



## DIALOGUE 5+5

MINISTERIAL CONFERENCE ON

*"RESEARCH, INNOVATION AND HIGHER EDUCATION"*

MADRID, 23-24 MARCH 2015

***"Synergies between higher education, research  
and innovation in the Western Mediterranean  
area"***

## MADRID MINISTERIAL DECLARATION



## 2<sup>nd</sup> Ministerial Declaration

The Ministers in charge of higher education, research and innovation within the framework of the 5+5 Dialogue countries met, on the occasion of the 2<sup>nd</sup> Ministerial Conference on ***"Research, Innovation and Higher Education"***, in Madrid, on 23-24 March 2015:

### REAFFIRM

The Agreement made during the 1<sup>st</sup> Ministerial Conference of the *5+5 Dialogue*, which took place in Rabat on September 2013, to organise in Madrid the 2<sup>nd</sup> Ministerial Conference **to push forward the progress on the implementation of a sound knowledge cooperation framework in the Western Mediterranean area.**

### RECALL

1. The full endorsement on **the role that higher education, research and innovation plays in the growth improvement and job creation of the Western Mediterranean area**, as stated in previous communiqués of the 5+5 Dialogue process, in the context of the work carried out by the "Union for the Mediterranean" and the neighbourhood policies of the European Union.
2. The **"Action Plan"** prepared by the *High Level Expert Group* endorsed during the 1<sup>st</sup> Ministerial Conference, in which the principles and priorities constituted the basis for the preparatory work carried out for this 2<sup>nd</sup> Ministerial Conference.
3. The **support to the principles** stated during the 1<sup>st</sup> Ministerial Conference for the successful development of the **Action Plan**:
  - a. To rely on **variable geometry** for the participation in the different actions, in order to allow participating countries to focus their resources on the basis of those topics that are of higher interest for them,
  - b. To focus the efforts on a **limited set** of main thematic priorities, as well as on more appropriate actions and instruments designed to obtain visible results and impact.
  - c. To identify the **main thematic priorities** to be addressed during the implementation of the Action Plan, on the basis of mutual interest and benefits.
  - d. To accept the co-ownership and co-decision principle on **co-funded actions** based on mutual interests, capabilities, capacities and resources of all countries.





- e. To look for **complementarities, synergies** and mutual funding opportunities of existing bilateral, multilateral and European cooperation schemes and instruments.
- f. To build on the **valorisation and the up-taking of research results** and lessons learned, regarding the needs to catalyse the academia-industry interaction, and on the support to the incorporation of scientists and highly qualified people to the industry.
- g. To work on the context of **knowledge triangle** to foster innovation, facilitate the creation of spin-offs and start-ups, enhance exploitation of research results and fasten the movement of ideas to the market.

### THE MINISTERS WELCOME

1. The support provided by the Spanish government to **host this 2<sup>nd</sup> Dialogue 5+5 Ministerial Conference**, the corresponding preparatory work carried out in cooperation with the Moroccan Secretariat and the efforts made by all the countries involved for ensuring the success of the Ministerial Conference.
2. The shared views at the 2<sup>nd</sup> Ministerial Conference on **"Synergies between higher education, research and innovation in the Western Mediterranean area"** to promote the **interaction between research, innovation and higher education** in the frame of the agreed "Action Plan", fully convinced on its prominent role as an essential instrument to pursue a balanced, efficient and sustained socio-economic growth within the region.
3. The **common shared vision to adopt a realistic approach**, where only a limited number of specific activities could be assumed and funded by the participating countries, in relation to their respective interests, capacities and resources, in order to advance in a North-South cooperation in the Western Mediterranean region.
4. The **continued involvement of the "Dialogue 5+5" countries in setting-up a number of specific activities** within the higher education, research and innovation context among the involved countries in the region during the past years, on the basis of pre-existent bilateral and multilateral efforts.
5. The **activities carried out since the 1<sup>st</sup> Ministerial Conference**, such as the organisation of brokerage events and training seminars in a number of countries in the region, open to participants from the 10 countries of the Dialogue 5+5.
6. The **Conclusions of the EU Competitiveness Council of 5/12/2014** that noted that **PRIMA**, if based on Article 185 TFEU, could play an important role in reducing existing fragmentation and duplication between national and European programmes in the



