



**SEVENTH FRAMEWORK PROGRAMME  
Research Infrastructures**

**INFRA-2012-2.3.1 – Third Implementation Phase of the European  
High Performance Computing (HPC) service PRACE**



**PRACE-3IP**

**PRACE Third Implementation Phase Project**

**Grant Agreement Number: RI-312763**

**D2.2**

**New PRACE Relationships with other Entities**

*Final*

Version: 1.0  
Author(s): V. Teodor, FZJ; C. Merida, BSC  
Date: 30.04.2014

## Project and Deliverable Information Sheet

PRACE Project	<b>Project Ref. №:</b> RI-312763	
	<b>Project Title:</b> PRACE Third Implementation Phase <b>Project</b>	
	<b>Project Web Site:</b> <a href="http://www.prace-project.eu">http://www.prace-project.eu</a>	
	<b>Deliverable ID:</b> < D2.2 >	
	<b>Deliverable Nature:</b> <DOC_TYPE: Report / Other>	
	<b>Deliverable Level:</b> PU*	<b>Contractual Date of Delivery:</b> 30 / April / 2014
		<b>Actual Date of Delivery:</b> 30 / April / 2014
<b>EC Project Officer:</b> Leonardo Flores Añover		

\* - The dissemination level are indicated as follows: **PU** – Public, **PP** – Restricted to other participants (including the Commission Services), **RE** – Restricted to a group specified by the consortium (including the Commission Services). **CO** – Confidential, only for members of the consortium (including the Commission Services).

## Document Control Sheet

Document	<b>Title:</b> New PRACE Relationships with other Entities	
	<b>ID:</b> D2.2	
	<b>Version:</b> <1.0 >	<b>Status:</b> Final
	<b>Available at:</b> <a href="http://www.prace-project.eu">http://www.prace-project.eu</a>	
	<b>Software Tool:</b> Microsoft Word 2007	
	<b>File(s):</b> D2.2-Public.docx	
Authorship	<b>Written by:</b>	V. Teodor, FZJ; C. Merida, BSC
	<b>Contributors:</b>	B. Vinter, UCPH F. Berberich, FZJ G. Prangov, NCSA G. Erbacci, CINECA I. Yenes, AISBL M. Loret, GENCI N. Mignerey, GENCI S. Bernardi, CINECA
	<b>Reviewed by:</b>	Th. Eickermann, FZJ P. Stefan, NIIFI
	<b>Approved by:</b>	MB/TB

## Document Status Sheet

Version	Date	Status	Comments
0.1	01/03/2014	Draft	First draft
0.2	10/03/2014	Draft	Input from some of the participants
0.3	25/03/2014	Draft	Missing input received
0.4	03/04/2014	Draft	Revised version
0.5	10/04/2014	For Approval	Addressed comments from internal review
1.0	30/04/2014	Final	For submission

## Document Keywords

<b>Keywords:</b>	PRACE, HPC, Research Infrastructure, Industry Relationship, SMEs, Intellectual Property Right
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- [1] PRACE-1IP Deliverable D5.1.2 “Requirements of Industrial Users”, December 2011.
- [2] PRACE-1IP Deliverable D5.2.1 “Business Models for Industrial Access to Infrastructures”.
- [3] PRACE-1IP Deliverable D5.2.2 “PRACE Industrial Offer Assessment”.
- [4] PRACE-2IP Deliverable D9.1.1 “Support for Industrial Applications -Year 1”
- [5] PRACE-3IP Deliverable D5.1 “Analysis of Models and Practices for Industrial Access”
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- [14] [PRACE-3IP Deliverable D3.3: “First Annual Dissemination and Outreach plan”](#)

## List of Acronyms and Abbreviations

AISBL	Association sans but lucrative (legal form of the PRACE RI)
B & B	External legal advisor Bird & Bird LLP assisting PRACE
BoD	Board of Directors
BPI France	French public bank for SMEs
BSC	Barcelona Supercomputing Center (Spain)
CA	Consortium Agreement
CINECA	Consorzio Interuniversitario, the largest Italian computing centre (Italy)
CoE	Center of Excellence
CTM	Community Trade Mark
CPU	Central Processing Unit
DOE	The US Department of Energy Office of Science
EC	European Commission
ELISA	European Light Sources Activities
EPCC	EPCC at the University of Edinburgh, UK (3rd Party to EPSRC)
ERIC	European Research Infrastructure Consortium
ETP4HPC	European Technology Platform for High Performance Computing
EUFAR	European Facility for Airborne Research
FEM	Finite Element Method
FP7	7th Framework Programme
H2020	8th Framework Programme Horizon2020
FZJ	Forschungszentrum Jülich (Germany)
GENCI	Grand Equipement National de Calcul Intensif (France)
GoP	Group of Procurers
HPC	High Performance Computing; Computing at a high performance level at any given time; often used synonym with Supercomputing
HPCI	High-Performance Computer Infrastructure
HPC-PME	French Programme for SMEs launched in 2011 by three national partners, GENCI, INRIA and BPI France
IAC	Industrial Advisory Committee (a body of PRACE AISBL)
INCITE	Innovative and Novel Computational Impact on Theory and Experiment
INRIA	Institut National de Recherche en Informatique et Automatique, France (3rd Party to GENCI)
IPR	Intellectual Property Right
ISV	Independent Software Vendor
JSC	Jülich Supercomputing Centre (FZJ, Germany)
KIT	Karlsruhe Institute of Technology (Germany)
LCF	The Argonne and Oak Ridge Leadership Computing Facility Centres
MB	Management Board
MoU	Memorandum of Understanding
NCSA	National Centre for Supercomputing Applications (Bulgaria)
NDA	Non-Disclosure Agreement
NIIF	National Information Infrastructure Development Institute (Hungary)
NSF	National Science Foundation
PATC	PRACE Advanced Training Centre
PCP	Pre-Commercial Procurement
PE	Procuring Entity
PRACE	Partnership for Advanced Computing in Europe
PRACE-1IP	PRACE 1st Implementation Phase
PRACE-2IP	PRACE 2nd Implementation Phase

PRACE-3IP	PRACE 3rd Implementation Phase
R&D	Research and Development
R&D&I	Research, Development and Innovation
RI	Research Infrastructure
RIST	Research Organisation for Informational Science & Technology
ROI	Return on Investment
SE	Scottish Enterprise
SHAPE	SMEs HPC Adoption Programme for Europe
SICOS	Simulation, COmputing and Storage
SCS	SuperComputing Solutions Srl
SLA	Service Level Agreement
SME	Small and Medium Enterprise
SSC	Scientific Steering Committee
TCO	Total Cost of Ownership
Tier-0	Denotes the apex of a conceptual pyramid of HPC systems
Tier-1	National or topical HPC centres
TNA	Transnational Access funding programme
USTUTT-HLRS	University Stuttgart – HLRS, Germany (3rd Party to GCS)
WP	Work Package
XSEDE	Extreme Science and Engineering Discovery Environment (TeraGrid follow-up project)





## Executive Summary

This deliverable shows the results of the analysis regarding the legal aspects of specific PRACE collaborations developed beyond the originally designed channels. In particular, the team of task 2.2 in the PRACE-3IP project tackles the legal aspects regarding the collaborations with industry and Small and Medium Enterprises, the collaboration with other EU projects, and the relationship with third parties to access PRACE Intellectual Property Rights. Moreover, this document covers the results of the work undertaken concerning the direct legal support provided for PRACE AISBL in the process of establishing its bodies, such as Industrial Advisory Committee and Scientific Steering Committee. For most of the cases covered in this deliverable the analysis is based on the formulation of legal questions related to the named topics, and evaluation of answers provided by the legal advisor firm Bird & Bird LLP assisting PRACE.

Within the scope of the collaborations with industry and Small and Medium Enterprises, this deliverable draws a comparison of the legal aspects of some of the most representing HPC-industry support models in Europe. Furthermore, it covers the analysis of the legal aspects for deploying the SMEs HPC Adoption Programme for Europe (SHAPE). Task 2.2 worked closely with the Work Package 5 in PRACE-3IP in order to identify and clarify all the important legal aspects related to this new initiative addressing the needs of the European SMEs in the area of HPC. One of the key aspects important to clarify before starting the SHAPE pilot was the one referring to the state aid regulations. Task 2.2 investigated also with the help of the external legal experts the possible future implementation of the pre-competitive model and the future organisational structure of PRACE AISBL in case of engaging in commercial activities.

The deliverable also shows results on the analysis done to find an appropriate way to award PRACE resources to European Commission funded projects that require HPC. Task 2.2 analysed the current situation within PRACE and concentrated on the different potential routes of PRACE future EU collaborations. In this context, the Transnational Access funding programme and the Centres of Excellence as potential future EU collaborations have been investigated. In order to give a wider overview of this topic, best practices of other international Research Infrastructures have been reviewed.

The third and the last part of this deliverable shows the results regarding the analysis of the IPR framework within PRACE. During the years that PRACE projects and infrastructure have been operating, a set of potentially IPR-protectable elements have been generated. The advice of the working group to the Association has been to consider the regulation of the IPR for these elements and in any case to have an overall view of IPR for future developments. This section provides the result of the analysis made for a set of key elements identified.

## 1 Introduction

The collaboration with the industry, especially the Small and Medium Enterprises (SMEs), and other EU funded projects are two of the main pilots of the PRACE strategy. The fundament for these two important aspects has been thoroughly investigated and prepared through the work of different WPs during the lifetime of the previous PRACE projects<sup>1</sup>.

In PRACE-3IP, WP2 task 2.2 had the objective to further investigate and analyse the legal aspects of PRACE relationships beyond the original designed channels. These relationships have been structured in the following manner:

- Relationships with industry, especially SMEs;
- Relationships with other EC funded projects;
- Relationships with potential users of assets and foreground produced by PRACE (covering IPR aspects for cases which were not foreseen by the Consortium Agreement, as well as for future developments).

Aside the named analysis, the working group has provided direct legal support for PRACE AISBL in topics of different nature.

This deliverable describing the activity undertaken by task 2.2 is structured as follows:

- Section 2, after a brief overview of the current needs of the industry with a focus on SMEs in terms of an HPC access programme, shows an analysis of the legal aspects of different industry support models offered by High Performance Computing (HPC) infrastructures in Europe. In addition, it evaluates the legal aspects of the SHAPE programme and clarifies the state aid topic for PRACE. It deepens the analysis of the pre-competitive R&D model to evaluate if it can be applied to the PRACE context and investigates the PRACE structure in case the research infrastructure engages directly in commercial activities.
- Section 3, referring to the collaborations with other EU projects, starts with a brief introduction regarding the current situation in PRACE, then reports on the best practices of different collaborations of other HPC infrastructures in USA and Japan, and investigates potential routes for PRACE future EU collaborations, drawing the attention to the Transnational Access programme and the future Centres of Excellence;
- Section 4, dealing with the IPR framework of the foreground developed during the PRACE projects, shows the IPR regulations within the Consortium Agreement. Furthermore, it identifies and analyses further elements, for which the Consortium Agreement does not apply. Special attention is addressed to the IPRs developed during the Pre-Commercial Procurement (PCP) framework;
- Section 5 identifies the direct legal support offered by the task 2.2 for the PRACE research infrastructure during the process of establishing PRACE bodies;
- Finally some conclusions follow.

For some of the topics researched, this deliverable shows the questions asked by task 2.2 and answers provided by the external legal advisor Bird & Bird LLP assisting PRACE.

Due to confidentiality reasons, the contents of annexes 7.4 - 7.7, 7.9 and 7.12 have been removed from this version of the deliverable and are contained only in the confidential version.

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<sup>1</sup> For more details relating to the collaboration with the industry, see the following documents produced during the PRACE-1-2-3IP projects [1], [2], [3], [4], [5] and [6]

## 2 Collaboration with Industry and SMEs

A number of national and pan-European initiatives have recently been set up to encourage industry and especially SMEs to engage into HPC. As it is most often the case when dealing with industry, the legal requirements of these initiatives need to be thought through in order to avoid any problem regarding intellectual property, liability, confidentiality, publication rights, etc. The diversity of these programmes and their recent setup have led to different approaches. In this section, we will emphasise the current needs of the industry in Europe and present the PRACE answer to these needs: the SHAPE pilot [6]. Moreover, a review of the legal aspects of SHAPE, whose pilot was launched by PRACE-3IP WP5, the analysis regarding the pre-competitive model and of the PRACE structure for potential collaborations on a commercial basis, will be explained. In the process of designing these potential scenarios of PRACE collaboration with industry, some specific questions were analysed with external legal support.

### 2.1 PRACE Initiative: The SHAPE Programme

#### 2.1.1 *The current Needs of Industry with Focus on SMEs*

The adoption of advanced simulation methodologies, using HPC techniques, is indispensable for industrial companies in order to maintain competitiveness and increase their ability to innovate.

This concept is well understood by the large companies which in general have a large variety of HPC usage profiles, ranging from companies with internal HPC facilities and skills to companies relying on external HPC services and expertise. The use of in house simulations codes or off-the-shelf software provided by ISVs is also a well-established methodology for these companies.

Conversely, other industrial companies, mainly SMEs, find major obstacles to adopt HPC methodologies in their R&D and production process. The requirements of the European SMEs in the area of HPC range from the need of information, training and expertise in simulation and computational tools and methodologies, to the support for code developing and co-design of industrial applications, to open R&D HPC Access programmes and on-demand access to HPC resources.

Another prominent aspect is the technological transfer between academia and industry by fostering close collaborations between “historical” HPC users from academia and “late” users from industry. This cooperation is essential to support the development of innovative products, fuelling companies with new skills and views, and pushing the application of fundamental and applied research findings to industry.

#### 2.1.2 *Operating Industry Support Models offered by HPC RIs at national Level*

In order to ensure that all the legal angles were addressed and well selected for providing adequate advice to the research infrastructure in the development of the SHAPE pilot and beyond, this section analyses from the legal point of view some of the currently existing national support models for industry, in Europe. A more detailed analysis regarding the structure and organisation of some of these European initiatives can be found in the D5.1 elaborated by WP5 [5].

### 2.1.2.1 *The German Case: SICOS*

SICOS (SIMulation, COmputing and Storage) GmbH in Stuttgart is not a support programme, but a company (GmbH; corporation with limited liability) owned by KIT (Karlsruhe Institute of Technology) and Stuttgart University, and it is fully funded by its owner, through the Ministry of Science, Research & Art of Baden-Württemberg respectively.

SICOS' mission to support industry in its take-up of simulation and HPC technology, focusing on SMEs with the goal to help them improve their competitiveness, is accomplished by:

- Presenting the advantages of simulation and HPC technology at conferences, trade shows, workshops, etc. and informing interested companies, especially SMEs, about the opportunities which are offered by current HPC, Grid-/Cloud-Computing and Data Analysis systems;
- Consulting in order to identify the specific problems of the interested companies;
- Connecting the potential HPC users with the appropriate experts and specialised service providers to solve their specific problems. This includes the local competencies at the computing centres (Steinbuch Center for Computing at KIT and HLRS at the University of Stuttgart), but also selected partners from research as well as industrial simulation and HPC experts (e.g. engineering simulation providers and ISVs).

SICOS is not profit oriented and offers its expertise and service free of charge to potential users. The HPC resources that these users need are mainly provided by the shareholders and their computing centres.

Therefore, SICOS does not interact with the interested SMEs on a contract basis. These formalities of collaboration are agreed directly between the potential HPC users and the computing centres that provide the HPC resources.

Normally, a contract is set up between the user (the interested company/ SME) and the HPC resources provider (in this case HLRS) including among others the following aspects:

- The user is not allowed to use the HPC resources for military or nuclear purposes;
- A third party shall not be granted direct access to the HPC resources unless the contractual partners explicitly agreed to it;
- The HPC resources provider is not responsible for a non-accurate and interruptible use of the HPC resources, or for the validity of the results;
- The user is responsible for any damage caused through abusive usage of the HPC resources;
- Both the user and the HPC resources provider shall use all reasonable efforts to ensure that the other's confidential information remains confidential and is not disclosed to third parties;
- The tangible results or relevant intellectual property shall become the property of the user.

