

CONTRACTUAL ARRANGEMENT
SETTING UP A PUBLIC-PRIVATE PARTNERSHIP IN THE AREA OF HIGH
PERFORMANCE COMPUTING
BETWEEN
THE ASSOCIATION ETP4HPC
AND
THE EUROPEAN UNION

ETP4HPC, the registered offices of which are in the municipality of Amsterdam, The Netherlands, hereinafter referred to as "the Private Side", and the European Union, represented by the Commission, (jointly hereinafter referred to as "the Parties"),

CONSIDERING THAT:

- The Horizon 2020 Framework Programme of the European Union for research and innovation¹ may be implemented through public-private partnerships taking the form of a contractual arrangement between the partners committed to support the development and implementation of research and innovation activities of strategic importance to the Union's competitiveness and industrial leadership;
- The Specific Programme Implementing Horizon 2020² has identified potential areas for establishing public-private partnerships;
- The Rules for participation and dissemination in Horizon 2020³ apply to the indirect actions to be financed by the Commission in the context of this arrangement;
- The Commission Communication of 21 September 2011 on Partnering in Research and Innovation⁴ recognises that public-private partnerships in research and innovation are a means of strengthening the Union's competitiveness in key areas of industrial research;
- In its Communication on "Public-private partnerships in Horizon 2020: a powerful tool to deliver on innovation and growth in Europe"⁵, the Commission has presented suitable areas for potential public-private partnerships based on contractual arrangements, as well as the steps to be followed before they are launched, and one of these areas is High Performance Computing.

¹ Not yet published in the Official Journal.

² Not yet published in the Official Journal.

³ Not yet published in the Official Journal.

⁴ COM(2011)572

⁵ COM(2013)494

- The proposal received from the Private Side, which has been evaluated by Commission services assisted by independent experts, has been found to fulfil the criteria referred to in Article 19 paragraph 3 of the regulation¹ on Horizon 2020 Framework Programme for Research and Innovation; the multi-annual roadmap provided in the Annex can be taken as the basis to develop the co-operation under the present arrangement;
- Pursuant to Article 2 of the Statute of ETP4HPC, it shall engage in a public-private partnership with the European Union to reinforce Europe's position in the worldwide HPC arena;
- This contractual arrangement constitutes an agreement in which the Parties will make their best effort to achieve the objectives. Neither Party shall be liable under this arrangement towards the other Party;

RECOGNISING THAT:

- The respective responsibilities of the Parties in the aforementioned areas are mutually reinforcing,
- Due regard should be given to the respective competences and operational frameworks of the Parties,

HAVE DECIDED THE FOLLOWING:

1. SCOPE: A public-private partnership in the area of High Performance Computing, hereinafter referred to as “the partnership”, is established between the Parties by the present contractual arrangement, to be implemented in an open, transparent and efficient way. The general objectives of the partnership in support of Union policies, and in particular of the specific objectives of the Horizon 2020 Framework Programme and the EU Industrial policy, are the following:
 - To build a European world-class HPC technology value chain that will be globally competitive, fostering synergy between the three pillars of the HPC ecosystem (technology development, applications and computing infrastructure);
 - To achieve a critical mass of convergent resources in order to increase the competitiveness of European HPC vendors and solutions;
 - To leverage the transformative power of HPC in order to boost European competitiveness in science and business;
 - To expand the HPC user base, especially SMEs: facilitating access to HPC resources and technologies, and opening the possibilities for SMEs to participate in the provision of competitive HPC technology solutions;
 - To support a EU leadership and world-wide excellence in key application domains for industry, science and society that are most important for Europe,

- facilitating the provision of innovative solutions for grand societal challenges;
- allowing the development of the future applications for the next exascale computing generation.

2. **SPECIFIC OBJECTIVES:** The Parties intend to cooperate, on the basis of the multi-annual roadmap provided in the Annex, to develop, implement and support a multi-annual research and innovation agenda. The specific objectives of the partnership are the following:

R&I to implement the Strategic Research Agenda (SRA) of the ETP4HPC along four dimensions:

- New technologies within the entire HPC software stack
- System characteristics for Extreme Scale Requirements
- New deployment fields for HPC
- The expansion of the use of HPC

With innovative advances expected in well above 100 research topics in:

- HPC System Architecture and Components
- System Software and Management
- Programming Environment
- Energy And Resiliency
- Balance Compute, I/O and Storage Performance
- Big Data and HPC Usage Models

Creation of start-up and development of SMEs

R&I for HPC co-design and development of common frameworks and new HPC applications;

Support the creation of 4-5 Centres of Excellence in HPC applications in key scientific and industrial domains.

3. **ACTIVITIES, INVESTMENT and OUTPUTS:** The research and innovation activities to be co-funded under the Horizon 2020 Framework Programme in the scope of the partnership will be subject to the Horizon 2020 Rules for participation and dissemination. The Commission intends to allocate from the Union budget an indicative financial envelope of EUR 700 million for the period of 2014-2020 for those research and innovation activities (from DG Communications Networks, Content and Technology). These allocations will be included in the periodic Horizon 2020 work programmes. The Private Side commits to engage the stakeholder community to invest funds in research and innovation activities specific to the partnership domain both by complementing the Commission's support to the projects for the implementation of the research and

innovation agenda within the Horizon 2020 Framework Programme, and to provide other outputs outside it, as mentioned in point 6 and in the Annex.