Mediterranean Area, by achieving a critical mass, thus providing a significant added value for the Union and contributing to the advancement of ERA key priority areas. In that occasion, the PRIMA Participating **States** expressed the view that the dimension of the challenge, the size and importance of the partnership, the planned initiatives, and the wide political commitment, are all elements arguing in favour of an initiative pursuant to Article 185 TFEU, as the most relevant and appropriate instrument to promote stable and long-term financial, management and scientific integration, to be launched by the first half of 2017.

7. The support provided by the **Secretariat for the Union for the Mediterranean** to the Western Mediterranean activities of the Dialogue 5+5.

**THE MINISTERS AGREED ON THE FOLLOWING:**

1. To reaffirm the **North-South collaboration principles** on research in the framework of the Dialogue 5+5 agreed at this 2<sup>nd</sup> Ministerial Conference, as a means to extend and complement innovation and higher education in defining and implementing a rich set of activities at different levels among the key public and private stakeholders in the region.
2. To endorse the **"Dialogue 5+5 work programme for 2015-2016 on higher education, research and innovation"**, annexed to this Declaration, derived from the priorities included in the "Action Plan" and approved in 2013, on the basis of the accumulated experience and willingness expressed by the participating countries.
3. To continue the political and technical debate on the future needs and opportunities for **strengthening and implementing the agreed Work Programme** and enhance cooperation in the EU framework and, specifically, in the H2020, ERASMUS+ calls and other public-private or public-public partnerships open to third countries, by giving high priority to the North-South Mediterranean cooperation.
4. To give their political support to **optimise the available national resources for international cooperation** in higher education, research and innovation, in order to implement the actions defined in the 5+5 Work Programme for 2015 and 2016, using variable geometry as a guiding principle.
5. To enhance and increase Western Mediterranean Cooperation in higher education, research and innovation to create **new pathways at a subregional level to be extended to the whole Euro-Mediterranean area**, integrating other Ministries and Private Sector needs and efforts.
6. To express their support to **align common interests and open national programmes and activities**, as a cross-cutting action to improve higher education needs in

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innovation and entrepreneurship in the region, and to offer full support to the creation of a new innovative industrial ecosystem.


7. To declare the **full support of the "5+5" Ministers to the Joint Programme proposal**, prepared by several EU Members States and Mediterranean Partner Countries ("Partnership for Research and Innovation in the Mediterranean Area", the "PRIMA" proposal), focused on food and water issues, bearing the adequate legal structure to allow the participation of the concerned countries, based on co-ownership, co-decision and co-financing principles and to request the EU to take part in and support the PRIMA, based on Article 185 of the Treaty on the Functioning of the EU.

**The MINISTERS, in order to facilitate the future implementation of the above mentioned Principles, also agree on the following points:**

1. To organise a **3<sup>rd</sup> Ministerial Conference on Higher Education, Research and Innovation** (HERI) in the first semester of 2017, in order to continue the cooperation in the context of Dialogue 5+5.
2. To convert the Follow-up Committee into a specific **5+5 High Level Group (HLG) of Higher Education, Research and Innovation** for the periodical follow-up of actions agreed until the 3<sup>rd</sup> Ministerial Conference, in order to ensure the fulfilment of decisions made around the Work programme for 2015-2016 and the maximum coordination with other multilateral activities launched in the region in the context of the Dialogue 5+5. The HLG will determine the terms of reference of its implementation and function.
3. To invite the **European Commission, the Union of the Maghreb Arab, the Union for the Mediterranean and other 5+5 thematic GSOs** to formally nominate representatives to join the 5+5 HLG HERI meetings as observers and contribute to the discussions and follow-up of implemented actions.
4. To invite the **Secretariat of the Union for the Mediterranean** to act as the ad hoc secretariat of the **Dialogue 5+5 on Higher Education, Research and Innovation** and to provide it with the adequate support and the necessary means to properly perform its new functions. These functions would be defined in the upcoming meetings of the HLG, to which the Secretariat would report.