### 2.1.2.2 *The French Case: HPC-PME*

HPC-PME is a programme launched in 2011 by three national French partners, GENCI, INRIA and BPI France (French public bank for SMEs), to allow French SMEs to assess and demonstrate the potential of using HPC. It is so far designed as a light-weight programme,

with few staff members working in each organisation, and it does not involve a lot of contractual paperwork.

When an SME applies for the programme, its application is reviewed by an independent expert selected by the founding partners amongst their network. This expert has to sign a mandatory NDA (Non-Disclosure Agreement) to ensure he does not disclose to anyone details about the company and its product. At the SME's request, the founding partners can also sign standard NDAs if there are meetings where sensitive information is mentioned. The main criterion of the selection process is the industrial impact of the project.

If the SME is accepted in the programme (in particular once BPI France has checked the financial viability of the company), it receives a simple confirmation from the partners. HPC-PME usually involves a collaboration between the SME and a suitable expert (from a public university for instance). The formality of such collaboration is not the responsibility of HPC-PME and can therefore be done in many ways, from a mere informal agreement to a written contract between the expert's institution and the SME.

The access to computing resources is possible at the regional and national level for the duration of the project. A first package of computing hours is usually free, to set up the project and run some first tests, then the remaining volume of hours needed is negotiated at the best possible price directly with the computing centre. This way of doing might change as the programme is currently being restructured to address more SMEs nationwide. It is also to be noted that conventional good practices apply, such as avoiding experts with a potential conflict of interest or asking the SME for permission before including it in a press release. IPR aspects are dealt with directly between the expert and the SME.

#### 2.1.2.3. *The Italian Case: SCS*

SCS - SuperComputing Solutions SrL is a spin-off of CINECA Interuniversity Computing Center. The company has been established in 2003 with the mission to facilitate the use of supercomputing infrastructures and to enable access to advanced applications for numerical simulation in the industrial context.

SCS works in the context of custom oriented solutions and high performance technical computing with the specific goals of:

- Developing IT projects;
- Managing outsourcing application projects;
- Developing and selling software applications.

Protection and security policies:

- For the management of information security CINECA complies with ISO 27001:2005 "Information Technology - Security techniques - Information security management system" and has implemented all the processes related to information security that the ISO body mandates. The ISO has been released and certified by the RINA Services certification authority.
- The protection of specific background IPR is based on NDA between SCS and client companies.
- The vast majority of contracts relate to the offering of computing time and related resources and therefore the essence of the activity is more in line with buying access to the system than to provide R&D services. In this activity the production of foreground IPR stays on the client side only and there is no issue concerning the ownership.

#### 2.1.2.4. *The UK Case: Supercomputing Scotland*

Supercomputing Scotland is an initiative from EPCC at the University of Edinburgh and Scottish Enterprise (SE) that gives companies the knowledge to help them decide if using HPC is suitable for them. The key objective of Supercomputing Scotland is to improve companies' competitiveness through the use of HPC to deliver new and improved products and services. This 3-year, £1.2 million programme will enable companies of all sizes to use EPCC supercomputers to solve key business challenges such as product and service design. During its three-year lifespan, Supercomputing Scotland aims to provide tailored advice to more than 100 Scottish companies, deliver at least 34 in-depth feasibility reviews, and support over 20 companies to become knowledgeable users of HPC through completing projects leading to tangible business benefits.

The starting point is an initial meeting where EPCC and Scottish Enterprise will meet with the interested organisations to discuss what potential there is for HPC to help their business. If appropriate, this will be followed by a detailed feasibility study and subsequently by a bid for Scottish Enterprise support for an HPC Adopter Project.

The programme is primarily aimed at companies from the Energy, Life Sciences and Financial Services sectors but will consider engaging with any company on a case-by-case basis. Benefits include reducing the time, labour and cost needed to bring products to market, while facilitating improved research and development capabilities.

Supercomputing Scotland is organised around a 3-stage review of the organisation business practices. This review process is free to the company and is undertaken by EPCC and supported by Scottish Enterprise and Business Gateway account management teams across Scotland and essentially tries to make life as simple as possible for the company.

Level 1 is a first high-level meeting which considers the company's business, markets and objectives. This meeting will establish whether or not there is scope to proceed to a more detailed exploration of the company's IT and computational situation. If so, the company and EPCC will agree to proceed to the next stage Level 2.

Level 2 is a combination of a secondary more detailed meeting and a report based on that discussion. Typical issues at this stage will include: software and hardware; licenses; staff expertise; production processes; service delivery; time-scales; and costs.

EPCC will produce a short report following the Level 2 meeting that provides a thorough analysis of the HPC potential for the company and provides options for a potential HPC Adopter Project(s) and considers the best way forward. At this stage EPCC and the interested company jointly sign a vanilla NDA. (see Annex 7.1).

Level 3 is a 5-7 full days analysis of the company's business and computing capacity and will scope a detailed project(s) plan based on a 4-6 month HPC Adopter Project delivered by EPCC. There is a meeting between the company, EPCC and SE at which point the company has received from EPCC the project plan based on the findings of Level 3. Assuming SE thinks there is merit in them part-funding the project (at the moment this is typically to the value of 30% of the fee and a proportion of any license cost for the duration of the project – typically 3-6 months) they will agree to put the proposal forward for funding consideration.

The company and SE jointly prepare a standard SE grant application form (2 pages) which is sent to SE for consideration under their Innovation Grant or R&D Grants. This project may use the supercomputers at EPCC or may only rely on the expertise of EPCC staff or a combination of both. A contract is set up following the Level 3 analysis and project proposal stage. The decision takes around 2 weeks within SE and, once EPCC has notification that SE

has agreed to the funding it is set up the project support agreement with the company. Annex 7.2 provides details in some of the elements included in the agreement.

Each project is unique to the company and does not adhere to the notion that “one size fits all”.

#### 2.1.2.5. UberCloud

UberCloud is the online community that makes available HPC as a service for everyone on demand. The UberCloud HPC experiment aims at exploring the end-to-end process employed by digital manufacturing engineers to access and use remote computing resources in HPC centers and in the cloud. Since July 2012, UberCloud has grown to over 800 organisations and individuals from over 60 countries organised around more than 120 teams (November 2013).

UberCloud legal regulations (e.g. confidential agreement and/or contracts) between participating parties in UberCloud experiment include:

- Custom NDAs among participants;
- Marketplace agreement for participating resource providers;
- Sponsorship agreement;
- Community Membership agreement (UberCloud community site Terms of Use) (see Annex 7.3).

Stakeholders consist of industrial end users, resource providers, software providers, and high performance computing experts.

A typical example of industrial end-user is a small or medium size manufacturer in the process of designing and prototyping the next product. These users are candidates for remote HPC or HPC-as-a-Service. The end-users define their projects in detail, set success criteria, provide input data and interpret the outcome of the project to determine if the success criteria have been met.

The end-users are required to ensure that they have the proper authorisation to bring in their projects to the UberCloud experiment. Although the input/output data and the results are not shared outside of the team assigned to the project, the findings regarding the hurdles and how they have been resolved are shared with all participants, if requested in an anonymised form.

The end-users are asked to select projects that are suitable for the experiment. As examples, the following projects **are not considered** suitable:

- Requires over 1,000 CPU core hours;
- Requires licenses from ISVs that are not able nor willing to participate in the experiment;
- Input/output data set contains secret information;
- Output will be used for anything other than experiment purposes.

The second group of participants are the resource providers. The compute and storage resource provider refers to anyone who owns HPC resources, computers, and storage, and is networked to the outside world. This group contributes their compute, storage, and data transmission resources and related expertise to the experiment. The providers are responsible for completing the execution of the projects and making the results available to the end-user based on the collectively agreed schedules.

Although the providers are expected to make their resources available to the participants at no cost within the scope of this experiment, they measure and report on resource usage. Each provider is free to define the limits of their contribution and has the right to turn down any proposed project.

The third group is the software and service providers group which includes software owners of all stripes, including ISVs, public domain organisations and individual developers. Similar to computation and storage resource providers, the software and service providers are making their resources available to the participants at no cost; however, they measure their resource usage.

Additionally to the abovementioned groups of participants in the UberCloud, there are Team Experts and Team Mentors. The Team Expert includes individuals or companies with expertise, especially in areas like cluster management or porting application code onto HPC systems.

The Team Mentors play a key role as a guide, a supervisor and as a source of help to the experiment teams. Beside its other tasks, the Team Mentor tracks project metrics to ensure compliance with terms as well as helps the team with agreement related concerns, for example: SLA and NDA.

### 2.1.3 Legal Aspects regarding the SHAPE Programme

The SHAPE programme aims to equip European SMEs with the awareness and expertise necessary to take advantage of the innovation possibilities opened by HPC, increasing their competitiveness. The mission of this programme is to help European SMEs to demonstrate a tangible Return on Investment (ROI) by assessing and adopting solutions supported by HPC, thus facilitating innovation and/or increased operational efficiency in their businesses. This programme is seen as an extension of the current industrial relationships of PRACE.

At the implementation stage of this PRACE-based programme supporting HPC adoption by SMEs, task 2.2 consulted the advice of the legal firm Bird & Bird assessing the legal implication of such a pilot.

The specific questions formulated by task 2.2 were:

“If PRACE makes a call for proposals for companies who want to benefit from this pilot, will PRACE break some law regarding market disruption or other law?

If we consider that in the pack of services PRACE will offer a certain (very small amount) of computational resources in a non-competitive basis, would that make a change in the previous question?”

The provision of services to commercial entities raised two main issues:

- The compatibility with state aid rules (as a general rule, SHAPE and PRACE must avoid providing services that would qualify as state aid) and
- A potential abuse of a dominant position (SHAPE must not offer any services that may be considered of commercial value and might thus disrupt the market).

#### 2.1.3.1. State Aid Analysis

a) An excerpt of the answer received regarding the state aid aspect was the following:

*“On the basis of the information at our disposal, we confirm that there is a (very limited) risk that SHAPE could be qualified as State aid to SMEs, even though the current state of the law*



*is unclear and there would be good arguments supporting that there is no State aid. PRACE could, in our view, reasonably decide not to take any further action in this regard.*

*Please note also that if it is indeed State aid, it could benefit from the block exemption regulation ("GBER", Regulation 800/2008), which means that it can be granted without prior notification and without Commission decision. One of the additional requirements of the GBER is that the Member State informs the Commission within 20 days after granting the aid. [...]*

*Even if SHAPE were to be considered to be State aid, it is very likely that it could be block exempted under Article 32 of the GBER. That article exempts aid for "technical feasibility studies preparatory to industrial research or experimental development activities", so long as the State aid does not cover, in the case of SMEs, more than 75 % of the eligible costs for studies preparatory to industrial research activities and 50 % of the eligible costs for studies preparatory to experimental development activities. This appears to be the case for SHAPE, that participating SMEs are required to commit at least the same amount of resources as the SHAPE programme's resources (i.e. 50%/50%).*

*To benefit from the exemption, Member States must inform the Commission at most 20 working days after individual aid is granted or a general aid scheme is adopted (Article 9 GBER).*

*Other conditions of the GBER appear to be fulfilled, namely (i) the eligible costs must be supported by clear and itemised documentary evidence. For the avoidance of doubt, PRACE should keep clear records of all eligible costs. (ii) The block exemption only applies to feasibility studies which do not exceed certain thresholds, namely EUR 20 million per undertaking, per project/feasibility study if the project is predominantly fundamental research and EUR 10 million per undertaking, per project/feasibility study if the project is predominantly industrial research. (iii) The aid must have an incentive effect. For SMEs, the incentive effect is presumed to exist if, before work on the project or activity has started, the beneficiary has submitted an application for the aid (Article 8.2 GBER).*

*Apart from the GBER, there also exists a de minimis Regulation (Reg. 1998/2006), which exempts State aid from notification if the beneficiary has not received more than EUR 200.000 of State aid in the last three fiscal years in that Member State. Member States have an obligation to check that in writing before awarding the aid. As for the GBER, the problem is that it is not possible to identify one Member State who would need to fulfil this obligation and in which Member State the ceiling is to be assessed. It would therefore be difficult to safely conclude that SHAPE complies with this regulation.*

*[...] there is a very low risk that the European Commission would open an investigation into SHAPE. This is because (i) the funds come from the FP7 programme and (ii) the project is beneficial for the European economy, with very little potential for distorting competition that we are aware of. The main risk is therefore that companies use State aid arguments in litigation to block their competitors from participating in the SHAPE project or disrupting the process in one way or the other. PRACE's defence would be that there is not State aid at all or, if the information has been filed with the Commission that the conditions of the GBER has been fulfilled.*

*Theoretically, claimants could request the suspension of the aid or even the reimbursement of what has already been paid. However, in that case, a notification could be made to the Commission. The Commission would very likely declare the aid compatible (or take a decision saying that there is no aid), which would supersede national courts.*

*Given the above, we find that the State aid risk is very low, both for PRACE and for participants and we would advise PRACE to go ahead with the SHAPE programme, without any further action.[..]*

b) The answer received regarding the potential abuse of a dominant position was the following (Memorandum from 22 January 2013: SHAPE in the context of PRACE-3IP):

*“Article 102 of the Treaty on the Functioning of the European Union (TFEU) prohibits abuses of a dominant position, which includes so-called predatory pricing by a dominant company. Offering services for free, as is the case in SHAPE, could be viewed as predatory pricing. However, for Article 102 to apply, the PRACE-3IP Consortium would need to be considered as “undertaking” under EU competition rules in the context of its SHAPE activities.*

*EU case-law defines an undertaking as “every entity engaged in an economic activity, regardless of the legal status of the entity and the way in which it is financed” (Ref: ECJ, Case C-41/90, Hofner and Elser, ECR (1991) I-01979, para 21). The notion of economic activity was defined by the European Court of Justice as “any activity consisting in offering goods and services on a given market” (Ref: ECJ, Case C-180/98, Pavel Pavlov, ECR (2000) I-06451, para 75). The nature of the services offered in SHAPE, conversely, appears to be of a different kind than those which private companies would offer on a market, and are arguably not economic. On the basis of this understanding we believe that Article 102 TFEU would not apply to PRACE-3IP Consortium when it rolls out its SHAPE programme.”*

#### 2.1.3.2. Terms of Reference of the SHAPE Programme

The general terms and conditions (GT&C) which govern the rights and obligations of any entity that has submitted an application on the PRACE website for the SHAPE pilot, were provided to the participants only for reference during the pilot. During the future full SHAPE programme, WP5 advises on the signature of these GT&C by each participant. These GT&C shall be complemented by any specific terms and conditions which may be included in the final selection decision issued by PRACE.

For details regarding the confidentiality, warranties, intellectual property rights, liability, publication and dissemination aspects, see Annex 7.4.

## 2.2 The Pre-Competitive Model

Some companies have research activities with short term objectives on commercial exploitation. In these cases, early publication can endanger the strategy of the company and its benefits. The companies may benefit from partnering with a Research Infrastructure in a pre-competitive model arrangement that would permit them to exploit their research results for some limited period of time before their research becomes public.

WP2 has asked the legal firm assessing the infrastructure for advice as for the legal concerns of the implementation of this model, in order to prepare the field for a possible future decision on its implementation.

