



**E-Infrastructures  
H2020-EINFRA-2016-2017**

**EINFRA-11-2016: Support to the next implementation phase of Pan-European High Performance Computing Infrastructure and Services (PRACE)**

**PRACE-5IP**

**PRACE Fifth Implementation Phase Project**

**Grant Agreement Number: EINFRA-730913**

**D4.3**

**Selection and Launch of PRACE Training Centres**

*Final*

Version: 1.0  
Author(s): Simon Wong, ICHEC  
Date: 23.01.2018

## Project and Deliverable Information Sheet

<b>PRACE Project</b>	<b>Project Ref. №: EINFRA-730913</b>	
	<b>Project Title: PRACE Fifth Implementation Phase Project</b>	
	<b>Project Web Site: <a href="http://www.prace-project.eu">http://www.prace-project.eu</a></b>	
	<b>Deliverable ID: D4.3</b>	
	<b>Deliverable Nature: Report</b>	
	<b>Dissemination Level:</b> PU	<b>Contractual Date of Delivery:</b> 31 / January / 2018
		<b>Actual Date of Delivery:</b> 31 / January / 2018
<b>EC Project Officer: Leonardo Flores Añover</b>		

\* - The dissemination levels are indicated as follows: **PU** – Public, **CO** – Confidential, only for members of the consortium (including the Commission Services) **CL** – Classified, as referred to in Commission Decision 2005/444/EC.

## Document Control Sheet

<b>Document</b>	<b>Title: Selection and Launch of PRACE Training Centres</b>	
	<b>ID: D4.3</b>	
	<b>Version: 1.0</b>	<b>Status: Final</b>
	<b>Available at: <a href="http://www.prace-project.eu">http://www.prace-project.eu</a></b>	
	<b>Software Tool: Microsoft Word for Mac 16.9</b>	
	<b>File(s): PRACE-5IP-D4.3.docx</b>	
<b>Authorship</b>	<b>Written by:</b>	Simon Wong, ICHEC
	<b>Contributors:</b>	Aris Sotiropoulos (GRNET), Ondrej Jackl (IT4Innovations), Zheng Meyer-Zhao (SURFsara)
	<b>Reviewed by:</b>	David Henty (EPCC), Janina Liebmann (JUELICH)
	<b>Approved by:</b>	MB/TB

## Document Status Sheet

<b>Version</b>	<b>Date</b>	<b>Status</b>	<b>Comments</b>
0.9	08/01/2018	Draft	Internal Review
1.0	23/01/2018	Final version	Addressed comments from Internal Review

## Document Keywords

<b>Keywords:</b>	PRACE, HPC, Research Infrastructure, Training, Education, PRACE Training Centres
------------------	----------------------------------------------------------------------------------

### Disclaimer

This deliverable has been prepared by the responsible Work Package of the Project in accordance with the Consortium Agreement and the Grant Agreement n° EINFRA-730913. It solely reflects the opinion of the parties to such agreements on a collective basis in the context of the Project and to the extent foreseen in such agreements. Please note that even though all participants to the Project are members of PRACE AISBL, this deliverable has not been approved by the Council of PRACE AISBL and therefore does not emanate from it nor should it be considered to reflect PRACE AISBL's individual opinion.

### Copyright notices

© 2018 PRACE Consortium Partners. All rights reserved. This document is a project document of the PRACE project. All contents are reserved by default and may not be disclosed to third parties without the written consent of the PRACE partners, except as mandated by the European Commission contract EINFRA-730913 for reviewing and dissemination purposes.

All trademarks and other rights on third party products mentioned in this document are acknowledged as own by the respective holders.

## Table of Contents

Document Control Sheet.....	i
Document Status Sheet .....	i
Document Keywords .....	ii
List of Figures .....	iv
List of Tables.....	iv
References and Applicable Documents .....	iv
List of Acronyms and Abbreviations.....	v
List of Project Partner Acronyms.....	v
Executive Summary .....	6
<b>1 Introduction.....</b>	<b>6</b>
<b>2 Conception of the PRACE Training Centres .....</b>	<b>7</b>
<b>3 Scope, Operations and Management.....</b>	<b>7</b>
<b>3.1 Scope .....</b>	<b>7</b>
<b>3.2 Operations .....</b>	<b>8</b>
<b>3.3 Management.....</b>	<b>8</b>
<b>4 Selection and Establishment of PTCs .....</b>	<b>8</b>
<b>4.1 Evaluation Criteria.....</b>	<b>9</b>
<b>4.2 PTC Programme for 2017-18 .....</b>	<b>9</b>
<b>5 Conclusion &amp; Outlook .....</b>	<b>11</b>
<b>6 Annex .....</b>	<b>12</b>
<b>6.1 PRACE Training Centres – Call for Hosts .....</b>	<b>12</b>

