed under the TFEU and the Euratom Treaty. The Framework Programmes have gradually been opened up to participation by third countries, with support for international cooperation fully mainstreamed within FP7 (including Euratom FP7). The European Institute of Innovation and Technology (EIT) is also open to collaboration with third countries. As a result, 6% of FP7 participants come from third countries.

Progress has been made in optimising the scale and scope of international cooperation activities. For example:

- The *European and Developing Countries Clinical Trials Partnership* (EDCTP) is a partnership between 14 Member States, Switzerland, Norway and sub-Saharan African countries aimed at tackling HIV/AIDS, tuberculosis and malaria;
- Euratom, China, India, Japan, Russia, South-Korea and the USA have joined forces in the *ITER* project (supported by the Broader Approach Agreement between Euratom and Japan) to demonstrate that nuclear fusion is a viable energy source of the future;
- The *Marie Curie actions* have a strong international dimension. Participants in these actions come from 80 different countries;
- The Commission's *Joint Research Centre* cooperates with international partners on a wide range of issues;
- The world-wide interconnection of research and education networks provided by the *GEANT* network is largely funded by the Union (partially through its development cooperation instruments);
- The Union, together with 13 other countries, supports the *Human Frontier Science Programme* to finance international collaboration in basic research.

While this progress is welcome, critical mass is lacking in many cases and the strategy driving the development of the actions is not always clear. This was one of the conclusions of the FP7 interim evaluation, which stated that there needs to be an '*intensification of international cooperation*' activities focused on '*engaging with partners outside of Europe on equal terms and in programmes and activities of high mutual interest*'. The same report recommended the '*coherent strategic development*' of the Union's policy for international cooperation in research and innovation.

³ COM(2010) 546

⁴ COM(2012) 392

⁵ http://ec.europa.eu/research/evaluations/index_en.cfm?pg=fp7

⁶ COM(2011) 809

3. OBJECTIVES OF INTERNATIONAL COOPERATION

International cooperation in research and innovation contributes to the broader policies of the Union, as reflected in the Europe 2020⁷ strategy, in supporting the following objectives:

- (a) **Strengthening the Union's excellence and attractiveness in research and innovation as well as its economic and industrial competitiveness** – by creating win-win situations and cooperating on the basis of mutual benefit; by accessing external sources of knowledge; by attracting talent and investment to the Union; by facilitating access to new and emerging markets; and by agreeing on common practices for conducting research and exploiting the results;
- (b) **Tackling global societal challenges** – by developing and deploying effective solutions more rapidly and by optimising the use of research infrastructures; and,
- (c) **Supporting the Union's external policies** – by coordinating closely with enlargement, neighbourhood, trade, Common Foreign and Security Policy (CFSP), humanitarian aid and development policies and making research and innovation an integral part of a comprehensive package of external action.

'Science diplomacy' will use international cooperation in research and innovation as an instrument of soft power and a mechanism for improving relations with key countries and regions. Good international relations may, in turn, facilitate effective cooperation in research and innovation.

This Communication proposes to enhance and focus the Union's international cooperation activities in research and innovation by using the dual approach of **openness** complemented by **targeted international cooperation activities**, developed on the basis of common interest and mutual benefit, optimal scale and scope, partnership, and synergy.

4. ENHANCING AND FOCUSING INTERNATIONAL COOPERATION ACTIVITIES

4.1. Openness in international cooperation

The Union will continue to engage with countries and regions across the globe. This will allow the Union's researchers and innovators to engage on a stakeholder-driven basis with their counterparts worldwide:

- Horizon 2020 will be fully open to participation from all over the world⁸;
- The European Research Council and Marie Skłodowska-Curie actions will operate on a fully researcher-driven basis, open to researchers from third countries.
- The Research Infrastructures activity will have a specific focus on international cooperation. Its e-Infrastructures component has an inherent international dimension by supporting collaboration through digital means.
- However, not all third country participants will be automatically eligible for funding⁹. The list of countries eligible for automatic funding will be restricted, by complementing the current selection criterion, based solely on GNI per capita, with an additional criterion based on total GDP, excluding countries above a defined threshold. This will address the fact that some countries have established the critical mass needed to cooperate on a reciprocal basis with the Union. Similarly as for the