The specific question formulated to the legal firm Bird & Bird was:

*“If a company wants to do a project with scientific impact, but first wants to profit exclusively itself, applying the results in its products, and delaying the publication of results so that the company retains competitive advantage, which conditions would apply for PRACE? Can PRACE still offer access to these companies under this condition, even if we offer the access for free?”*

The answer received has been the following (see Annex 7.6):

*“You have asked us whether it would be acceptable to postpone the obligation on beneficiaries of the Open R&D programme to publish their results following their access to the HPC infrastructure. In short, we are of the opinion that a delay in the publication of the results will only have a marginal impact on the legal assessment of HPC access with respect to State aid rules. For this reason, we do not think that delaying the publication of results would create new risks for PRACE.*

*As explained in our Memorandum to you of 16 January 2012 (‘Granting access to industry to HPC, Question 1) (see Annex 7.5), granting access to HPC services for free or below market rates could potentially be analysed as a State aid measure in favour of the users. This being said, in view of the international and collegial nature of PRACE decisions, there would be strong arguments that the HPC access it provides is not imputable to individual Member States, and thus does not constitute State aid. Whether the results are published immediately or not is a circumstance that could be taken into account, but would be unlikely to tip the balance one way or the other.*

*If the Open R&D programme would be deemed to constitute State aid, it should have been notified to the European Commission, which might have declared it compatible with the internal market, applying the Community Framework for State aid for RDI<sup>2</sup>.*

*A claimant (typically a competitor of an Open R&D beneficiary) could theoretically also ask a national court to (i) assess whether HPC access contains State aid; and (ii) should this be the case, to suspend access or order the beneficiary to reimburse to PRACE the cost of access. If that were to happen and the court were to find HPC access to constitute State aid, the measure could nevertheless be notified in retrospect to the Commission, which might declare it compatible, applying the RDI Framework referred to above.*

*Whether this is a real risk remains to be seen, especially in view of the fact that to our knowledge, the programme has now been operating several years without such challenge. Potentially, a delay in the publication of the results may slightly increase the risk of litigation by competitors of Open R&D beneficiaries.”*

On the basis of this, the educated advice of WP2 to the PRACE RI is to further consider the study of a pre-competitive access programme, and when more data is available on the type of company that could benefit from it, the selection process, the length of delay for publication of results, and other conditions, re-evaluate with the legal firm for a final check.

### **2.3 Analysis of the PRACE organisational Structure in Case of Potential Collaboration with Industry**

WP2 enquired with the help of Bird & Bird under which circumstances PRACE AISBL would be able to engage in commercial activities and which kind of consequences this new scenario would have for the research infrastructure. The concrete questions formulated by WP2 in order to investigate more in this direction were:

*“Departing from the current situation (PRACE as an AISBL), can PRACE have a “satellite” or subsidiary company providing commercial services while keeping its status of not for profit? If that is the case, which type of company would it be most appropriate? What would be the conditions/constraints that PRACE should bear in mind?”*

When formulating these questions, the WP2 assumed already two options in which context PRACE could engage in commercial activities; the legal experts mentioned a third one:

<sup>2</sup> Community Framework for State Aid for Research and Development and Innovation, OJ 2006 C 323/1

- Migrating to a different legal form (most likely, an ERIC) allowing some commercial activities;
- Keeping the current legal form and create a subsidiary or satellite commercial company that would provide commercial services;
- Engaging in limited commercial activities as an AISBL (international not for profit association).

Since the first and the last option have been investigated during the previous PRACE projects (see [7] and Annex 7.5), in this deliverable WP2 analyses the second option mentioned above.

When analysing if PRACE as a non-profit body can engage in commercial activities, constraints from a corporate, tax and VAT point of view were taken into account. With regard to the state aid aspects, the rules are currently very unclear and are under review. In fact, the Commission has launched a consultation on the topic in February 2014.

#### 1) The corporate aspects

*“Associations that support scientific research and wish to exploit inventions commercially normally do this via a subsidiary company, i.e. a company whose shares are either wholly or almost wholly owned by the AISBL, or through a joint venture.*

*Under Belgian law, holding a participation in a commercial company is not considered to be a commercial activity per se and, therefore, PRACE could create a separate commercial company to provide the commercial services it is contemplating, under the condition that, any profit derived from the subsidiary's activity, any dividend paid out by the subsidiary and any investment income or capital gain realised pursuant to a sale of the shares of that entity has to be invested by the AISBL in accordance with the AISBL's non-profit purpose.*

*PRACE's purpose, as set out in article 3.3 of its statutes [8], specifically foresees the possibility for it to carry out commercial activities "either directly or indirectly". The latter term refers to the holding of participations into other entities. In addition, its purpose expressly contemplates services to the industry even though it does not specify the means by which such services are provided (e.g. via a subsidiary).*

*In principal, PRACE as an AISBL can carry out such activities by itself, through a subsidiary, a joint venture or a company created by members of PRACE in which case it would be affiliated to PRACE but not owned and not subject to the restrictions arising out of its ownership by PRACE.*

#### 2) Creation of a subsidiary: tax aspects

*From a direct tax perspective, if PRACE incorporates a subsidiary in Belgium, it would receive dividends as a shareholder. This income will be subject to Tax on Legal Entities (TLE), i.e. 25% withholding tax. The subsidiary in itself will be subject to Corporate Income Tax (CIT) on its income at the rate of 33.99% but its costs will be deductible.*

#### 3) VAT aspects

*From a VAT perspective, if PRACE would conduct commercial activities, it would supply services to third parties. If it would conduct such activities on a regular basis and for consideration, these activities would be subject to VAT. Hence, PRACE would qualify as a VAT taxpayer who must invoice its clients with VAT (or apply the reverse charge rule) and can recover the input VAT.” (Bird & Bird Memo on engaging in commercial activities from 11.12.2013) (Annex 7.6).*

Regarding the question which type of company would be the most appropriate and what are the constraints that PRACE as an AISBL has to bear in mind, the legal experts answered the following:

*“The commercial activities could, in our opinion, be housed in a company that is owned either fully or partly by PRACE or owned by some members of PRACE.*

*Option 1: subsidiary fully owned by the AISBL*

*PRACE could house the commercial activities in a subsidiary of which it owns all or almost all the shares representing the capital (certain types of companies require a minimum of 2 or 3 founders/shareholders and, thus, another entity would have to hold a very small (minority) participation in the capital (e.g. 1 share) to comply with this requirement, if PRACE opts for such form of company).*

*A subsidiary is a separate company with legal personality, i.e. it has assets and liabilities as well as rights and obligations separate from those of its shareholders, it also has the capacity to contract in its own name and on its own behalf. It would also hold separate books and accounts.*

*The company acts through its corporate bodies (general meeting of shareholders, board of directors, persons in charge of day-to-day management, statutory auditor etc.) which represent and incarnate the company.*

*A company can have limited or unlimited liability (depending upon the preferred legal form). In a limited liability company the shareholder is only liable for the company's debts up to its contribution in kind or in cash into the capital. In an unlimited liability company, the shareholder can be held liable for the company's debts on its own assets even beyond its contribution. The former is obviously more advisable.*

*Option 2: affiliated company held by (some or all) members of PRACE*

*PRACE could also contemplate housing the commercial activities in a separate company owned by all or some PRACE members, in parallel to the AISBL. This would be a kind of "sister company".*

*Option 3: a company held jointly between PRACE and some of its members*

*PRACE could also contemplate housing the commercial activities in a separate company owned by it and by some PRACE members.” (Bird & Bird Memo on engaging in commercial activities, part II from 20.01.2014) (Annex 7.7).*

The selection of a suitable organisational structure also has to take into consideration the fact that compute resources and man-power offered through PRACE are currently provided by its members, as regulated through the PRACE AISBL Statutes and the Agreement for the Initial Period.

### **3 Collaboration with EU Projects**

The other type of collaborations considered in the analysis done by WP2 involves EU projects and their stakeholders. The working group considers that PRACE can better leverage the EU project instrument for the benefit of the scientific results and also for the benefit of PRACE; however, there are many legal aspects involved in the different potential channels identified. This section provides the results of this analysis. A more detailed document was provided to Board of Directors for its consideration. The content of the named document is provided in Annex 7.8.

### 3.1 Current Situation in PRACE

Currently, PRACE supports three different types of access to its computational resources:

- Preparatory Access;
- Multiyear and Project Access;
- Open R&D.

However, there are special situations in which the described types of access might not be sufficient. The two best known cases are the commercial access and the access by EC peer reviewed projects. The second type of cases refers to projects receiving an EC grant for performing research that involves using Tier-0 HPC resources. These projects may not be granted access to PRACE for technical or scientific reasons. For example, a project could be rejected because the proposal is not technically sound, or because the topic of the research does not comply with the objectives of the call where it applied, or because it's relative excellence compared to the other projects presented does not make the project meet the acceptance threshold. In this case, part of the project will fail, and the resources granted by the EC would end up being wrongly allocated (they will not be spent, when other projects could have benefited from them). Integrating PRACE into funded project calls would be an interesting solution, and it may be an incentive for computational sciences for attracting scientists into this field.

### 3.2 Best Practices other RIs

The operation of worldwide Research Infrastructures depends in a significant manner on the way these manage their resources:

- Centralised or distributed establishment;
- Open or closed access model: open to any researcher or restricted to members.

The concept of a peer review process as the base for the allocation of any of the resources of the RIs is very well established. That process assures that any proposal is adequately evaluated and sufficiently justified for getting access to whatever equipment, laboratory, computing time, etc. is made available.

For the purpose of this section on best practices we present two examples that refer to RIs that similarly to PRACE distribute world class computing resources:

1. XSEDE partnership in USA
2. INCITE programme in USA
3. HPCI and its Consortium in Japan

#### 1. XSEDE

It is a large collection of advanced, highly integrated digital resources and services. It is a single virtual system that scientists can use to interactively share computing resources, data, and expertise. Around the XSEDE project has been formed a partnership of US universities. XSEDE is supported by the US research funding agency NSF (National Science Foundation) for the special purpose of providing researchers with the necessary HPC resources.

The NSF directs the funded research projects that require HPC resources, large amounts of data storage, or advanced visualisation resources that are beyond the scale typically available at local sites to apply for XSEDE resource allocations [9]. The XSEDE resources are available to researchers and research teams at no additional cost. The process for requesting

and getting access to XSEDE differs depending on the type and purpose of the request. The proposal is submitted to an allocation committee that examines the requests and advises XSEDE on how best to allocate resources consistent with the availability and type of requests. No further scientific review is performed on the content of the project for those projects that are funded by NSF or other science agencies.

For small requests, no proposal is required nor a review. The applications go through a simple on-line process. The Principal Investigator (PI) must be a researcher or educator at a US-based institution, including federal research labs and commercial organisations. PIs with support from any funding source, not just NSF, are also eligible.

The eligibility criteria do not guarantee that the request for allocation is successful. The proposals are subject to a selection process that is based on the merit criteria carried out by the XSEDE selection committee (XRAC). No further scientific review is performed.

It is interesting to highlight that XSEDE supports various categories of research consortiums and services [10]:

1. Single Principal Investigator (PI): Most projects support a single PI and possibly a small research group working closely and co-authoring papers.
2. Multi-PI, Large Research Collaborations: Projects of this type are characterised by a single PI representing a large group of collaborating co-PIs who are working on sub-projects within the overall collaboration. A single request is submitted, and a single project is allocated. The management of the allocated resources is left to the discretion of the principals on the request.
3. Large-scale Consortiums: Projects of this type are intended to support large-scale, funded projects that work together as a consortium. Often in these cases, a mechanism already exists for allocating community or project resources (e.g., an instrument such as a telescope or detector), and that mechanism will also be used to make allocations from the time granted to the community project to the individual investigators. Requests for this type of project typically describe the internal processes for managing access of individual investigators within the consortium.
4. Gateways or Community Services: Projects of this type provide services to a large community of users who are typically not directly collaborating with the project PI. An example of such a project would be an application portal service providing access to software and computer time to a community of biology researchers via a web-based interface. Requests to provide such a service must describe the details of the services provided, the methods used, the expected consumption of resources, and mechanisms for monitoring the users and usage of the service. Statistics of community usage should be reported quarterly and in renewal requests for resources, progress reports, and end-of-project reports.

Such an approach provides a very effective policy with respect to an efficient allocation of resources.

## 2. INCITE

The Innovative and Novel Computational Impact on Theory and Experiment (INCITE) programme promotes transformational advances in science and technology for computationally intensive, large-scale research projects through large allocations of computer time and supporting resources at the Argonne and Oak Ridge Leadership Computing Facility (LCF) centres, operated by the US Department of Energy (DOE) Office of Science.

The programme aims to accelerate scientific discoveries and technological innovations by awarding, on a competitive basis, time on supercomputers to researchers with large-scale, computationally intensive projects that address “grand challenges” in science and engineering.

INCITE issues an annual call for proposals open to US and non-US based researchers and research organisations, regardless of the funding source that supports their activity and including industrial organisations.

Awards are made based on the quality and impact of the research and the suitability of the proposed simulations for the requested resource. INCITE employs a two-phase review process. Proposals are peer-reviewed by an international panel of experts for scientific and technical merit and potential impact, and this assessment is the primary basis to identify the top-ranked proposals for potential awards. The computational readiness of the proposal is also assessed in order to determine how effectively the project will utilize the requested system. Multiyear awards are subject to annual review.

The INCITE Awards Committee is composed of the LCF management teams. The Committee makes selections based on the rankings by the peer-review panel. Potential impact is the predominant determinant for awards while the readiness ratings are used to determine the capability of the project to effectively use the selected system and are based on proficiency shown through benchmarking data and/or proposed development plans.

Using the resources to generate data or results that are designated as proprietary is allowed, but requires the full cost recovery through a proprietary user agreement.

### 3. HPCI

The High-Performance Computer Infrastructure (HPCI, [11]) is a computational environment that makes it possible to access the K computer from a number of supercomputing centres operating in Japan at major universities and research institutions [12]. The HPCI Consortium is an organisation formed by the representatives of various communities related to computational science and technology with the aim of promoting various projects from the users' point of view.

Access to the top system of such an infrastructure is based on a selection process that is carried out by the Registration Facility Usage Promotion Agency (Registration Agency). The Agency is designed to select candidate users for the K computer and extend the necessary usage support from a neutral and fair position in accordance with the Act to Promote the Shared Usage of Specified Large-Scale High-Technology Research Facilities (Shared Usage Act). The Research Organisation for Informational Science & Technology (RIST) was nominated as the Registration Agency responsible for carrying out the usage promotion.

RIST acts as the operating arm for HPCI. Applications for K system computing time are regulated by calls for proposals. Project proposal review is carried out by reviewers under the supervision of a Screening Committee composed of members from industries and academia. This committee assisted by the Reviewers will evaluate proposals for the use of the K computer and proposals for the use of HPCI computers other than the K system and evaluate scientific excellence, social impacts, readiness of the code, and excellence of the research plans of the proposals. Then a Selection Advisory Committee reviews the evaluation report by the Screening Committee. The RIST will finally decide on the selection of the projects and awarding of the computational resource of the K computer and the HPCI Operations Office ([https://www.hpci-office.jp/pages/e\\_concept](https://www.hpci-office.jp/pages/e_concept)) decides on the selection of the projects for the HPCI computer other than the K system.



## D2.2

## New PRACE Relationships with other Entities

Similarly to XSEDE, the eligibility of a funded project does not guarantee that allocation of the resources is granted.

The following table summarises the characteristics of the RIs examined in comparison with PRACE:

	XSEDE	INCITE	HPCI	PRACE (current model)
Funding source(s)	National funding agency (NSF)	Department of Energy (DOE)	Government (MEXT)	Members (Hosting Members)
Selection process	YES (selection committee)	YES (peer-review)	YES (selection committee)	YES (peer review)
Cost for users	NO	NO (unless proprietary project)	NO (unless industrial proprietary project)	NO
Allocation guarantee for funded projects	NO	NO	NO	NO
Eligibility criteria for non-industrial PI	PI US-based, funded by any source	Open to researcher and research organisations	-	PI has research position contract
Eligibility criteria for industrial PI	PI US-based, funded by any source	Open to researcher and research organisations	-	PI's company or R&D based in EU, open R&D
Specific access for communities	YES (in case of research consortium)	YES (in case of research organisation)	YES	NO

Table 1: Summary of the RIs' characteristics

### 3.3 Potential Routes for PRACE future EU Collaborations

PRACE may want to consider the evaluation of possibilities to address the situation in which EC funded projects require HPC resources through a specific channel (aside of the existing general peer review mechanism), and in doing so, providing an access route for scientific communities.