### List of Figures

Figure 1. Topical coverage of the 2017-18 pilot PTC programme .....	11
---------------------------------------------------------------------	----

### List of Tables

Table 1: List of courses in the 2017-18 pilot PTC programme.....	10
------------------------------------------------------------------	----

### References and Applicable Documents

- [1] M. Louhivuori, P. Manninen, S. Wong (2012) PRACE-2IP D4.2: Establishment of the PRACE Advanced Training Centres.
- [2] S. Wong, I. Liabotis, M. Kern, N. Alexandrov, O. Jakl, R. Rabenseifner, S. Eritokritou (2015). PRACE-4IP D4.3: Assessment of PRACE Advanced Training Centres.
- [3] P. Manninen, S. Wong (2011) PRACE-1IP D3.2.3: PRACE Advanced Training Centres.
- [4] <https://events.prace-ri.eu/>
- [5] <http://www.training.prace-ri.eu/>

## List of Acronyms and Abbreviations

BoD	(PRACE) Board of Directors
CFD	Computational Fluid Dynamics
CoE	Centre of Excellence
CUDA	Compute Unified Device Architecture (NVIDIA)
E-CAM	European HPC Centre of Excellence in simulation and modelling of materials and biological processes
HPC	High Performance Computing; Computing at a high performance level at any given time; often used synonym with Supercomputing
MB	Management Board (highest decision making body of the project)
MPI	Message Passing Interface
PATC	PRACE Advanced Training Centre
PRACE	Partnership for Advanced Computing in Europe; Project Acronym
PTC	PRACE Training Centre
SWOT	Strengths, Weaknesses, Opportunities and Threats

## List of Project Partner Acronyms

BSC	Barcelona Supercomputing Center - Centro Nacional de Supercomputacion, Spain
CSC	CSC Scientific Computing Ltd., Finland
EPCC	EPCC at The University of Edinburgh, UK
GRNET	Greek Research and Technology Network, Greece
ICHEC	Irish Centre for High-End Computing; part of NUI-Galway in Ireland
JUELICH	Forschungszentrum Juelich GmbH, Germany
NUI-Galway	National University of Ireland Galway, Ireland
PRACE	Partnership for Advanced Computing in Europe aisbl, Belgium
SURFsara	Dutch national high-performance computing and e-Science support center, part of the SURF cooperative, Netherlands
IT4Innovations	IT4Innovations national supercomputing center, Czech Republic
VSB-TUO	Vysoka skola bankska - Technika univerzita Ostrava, Czech Republic

## Executive Summary

This deliverable describes the selection and launch of four PRACE Training Centres (PTCs) in 2017, as part of the PRACE-5IP project. The selected PTCs are represented by IT4I (Czech Rep.), GRNET (Greece), ICHEC (Ireland) and SURFsara (The Netherlands). The PTCs build upon the success of the PRACE Advanced Training Centres (PATCs), offering a yearly joint programme of courses to widen the reach of PRACE training. Based on PATC procedures (course organisation, dissemination and formation of an annual programme), each PTC organises courses representing 9 training days per year (compared to ~35 training days per year for PATCs) and may focus on subject areas that may be of particular relevance or interest to industry and/or the research communities of the local and surrounding regions, i.e. less emphasis on advanced courses and/or offer courses that complement the PATC training programme.

The deliverable also provides some background insight into the conception of the PTCs that arose out of an assessment of PATC activities and subsequently the derivation of the PTCs' scope, operations and management. Selection of the four PTCs via a call for hosts in the early stage of the PRACE-5IP project was carried out according to approved processes and evaluation criteria. The four PTCs have since launched successfully, with the pilot PTC programme for 2017-18 in place and delivery of courses under way.

### 1 Introduction

HPC training is vital to foster the next generation of computational scientists, supercomputing experts and beyond. The PRACE projects have been instrumental in developing training initiatives that synergise the effort and expertise of its partners in offering a diverse range of courses, resources and services at a pan-European scale. One of the key training activities conceived and developed by PRACE is the establishment and ongoing support of the PRACE Advanced Training Centres (PATCs). Since their establishment in 2012 [1], the network of six PATCs (in Finland, France, Germany, Italy, Spain and the UK) has been offering a significant volume of high-quality courses for European researchers.