The Ministers representing:

<p><b>Algeria</b></p>  <p><b>Mohammed MEBARKI</b> Minister of Higher Education and Scientific Research</p>	<p><b>France</b></p>  <p><b>Roger Genet</b> Director General of Research and Innovation</p>
<p><b>Italy</b></p>  <p><b>Stefania Giannini</b> Minister of Education, University and Research</p>	<p><b>Libya</b></p>  <p><b>Fathi A. Ahmed ALI</b> Minister of Education</p>
<p><b>Malta</b></p>  <p><b>Evarist Bartolo</b> Minister for Education and Employment</p>	<p><b>Mauritania</b></p>  <p><b>Sidi Salem MOHAMED EL ABD</b> Minister of Higher Education and Scientific Research</p>
<p><b>Marocco</b></p>  <p><b>Lahcen DAOUDI</b> Minister of the Higher Education, Scientific Research &amp; Executive Training</p>	<p><b>Portugal</b></p>  <p><b>Nuno Crato</b> Minister of Education and Science</p>
<p><b>Spain</b></p>  <p><b>Carmen Vela Olmo</b> State Secretary of Research, Development and Innovation</p>	<p><b>Spain</b></p>  <p><b>Juan Mª Vázquez Rojas</b> Secretary General of Universities</p>
<p><b>Tunisia</b></p>  <p><b>Chiheb BOUDEN</b> Minister of Higher Education and Scientific Research</p>	





## ANNEX

### DIALOGUE 5+5 WORK PROGRAMME FOR 2015-2016

#### **"Synergies between higher education, research and innovation in the Western Mediterranean area"**

##### Rationale

The concept of "*knowledge triangle*" has been extensively used in the European Union (EU) to emphasise the challenge of the so-called "*knowledge policies*" to deal, simultaneously and in an integrated way, with research, innovation and higher education policies.

The key objective behind it was the need to provide the maximum coherence between the related knowledge policies in case European countries want to accelerate the transition towards a knowledge-based economy and society. It implies the political commitment to devote the efforts looking for efficient synergies and complementarities among the three related elements of the knowledge triangle to address urgent societal challenges.

By adopting this principle, the EU 2020 Strategy has adopted a set of policy and budgetary actions to move forward towards the above mentioned objective. Then, both the creation of the "*European Institute of Innovation and Technology*" (EIT) and the wider scope adopted for *Horizon 2020* (H2020), with respect to previous EU framework programmes (to be able to address a seamless research and innovation area), framed the EU political answer in the right direction.

The same approach can be found in the evolution of national and regional knowledge policies of Member States (MS). The recent definition process of the "*Smart Specialisation Strategies*" by Member States' regions to access structural funds for the period 2014-2020 clearly stated the political goal of advancing in the same direction for maximising synergy and complementarity with the maximum efficiency.

Furthermore, deeply convinced that "globalisation" became both a challenge and an opportunity for the future, the EU has adopted a new research and innovation international strategy to advance in the construction of the so called "external dimension of the *European Research Area* (ERA)". The opening of the whole H2020 to other non-EU participants and the synergies with MS's efforts, addressed by the *Strategic Forum for International Cooperation* (SFIC) to define roadmaps for cooperation with some priority countries, including the optimisation of research infrastructures of common interest, are straightforward consequences of this evolution.

One of the pillars of this international cooperation strategy is the reinforcement of the "*neighbourhood policy*", where the North of Africa has been declared a priority region for the EU and their entities are entitled to participate across the H2020. Nevertheless, opening



instruments to international cooperation is not enough if the process is not complemented by a sound political commitment to increase cooperation on common challenges.