In general terms, the options analysed are:

- Option 1: Gives a certain amount of resources without asking for anything back
  - Option 1.1: Gives a certain amount of resources under a specific set of defined limits;

- Option 1.2: Gives a certain amount of resources guided by the PRACE Juste Retour algorithm (so the resources are distributed in line with how much the countries contribute to PRACE).
- Option 2: There is a payback by the EC of the resources contributed
  - Option 2.1: Direct cash payment upon usage of the resource by the EC projects;
  - Option 2.2: Indirect payment via specific calls;
  - Option 2.3: Deferred payment through Vouchers;
  - Option 2.4: EC Payment + Juste Retour.

Task 2.2 prepared a document with an analysis of the options sent to BoD for its consideration with further details. The document is provided in Annex 7.8.

Despite the precise payment schema of Option 2, the Transnational Access is in general an interesting option to consider. In the next subsection a further explanation on this option is provided. Subsection 3.3.2 provides further detail on Centres of Excellence as an alternative for PRACE to contribute to the EU projects.

### 3.3.1 *Transnational Access*

Transnational access (TNA) was introduced already in the 2th Framework Programme 1987 of the European Commission and implemented through Individual Transnational Access contracts (FP2, FP3, FP4, FP5 and FP6) and Integrated Infrastructures Initiatives (FP6 and FP7). The purpose of the TNA programme is to open national Research Infrastructures to the European scientific communities transforming them into hubs of the EU scientific landscape and to provide access to researchers, free of charge, to the best facilities to conduct top-level research.

The European Facility for Airborne Research (EUFAR), an Integrating Activity funded by the European Commission under FP5/FP6/FP7, works to coordinate the operation of instrumented aircraft and hyperspectral imaging sensors, exploiting the skills of experts in airborne measurements in the fields of environmental and geo-sciences, in order to provide researchers with the infrastructure best suited to their needs. In the field of physics and astronomy, the Integrated Infrastructure Initiative (I3) "European LIght Sources Activities" (ELISA) was supported by the European Community - Research Infrastructure Action under the FP7 Programme. Bringing together 17 European research facilities, the ELISA project constituted the largest synchrotrons' and FELs' network in the world composed by 15 partners managing, 12 Synchrotron facilities and 5 Free Electron Sources.

This programme was used extensively by the huge single sited national research infrastructures especially in the physics community, e.g. synchrotron radiation facilities, HASYLAB. But also in the field of HPC this funding programme was used in recent years with the HPC-Europa and HPC-Europa2. Within the TNA resources for European scientists were available and up to 20% of the operational costs could be funded if an exact accounting is available. The TNA programmes were often linked with other activities like the development of the research infrastructure and networking actions within the scientific community.

Also in the 8th Framework Programme Horizon 2020 a specific call addressing the TNA was published. In INFRAIA-1-2014/2015 a specific topic addressing HPC was included:

*“Mathematics and ICT - Advanced Communities*

*Integrating activity for facilitating access to HPC (High Performance Computing) centers.*

*This activity aims at furthering the services harmonisation and enhancement of national and regional High Performance Computing centers of pan-European interest and at enlarging the European HPC user base preparing it to the use of the top end HPC resources such as PRACE (Partnership for Advanced Computing in Europe)”.*

Since the funding conditions changed from the 7th to the 8th Framework Programme Horizon2020 with a max funding of 100% for RIs, the TNC could be a new funding resource for PRACE covering a part of its operational costs. It is recommended to follow this funding route in the future. The present call INFRAIA-1-2014 dedicated for HPC, foresees an available budget of 5 Mil € and is recommended for moderate size actions like HPC-Europa.

### 3.3.2 The Centres of Excellence

The new 8th Framework Programme Horizon2020 of the European Commission introduces the concept of the Centre of Excellence (CoE). This concept was already recommended in the Scientific Case 2012-2020 [13]: “Thematic Centres should be established to support large long-term research programmes and cross-cutting technologies, to preserve and share expertise, to support training, and to maintain software and data”.

The Centres of Excellence for computing applications are one of the three Pillars (ETP4HPC, PRACE and CoE) of the Horizon 2020 HPC strategy and should bring together experts in the application of HPC for addressing scientific, industrial or societal challenges. The CoEs may be 'thematic', addressing specific application domains such as medicine, life science or energy, 'transversal' on computational science (e.g. algorithms, analytics, numerical methods etc.), 'challenge-driven', addressing societal or industrial challenges (e.g. ageing society, climate change, clean transport etc.); or a combination of these types. The CoEs are expected to be user-driven, with the application users and owners playing a decisive role in their governance. The CoEs should not only encompass HPC software but also relevant aspects of hardware, data management/storage, connectivity, security, etc.

An important asset is the multidisciplinary with domain expertise co-located alongside HPC system, software and algorithm expertise. The CoE can be distributed with a possible central hub, federating capabilities around Europe, exploiting available competences, and ensuring synergies with national/local programmes.

The objective of the CoE is the provision of a pan-European service, including consultancy to industry and SMEs, developing, optimising and scaling HPC application codes towards peta and exascale computing; testing, validating and maintaining codes and managing the associated data; quality assurance; co-design of hardware, software and codes research in HPC applications and addressing the skills gap in computational science. The expected impact of the CoE is an improved access to computing applications and expertise, an improved competitiveness for companies and SMEs, European leadership in applications that address societal challenges and/or industrial applications, and an increase of the number of trained scientists and engineers. However, this will be only possible if all pillars of the European HPC strategy work hand in hand.

The European Commission published a dedicated call EINFRA-5-2015 with a total budget of 40M EUR for the establishment of 8 -10 CoEs. Since this concept is new, a lot of questions will have to be answered at a later stage.

The different scientific communities are expected to build CoEs. A specific legal form is not required; however, the partners have to agree on and define their collaboration. For communities which are not being selected or did not apply for a CoE, PRACE still needs to ensure the related code enabling support. Moreover, links to the CoE with ETP4HPC and

PRACE need to be designed and established. One possible bridge to CoE could be the PRACE advanced training activities in the PATCs. In this respect, the CoE could provide the requirements for specific trainings to be included in the PATC curriculum. Another bridge specifically for PRACE as a resource provider is the provision of Tier-0 access which is needed for enabling, refactoring or scaling of the community codes.

The involvement of PRACE as a research infrastructure must be defined. PRACE could be included as a project partner or as a services provider in the CoE. In this respect, the question of how the cycles will be made available to CoE needs to be clarified, since PRACE has very rigid access routes, the regular call and preparatory access (type A, B and C). Further aspects that should be investigated beforehand are the sufficiency of the preparatory access and the possibility of a sustainable and flexible access to the Tier-0 resources. A third option would be if not PRACE but the individual Tier-0 hosting sites would be included in the CoE as project partners or just as service providers. However, this flexible and easier to realise option will have the disadvantage that the full range of different architectures, one of most important benefits of PRACE AISBL, would not be available.

Since PRACE is committed to provide the Tier-0 resources through a pan-European peer review process based only on scientific excellence, additional access for dedicated CoE will not necessarily fall into the peer reviewed free of charge access. This aspect raises the next question concerning the funding of the required resources. PRACE will be able to indicate the price for the required resources based on the TCO calculation. For the moment the way this cost could be financed is not clear: either a Tier-0 access budget is foreseen in the CoE project, which should be funded by 100% and could be used to pay for the access, or the involved Tier-0 centres contribute the access as an in kind contribution.

The following table summarises the advantages and disadvantages regarding the involvement of PRACE in the CoEs:

Involvement of PRACE in CoE	Pros	Contras	Needs further investigation
<b>PRACE as project partner</b>	<ul style="list-style-type: none"> <li>- PRACE expertise available</li> <li>- PRACE benefit from EC funding</li> </ul>	<ul style="list-style-type: none"> <li>- PRACE's rigid access routes (the regular call and the preparatory access)</li> </ul>	<ul style="list-style-type: none"> <li>- the cycles' distribution</li> </ul>
<b>PRACE as external service provider</b>	<ul style="list-style-type: none"> <li>- no reporting to EC</li> <li>- more flexibility for CoE to choose other service providers (Tier-1)</li> </ul>	<ul style="list-style-type: none"> <li>- PRACE's rigid access routes (the regular call and the preparatory access)</li> <li>- PRACE funding needs to be defined</li> <li>- PRACE service provision needs to be defined</li> <li>- need additional legal framework (MoU)</li> <li>- limited PRACE expertise (not all experts may be available due to legal constraints)</li> </ul>	<ul style="list-style-type: none"> <li>- the sufficiency of the preparatory access (available CPU hours)</li> <li>- the sustainable and flexible access to the Tier-0 resources</li> <li>- the change to a legal form with no fiscal punishment for service provision in exchange of money (Service Level)</li> </ul>
<b>A Tier-0 hosting site as project partner</b>	<ul style="list-style-type: none"> <li>- flexible and sustainable access to the Tier-0 resources</li> </ul>	<ul style="list-style-type: none"> <li>- no architecture diversity would be available</li> <li>- risk of fragmentation: service provision on national level for a European CoE</li> </ul>	
<b>A Tier-0 hosting site as external service provider</b>	<ul style="list-style-type: none"> <li>- flexible and sustainable access to the Tier-0 resources</li> <li>- more flexibility to choose other service providers</li> <li>- more freedom to define the access to resources (MoU)</li> </ul>	<ul style="list-style-type: none"> <li>- no architecture diversity would be available</li> <li>- risk of fragmentation: service provision on national level for a European CoE funding for PRACE RI</li> <li>- no project involvement</li> </ul>	

**Table 2: Pros and contras regarding the involvement of PRACE in the CoEs**

## 4 IPR Framework

During the years that PRACE projects and infrastructure have been operating a set of potentially IPR-protectable elements have been generated. WP2 considers that it is advisable for PRACE to regulate the IPR for these elements and in any case to have an overall view of IPR for future developments. This section provides the result of the analysis made for a set of key elements identified.

### 4.1 Copyrights from Material developed during the PRACE Projects

The previous PRACE preparatory and implementation projects have produced and accumulated a set of assets and foreground with their IPRs being regulated under all the Consortium Agreements (CA) signed until now, including PRACE-3IP. The CA of the projects contemplated a provision that grants permission to the PRACE RI to access the foreground produced. For the elements that are not covered by the CAs (like domain names, or software) it was decided that a process will be defined in PRACE AISBL for managing them.

The next sub-section covers the relative IPR aspects within the CA, the subsequent subsections represent the special cases that have been tackled by task 2.2 working group.

#### 4.1.1 *IPR Regulation within the Consortium Agreement*

PRACE has not yet developed an IPR general policy and the particular elements are tackled on a per case basis. For the work being done in PRACE under the Consortium Agreement, however there are some general measures that indicates a policy to follow.

According to the definition given by the PRACE-3IP Consortium Agreement the “Foreground” covers the results, including information, whether or not they can be protected, which are generated under the Project. Such results include rights related to copyright; design rights; patent rights; or similar forms of protection.

The provisions of the PRACE-3IP Consortium Agreement dealing with Foreground and Access Rights are contained in Sections 8 and 9 (Articles 8.1 - 9.8). Those provisions are complemented by the ones included in the part C of the Annex II of the Grant Agreement Number 312763.

Regarding the ownership of the developed materials, the basic rule is that the Foreground is the property of the beneficiary carrying out the work generating that foreground (Grant Agreement Article II.26.1). In case several beneficiaries have jointly carried out work generating foreground and where their respective share of the work cannot be ascertained, they shall have joint ownership of such foreground (Grant Agreement Article II.26.2).

The PRACE AISBL is defined as the Research Infrastructure providing the pan-European Tier-0 HPC service, and it is granted access rights according to the following terms:

“9.4. Access Rights for Use: Non-exclusive Access Rights to Foreground shall be granted on a royalty-free basis for the PRACE aisbl Research Infrastructure when required for its use in the operation, research and development, and other internal functions of the Research Infrastructure.”

#### 4.1.2 *The PRACE Name and Logo*

WP2 investigated the origins of the PRACE name and logo to check its ownership and protection status.

The logo was developed by an external German design company called SeitenPlan GmbH, and contracted and paid by FZJ with PRACE PP funds. Although the ownership is currently held by FZJ, PRACE has been using it with the consent of its creator, and according to the CA. The option of registering the logo together with the brand name was considered at some point. However, since PRACE is contemplating a change of corporate image in the short to medium term, it was decided to register the logo once the new image would be decided.

Regarding the brand name “PRACE”, in 2009 FZJ applied for a Community trademark (CTM) for the name “PRACE” covering the territory of the whole European Union. Following the application of that CTM FZJ was contacted by a trade mark owner who claimed to have prior rights. The CTM application was withdrawn following that communication.

Back in 2009 the PRACE project conducted a research regarding the registration of the “PRACE” trademark and the outcome of this clearance search was included in a short memo produced by Bird & Bird (Annex 7.9). The main conclusions of this memo were:

1. Online trademark searches were conducted in relation to different classes of the Nice classification. Two companies with prior registered rights in relation to the “PRACE” name were found: the Czech company LMC, a known provider of human resources websites, and the German company Siemens Nixdorf.
2. Bird & Bird conclusions about the two registrations were:
  - The Czech company LMC: *“there seems to be some overlap between this trademark and “PRACE” for the PRACE project we feel that this mark would not necessary be an obstacle that could not be overcome”*
  - The German company Siemens Nixdorf: *“We have found no use of those marks so they might be vulnerable for non-use. (...) It might also be an idea to acquire these marks from Siemens in order to reach an agreement with LMC.”*

In July 2013, PMO contacted the German company Siemens Nixdorf in order to find out if the company extended their registration for “PRACE” and the outcome was that the “PRACE” name is no longer registered by Siemens Nixdorf.

In August 2013, WP2 in PRACE-3IP consulted Bird & Bird again in this matter enquiring about the possibility of registration of the “PRACE” name. Bird & Bird provided a set of options from which WP2 advised the PRACE AISBL management to conduct an identical research (according to the search data bases of the Office for Harmonization in the Internal Market –OHIM. The search was done at EU and national level (EU Countries), and for similar and/or identical names), which allows identifying signs registered within the EU as absolute No-Gos earlier trademark. PRACE AISBL registered recently a CTM application to protect the brand name after performing a prior analysis of current registrations at the EU and national level which could potentially conflict with such registration. The opposition period of 3 months will end at the beginning of April 2014.

#### 4.1.3 *The Content on the PRACE Training Portal*

WP2 studied the current legal statements in the PRACE training portal. Under the supervision of WP4, WP2 drafted the following statement in order to clarify ownership and usage of the online material:

*“The copyright of the structure and formatting of the PRACE Training Portal web site belongs to the Partnership for Advanced Computing AISBL.*

*All training material (including but not limited to course descriptions, presentation files, videos, exercises) are made available for the sole purpose of distance learning by visitors to the Training Portal. If material is labelled with a specific copyright, you should abide to it. Otherwise the copyright of the material belongs to the content creator and the material may not be re-distributed or re-purposed without explicit permission of the content creator.”*

The statement is currently being implemented in the training website.

#### 4.1.4 PRACE Website Content

Since its creation, the content of the PRACE website has been uploaded by different sources, both by the PRACE Project Partners and the PRACE AISBL. Due to the decentralised management of the website content and also to the several subdomains it contains, and since no legal claim was generated out of its usage, the development of a unified legal protection policy of the said materials was not considered as a priority.

In the light of the previously mentioned, at some point it was agreed to develop a legal notice to be inserted on the PRACE website establishing the conditions of use and access to the materials contained therein. To do so the first step was to map out the different subdomains and different decentralised managers, and also to identify the creators of the different content. In this regard, different aspects were considered:

- a) Existence of several sub-domains managed and /or hosted by different entities;
- b) No clear information about the creators of the materials since in many cases those ones were developed during the different PRACE projects individually or jointly;
- c) Coherence with different legal notices which exist or may be implemented in different pages of the PRACE website.

Once a preliminary assessment was performed, a first legal notice was developed in order to make it accessible on the PRACE website (see Annex 7.10).