⁷ COM(2010) 2020

⁸ COM(2011) 810 Art 6(1)

⁹ COM(2011) 810 Art 9

industrialised countries, funding for participants from these countries continues to be possible in exceptional cases;

- The more restrictive approach to automatic funding will be counterbalanced by increased efforts to facilitate the funding of participants through their national channels;
- The Union will continue to encourage reciprocal access to third countries' programmes. The Horizon 2020 proposals allow for limiting the geographical scope of calls, for instance when the conditions for the participation of legal entities from Member States in the third country's programmes are considered to be prejudicial to the Union's interest or satisfactory security guarantees can not be provided¹⁰;
- Support for COST and EUREKA will encourage European networks of researchers to cooperate with their third country counterparts.

4.2. Targeted international cooperation activities

Maximising the impact of international research and innovation activities, while avoiding a costly fragmentation of efforts, requires the Union to complement the openness of Horizon 2020 with targeted actions in order to ensure optimal scale and scope.

4.2.1. Identifying areas for international cooperation

Horizon 2020 focuses the Union's research and innovation funding on a limited number of societal challenges and enabling and industrial technologies.

In preparing work programmes for implementing Horizon 2020 (the Euratom programme being a part of this), international cooperation will be a key consideration. Areas for engaging with third countries will be identified in a systematic and coherent manner on the basis of an analysis of the Union vis-à-vis the rest of the world in line with the following set of criteria:

- research and innovation capacity, including investment, output (publications, patents, citations, licensing), human resources and infrastructure;
- risks of and opportunities for access to existing, new or emerging markets, and their impact on the Union's competitiveness;
- contribution to the Union's international commitments, as reflected in the Millennium Development Goals, the post-2015 development framework, Rio+20, G20 and the international objectives of sectoral policies; and,
- the legal and administrative frameworks in place, among the international partners, and where appropriate the Member States, to engage in cooperation, also including lessons learnt from previous cooperation.

While sufficient objective information is available to support the analysis of the first criterion, the others will require qualitative assessment and judgment. A systematic gathering of information will be an essential element of the strategic approach, relying in particular on the new Research and Innovation Observatory being developed by the Commission. It will include in-depth stakeholder consultations, including with industry.

An enhanced innovation dimension will involve putting in place adequate framework conditions and a level playing field, including activities ranging from information gathering, policy learning, exchange of experience, identification of good practice, provision of information and assistance and networking between research and innovation actors to supporting the adaptation and uptake of existing technology in new markets, and – in limited

¹⁰ COM(2011) 810 Art 6(2), 6(3) and 8(5)

cases –demonstration and pilot projects. There will be a stronger focus on close-to- market and other innovation related activities. This will require finding an appropriate balance between cooperating with third countries to jointly advance scientific knowledge and tackle global challenges while safeguarding the interests of the Union's companies. In this context, the fair and equitable treatment of IPR will be ensured to avoid uncontrolled loss of the Union's know-how.

More generally, sound innovation-related framework conditions are of the utmost importance for the Union to engage effectively in research and innovation at international level. For example, the removal of specific trade barriers remains a cornerstone of the Union's relationship with third countries.¹¹

4.2.2. *Developing multi-annual roadmaps for cooperation with key partner countries and regions*

Based on the above criteria, the identification of areas for targeted international cooperation actions will be the starting point of the strategic approach. A flexible differentiation of partner countries and regions will allow additional focus – especially when considering funding options – while taking into account that a given country can fall into one or more groupings, depending on its research and innovation strengths. The following country groupings are included in the Horizon 2020 proposals:

- **The EFTA countries, EU enlargement countries and countries covered by the European Neighbourhood policy**, where the focus will be on fostering integration into – or alignment with – the European Research Area, including through their possible association to Horizon 2020. For the Neighbourhood, this will contribute to developing a 'Common Knowledge and Innovation Space', including improving the research and innovation competences of these countries. Cooperation will be in close coordination with the instruments of the enlargement and neighbourhood policies, as underlined at the recent conference on a renewed Euro-Mediterranean partnership in research and innovation. For the latter case, a specific follow-up action is in preparation.
- **Industrialised countries and emerging economies**, where the main objective will be to increase the Union's competitiveness, to jointly tackle global challenges through common innovative solutions, and to develop enabling technologies by accessing new sources of knowledge. This will provide the Union's private sector with business opportunities and access to new markets. There will also be a strengthened innovation dimension, as is the case for instance through the Transatlantic Innovation Action Partnership or the Indo-European Partnership for Research and Innovation.
- **Developing countries**, where the emphasis will be on complementing the Union's external policies and instruments by building partnerships – in particular bi-regional partnerships – to contribute to the sustainable development of these regions and address challenges such as the green economy, climate action, improved agriculture, food security and health. This includes supporting the Millennium Development Goals – and their possible successors – strengthening demand-led research and innovation for development, and delivery of the outcome of the Rio+20 conference, e.g. through the transfer of climate technologies.

¹¹ COM(2012) 70

Systematic identification of opportunities combined with differentiation by country groupings will support the development of **multi-annual roadmaps for cooperation with key partner countries and regions**.

5. A SET OF INSTRUMENTS THAT IS FIT FOR PURPOSE

5.1. Policy dialogue

The Union has Scientific and Technical Cooperation Agreements with 20 countries under the TFEU and with 15 countries under the Euratom Treaty. Science and technology are also often an important part of broader policy dialogues, such as in Partnership and Cooperation Agreements and other international framework agreements.

The S&T agreements will be important vehicles for defining and implementing the multi-annual roadmaps. Where appropriate, they will be developed into strategic long-term partnerships, including agreement on the priorities to be addressed. They should also promote the fair and equitable treatment of intellectual property and knowledge transfer. A similar approach will be followed on a regional basis, for instance for the partnerships with the Mediterranean countries, the Association of South East Asian Nations, Africa, and the Latin-American & Caribbean countries.

5.2. Information gathering

Objective information is needed to implement the strategic approach. Increased attention must, therefore, be paid to collecting qualitative and quantitative information, such as¹²:

- international cooperation activities funded through the Union, and their impact;
- international cooperation policies and programmes of the Member States and Associated Countries, as well as the strengths and weaknesses of their research and innovation systems, whereby Member States and Associated Countries will be encouraged to share with each other, through the Strategic Forum for International S&T Cooperation (SFIC), information obtained through national mapping exercises;
- research and innovation policies and programmes, including their international component, of third countries, as well as the strengths and weaknesses of their systems;
- foresight activities, to identify emerging challenges, future markets and trends.

Information gathering will make use of the Union's Delegations and science counsellors and the EEAS, as well as the new Research and Innovation Observatory.

5.3. Funding instruments

Horizon 2020 will be the main instrument for implementing the Union's international research and innovation cooperation actions, complemented where appropriate with national funding.

Targeted activities using the following instruments will implement the multi-annual roadmaps:

- research and innovation projects where the participation of third country entities is required and/or taken into account during evaluation;
- softer forms of cooperation such as networking between projects, clusters and/or programme managers;

¹² Further information is provided in the accompanying Staff Working Document.

- joint initiatives involving the Union and international partners:
 - coordinated calls: launched and evaluated in parallel in the Union and the third country;
 - joint calls: launched, evaluated, selected and funded jointly by the Union and the third country;
 - contributions from the Union to funding programmes of third countries or international organisations to cover the participation of the Union's entities in those programmes; and,
 - specific initiatives requiring joint funding from the Union, Member States, Associated Countries, and/or third countries to ensure optimal scale and scope, implemented through ERA-NETs, Article 185 or other instruments.