This approach could be especially useful for the 5 EU Member States and the 5 Southern Mediterranean countries participating in the "Dialogue 5+5" for the Western Mediterranean area, where coherent policy mix coordination (not only between research and innovation, but also between these two aspects and higher education) still requires additional effort from all stakeholders affected.

Southern Mediterranean countries participating in the *Dialogue 5+5* firmly believe in the need to face the same type of policy and socio-economic challenges as EU Member States face today. Within the 5 Western Mediterranean partners, similar approaches and synergies can be found by emphasising human resources policies to improve capabilities and to optimise resources in their priority areas towards innovation.

Obviously, even if the specific situation varies from one country to another (as it also happens in the EU), the political will to connect better research and innovation efforts, and the introduction to a higher education curricula and an entrepreneurship mentality closer to innovation processes also became a strong driving force for socio-economic progress and for the industrial tissue modernisation.

Then, mutual learning and cooperation could easily align their objectives on both sides of the Western Mediterranean region as has been pointed out in the Ministerial Conferences in Rabat (2013) and Madrid (2015).

This document will set up some specific actions closely aligned with the ministerial declarations and the approved *Dialogue 5+5* "Action plan" for the Western Mediterranean area in 2013.

The inherent **principles and their rationale** adopted in this Work Programme for 2015-2016 are as follows:

1. **To ensure the maximum continuity from research and innovation.** The document will support the seamless transition principle from "*the idea to the market*" embedded into the H2020 architecture and, progressively, in the national research and innovation programmes of the Dialogue 5+5 countries.

Nevertheless, the emphasis of the Work Programme will focus the attention on a subset of the whole range of potential activities, which were considered as more relevant for the progress of the region and where involved countries have decided to commit resources. Specifically, emphasis is placed on the ones that facilitate the dissemination and exploitation of results from applied research activities and associated capacity-building actions, in order to accelerate the innovation rate in the region and increase the quality of citizens' lives.





2. **To support a wider approach in the education of researchers**, to cover the incipient demand of doctorates in cooperation with industries, the consolidation of internships schemes for masters' students in private entities, and the promotion of entrepreneurship and innovation skills within science and technology graduate programmes.

The motivation behind this principle is the need to adapt young researchers to new working scenarios and professional career development, where the boosting of private R&D in cooperation with public entities should become a crucial element for stimulating growth and high quality employment in the region and a pre-requirement to boost the creation of innovative firms.

Furthermore, to expose master and doctorate students and young researchers to international cooperation through short or medium term stays also constitutes a very relevant factor from the conviction that international cooperation will play a prominent role in their career development, by taking advantage of pre-existent public-private mobility programmes.

3. **To embed knowledge circulation and absorption of technologies** as a cross-cutting issue in all the proposed actions. The pursued goal is to ensure a fast and efficient mechanism to access innovative knowledge at individual (i.e. by promoting focused inter-sectorial and international mobility) and institutional levels (i.e. by promoting institutional partnerships to create joint units or programmes) and ensure wide and balanced knowledge circulation schemes within the region.

Attention should be also paid to intellectual property (IP) and derived rights (IPR) in public institutions in the region, to the use of open innovation models, or to the wide spread of current trends on "open access publication"; all of them constitute a necessary condition to increase mutual confidence in future R&D cooperation. The positive consequence should be to push regulatory reforms at the national level to increase homogeneity and facilitate common cooperative frameworks.

4. **To adopt a variable geometry approach** where actions should move from bilateral settings as happened in the past to multilateral schemes. The activities derived from the Action Plan should be carried out by a minimum of three participant entities from, at least, one Northern country and another Southern country to push the North-South cooperation. If possible, these actions should be implemented with the participation of public and private entities of more than one Southern Mediterranean countries.

The proposed actions to be described later in this Work Programme could be built on the basis of pre-existent cooperation schemes. Participating countries are well aware that the majority of potential cooperation actions had a bilateral approach in the



past, and it is an opportunity to convert some of them into multilateral schemes in order to gain efficiency, impact and visibility.