Once the legal notice was finalised, it was submitted to PRACE management and communications department for validation. Its approval is expected in short term.

Until then, particular conditions have been developed in order to cover specific materials and web subdomains like for instance the Training Portal or the Summer of HPC.

#### 4.1.5 Operations Software Developed during the Project

The developers contributing to the project have as a strong requirement an acknowledgement of the support that the PRACE project provided to the development of the software, and an obligation to respect the license requirements from open source packages used in the development. There is also an advised usage of the BSD license. An example of a reference suggested in the source code produced with the support of the project is provided in Annex 7.11.

## 4.2 Summer of HPC Programme and the related IPR Issues

In PRACE-3IP, WP3 started a new activity called the Summer of HPC (SoHPC) [14]. The SoHPC Programme placed 24 students around Europe during the summer of 2013 to work within a HPC centre in a PRACE partner country. The students undertook a visualisation



project based on outcomes from PRACE technical work or other work using PRACE resources. The end products are available for future outreach and dissemination activities.

With the assistance of the legal firm Bird & Bird, WP2 studied the best manner to frame the legal aspects on the relationships of the students with the RI regarding the results produced and information handled in the process.

WP2 prepared an initial draft legal clause capturing the elements that the project considers important to regulate.

The elements were:

- Prevent the student or others to use the material generated with commercial purposes unless explicit permission is granted;
- Having PRACE consulted every time the material is to be used;
- Requiring PRACE's explicit permission every time the material is to be used;
- Requiring PRACE approval for using the material with modifications;
- Having the same licensing to any authorised exploitations of the material;
- Having PRACE credited every time the material is used;
- Check of the suitability of existing Creative Commons licensing system for regulating the relationship.

The draft terms were refined by the lawyers and discussed and iterated until we were sure that we were capturing all reasonable elements. The lawyers did not consider Creative Commons suitable for our purposes, and ensured the completeness and correctness of the explanation of the elements we needed to consider. The result can be seen in Annex 7.12 of this document.

In the process, a new regulatory element proposed by the lawyers was included in the final clause (first optional clause in Annex 7.12). The element states that:

- The student must not introduce anything in its work that may somehow cause any damage in the institution hosting it or to PRACE (like unauthorised copies, or subliminal images)
- The student accepts that PRACE owns the result, deciding whether the work will be used and how and also accepts that PRACE modifies the result as long as this does not harm the student's honour or reputation.

Once the internship ended, and results were created, WP2 was approached by WP3 for a new consultation, since one of the results was a software library that the student wanted to open source. Since the software was owned by PRACE, a MB decision was necessary to grant permission for doing that. A lesson learnt was that it will be necessary to readjust the mechanism so that decisions on the usage of the outcome do not necessarily need to pass through the MB, but in certain cases, it will be possible to be taken by the PRACE representative supervising the work.

### **4.3 Dare to Think the Impossible Campaign and the related IPR Issues**

In the PRACE-2IP project, WP3 addressed a new challenge of communicating an overview of the world of HPC to high school students and the general public - Europe's potential and future scientists, a target audience that has not been approached by PRACE before. In order to effectively communicate this message, the 'Dare to Think the Impossible' educational campaign included both a high-level overview of the outreach programme and HPC for teachers and the general public.

The analysis of the legal and IPR aspects related to this PRACE-2IP campaign were performed by PRACE-3IP, as all such types of analyses. It is therefore reported here.

In order to attract this diverse target audience, the PRACE-2IP project team used a variety of available media like video teaser clips on Youtube, Twitter campaign, established a Facebook page and a Dare to Think the Impossible web portal and created the Shooting Star online video game.

Since the Dare to Think the Impossible web portal, the Facebook page for this campaign and the Shooting Star online video game were created with the help of an external design company, *Venimis* from Finland, the aspect of the copyrighted material and rights had to be regulated through a signed contract between PRACE and the design company.

The Dare to Think the Impossible website is hosted by the *Venimis* Company, which has access to the site, the Facebook-page and the YouTube-site. It also keeps these sites up and running, as well as do minor changes / updates whenever needed. Yearly cost for the Facebook-page itself is zero. Same goes for YouTube and the game in the Apple AppStore (iOS), and Android Play Store. The company bought a server for 12-months hosting all the online materials for the campaign "Dare to Think the Impossible".

Regarding the content of the page, PRACE owns the content in the web-page, the videos, artwork, etc. For example, for the main logo "Dare to Think the Impossible", as well as the Shooting Stars game logo, PRACE has the copyright. Some images and other graphics used for the Dare to Think the Impossible -campaign were bought under royalty free agreement, so they can be used as wished in this campaign. Since the master-files to all of the artwork made to the site are still at the company, any future changes to the artwork (graphics, etc.) could be done by the company.

Regarding the copyrights of the Shooting Star game, PRACE will get a permission / license to use the game in all PRACE-related web-structures freely. The license is not limited in time. However, the original code for the game and the game platform on which the game will be coded and structured will be retained as *Venimis*' property. This is because *Venimis* will be using several original earlier developed codebases for developing the game, and thus the original code can not be transferred to other entities. This is a normal procedure. Otherwise the additional original codebase would have more value, and so delivering the original code would have to be negotiated separately.

#### 4.4 Pre-Commercial Procurement Framework and the related IPR Issues

The Pre-Commercial Procurement (PCP) model has been indicated by the EC as one of the key instrument for co-funding R&D and innovation procurement in the next Framework Programme Horizon 2020. A number of PCP pilots have been already implemented in the FP7 Programme as part of the activities of selected projects including PRACE-3IP.

The PCP pilot is a major activity of the PRACE-3IP involving a subset of five partners of the project that are also PRACE AISBL members or directly related to actual members.

A peculiarity of the PCP framework is the way the generated IPR (foreground IPR) are managed. The fundamental aspect that differentiates PCP from common R&D services procurement is that the generated IPR stays on the provider side.

This condition has certainly some impact on how the Procuring Entity (PE) is supposed to regulate the matter from the contractual point of view. Looking at the specific PRACE PCP pilot, the project partners that form the Group of Procurers (GoP) investigated the legal implications that derive from the following conditions under the local framework of laws that regulates PCP in the country of the PE:

- The position of the GoP members as contracting authorities;

- The position of the GoP as contracting authority;
- The position of the PE;
- The expectations of the GoP in terms of Return of Investment (ROI).

The management of the IPR within the GoP is regulated by the GoP Agreement that constitutes the contract among the GoP members. Specifically, the background and foreground IPR are treated accordingly to the following principles:

*ARTICLE 10. ACCESS RIGHTS*

*10.1. Access rights to the outcome of the PCP and the PCP IPR Rules will be decided by the GOP Committee prior to launching the tender. The Procuring Entity shall ensure that the thus adopted rules regarding the access to the outcome of the PCP and the PCP IPR Rules are accurately enshrined in the contracts and/or framework agreements with the PCP Participants and shall ensure in each case that the PCP Participants grant identical rights of access to the GOP Members as third party beneficiaries, as those granted to the Procuring Entity as the contracting entity.*

*10.2. The GOP Committee will manage access to any pilot system(s) resulting from the PCP.*

A further level of regulation has been included in the PCP tender procedure and framework contract. Specifically the following aspects have been defined:

- Confidentiality of any background IPRs made available by the GoP members, by any of the tenderers or third parties involved:
  - The issue is regulated by the national framework of laws of the PE and reflected in the tender regulation article that functions as NDA.
- Level of access to the above mentioned IPRs, licensing, etc.
- Foreground IPRs are explicitly indicated as belonging to the contractors.
- Level of access to the foreground IPR for the PE, the GoP, and PRACE members, licensing, etc.
  - The issue is regulated in the framework contract and reflects that IPRs are sole property of the contractors;
  - PE and GoP members will be granted a irrevocable, worldwide, royalty-free, non-exclusive license until the expiry of the project IPR and relevant background IPR for internal purposes. This license is sub-licensable to third parties but only to legal persons that directly hold shares in a GoP Member;
  - On request the PE and GoP will be granted a non-exclusive license to use or exploit for any purpose (including commercial purposes) project IPR and relevant background IPR on significantly better terms and conditions than those prevailing on the market.

Besides the definition of IPR ownership, the framework contract provides specific indication on how to deal with exploitation of Intellectual Property (IP). The rights of exploitation of IPs are granted to the contractors but some clauses concerning the monitoring of the IPs exploitation by the PE are granted as well. If after three years from the conclusion of the PCP no exploitation occurs, a final provision grants the PE to ask the contractors to assign all non-exploited IPs to GoP members on an individual basis.

## 5 Direct Legal Support for PRACE AISBL

Aside of the lines of support of the working group reported in the previous sections, this task has been opened to other arising topics where legal support was required. During the lifetime

of the PRACE-3IP project so far, we have provided input in four different topics: the adaptation of the working rules for the IAC and SSC, the refinement of the acceptable use policy, and the preparation needed to the new directives on personal data.

### 5.1 Working Rules for Industrial Advisory Committee

On June 2013, task 2.2 received a request from the BoD to assist on the preparation of the working rules for the Industrial Advisory Committee. On August 2013, task 2.2 provided a complete version of these working rules (see Annex 7.13). These were sent to the IAC for refinement, and they were adopted with minor modifications as reported by the chairman of the IAC meeting during the January 2014 Council meeting.

### 5.2 Acceptable Use Policy

In order to regulate the limits of the actions permitted to PRACE users in using its resources, they usually abide to a particular Acceptable User Policy provided by the centre which provides the resources. In order to homogenise this, task 2.2 and WP6 worked together since August 2012 on agreeing from a legal and technical perspective on a general Acceptable Use Policy (AUP). The drafted regulation (see Annex 7.14) has the following main characteristic:

- In order to harmonise the potential existence of a local AUP in the Tier-0 centre, the document refers to a general AUP (common for PRACE Tier-0 centres) and particular AUP (to be included by the Tier-0 member). This way, the user just has to sign one single document.
- The local policy prevails over the general policy, however if a contradiction is detected, the Council shall be informed.

### 5.3 Scientific Steering Committee Working Rules

On May 2013, the BoD informed task 2.2 that in a meeting between Council Chair, BoD chair, SSC chair, SSC vice chair, and SSC former chair, it was agreed that a team between the latter three would be very adequate as a mechanism to guarantee the transition and shift of information. It was also agreed that the Chair of the SSC should stay for one year, and then the vice Chair should become the Chair, so the SSC should select a new vice Chair every year, which will become the chair after one year. The BoD requested that task 2.2 articulates the proposal in order to modify the SSC working rules accordingly. With local legal support, this was articulated in the following manner:

*Art. 5: Mandate of the SSC Members*

1. *As provided in Art. 22.2 of the statutes, the duration of the term of the members of the SSC is two years, renewable twice consecutively for the same period of time.*
2. *The duration of the mandate of The Chairman of the SSC, is one year, and then, the Vice Chair should become the Chair. Hence, the SSC shall select a new Vice Chair every year.*

*During every Chairman transition period, the replaced SSC Chairman, the new SSC Vice Chair and the new SSC Chairman (former Vice Chairman) will work together to guarantee the transition and shift of information.*

## 5.4 Upcoming New Directives on Personal Data

In 2012, the European Commission proposed a major reform of the EU legal framework<sup>3</sup> on the protection of personal data. The new proposals strengthen individual rights and tackle the challenges of globalisation and new technologies. The work being developed under PRACE AISBL and under the existing and future Consortium Agreements will have to contemplate this regulation in the management of user accounts, and email databases for example. The main elements to be considered are:

- A reinforced ‘right to be forgotten’ will help people better manage data protection risks online: people will be able to delete their data if there are no legitimate reasons for retaining it.
- Wherever consent is required for data to be processed, it will have to be given explicitly, rather than assumed. In addition, people will have easier access to their own data and be able to transfer personal data from one service provider to another more easily.
- There will be increased responsibility and accountability for those processing personal data: for example, companies and organisations must notify the national supervisory authority of serious data breaches as soon as possible (if feasible, within 24 hours).
- People will be able to refer cases where their data has been breached or rules on data protection violated to the data protection authority in their country, even when their data is processed by an organisation based outside the EU.

Under the new proposals, there will be only one set of data protection rules and one responsible data protection authority – the national authority of the Member State in which PRACE has its main establishment (Belgium).

The proposals issued on January 2012 for this regulation were passed on to the European Parliament and EU Member States (meeting in the Council of Ministers) for discussion. The Regulation is enforceable two years after it will be adopted. Member States will also have a period of two years to transpose the provisions in the Directive into national law. The approval of this set of rules has been delayed from 2014 to 2015.

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<sup>3</sup> [http://ec.europa.eu/justice/data-protection/index\\_en.htm](http://ec.europa.eu/justice/data-protection/index_en.htm)

## 6 Conclusions

This deliverable reports on the answers for a set of questions identified by task 2.2, related to the legal constraints of extending the PRACE interaction with other entities. Some of the questions have been already evaluated by the PRACE AISBL management and decisions have been taken. Others are still under discussions and consideration.

In the light of the new 8th Framework Programme Horizon2020, the involvement of PRACE in the Centres of Excellence is being enquired. The analysis undertaken by task 2.2 indicates that, despite the many open questions on the role of PRACE on the Centres of Excellence, they can be an option to overcome existing limitations on the way PRACE provides resources.

Due to the change of funding between the 7th and the 8th Framework Programme Horizon2020, the Transnational Access model can now be seen as an attractive funding model for future projects. Amongst other things, this option would align PRACE to other HPC initiatives in Japan or USA, providing access to specific scientific communities. An analysis of elements to be considered in different potential scenarios is provided to the PRACE management for discussion.

Regarding the collaboration with the industry and the SMEs, the analysis provided by the legal firm Bird & Bird indicates that the pre-competitive model could be an option as an access programme for industry. This should be considered by the PRACE management for furthering the support to industry in the future. In the context of the SHAPE pilot, other significant legal aspects have been clarified: the compatibility with the state aid regulations (as a general rule, PRACE should avoid providing services that would qualify as state aid) and a potential abuse of a dominant position (PRACE must not offer any services that may be considered of commercial value and might disrupt the market). It should be noted that the state aid rules are not well defined and currently under evaluation by the Commission. A potential deployment of a satellite company of PRACE needs to be further considered by the PRACE AISBL management. This will make possible a wider industrial offer for PRACE.

In general, the IPRs and the use of results obtained by the PRACE projects are defined within the Consortium Agreement and are available to PRACE AISBL. However, PRACE also undertakes new collaborations such as SoHPC, SHAPE, that imply manifold related IPR questions, not foreseen by the Consortium Agreement. In this deliverable task 2.2 has shown the identified elements for which separate IPR regulations have been implemented.

The work undertaken by task 2.2 during the PRACE-3IP project represents only an intermediate step in the development of the PRACE RI and further research and analysis is still required.

## 7 Annex

### 7.1 EPCC Confidentiality Agreement

#### CONFIDENTIALITY AGREEMENT

between

**THE UNIVERSITY COURT OF THE UNIVERSITY OF EDINBURGH,**

and

**[Insert full legal name of party]**, [Insert full legal address of party] (“[Insert definition of party]”)

hereinafter referred to as “the Parties” and each of them being “a Party”)

#### BACKGROUND

- (A) The Parties are willing to disclose certain Confidential Information (as hereinafter defined) for the purposes of discussions and activities related to the ‘Supercomputing Scotland’ project (the “Purpose”);
- (B) The Parties wish to protect such Confidential Information and accordingly have agreed to the terms and conditions of protection contained in this agreement (the “Agreement”).