The Horizon 2020 proposals include provisions¹³ to develop and present cross-cutting activities, such as international cooperation, in a coherent manner. The Commission intends to reflect these provisions in the work programme and comitology structure of Horizon 2020.

5.4. Coordinating with other policies and international fora

5.4.1. Policies and instruments of the Union

International cooperation activities in research and innovation will be developed in close coordination with the Union's external policies and instruments¹⁴. This will also include mainstreaming research and innovation across other policies with a strong international dimension, such as trade, CFSP, environment and energy, and exploiting synergies with international cooperation in higher education proposed under Erasmus for All¹⁵. The development of the multi-annual roadmaps for international cooperation in research and innovation should, therefore, be closely coordinated with the general external country strategies and the external dimension of the Union's internal policies.

The Union's external policies will aid in building-up research capacity in the enlargement, neighbourhood and developing countries. Research and innovation funding will focus on excellence, thereby contributing to finding innovative solutions for the challenges these countries face. In doing so it will contribute to the objectives of the Union's development policies, for instance through: forward-looking activities and socio-economic research to identify specific challenges; cutting-edge research and innovation to develop locally applicable solutions; or providing support for adapting and transferring existing technologies. This will be complemented by funding provided by the European Investment Bank and the European Bank for Reconstruction and Development.

5.4.2. International organisations and multilateral fora

International organisations and multilateral fora play a key role in addressing global challenges. The Organisation for Economic Cooperation and Development's (OECD) Committee on Science and Technology Policy and Global Science Forum focuses on improving the governance of global research and innovation activities. The United Nations and other organisations such as UNESCO, the Intergovernmental Panel on Climate Change, United Nations Framework Convention on Climate Change, the Intergovernmental Platform

¹³ Article 13 of the Horizon 2020 Regulation and Article 5(6) of the Specific Programme.

¹⁴ COM(2011) 865.

¹⁵ COM(2011) 788.

on Biodiversity and Ecosystem services, Food and Agricultural Organisation and World Health Organisation, play a key role in shaping global research agendas.

The International Energy Agency and Nuclear Energy Agency (under the OECD framework), the International Atomic Energy Agency and the Generation IV International Forum and ITER International Organisation promote international cooperation in nuclear energy. Global and regional institutions such as the Consultative Group on International Agricultural Research, Global Forum for Agricultural Research and Forum for Agricultural Research in Africa are active in the field of agriculture. The Carnegie Group, set-up under the auspices of the G8/G20, provides a unique forum for high-level discussions on research and innovation issues.

The Commission intends to step-up its engagement with these organisations, both to enable the Union to exert greater influence on their activities, in particular where the Union is a major donor, and to give them a stronger voice in shaping the Union's agenda. In this context, the Union should attempt to ensure that its participation is commensurate with the responsibilities assigned to it by Treaties. Further developing the partnership with European intergovernmental initiatives, such as EUREKA and COST, and organisations, such as EIROForum¹⁶, will contribute to a better coordination and more effective use of European resources.

6. PROMOTING COMMON PRINCIPLES FOR THE CONDUCT OF INTERNATIONAL COOPERATION

Guided by its principles for external action (Art 21 TEU), the Union is well placed to play a leading role in promoting common principles for the conduct of international research and innovation activities in order to create a level playing field in which researchers and innovators from across the globe feel confident to engage with each other. These principles will deal with issues such as responsible research and innovation, research integrity; peer review of proposals; promotion of the role of women in science and the gender dimension in research, research and innovation; research careers (building on the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers)¹⁷; fair and equitable treatment of IPR; and open access to publicly funded research publications.

A step has been taken with the establishment of the Global Research Council, a voluntary forum set up to share best practice and establish common principles in international cooperation. Other initiatives are on-going at Union and global level. The Carnegie Group has worked on establishing common principles for the construction of large-scale research infrastructures. As regards open access, the Commission adopted a Communication¹⁸ in 2007 and, more recently, a follow-up Communication and Recommendation¹⁹.