5. To establish a **realistic approach for funding activities** on the basis of the national budgets devoted to international cooperation and the opening-up of programmes and projects to participants from other countries in the region, and to look for the maximum synergy with the H2020 activities.

Based on the above mentioned principles, some *instrumental lines of action* were identified to constitute the backbone of the **"Dialogue 5+5 for the 2015-2016 S&T work programme"**.

All the instrumental action lines could be theoretically applied to any of the S&T domains identified and selected by involved countries in the past (energy, agro-food, health, information & communications technologies, environment, security and risk management as identified in the Action Plan). Nevertheless, this thematic perspective is not explicitly addressed in this document.

### The identification of specific instrumental action lines

Within the principles stated in the last section and in the context of previous agreements adopted in the context of the *Dialogue 5+5*, a **limited number of types of instrumental action lines have been identified**.

The possibilities of implementation could also change depending on the volume of available funding, the legal context at the national level and the type of stakeholders involved (both beneficiaries and funding agencies); then, identified options, when appropriate, will be implemented as specific instrumental action lines.

The identified instrumental action lines included in the Dialogue 5+5 Work Programme for 2015-2016 are described in the following sections; for each of them, one or two specific actions have been identified for 2015-2016 from the proposals made by participating countries. Additional instrumental action lines or new specific actions within them could be added in future Dialogue 5+5 work programmes, on the basis of the monitoring and evaluation process of the current one.

The identified actions are as follows:

- Actions for networking:
  - A1: Brokerage events.
  - A2: Preparation for COST actions
- Actions for higher education
  - A3: Actions for continuous education of professionals

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- A4: Actions for cooperation in postgraduate (master & doctorate) programmes
- Actions for entrepreneurship
  - A5: Competitions for spin-off creation
- Actions for access to research infrastructures
  - A6: Common use and access to national infrastructures
- Actions for partnerships
  - A7: Twining R&D projects
  - A8: Creation of joint labs

#### Mobility: cross-cutting type of instrumental action line

The mobility of graduate students, researchers, technicians and administrative and technical managers constitutes one of the most traditional and useful policies to boost international cooperation and to support capacity-building.

Today, practically, all countries devote a substantial part of their public R&D resources to support mobility programmes within or outside their own countries; the same situation with more or less intensity can be found in the *Dialogue 5+5* countries (both for North-South and South-South mobility, but also mobility to other geographical areas outside the region).

Then, the present Work Programme for 2015-2016 has considered the “mobility” of *graduate students, researchers, and technical and administrative staff* as a cross-cutting type of instrumental action line of the maximum relevance. Nevertheless, this type of instrumental action line will be embedded in all the previously identified actions lines and it will not be necessarily considered as an independent action line.

The implementation process for networking, education, entrepreneurship, access to research infrastructures and partnerships action lines will include the mobility of participants to other countries in the region.

Mobility policies could include a wide range of specific actions. Recently, the positive effects of mobility that have been revealed not only for supporting international mobility at individual level (even by reintegrating experts from abroad and reducing brain drain consequences), but also to promote cross-sectorial and explicitly public-private mobility, such as the Industrial Doctorates or Masters Degrees (e.g. ERASMUS+), as the Marie Curie mobility schemes in H2020.

Furthermore, mobility schemes have been also promoted in higher education as a useful tool to expose students to other working contexts, as happens in the successful ERASMUS schemes, and even to complement their technical education with non-technical skills.