#### TERMS AND CONDITIONS

It is hereby agreed as follows:

1. In this Agreement "Confidential Information" shall mean any information (including samples, materials, drawings, specifications, photographs, designs, computer code, computer programs, software, data, formulae, processes, know-how, any technical or commercial information), reports, papers, correspondence or documents which is disclosed by or on behalf of one Party to the other, or to any of such other’s employees, directors, officers, advisors or representatives, in whatever form, (including written, oral, visual or electronic), and which is, or which should reasonably be expected to be, of a confidential nature.
2. The Party receiving or acquiring Confidential Information (the “Receiving Party”) from the other Party (the “Disclosing Party”) undertakes for so long as such Confidential Information remains confidential in character:

- 2.1 to keep all such Confidential Information confidential, and to take all reasonable steps to ensure that copies of the Confidential Information made by or on behalf of the Receiving Party are protected against theft or other unauthorised access;
  - 2.2 not to communicate or otherwise make available any such Confidential Information to any third party except with specific prior written consent from the Disclosing Party;
  - 2.3 to disclose Confidential Information only to such employees, directors, officers, advisors or representatives of the Receiving Party who have a specific need to receive such Confidential Information for the Purpose, and who are aware and have accepted that the Confidential Information is, and should be treated as, of a confidential nature; and
  - 2.4 not to use, or allow to be used, Confidential Information other than solely for or in relation to the Purpose, unless (and then only to the extent to which) any other use shall have been specifically authorised in writing by the Disclosing Party.
3. The obligations in Clause 2 shall not apply, or shall cease to apply, to such Confidential Information as the Receiving Party can show to the reasonable satisfaction of the Disclosing Party:
    - 3.1 has become public knowledge other than through any fault of the Receiving Party;
    - 3.2 was already known to the Receiving Party prior to disclosure by the Disclosing Party;
    - 3.3 was independently developed by the Receiving Party without recourse to or use of any Confidential Information;
    - 3.4 has been received by the Receiving Party from a third party who did not acquire it in confidence from the Disclosing Party, or someone owing a duty of confidence to the Disclosing Party; or
    - 3.5 the Receiving Party is required to disclose by law or by a requirement of a regulatory body.
  4. The Receiving Party may make only such copies of Confidential Information as are strictly necessary for the Purpose, and must ensure that all such copies are clearly marked as confidential, and can be clearly separated from the Receiving Party's own information. Any copy so made shall also constitute Confidential Information. The Receiving Party shall, upon the Disclosing Party's written request, return to the Disclosing Party all Confidential Information as is in tangible form (together with all copies thereof within its possession or control) or make such other disposal thereof as may be stipulated by the Disclosing Party.
  5. Except as expressly provided, nothing in this Agreement nor the subsequent disclosure of Confidential Information pursuant to this Agreement shall be construed as granting or confirming any rights, licence or relationship between the Parties.



- 6. The rights and obligations of the Parties are personal and may not be assigned at any time without the prior written consent of the other Party which consent shall not be unreasonably withheld; provided that it shall be a requirement in all cases of assignation that the assignee undertakes to perform all outstanding obligations of the assignor as though the assignee had been an original party hereto.
- 7. The obligations of confidentiality in this Agreement shall apply to all Confidential Information disclosed by the Parties for the Purpose, whether disclosed before or after the date or dates of this Agreement, and shall continue in force notwithstanding termination of this Agreement, or the Parties entering into any subsequent agreement.
- 8. This Agreement shall be governed and construed in accordance with Scots Law and the Parties agree to the jurisdiction of the Scottish Courts.

IN WITNESS WHEREOF this Agreement is executed as follows:

for and on behalf of THE UNIVERSITY  
COURT OF THE UNIVERSITY OF  
EDINBURGH:

for and on behalf of [Insert full legal name  
of party]

Signed: \_\_\_\_\_

Signed: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Dated: \_\_\_\_\_

Dated: \_\_\_\_\_

## 7.2 Project Support Agreement

between

**THE UNIVERSITY COURT OF THE UNIVERSITY OF EDINBURGH**

and

**COMPANY X LIMITED**, a company incorporated in Scotland, (Company No, SCXXXX), and having its registered office at Office Y, Scotland, UK (“**the Company**”)

### CONSIDERING

1. The University, through its supercomputing centre EPCC and its wholly owned subsidiary UOE HPCX Ltd provide the HECToR and HPCx supercomputing services on behalf of the UK Research Councils, one of the purposes of which is to make available high-end computing facilities to industry and commerce.
2. The University and the Company have agreed a project for the purposes of business/service/product improvement in relation to the Company by using the computing, technical and human resources of EPCC.
3. The Company has entered, or shall enter, into a contractual relationship with Scottish Enterprise, (‘SE’) in relation to reimbursement to the Company of costs payable to the University under this Project Support Agreement.

### THEREFORE

#### 1. DEFINITIONS

“the University” shall be as referred to above;

“the Company” shall be as referred to above,

“SE” shall be as referred to above;

“the Project” shall be as referred to above, and is more particularly detailed in the Schedule annexed to this Agreement;

“the SE Agreement” shall mean the agreement between the Company and SE relating to reimbursement to the Company of certain costs incurred by the Company and payable to the University under this Agreement;

“this Agreement” shall mean this agreement between the University and the Company, as the same may be varied only by further agreement in writing between them;

"Confidential Information" shall mean any information (including samples, materials, drawings, specifications, photographs, designs, computer code, computer programs, software, data, formulae, processes, know-how, any technical or commercial information), reports, papers, correspondence or documents which is disclosed by or

on behalf of one Party to the other, or to any of such other's employees, directors, officers, advisors or representatives, in whatever form, (including written, oral, visual or electronic), and which is, or which should reasonably be expected to be, of a confidential nature;

"Party" shall mean, as the context requires, either of the University or the Company, and "Parties" shall mean both;

"Results" shall mean any result or deliverable which is properly anticipated as a result of the provision of the Services and which has been specified in the Schedule, or which shall be agreed between the Parties under separate cover;

"the Services" shall mean the services which the University shall provide to the Company pursuant to/for the purposes of the Project;

"Funding" shall mean the reimbursement by SE to the Company of the Consideration in accordance with the SE Agreement;

"Consideration" shall mean the consideration which shall be payable under this Agreement, by the Company to the University, in respect of the University's provision of the Services, which consideration is specified in the Schedule.

## **2. TERM**

This Agreement shall enter into force on the date, or latter date, of signature by the Parties and shall continue for the duration of the Project, unless terminated earlier in accordance with Clause 8.

## **3. THE PROJECT**

- 3.1. The Project, which includes specific details of the Services to be provided by the University and the Consideration payable therefor, is more particularly specified in the Schedule annexed to, and which shall be deemed incorporated in, this Agreement.
- 3.2. The University and the Company shall use all reasonable efforts to complete the Services timeously and in accordance with the specification detailed in the Schedule.

## **4. CONSIDERATION**

- 4.1. In consideration of the University's performance of the Services in accordance with the provisions of this Agreement, the Company shall pay to the University the Consideration.
- 4.2. The Company shall make payment to the University of any Consideration properly due within 30 days of the Company's receipt from the University of an invoice for Services provided, said invoice to be issued in accordance with the payment schedule included in the Schedule].
- 4.3. The Consideration shall be exclusive of VAT which shall be payable as appropriate.

- 4.4. For the avoidance of doubt, the Company's obligation hereunder to pay the Consideration to the University shall not be dependent on the Company's receipt of Funding from SE.

## **5. INTELLECTUAL PROPERTY ISSUES**

- 5.1. Although the primary aim of the Project and/or the provision of Services is not specifically the generation of tangible results or relevant intellectual property, the Parties accept that the University may be required to develop software code to enable porting of the Company's own software code to any supercomputing systems owned or administered by the University, or simulation models of the Company's products and/or services, to enable delivery of the Services. Such specific porting and model development may be anticipated either in the Schedule or may, during the provision of the Services, arise as a requirement necessary to enable completion of the Services (to be specifically discussed between and agreed by the Parties prior to implementation).
- 5.2. Where, pursuant to its provision of the Services, the University shall generate software code, where that code shall be specific to the Company's own code, it shall become the property of the Company, subject only to a right retained by the University to use the same for the purposes of the Project and thereafter, in perpetuity, for the University's own internal research purposes.
- 5.3. The Company hereby grants in favour of the University a perpetual, royalty-free licence to use any Results generated, for any internal research purpose, and for the purpose of publication in accordance with the provisions of Clause 6 below, provided that no information shall be thereby disclosed which shall constitute Confidential Information of the Company.

## **6. PUBLICATION**

- 6.1. The Company acknowledges that the right to publish is important to the University. Accordingly, the Parties agree that there is an expectation of publication by the University, other than as expressly prevented under this Agreement.
- 6.2. Where the University intends to publish any article or disseminate information arising under the Project, a draft of the proposed disclosure shall be provided to the Company. The Company shall, within 30 days of receipt, intimate in writing, to the University any objections, on the following grounds:
- either that the proposed disclosure contains Confidential Information belonging or relating to the Company; or
  - that the proposed disclosure would prevent the proper protection through application for a relevant intellectual property rights in relation to any result arising under the Project.
- 6.3. Where the Company has objected under Clause 6.2 to any proposed publication, the University shall remove any Confidential Information belonging, or relating, to the Company.

## **7. CONFIDENTIALITY**

- 7.1. Both the University and the Company shall use all reasonable efforts to ensure that the other’s Confidential Information remains confidential. Any Confidential Information belonging to one Party shall be used by the other only for the purposes envisaged in this Agreement, and shall be disclosed by such other Party only to those of its employees who have a reasonable requirement to receive the same to such end.
- 7.2. Information shall not be considered to be confidential if: (a) it is and can be shown to be already known to the receiving Party; (b) it subsequently becomes lawfully available to the receiving Party; (c) it is published in a patent specification or is otherwise in the public domain other than through default of the receiving Party; (d) it is required to be disclosed by law; or (e) it is developed by the receiving Party independently of this Agreement.

**8. TERMINATION**

- 8.1 Either Party may terminate this Agreement by giving notice to the other if:
  - (a) that other Party is in breach of any provision of this Agreement and fails to rectify that breach within 30 days of receipt by it of a notice from the first stated Party specifying and requiring rectification of that breach; or
  - (b) in the case of the Company, the SE Agreement is terminated.
- 8.2 In the event of termination of this Agreement the University shall invoice the Company for Services undertaken to the date of notice of termination, on a pro rata basis.

**9. LAW**

This Agreement shall be governed by and interpreted in accordance with the law of Scotland and the Parties agree to the exclusive jurisdiction of the Scottish Courts.

**10. NON-ASSIGNMENT**

This Agreement is personal to the Parties and neither Party may assign any of its rights or obligations hereunder to any third party without the prior written consent of the other, which that other may give, may give conditionally or may withhold at its absolute discretion.

Signed .....

Name .....

Title .....

Date .....

For and on behalf of THE UNIVERSITY COURT OF THE UNIVERSITY OF EDINBURGH

Signed .....

Name .....

Title .....

Date .....

For and on behalf of COMPANY X LIMITED

### 7.3 UberCloud community site Terms of Use

(Last amended December 9, 2013)

Welcome to [www.TheUberCloud.com](http://www.TheUberCloud.com) website (“Site”). Your use of this Site will be subject to the following terms and conditions. Please read them carefully. By accessing this Site or using our services, you are agreeing to these terms. If you do not want to be bound by these terms, you should leave this Site.

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#### **Your Privacy/Security**

Please see our Privacy Policy page for details regarding the manner in which we collect and use information about you, maintain the confidentiality of your personally identifiable information, and use technology and procedures to maintain security.

You agree to: notify us immediately if you become aware of the loss, theft or unauthorized use any password used by you in connection with this Site or any service; notify us immediately if you become aware of any breach or attempted breach of security involving this Site or any service; and avoid accessing or attempting to access the non-public areas of this Site or any other user’s password-protected information.

#### **Linked Sites and Advertisements**

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### **Proprietary Information**

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**Miscellaneous**

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**Severability.** If any provision of this Terms of Use is found to be invalid or unenforceable, the remaining terms will continue in effect.

**Waiver.** Any waiver of the provisions of these terms must be in writing to be valid. No waiver will occur as a result of a usage of trade, custom or practice.

**7.4 SHAPE Terms and Conditions**

This annex has been removed for confidentiality reason and is contained only in the confidential version of this deliverable.

**7.5 Extract from Memorandum: Granting access to industry to HPC by B&B**

This annex has been removed for confidentiality reason and is contained only in the confidential version of this deliverable.

**7.6 Bird&Bird Memorandum on engaging in commercial activities**

This annex has been removed for confidentiality reason and is contained only in the confidential version of this deliverable.

**7.7 Bird & Bird Memorandum on engaging in commercial activities (Part II)**

This annex has been removed for confidentiality reason and is contained only in the confidential version of this deliverable.

## 7.8 Alternative access routes to PRACE resources

### Objective

The objective of this document is to provide an analysis to address the situation of deadlock faced by projects that require EC funding (and evaluation) and PRACE resources (and evaluation). We describe different options with a potential solution to the situation for the consideration of the PRACE governing bodies as part of the work in task 2.2 of PRACE 3IP-WP2

### Authors

Brian Vinter (UCPH)

Carlos Merida (BSC)

Florian Berberich (GCS)

Maud Loret (GENCI)

Nicolas Mignerey (GENCI)

Veronica Teodor (GCS)

### Situation

PRACE has proven its effectiveness by providing access to Tier-0 resources to high quality scientific proposals. At the same time, PRACE is stimulating the ecosystem to continue and increase the demand to the HPC infrastructure for better leveraging its resources.

Based on the amount of resources, and the addressed type of users, PRACE offers nowadays four different types of access to its computational resources:

#### Preparatory Access

This access is oriented to use a small amount of resources to prepare proposals for Project Access. Applications for Preparatory Access are accepted at any time, with a cut-off date every 3 months. Proposals for Preparatory Access undergo only technical assessment. This assessment is forwarded to the Board of Directors that takes the decision on resource allocation. Applicants are promptly informed about the outcome of their application. The allocated resources are based on the recommendations of the technical reviewers regarding resources required for the proposed activity, available resources and the Board of Directors prioritization, and may differ from those requested. If expert support has been requested, applicants will be contacted by the assigned expert.

#### Multi-year and Project Access

Project access is intended for individual researchers and research groups including multi-national research groups and has one-year duration.

Multi-year is available to major European projects or infrastructures that can benefit from PRACE resources and for which Project Access is not appropriate. For Multi-year and Project Access, the Access Committee recommends resource allocations to the Board of Directors. PRACE allocates resources such that PRACE objectives are maximized which typically means that resources are allocated in rank order.

Until available resources are exhausted, or the list of proposals deemed of sufficient quality for resource allocation has been exhausted. The applicants will be promptly informed if their

proposal has been successful or not. They will also be informed of the amount of resources that they have been awarded (which may have been altered by the Access Committee or the Board of Directors).

### Open R&D

It is a particular case of project access proposal within the same call. It applies to proposals with the participation of commercial companies. The following criteria apply specifically to these:

- The company needs to have its head office and/or substantial R&D activity in Europe.
- The employment contract of the project leader with the research organisation must be valid at least 3 months after the end of the allocation period
- Commercial companies may apply on their own or in collaboration with academia.
- Commercial companies applying on their own will be limited to a maximum of 5% of the total computing resources of a single PRACE system, subject to the approval of the boundaries imposed by state-aid regulations.
- The condition associated with this free access is for the industrial user to publish all results obtained at the end of the grant period.

All applications – whether submitted by academia or by commercial companies – are evaluated against the highest PRACE peer-review criteria: They must demonstrate scientific excellence and focus on topics of major relevance for European research and include elements of novelty, transformative aspects and have a recognised scientific impact.

However, there are special situations in which the described types of access are not sufficient. The two best known cases are the commercial access and the access by EC peer reviewed projects. The second type of cases refers to projects receiving an EC grant for performing research that involves using Tier-0 HPC resources. These projects may not be granted access to PRACE for technical or scientific reasons. For example, it could be rejected because the proposal is not technically sound, or because the topic of the research does not comply with the objectives of the call where it applied, or because its relative excellence compared to the other projects presented does not make the project meet the acceptance threshold. In that case the whole project will fail, and the resources granted by the EC would end up being wrongly allocated (they will not be spent, when other project could have benefited from them). In consequence, this will endanger the existence of any project asking for EC grants involving Tier-0 resources, which is against the interests of PRACE.