4. **GOVERNANCE:** The Parties will establish a Partnership Board as the main mechanism for dialogue to reach the objectives foreseen by this contractual arrangement. The Partnership Board will comprise members nominated by the Private Side, ensuring a proper representation of the wider community of stakeholders, and Commission officials representing the services in charge of the EU financial contribution to the actions to be funded under the partnership. The Partnership Board will establish its rules for procedure, based on a harmonised proposal provided by the Commission, covering inter alia issues related to confidentiality, transparency and avoidance of conflicts of interest. The Parties may also meet at high level to review the work of the Partnership Board, take stock of the progress achieved by the partnership and discuss further ways to enhance mutual collaboration. The Private Side will decide on its own governance structures and implement the appropriate consultation processes, based on openness and transparency, to ensure the adequate involvement of all relevant stakeholders in the preparation of the inputs to the Commission.
5. **SPECIFIC COMMITMENTS OF THE COMMISSION:** The Commission commits to duly consider inputs and advice from the Private Side in order to identify research and innovation activities to be proposed for financial support under the Horizon 2020 Framework Programme. For that purpose, the Commission commits to maintain regular dialogue with the Private Side during the preparatory phase of the drafting of the work programmes referred to in Article 5 of the Specific Programme. In this context, the Commission will ensure through the rules for procedure of the Partnership Board that the inputs and advice received from the Private side are developed through an adequate involvement of all relevant stakeholders and will put emphasis on the appropriateness of the Private side's governance structure regarding the openness to new members.
6. **SPECIFIC COMMITMENTS OF THE PRIVATE SIDE:** The Private Side commits to provide inputs and advice to the Commission to achieve the objectives of the partnership, in particular to contribute to the identification of research and innovation activities to be included in the Horizon 2020 work programmes in view of financial support following the calls for proposals. The Private Side also commits to the following:
 - To foster the matching of Commission's funding for the realisation of the technology R&D programme in the SRA
 - To foster additional investments to industrialize, manufacture hardware, package and release software, and to commercialize the results of successful R&D leading to products; each such public euro funded could result in a leveraged effort of up to 4 euros in the economy;
 - To invest time and effort to build a strong HPC ecosystem in Europe, reinforcing the HPC education and training in Europe, expanding the reach of HPC especially to SMEs, and coordinating with other stakeholders and any other joint actions that would strengthen such HPC ecosystem;

- To put in place an effective networking among the various stakeholders potentially leading to exploitation of markets beyond exascale HPC.

The Commission will regularly monitor the progress towards achieving the partnership objectives, for the duration of the contractual arrangement and for three years after its end, in particular on the basis of evidence to be provided by the Commission and by the Private Side.

7. **MONITORING:** With due regard to their respective competences, institutional settings and operational frameworks, the Parties will regularly inform and consult each other, as appropriate, in particular in order to monitor the progress of the partnership towards its objectives and to assess the impact of its activities and the leverage of additional investments. The key performance indicators will include the following:

At PPP implementation level:

- Global market share of HPC systems, components and tools based on technologies developed and built in Europe
- Direct, sustainable jobs out of HPC research programmes
- Level of high-tech investment and private investment mobilised
- Patent and invention-submissions – contributions to standards
- Number of new SME start-up companies created out of HPC research programmes

At project impact level:

- Contribution to next-generation HPC technologies, software codes, libraries and algorithms
- European application and codes adapted to the next computing generation
- Project results taken-up for further investments
- Trainings for a higher quality workforce
- Patents and activities leading to standardisation

The impact of the PPP will also be monitored on the following:

- Research programme effectiveness and coverage
- Performance of HPC technologies developed
- High-skilled HPC profiles and curricula developed
- HPC use (both academia and industry in particular SMEs) and scientific impact of pan-European HPC infrastructure
- Impact on software ecosystem (number of applications, number of users, etc)

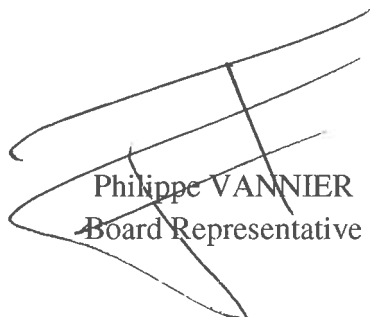
The Commission will regularly monitor the progress towards achieving the partnership objectives, for the duration of the contractual arrangement and for three years after its end, in particular on the basis of evidence to be provided by the Private Side.

8. APPLICATION OF THIS ARRANGEMENT: Any provision of this contractual arrangement takes precedence over the Annex. Any issues related to the interpretation and implementation of the present arrangement will be decided upon in consultation by the Parties. Amendments to this arrangement may be requested by any of the Parties by registered letter.
9. DURATION AND REVIEW: This contractual arrangement enters into force as from 1 January 2014 and will remain in force until 31 December 2020. Any of the Parties may communicate by registered letter at any time the motivated intention to terminate this arrangement. The termination will be effective three months after the sending of this letter. No later than 30 June 2017 the Commission intends to undertake, with the assistance of independent experts, a review covering the performance of the partnership and the progress towards its objectives. On the basis of the review, the Commission may request amendments to this contractual arrangement or decide its termination. A final review will also be undertaken before the end of Horizon 2020.
10. ANNEX: Multi-annual roadmap for the partnership.

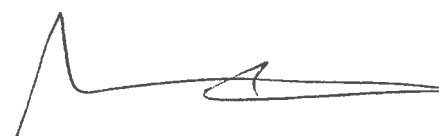
Done in duplicate at Brussels on 17 December 2013.

FOR ETP4HPC ASSOCIATION

FOR THE EUROPEAN COMMISSION



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