The inclusion of this horizontal and cross-cutting instrumental action line in the implementation context of the Dialogue 5+5 Action Plan does not intend to create another



additional mobility programme, but to complement the pre-existent ones by emphasising four key elements:

- **To give young and established researchers an opportunity to support capacity building in the region through public-private mobility schemes.** The objective is to increase the innovation capacity of firms with special attention to SMEs on the basis of the specialised knowledge provided by mobile researchers, which have developed their careers in other countries and contribute to innovative SMEs. Furthermore, it will offer them an opportunity to redirect their professional careers.
- **To facilitate career development by specialising researchers in the priority areas of the "action plan"** that were well-developed in public or private entities located in other countries in the region. Anyway, this mobility should ensure the return of researchers to their original entities and, then, *a priori* institutional involvement should also be needed.
- **To complete doctoral training with embedded mobility schemes** in selected doctorate programmes once they set up some formal agreements with external entities (e.g. with other universities, research centres or companies) from other countries in the region.
- To emphasise the **mapping with pre-existent bilateral mobility programmes** in a consistent effort to expand its use in the region and, if necessary, to use them progressively into **"multilateral mobility programmes"** with the participation of additional countries of the Dialogue 5+5 region.

Furthermore, mobility schemes could take advantage of some instruments open to international cooperation that are available at the EU today. At least, the relationships with two elements funded through the European Commission should be strongly considered: ERASMUS + schemes and Marie Curie schemes (within H2020), and also the mobility included into the projects ERANET-MED.

Participating countries are well aware that these EU schemes have an implicit motivation on supporting "excellence" that strongly condition their potential impact in the region. Nevertheless, they also offer many opportunities where mobility of excellent researchers is embedded into other schemes like joint labs or access to research infrastructures (see partnerships section below). The implementation in this context of the concept of **"stairway to excellence"** is an opportunity for the region.

#### Actions for networking

The need to increase the mutual knowledge among the main stakeholders in the region (mainly researchers, but also programme managers and technicians) has been considered a key element to boost progress. This individual knowledge is also the basis for driving future



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cooperation in research and innovation projects or in educational activities. This fact is even more important today when opportunities to access open calls for funds depends on the joint participation in consortia.

Then, the support to networking actions in the context of the Dialogue 5+5 has deserved the attention of S&T officers. Two specific actions have been identified for the Work Programme for 2015-2016:

- **A1: Organisation of brokerage events.** The main goal of this action is to support the identification and preparation of joint proposals for H2020 calls, where Southern Mediterranean countries could participate. Brokerage events could be specific for one priority domain (e.g. health or energy) for interested participants from all countries, or on a regional basis to stimulate the participation at bilateral or multilateral level. General presentation of topics for open calls could be also complemented by proposal presentations.
- **A2: Preparation for COST actions.** Specific proposals for COST actions focused on the Mediterranean area could be also a useful tool to reduce the fragmentation in European research investments and opening the European Research Area to worldwide cooperation, constituting a "bridge" towards the scientific communities of emerging countries. COST actions also increase the mobility of researchers across Europe and the Mediterranean area and foster the establishment of scientific excellence in science and technology.

#### Actions for higher education

In the last two decades, the EU has been involved in the definition and implementation process of the so called "European Higher Education Area" (EHEA), in order to facilitate mobility and a coherent recognition of efforts at the university level. Even if Southern Mediterranean countries were not formally involved in the process, its effects were also relevant by pushing internal regulatory changes and boosting the signature of double degrees with European partners.

The interaction and synergies between higher education with research and innovation activities constitutes the key element to make the "knowledge triangle" a reality and the main goal of the 2<sup>nd</sup> Ministerial Conference.

Within this context, two specific actions have been included for the period 2015-2016.

- **A3: Actions for continuous education of professionals.** The rapid obsolescence of technologies and the need to absorb them became a crucial factor to keep the competitiveness of public and private entities. This situation is extremely important for the SMEs located in the region, with lower capabilities to access advanced techniques for developing their products and services.



One of the actions with more potential to address that challenge is to provide continuous education programmes (even on-line, if possible) supported by mobility programmes, when appropriate. The cooperation between public (universities and research centres) and private entities seems especially useful to guarantee the success.

- **A4: Actions for cooperation in postgraduate programmes.** Master & doctorate students could benefit from the participation in programmes where stays in other countries are embedded into the curricula. Furthermore, faculty members also learn from other universities and complement their skills.