PRACE may want to consider the evaluation of possibilities to prevent this situation. The next section presents two different options for that. The options differ from the dimension of the policy by which resources are given to EC projects:

- **The current option:** Not providing specific access to EC funded projects.

The main disadvantages of this option are:

- Integrating PRACE into Funded project calls may be an incentive for computational sciences and for attracting scientists into this field. By not integrating, we are missing opportunities to further support the usage of HPC.

- The high costs of the infrastructures and their operation are nowadays a heavy load to be carried out with existing funding. Having some of the resources directly funded would alleviate the economical weight of sustaining the nodes of the infrastructure.

**-Option 1:** Gives a certain amount of resources without asking for anything back

- Option 1.1: Gives a certain amount of resources under a specific set of defined limits
- Option 1.2: Gives a certain amount of resources guided by the PRACE Juste Retour algorithm (so the resources are distributed in line with how much the countries contribute to PRACE)

**-Option 2:** There is a payback by the EC of the resources contributed

- Option 2.1: Direct cash payment upon usage of the resource by the EC projects
- Option 2.2: Indirect payment via specific calls
- Option 2.3: Deferred payment through Vouchers
- Option 2.4: EC Payment + Juste Retour

## Option 1- Give Away

### Option 1.1 Simple Give Away

Based on the reservation of a certain (presumably small) amount of resources to be provided to EC-peer reviewed projects.

Things to consider in this option:

- The exact amount of resources to give away need to be specified for every hosting member.
- In case of deciding that all HM contribute with an equal amount of resources, it will be necessary to agree on the equivalence of the resources provided by the different Tier-0 nodes of the infrastructure in order to have a balanced distribution of the burden.
- Tier-1 resources could be also considered and managed within this option. In this case, (presumably) an optional programme would formally endorse this option and decide also the amount of resources to give away and by which centers.
- It would be necessary to decide who would make the allocation of resources:
  - EC: manages the budget of resources given as it wants
  - Mixed Team: The reviews would involve evaluators from PRACE and EC.
    - From the PRACE side, evaluators may consider the technical viability and the scientific relevance of the requests
    - The EC could decide which weight is given to the evaluation made by the PRACE evaluators
- Is it the budget of the resources going to be spent in a certain fixed amount of projects? Or can it be all used in a variable amount of projects?
  - Would there be a minimum amount of resources per project?
  - Would there be a maximum amount of resources per project?



- PRACE would need to consider to:
  - Impose synchronisation rules to the EC to allocate resources for the projects granted in a suitable time for the PRACE schedule.
  - Relax the current conditions of allocation to permit a more flexible timing adequate to the project (some project may not stick to the current timing of the PRACE calls)
- PRACE should consider to impose rules on publication of results following the same policy used in the projects that get access through the regular ways

The advantages of this option are:

- If Tier-1 resources are also provided together with Tier-0, then this model could contribute to a tighter integration of the two layers.
- We may be able to keep low level of taxation since the model does not provide service in exchange of any reward.

The disadvantages of this option are:

- In case of having EC as the only evaluator, PRACE is a provider with no word on the allocation decisions.
- The process may Endanger PRACE peer review principle; if no single scientific evaluation takes place, the scientific and novelty factor will be neglected.
- 
- PRACE would be losing HPC resources for its own allocation with no ROI, which in turn it may create difficulties on its implementation for political reasons.
- It would create a parallel allocation of HPC resources (PRACE / EC allocation) difficult to be managed, since it would be difficult to create exactly the same quality thresholds for both
- In case all resources allocated to the EC are not used, they may be wasted (and not paid)
  - The model would require to implement a follow up scheme to ensure resources are consumed within schedule

### Option 1.2 Give Away but charging in the JR budget

Integrate the resource usage into the potential future juste retour algorithm. Charge into the JR budget of the countries participating in the EC granted project.

The future of PRACE operational model is currently being described. Nowadays the use of a juste retour algorithm that ensures the Return of Investment of the hosting members is one of the options being considered. In this scenario, PRACE could consider a special way of providing access to EC projects while ensuring the ROI of HM.

This option would make sense just under an operating model in which the Hosting members are those who mainly fund the infrastructure, hence they need to ensure a ROI though the control of who is accessing resources (via a quota algorithm).

Things to consider in this option:

- The Juste Retour algorithm shall be specific enough as to describe:
  - The amount of resources that each PRACE Member could get access to (this would involve a normalised measure across the different machines of the infrastructure)
  - The policy on what to do upon exceeding the limit set of a certain country
  - The time span in which a certain country can consume its assigned “quota” of resources (based on investments and contributions in the period)
  - The policy on what to do with the non-consumed resources within the named time span
  - The allocation criteria: ratio of scientific criteria vs. made investments (or quota available)
  - The policy on knowledge of the allocation algorithm to the general public
  - Decide on the assignment of resources to the JR algorithm according to:
    - The existing valorisation (70%-30% accounting for PI nationality and others nationality)
    - Define a new one
- Decide on how to allocate the resources:
  - All the considerations made in Option 1.1 simple give away
  - Regarding the question on the maximum/minimum amount of projects/hours, this mechanism, although the question still is pertinent, the quota on the juste retour will impose a natural limit on the amount of resources to be used.

This model has a clear advantage over the giveaway option: there is a more fair distribution of resources, with better alignment between investment and benefit

The main disadvantages are:

- It may make PRACE change its current status and be subject to taxation since it would become an entity that provides services in exchange of contributions.
- The Juste Retour mechanism is difficult to implement and each implementation has specific drawbacks associated to be considered
- The EC will be more constrained when allocating its grants since some countries may be running out of JR budget

### **Option 2- Payback by the EC of the resources contributed**

Let the EC pay for the access to the PRACE resources:

- (2.1) Upfront cash payment upon usage of the resources by the EC projects.
- (2.2) Indirectly via specific calls with substantial funding, to the development of PRACE.
- (2.3) Deferred payment through vouchers that could be accepted in different RI (not only HPC nodes). With this system, according to the usage of the voucher, the EC will

pay back to the infrastructure (or the HM) in different possible ways (direct investments in infrastructures, specific support calls, etc)

- (2.4) Juste Retour + EC payment

### Option 2.1 Direct cash payment upon usage of the resources by the EC projects

These are the elements to be considered in this option:

- All elements in 1.1
- Who is the recipient of the payment? PRACE RI or the node that provides the service? This will mainly depend on the operational model implemented in PRACE. If the operation of the nodes is funded by the hosting members, as it is the case up until now, then the fairest approach will be to have the nodes receiving the funding. Other than that, it would be possible to ensure a proper and fair ROI for the hosting members.

If the payment is received by the infrastructure, a policy to reduce the direct financial contributions to the infrastructure or participation in funded projects should be set up to compensate for the lack of payment.

- Terms of payment: What are the terms in which the payment is sent? (1 month? 60 days?, 1 year?...)
- Total amounts to liquidate: Would the EC have to pay for the requested amount of resources? Or for the used amount of resources?

Advantages of this option:

- There is a straight and fair compensation to the nodes of the infrastructure for the services provided to selected EC projects

Disadvantages of this option:

- Serious taxation problems derived from money transfer in return of a service. This will likely change its VAT status. Similar restrictions could apply to certain nodes of the infrastructure, and this could prevent this option for being implemented.

### Option 2.2 Indirect payment via specific calls

These are the elements to be considered in this option:

- All elements in 2.1
- Specific vehicle (FP7-8 projects, PPP-ETP, co-funding of machines, co-funding of operation costs, etc.)
- Mapping between economic resources provided indirectly and HPC resources given to the EC projects. Maybe there will not be a direct cost-payment mapping, but would be a certain multiplying factor.
- Rules for participation in the calls. Can anyone participate in the projects? Or just meant to be addressed by HM?
- Terms of the call policy need to be negotiated with the EC to align the topics with the interests of the Members (not otherwise)

## Advantage:

- Taxation-wise is a favorable option
- HM gets compensated for the resources they contribute to the EC

## Disadvantages:

- The terms for the EC to fulfill their payback will be very hard to achieve, because they will consume resources at a higher speed than the participating members of the projects can receive their compensation. For example, if PRACE provides resources with a value of 1Mio€ for a specific EC funded project, it will receive back indirect compensations in forms of contracts or projects that will take time to execute. While these are being executed, other EC projects may consume more resources, increasing the debt of the EC towards PRACE who would take a long time to be able to receive the payment back.  
There is no guarantee that the HM will receive the payment at the end, since the call may be deserted, or the HM may not fulfill the objectives of the project, or the EC may decide not to launch the call
- The members will have to work on the topics decided by the EC, even if they are not fully aligned with their objectives if they want to receive their money back.

**Option 2.3 Deferred payments through vouchers**

This option is a variation of option 2.1 or 2.2 that defines a concrete mechanism to execute payments which could be also shared with other RI.

The EC could issue vouchers to be provided to EC funded projects that require HPC. These vouchers can have different values (credit) in the infrastructure, and using them, the projects get the access “for free” on the infrastructure.

The EC contributes to the Research Infrastructures in the amount of vouchers distributed.

The model described could be used for any EU Research Infrastructure as well. At the moment there is no other European RI using this option.

## Things to be considered in this option:

- All the considerations made in 2.1 or 2.2

## Advantages:

- Possibility for the EC to fund RIs according the usage
- Competition or cooperation between different RI (the cooperation between RIs is one of the Horizon 2020`s targets)
- Avoid deadlock situation, when accepted EU project cannot use the required resources

Taxation issues: Probably the aisbl’s taxation status will not change since the funding will be provided by the EC and not by the user itself.

## Disadvantages:

- Increase influence of EC in the ranking and value systems of the RIs.

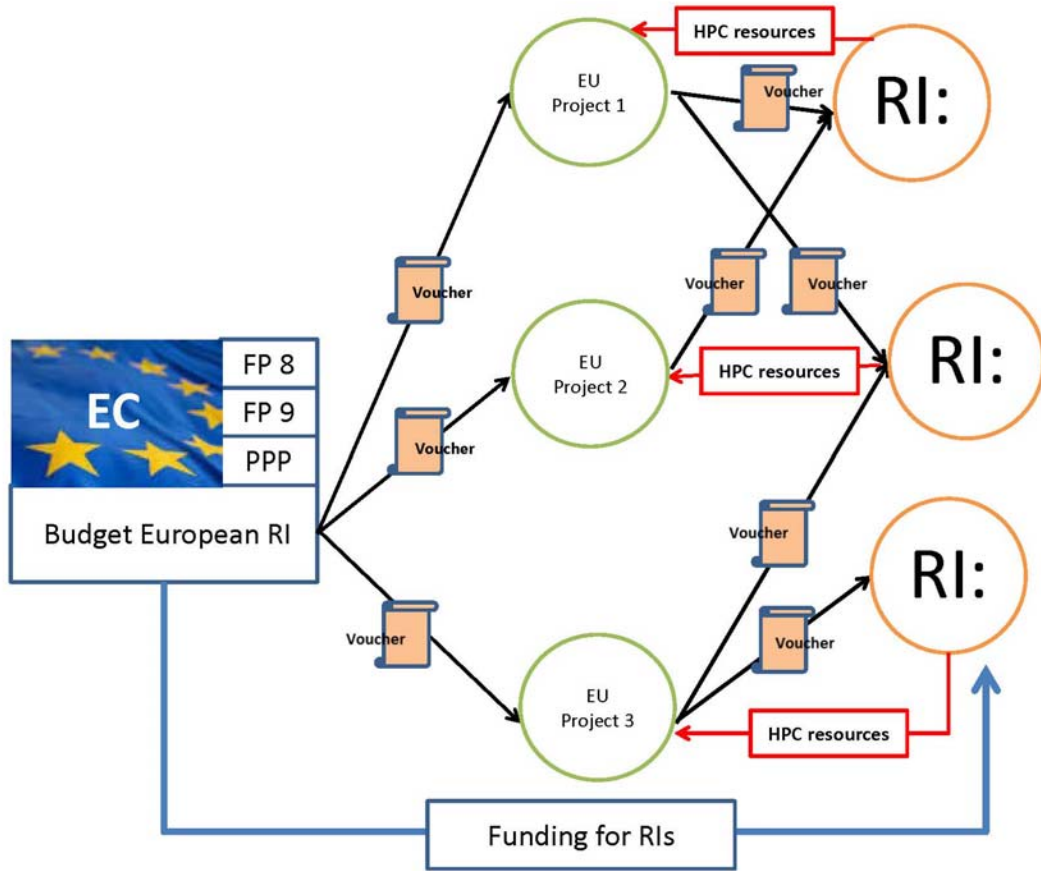


Figure 1: Schema of the Voucher Process.

**Option 2.4 Juste Retour + EC contribution**

The Juste Retour model could be used in conjunction with a payback policy from the EC for the resources consumed for non-PRACE projects.

The EC Payment shall be made to the infrastructure nodes that provide the service to the projects. In addition, the EC payments must alter the quota of the countries in the juste retour algorithm in the following manner: the quota of the countries who participate in the non-PRACE project funded by the EC is increased for the necessary amount of resources to be able to perform the project.

- The modification of the member's quota is necessary; otherwise, the member would be paying for the participation of the project, while the EC would be also paying the cost of the access to the node.

The payment could be made effective via voucher mechanism or via direct cash to the hosting member who provides service.

The elements to consider in this option are those in the specific payment option (2.1 or 2.3)

Summary table on elements to be considered for each option:

	1.1 Give Away	1.2: Give Away + Juste Retour	2.1: Direct cash paymen t	2.2: Indirect paymen t	2.3: Voucher s system	2.4.: Juste Retour + EC contributio n
How many resources are reserved?	x	x	x	x	x	x
How resources from different nodes are compared?	x	x	x	x	x	x
Can Tier-1 resources be included?	x	x	x	x	x	x
Who decides on the allocation?	x	x	x	x	x	x
Max/Min resources per project?	x	x	x	x	x	x
Shall EC/PRACE calls be synchronized?	x	x	x	x	x	x
Taxation rules?	x	x	x	x	x	x
Extending policies of public release of results?	x	x	x	x	x	x
Specification of the JR algorithm?		x				x
Who receives payment PRACE/Node?			x	x	x	x
Timing of the payback?			x	x	x	x
What to pay (consumed or reserved)?			x	x	x	x
Vehicle to use as indirect payment?				x	x	x
Assignment of value to the indirect payments				x	x	x
Rules of participation in indirect payments (ex. In calls)				x	x	x
Contents of the (indirect payment) calls				x	x	x

**7.9 Bird & Bird Memorandum on the “PRACE” trademark**

This annex has been removed for confidentiality reason and is contained only in the confidential version of this deliverable.



## 7.10 PRACE Website Legal Notice

### TERMS

This website with the domain name [www.prace-ri.eu](http://www.prace-ri.eu) is owned by the Partnership for Advanced Computing in Europe Aisbl (hereinafter PRACE). Use of this website is governed by the Terms and Conditions set forth. By using, accessing or downloading materials from this website you agree to follow the terms and provisions as outlined in this legal notice. Certain provisions of these terms and legal restrictions may be superseded by expressly designated legal notices or terms located on particular pages of this website.

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#### 3. LINKS TO OTHER WEBSITES

The website may include links to complementary sites on the Internet. These sites are owned and operated by third parties and PRACE makes no representation and is not responsible for the availability of, or content located on or through, these third party sites. A third party link

from the PRACE website is not an indication that PRACE endorses the third party or its site, or has any affiliation with or between PRACE and the third party hosting site.

#### **4. PRIVACY AND DATA PROTECTION POLICY**

In case you provide us any personal data it will be only processed and/or released for the stated purpose/s and treated according to our Data Protection Policy and applicable legislation. You will be informed about the purpose of its collection and your rights to access, rectify or cancel such data. Security measures will be used as deemed necessary to protect your information from unauthorized users.

#### **5. GOVERNING LAW AND JURISDICTION**

These Terms and Conditions shall be governed by and construed in accordance with the laws of Belgium. The Brussels courts shall have exclusive jurisdiction and venue over any dispute arising out of or relating to them.”