These issues have also been widely debated at international level, in both bilateral and multilateral fora. The move towards open access is a worldwide endeavour, demonstrated by UNESCO's contribution to its promotion²⁰ and the OECD declaration on access to research data from public funding²¹. Similarly, the Singapore Statement on research integrity

¹⁶ <http://www.eiroforum.org>

¹⁷ C(2005) 576 final.

¹⁸ COM(2007) 56.

¹⁹ COM(2012) 401 and C(2012) 4890

²⁰ http://www.unesco.org/new/en/media-services/single-view/news/open_access_to_scientific_information_policy_guidelines_for_open_access_released/

²¹ <http://www.oecd.org/dataoecd/9/61/38500813.pdf>

represents the first international effort to encourage the development of global policies, guidelines and codes of conduct to foster greater integrity in research²².

7. STRENGTHENING THE PARTNERSHIP WITH THE MEMBER STATES AND MAJOR STAKEHOLDERS

The Union's international cooperation activities and those of the Member States need to be consistent and complement each other. Deepening and strengthening the partnership between the Commission and the Member States will therefore be an important element of the strategic approach.

It will also be important to develop a stronger and more systematic interaction with the main research and innovation stakeholders. This will include better alignment with the international cooperation priorities of actors such as industry, universities and research organisations, but also the priorities of the Joint Programming initiatives, European Technology Platforms and European Innovation Partnerships.

SFIC has made progress in the alignment of international cooperation priorities of Member States and especially national and regional funding organisations, by developing a pilot initiative with India and exploring cooperation priorities with the USA and China.

These efforts need to be stepped up as Member States' international cooperation activities continue to be driven largely by national considerations rather than by developing priorities and strategies shared by the Union and its Member States. Accordingly:

- The Member States will be involved in the identification of areas for international cooperation and the development of the multi-annual roadmaps;
- The implementation of these roadmaps will involve preparing joint Union-Member States strategic research and innovation agendas, and involving Member States closely in their implementation;
- The Innovation Union commitment to develop common guidelines for engaging in agreements with third countries, on issues such as scientific visas, IPR, ethical principles in research, the import and export of scientific samples and equipment, reciprocity and taxation will be followed-up. This will include building upon the ERA guidelines on IP management in international collaboration agreements as adopted by the ERA Knowledge Transfer Group.

8. IMPLEMENTATION, GOVERNANCE, MONITORING AND EVALUATION

8.1. Implementation and governance

Implementation of the strategy will be closely aligned with the programming process of Horizon 2020, including by presenting the multi-annual roadmaps in a coherent manner in the work programmes.

While the development and implementation of the multi-annual roadmaps for each of the societal challenges and enabling and industrial technologies will continue to fall under the remit of the respective committee configurations, the Horizon 2020 horizontal programme committee configuration will be tasked with steering, monitoring and evaluating the overall approach to international cooperation. SFIC will continue to play its role in promoting more coherence between Member States' and Union policies.

²² <http://www.singaporestatement.org/>

Communicating the value of international cooperation in research and innovation to a broader public will also be an on-going point of attention. Building on the positive experience with the EU-ASEAN Year of Science in 2012, the Commission proposes to organise a Year of Science every two years, alternating between a partner country and region.

8.2. Monitoring and evaluation

The Commission will report every two years on the implementation of the strategy. This report will present how the multi-annual roadmaps have been developed and implemented. It will assess progress and impact based on the list of indicators provided in the accompanying Staff Working Document. The first report will be presented at the beginning of 2014.

9. CONCLUSION

The new strategic approach to international cooperation in research and innovation will be characterised by:

- Horizon 2020 being fully open to third country participants, allowing European researchers to cooperate with the best brains across the world;
- Targeted international cooperation activities with the scale and scope necessary to maximise impact;
- The development of multi-annual roadmaps for cooperation with key partner countries and regions;
- Reinforcing the partnership between the Commission, the Member States and relevant stakeholders;
- Promoting common principles for the conduct of international cooperation in research and innovation;
- Enhancing the role of the Union in international organisations and multilateral fora;
- Strengthening implementation, governance, monitoring and evaluation.