The Western Mediterranean countries have accumulated a long and fruitful experience in conducting this type of programmes and, in many cases, are open to extend them to other countries. On the other hand, the implementation process of the Euro-Mediterranean University (located in Fez, Morocco) opens new opportunities for blending programmes of on-line and face-to face courses.

#### Actions for entrepreneurship

A cross-cutting issue, which is increasing its policy relevance over the world as a catalyser for competitiveness, is the introduction of complementary skills for entrepreneurship and innovation in technical university curricula chosen by university students (mainly at the master and doctorate levels).

The intended goal with this measure is two-fold one: to increase the students' employability in areas far from the public research sector, as well as to help in the modernisation of the industrial tissue once they were recruited. In both cases, engaged students should act as "innovation agents" in their respective specialisation fields.

Well-defined actions, when possible, around that instrumental action line, could decisively contribute to accelerate the socio-economic progress of the region and to reduce the gap between research and innovation.

With respect to the relationship to present EU activities, there is an opportunity to increase the value of the EIT "*knowledge and innovation communities*" related to priority domains (e.g. "ICT-Labs" and "Innoenergy", which are closely related to "Dialogue 5+5" priority domains), by extending their activities in the Southern Mediterranean countries. The creation of specific "antenna", associated nodes or equivalent structures of those KICs in other countries should be a possibility to explore and fund with KICs themselves.

- **A5: Competitions for spin-off creation.** The process to support spin-off and start-up creation (mainly on new technology-based firms) in public research centres and universities of the region is a key issue in the modernisation of the industrial tissue of modern economies.

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The intention with this action is to create multilateral and international programmes for the creation and growth of new technology-based companies, to facilitate the internationalisation of "*competitions for spin-off creation*" on the basis of pre-existent programmes that exist in the region.

They will also facilitate the creation of dissemination instruments to support their visibility in the EU. The use of pre-existent "*business incubators*", located in Dialogue 5+5 countries, as a network where new business projects or recently created spin-offs or start-ups could extend their activities at the international level by receiving support for accelerated growth in another country.

#### Actions for research infrastructures

To boost world-class research in some S&T domains is a necessary condition to access very advanced "*research infrastructures*" (RIs). The cases of astronomy, particle physics or nanotechnology domains are well known examples of the need of advanced research infrastructures to keep scientific competitiveness, although many other S&T domains could be also added to the list.

The EU, through the roadmaps prepared by the ESFRI (European Strategic Forum for Research Infrastructures), has made a considerable effort to coordinate the development and optimisation of new research infrastructures in the EU and its participation in global RIs. This effort complements the national roadmaps prepared and updated by MS in a global trend to open the use of national RIs.

Furthermore, the RI part of "Excellent Science" in H2020 is open to researchers from other countries and an effort to disseminate these opportunities should be done in parallel. Explicitly, future WP of H2020 should consider the Mediterranean countries as priorities.

The following types of activities have been identified as useful for the "Dialogue 5+5" Action Plan:

**A6: Common use and access of national infrastructures.** The goal is to create an access programme to select the research infrastructures available in the region at a national level, but open to other researchers.

Starting from an inventory of RIs available in Dialogue 5+5 States, multiple possibilities to extend its use for the mobility of researchers is possible. Mobility in this case could have the double goal of supporting research and training on sophisticated equipment.

This area constitutes a crucial element academic to boost the creation of research networks across the region. Nevertheless, it is necessary to periodically update their performance to cope with very fast technology obsolescence.

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### Actions for partnerships

The creation of *stable partnerships* (both public-public, as well as public-private ones) has been postulated as one of the major trends in knowledge policy design to favour more integrated and coherent innovation systems. It recovers and amplifies the sound experience collected in the last two decades on clusters, S&T parks, open eco-systems, etc., spread out in the region, by putting the emphasis on the stability of the relationships among the committed entities, more than on their physical or geographical dimension.

Again, the maximum synergy with EU funded activities should be looked for. Specifically, the EU MS in the Dialogue 5+5 should make their maximum effort to consolidate the international dimension of "joint programming" in close interaction with the PRIMA development process and its priority areas.