### 7.11 Example of reference to include in the code developed in the project

```
# Copyright (C) 2013 -Institution--
#
# All rights reserved.
#
# Redistribution and use in source and binary forms, with or without
# modification, are permitted provided that the following conditions are
# met:
#
# Redistributions of source code must retain the above copyright notice,
# this list of conditions and the following disclaimer.
# Redistributions in binary form must reproduce the above copyright notice,
# this list of conditions and the following disclaimer in the documentation
# and/or other materials provided with the distribution.
# Neither the name of -Institution- nor the names of its
# contributors may be used to endorse or promote products derived from
# this software without specific prior written permission.
#
# THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
# "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
# LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
# A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
# OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
# SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
# LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
# DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
# THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
# (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
# OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
#
# This product includes software developed by members of the PRACE project
# www.prace-ri.eu. PRACE is an EU FP7 Implementation Phase project under
# contract numbers RI-261557, RI-283493 and RI-312763.
```

**7.12 Memorandum on IPR**

This annex has been removed for confidentiality reason and is contained only in the confidential version of this deliverable.

### 7.13 Working rules IAC

#### BACKGROUND:

- A. These working rules regulate the functioning of the Industrial Advisory Committee.
- B. Words and expressions used in these working rules in capital letters have the same meaning as the definitions set out in article 1 of the Statutes of the Association. In case of contradiction between the working rules and the PRACE Statutes, the Statutes shall prevail.
- C. These working rules were approved during the Industrial Advisory Committee's meeting of the Association of (DATE) (and signed by the Chairman of the Committee).

#### Art. 1

#### General provisions

1. The Industrial Advisory Committee is composed of 10-12 members, of which one shall be appointed Chairman and another one Vice-Chairman.
2. The duration of the term of the members of the Industrial Advisory Committee is for a maximum of two years, renewable twice consecutively for the same period of time.
3. The members of the Industrial Advisory Committee are appointed by the Council. For any subsequent terms of appointment, the appointment by the Council is made based on a list of candidates prepared by the Industrial Advisory Committee.
4. The members of the Industrial Advisory Committee must be prominent executive and representatives of the most relevant industrial areas with significant actual or potential interest in HPC, ensuring a fair representation of the wide variety of industrial actors. In particular,
5. SMEs must be represented in the composition of the Industrial Advisory Committee. There should be a nationality balance of the companies that form the Industrial Advisory Committee.
6. Members of the Industrial Advisory Committee could include representatives directly from companies or industrial structured communities/associations.

7. The Chairman/ a representative of the Board of Directors may participate in the meetings of the Industrial Advisory Committee as an observer, with no voting rights.

### **Art. 2**

#### **Powers of the Industrial Advisory Committee**

1. The Industrial Advisory Committee is an advisory body of the Council responsible for giving opinions for all matters regarding the relations with industry users and may impact or influence the work and mission of the Association. That includes:
  - Trends and needs related to the domain of industrial HPC resource usage (i.e. applications, products, emerging business models, strategies, training, etc.)
  - Development of new relations with emerging industries
  - Strategies for industrial sectors engagement (large companies vs. SME).
2. Due to the advisory role of the committee the Industrial Advisory Committee will need to interact with other bodies of the PRACE association:
  - Council (under request of the Council)
  - Scientific Steering Committee
  - Board of Directors
  - And with external bodies/organizations:
    - Industrial organizations (either at national or European level)
    - ETP4HPC
    - Industrial forums (by industry type)

### **Art. 3**

#### **Meetings of the Industrial Advisory Committee**

1. The Industrial Advisory Committee shall meet whenever necessary and, at least, once a year. Meetings of the Industrial Advisory Committee shall be called by its Chairman.
2. The Chairman of the Industrial Advisory Committee shall be obliged to call an extraordinary Industrial Advisory Committee meeting upon request and for legitimate reasons by a simple majority of the members of the Industrial Advisory Committee.

3. Inasmuch as the Chairman of the Industrial Advisory Committee does not fulfil his obligation to call a meeting, the Vice-Chairman and also each member of the Industrial Advisory Committee shall be authorized to call an Industrial Advisory Committee meeting.
4. The meetings shall be called at least ten business days in advance by email. Nevertheless a meeting of the Industrial Advisory Committee is validly called with shorter notice, providing a simple majority of the members of the Industrial Advisory Committee agree to waive the ten days prior notice. The day when the notice is posted and the day of the meeting shall not be taken into account when calculating this period. For the purposes of these working rules, “business days” refer to working days in Belgium and exclude Saturday, Sunday and legal holidays.
5. The notice shall set out the place and time of the meeting as well as the items on the agenda and, if applicable, motions to be voted on. The documentation for the meeting as far as possible shall be sent together with the notice of the meeting (i.e. ten business days in advance) and no later than three business days before the meeting.
6. The meetings of the Industrial Advisory Committee shall take place at the registered office of the Association or, considering its international scope, at any other location indicated by the Chairman of the Industrial Advisory Committee in the notice, even if outside Belgium, provided, in such case, it does not prejudice the right of any member of the Industrial Advisory Committee to attend the Industrial Advisory Committee.
7. The meetings of the Industrial Advisory Committee may also take place through videoconferencing or teleconferencing systems and the Chairman of the Industrial Advisory Committee will be responsible for ensuring the integrity of the communications. The meetings of the Industrial Advisory Committee may also take place in writing. Decisions taken by videoconference or teleconference are deemed to come into force on the date of the meeting. Decisions taken in writing are deemed to come into force on the effective date mentioned in the circular letter.
8. At the end of each meeting, a minute shall be prepared and copies of the minute shall be sent to all members of the Industrial Advisory Committee and also of the Council.

9. As a rule, the Industrial Advisory Committee meetings are private. The presence of the members of the Council, Board of Directors and Scientific Steering Committee shall be permitted; however, they shall not have the right to vote. Members of the Industrial Advisory Committee may suggest the invitation of guests to an Industrial Advisory Committee meeting by informing the Chairman of the Industrial Advisory Committee in writing (including by email) at least eight business days in advance of the presence of guests, including name and reasons for their presence. The Chairman shall inform the Industrial Advisory Committee of any proposed guests at least five business days in advance of the meeting and the attendance of each guest shall be permitted provided it is agreed in advance of the meeting by a simple majority of the members of the Industrial Advisory Committee. The guests shall be listed in a separate record of attendance filed together with the minutes of the meeting. Guests shall not be entitled to put forward motions or vote.

#### **Art. 4**

#### **Chair, Procedure**

1. The preparation of the meetings is the responsibility of the Chairman of the Industrial Advisory Committee, or of a member of the Industrial Advisory Committee appointed by the Chairman of the Industrial Advisory Committee.
2. In the event that the Chairman of the Industrial Advisory Committee is unable to attend the meeting, the Vice-Chairman shall replace him/her. In the event that the Chairman and the Vice-Chairman of the Industrial Advisory Committee are unable to attend the meeting, the Chairman shall be replaced by one of the members of the Industrial Advisory Committee attending the meeting appointed by the members of the Industrial Advisory Committee for such purpose.
3. The Chairman of the Industrial Advisory Committee shall set the agenda and decide on the order in which items on the agenda are discussed as well as on the order of voting.
4. Items that have not been communicated by the Chairman of the Industrial Advisory Committee in writing (including by email) at least three business days before the



meeting may be discussed if approved by a simple majority of the members of the Industrial Advisory Committee.

5. The Industrial Advisory Committee may receive input from the Board of Directors that must be considered in order to advise the Council.

### **Art. 5 Resolutions**

1. The Industrial Advisory Committee shall constitute a quorum if at least a majority of members of Industrial Advisory Committee are present.
2. Each member of the Industrial Advisory Committee shall have one vote. Resolutions are passed, as a general rule, by simple majority of the votes of the members of the Industrial Advisory Committee attending the meeting. A tied vote shall mean that a motion is rejected. Abstentions, blank or mutilated votes shall not be counted in the votes cast.
3. As a rule, motions shall be decided upon in an open vote. Votes in face-to-face meetings shall be conducted by a show of hands. In telephone and video conference meetings, the Chairman of the Industrial Advisory Committee can ask each one of the members of the Industrial Advisory Committee for their vote for each one of the decisions. A secret vote may be conducted upon request by any member of the Industrial Advisory Committee entitled to vote. This request must be introduced at the latest at the beginning of a meeting. In the case of a tele/videoconference, secret votes should be communicated to the Chairman, eg. by phone or email, before the end of the meeting.

### **Art. 6 Minutes of Meetings**

1. Minutes of the meetings of the Industrial Advisory Committee shall be kept at the registered office of the Association. The Chairman and Vice-Chairman of the Industrial Advisory Committee will be responsible for preparing and writing the minutes of the meetings. These minutes shall be signed by the Chairman and the Vice-Chairman of the Industrial Advisory Committee. The draft minutes shall contain the

place and day of the meeting, the participants, the items on the agenda, the essence of the discussions and the resolutions. The draft minutes shall be forwarded to each member of the Industrial Advisory Committee no later than ten business days after the meeting. Amendments to the minutes can be sent up to ten business days before the next Industrial Advisory Committee meeting.

2. The draft minutes of the meeting, as the case may be with the amendments suggested, if any, shall be approved at the subsequent meeting of the Industrial Advisory Committee.

### **Art. 7**

#### **Duration of the terms of the Industrial Advisory Committee Members**

3. The members of the Industrial Advisory Committee are appointed by the Council. For any subsequent terms of appointment, the appointment by the Council can be made based on a list of candidates prepared by the Industrial Advisory Committee.
4. As provided in Art. 1, the duration of the term of the members of the Industrial Advisory Committee is two years, renewable twice consecutively for the same period of time. The duration of the position of The Chairman of the Industrial Advisory Committee, is one year, and then, the Vice-Chairman should become the Chairman. Hence, the Industrial Advisory Committee should select a new Vice-Chairman every year.
5. The Industrial Advisory Committee former Chairman, Industrial Advisory Committee Vice-Chairman and Industrial Advisory Committee Chairman will work together to guarantee the transition and shift of information, in every Chairman transition period.

### **Art. 8**

#### **Entry into force of the working rules**

These working rules shall enter into force on DD.MM.YYYY.

By delegation of the Industrial Advisory Committee meeting of **[DATE]**

Name, first name:

Chairman of the Industrial Advisory Committee

## 7.14 Acceptable Use Policy

This Acceptable Use Policy ("AUP") applies to all Users of the PRACE infrastructure. This AUP is specified in two parts: a General Use Policy, common for every PRACE Resource Provider, and a Particular Use Policy, specific for each PRACE Resource Provider. In case of conflict, the Particular Use Policy shall prevail, however the resource provider will have to inform the PRACE Council of this contradiction. If any rule in the General Part of this AUP contradicts local policies then this doesn't invalidate the other rules of the General Part AUP.

### General Use Policy

#### 1. Introduction

*1.1 This Acceptable Use Policy ("AUP") applies to all Users of the PRACE infrastructure. This AUP is in addition to any policies or conditions which may be imposed by the Resource Providers.*

*1.2 PRACE may make any reasonable changes to this AUP at any time and will inform the user. If the User does not accept these changes, it may cease to use the Resources at any time.*

*1.3 For the purposes of this AUP, the following terms will have the following meanings:*

- Resources are all ICT facilities which are provided as part of the PRACE infrastructure*
- The User means such individuals who have been approved to use the Resources;*
- Resource Providers means those PRACE Members or the AISBL who provide Resources in accordance with the terms of the resource allocation procedure;*
- Malicious Software means computer virus, trojan, worm, logic bomb or other harmful material;*
- Project means the research work carried out by a group of users;*
- The Registrar means the body or bodies granting access to the Resources.*

#### 2. General Use

*2.1 The User will have regard to the principles which require that PRACE acts exclusively for peaceful purposes and conduct its activities in an ethical manner.*

*2.2 The User agrees that logged information, including information provided for registration purposes, is used for administrative, operational, accounting, monitoring and security purposes only. This information may be disclosed, via secured mechanisms, only for the same purposes and only as far as necessary to other organizations cooperating with the Resource Providers. Although efforts are made to maintain confidentiality, no guarantees are given.*

*2.3 The User will inform his Registrar if there are any changes to its contact information.*

2.4 *The User agrees to use the resources only to perform work, or transmit or store data consistent with the stated goals and policies and conditions of use as defined by the body or bodies granting access.*

2.5 *The right to use Resources is strictly personal and may not be transferred to any other third party. The access-granting bodies and Resource Providers are entitled to regulate, suspend or terminate the User access, within their domain of authority, and the User shall immediately comply with their instructions. The rights to use Resources will terminate when the period of allocation comes to an end.*

2.6 *The User recognises that the use of Resources by nationals of certain countries may be restricted by policies laid down by the Registrar or the Resource Providers.*

2.7 *The User will respect all proprietary rights (which may also be considered intellectual property) belonging to the Resource Providers, including any copyright and licences.*

2.8 *The User will keep confidential all information which is obtained through the use of the Resources which it may reasonably be expected to know is confidential or sensitive.*

2.9 *The Resource Providers reserve the right to manage the usage of Resources in order to ensure full optimisation of the Resources, even if this may cause some limitation of usage for the User or changes to the Resources.*

2.10 *The User will not transport any data, which it may reasonably be expected to know is confidential or sensitive, e.g. credentials on IT equipment without adequate protection (such as encryption) in place.*

2.11 *The use of Resources is at the risk of the User. The Resource Providers don't make any guarantee as to their availability or their suitability for purpose.*

2.12 *Resource Providers will not be liable for any damages suffered by the User.*

2.13 *The User will exercise all reasonable care when accessing Resources.*

### 3. *Unacceptable Use*

3.1 *The User will not use Resources for any unacceptable purposes. Unacceptable purposes include but are not limited to:*

3.1.1 *any activity which is illegal under local, national or international law;*

3.1.2 *any attempt to breach or circumvent any administrative or security controls;*

3.1.3 *any creation, storage, use or transmission of data which is in breach of any copyright or licence;*

3.1.4 *any activity which purposely causes material or moral damage to the Resource Providers, or which causes loss of operational efficiency, or loss or corruption of Resources;*

3.1.5 *any activity which interferes with the use of Resources by other users;*

3.1.6 *any activity which compromises the privacy of other user;*

3.1.7 *any activity which may lead to the use or distribution of Malicious Software.*

### 4. *Security*

4.1 *It is the responsibility of the User to protect the details of its user account and access credentials.*

4.2 *The User will not divulge its access credentials.*

4.3 *The User will not use any other user's credentials to access the Resources.*

4.4 *The User will take all reasonable steps necessary to protect the security of personal computers, laptops and workstations against unauthorised access. Recommended security measures include the use of password-protected screensavers and locking and/or shutting down terminals when left unattended or not in use.*

4.5 *The User will not use any computer applications which jeopardise the functioning of Resources. The Resource providers will notify the User concerned who will be required to take all steps necessary to detect the cause and prevent re-occurrence. The Resource providers have the right to suspend the User's access to the Resources if necessary and to prohibit any computer application which, in its reasonable opinion, poses a security threat.*

4.6 *The User agrees to comply on use with any special conditions which may apply to specific software installed on the Resources.*

4.7 *The User will report immediately to the Resource Providers if it becomes aware of any unauthorised use of its user account, or if it knows or suspects that there has been a breach of security or misuse of the Resources. Failure to do so will enable the Resource Providers to terminate the User's use of Resources.*

#### 5. *Liabilities and Sanctions*

5.1 *The User will be liable for any damages resulting from the infringement of this AUP or any other policies or conditions imposed by the Resource Providers and which have been communicated to the User.*

5.2 *Any infringement or potential infringement will be notified to the User in writing. If the infringement persists and/or further infringements are detected and/or where it is justified by the seriousness of the infringement, the Resource Providers may withdraw access rights to Resources and/or initiate disciplinary proceedings and/or legal proceedings against the User.*

#### **Particular Use Policy**

*(to be provided by the resource provider)*

*Name and surname of the PI:*

*Signature of the PI:*

-----

*Date:*