Within this instrumental action line, the following types of activities were identified:

- **A7: Twining R&D projects.** Research projects with similar or very close objectives are funded in the region at a national or regional level. Unfortunately, the cooperation or simply the exchange of information is very low and no coordination schemes have been implemented until now.

Then, the twining of pre-existent funded projects in the same domain, in order to exchange information, organise common seminars or facilitate mobility, is considered as a relevant action. Furthermore, the marginal cost for this type of activity makes the implementation easier.

- **A8: Creation of joint labs.** The objective is to support the creation of associated labs to pre-existent laboratories (in universities, research centres or research infrastructures) located in other countries to facilitate the training of researchers, associated research activities (i.e. data or sample preparation and analysis) and the provision of technological components.

These associated labs could also play a relevant role as the mobility destination of researchers. Labs are also relevant to train engineers and technicians in some disciplines with potential industrial interest (e.g. high precision test and measurement, rapid prototype manufacturing, distributed control, etc.).

Each node of the (virtual) joint lab or RI could play a different role depending on its individual capacity or resources: a coordinator specialised for training, part of the activities delegated, etc.

### Interaction between instrumental action lines

After separately presenting the identified instrumental action lines, it is necessary to come back to the potential synergies represented by the concept of the "knowledge triangle" described above in this document.

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The described instrumental action lines could be combined in different ways for multiple purposes. Some combinations will reinforce the global objectives and impact of the whole Action Plan development process and will make the knowledge triangle a reality in the Dialogue 5+5 region; in other cases, efficiency could still improve.

More specifically, the following combinations of instrumental action lines have been considered for the purposes of this document:

- **To extend mobility schemes** to support other instrumental lines (e.g. to access research facilities, train researchers on entrepreneurship or accelerate the creation of joint labs).
  - Under this approach, mobility is not anymore considered an individual business focused on interested researchers, but emphasises its institutional dimension.
  - Notice that this approach complements the H2020 Marie Curie scheme or any other bilateral programmes on mobility available for the region.
- **To embed training and capacity building activities** in all actions as a genuine objective in itself.
  - The proposed approach tries to link knowledge transfer/absorption as a relevant activity framed in educational programmes, pilot experiences in technology/services deployment, etc.
  - This vision should be particularly useful in designing “antennas” or “twin/associated nodes” to the KIC communities of the EIT.

### Funding schemes

By following the *principle of variable geometry*, any implementable action should be supported by at least three entities from three different Western Mediterranean countries, at least, one Northern country and another Southern country, which jointly assume the cost of its implementation.

The present Work Programme 5+5 does not envisage a single funding approach for all possible actions; then, opportunities for funding should be explored before starting any of them.

Furthermore, the use of the H2020 calls is open for third parties to participate, but they are not specific to the region; however, due to the past experience in FP7, many entities from Southern countries have accumulated enough experience to become part of the consortia or beneficiaries of several funding schemes.

Dialogue 5+5 countries are committed to explore the extent to which bilateral agreements could be used or combined into multilateral settings to support some of the activities on a case by case basis.



### Monitoring and impact assessment

The implementation of the activities related to the instrumental action lines presented in this document needs to be monitored regularly by the Secretariat to ensure the full usefulness of the proposed goals and its adaptation to a changing context.

Then, specific mechanisms to ensure this goal should be simultaneously put in place on the basis of the Ministers' decision to create a specific *High Level Group* (HLG). HLG will regularly deal with the policy analysis of the actions carried out and propose new activities as part of the mutual learning process.

Specifically, monitoring should be based on the following elements:

1. To define a reporting structure from any action launched in the context of the Action Plan and carried out to be able to learn from the experience and fix any problems found.
2. To build up and approve an annual report of activities to be sent to the Ministers.
3. To elaborate a comprehensive report on the activities for the 3<sup>rd</sup> Ministerial Conference.

The Secretariat mandate, to cope with the support of the above mentioned issues, should be prepared and eventually approved by the HLG.

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