In 2015, an assessment of the activities of the PATCs was carried out [2]. While the PATCs have achieved significant impact in delivering a large volume of high-quality, diversified courses to a large audience (over 1,500 participants per annum), one of the key weaknesses found was the relatively low level of participants from non-PATC hosting countries. Hence one of the key outcome from the assessment in 2015 was to establish a network of PRACE Training Centres (PTCs) that will complement the activities of the PATCs. However, the PTCs will be smaller in scale and with potentially adjustments in focus on training topics, whose activities will widen the geographical reach of training participants across Europe modelled on the PATCs.

This deliverable provides a summary of the activities that led to the initial conception of the PTCs (Section 2), their scope, operations, and management structure (Section 3) and finally the process that was implemented to establish a network of four PTCs (in the Czech Republic, Greece, Ireland and the Netherlands) in May 2017.

## 2 Conception of the PRACE Training Centres

As part of the PRACE-4IP project in late 2015, one of the tasks in the training work package was to evaluate the activities and impact of the PATCs [2], which had been established and operational since 2012. The assessment was based on a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis on PATC activities, resulting in a number of recommendations. While the SWOT analysis indicates that the PATCs have been very successful with the implementation of a high-quality programme of HPC and related courses to a large audience of students and researchers (typically over 1,500 participants per year), the level of participation from those in non-PATC hosting countries has consistently been disproportionately low. Hence one of the key recommendations from the analysis was to establish a mechanism where the PATC model can be adopted by other PRACE partners to widen geographical coverage. But rather than simply increasing the number of PATCs, it was recognised that many non-PATC partners at the time may not have the capacity to implement the full programme of courses that is expected from each PATC, and that regional training needs will have to be considered (e.g. there may be less emphasis on advanced courses). Ultimately, it was proposed that a number of PRACE Training Centres (PTCs) be established that will deliver courses to complement the PATC programme, subject to funding availability and discussions with PRACE management. The resources required to establish and support the first PTCs would come from the PRACE-5IP project which began in early 2017. Additionally, the PTC concept would provide an avenue for partners who may wish to become PATCs in future, provided sufficient demand and availability of resources.

Following the developments mentioned above, discussions took place at meetings with PRACE partners, including PATC representatives, and the PRACE Board of Directors (BoD) to finalise the scope, operations, management of the PTCs (described in Section 3), and the selection process to be used for establishing the first PTCs (described in Section 4).

## 3 Scope, Operations and Management

It was anticipated that many aspects of the operations and management of the PTCs will be modelled on the success of the PATCs. There are already established PATC processes for course dissemination, organisation, evaluation, and the joint formation/appraisal of an annual programme of courses [1]. Subsections 3.1 to 3.3 provides a summary of the scope, operations and management of the PTCs that have been finalised and disseminated in the call for selection of the PTCs.

### 3.1 Scope

The goal of the PTCs is to devise and implement a collective training programme jointly coordinated by PRACE, similar to the PATCs. However, each PTC could focus on subject areas that may be of particular relevance or interest to industry and/or the research communities of the local and surrounding region (with the flexibility of less emphasis on advanced courses compared to the PATCs). Unlike the PATCs, each PTC is expected to deliver 2-3 training events annually,



representing up to 9 training days. PTC courses should be open to all researchers, free of charge (for participation) and preferably given in English.

### 3.2 Operations

The main responsibilities of each PTC are to plan, deliver and report on its annual programme of courses. These include:

- Annual establishment of the joint PTC Programme: The PTCs propose courses (approx. January to March), obtain feedback and approval from PRACE management and make adjustments if requested (around April/May/June) to finalise the joint programme ahead of each academic year (1<sup>st</sup> August to 31<sup>st</sup> July). This annual programme formation process is modelled identically to the PATCs.
- Dissemination and organisation of courses: Each PTC course must be set up on the PRACE events website [4] for consistency of providing course information, and collecting registrations, evaluation/feedback, etc. Courses should be disseminated via the PRACE Training Portal [5] and the PRACE training mailing list.
- Delivery of courses: Each PTC delivers up to 9 course days per year (1-3 days each per course) utilising local resources (e.g. instructors, facilities). Limited “out-sourcing” of trainers is allowed (e.g. recruitment of PATC trainers for local course delivery, to train local trainers). Courses must be open to all researchers and free of charge for participation. Course materials must be in English and made available on the PRACE Training Portal where feasible. Courses should be given verbally in English by default, although verbal instructions may be provided in a local native language provided sufficient justification.
- Reporting of its activities: Each PTC is expected to contribute towards PTC-related PRACE deliverables and dissemination activities (e.g. provision of participant statistics, course evaluations).

### 3.3 Management

Each PTC appoints a single contact person as its representative. This person is in charge of the operations as well as reporting of the results. He/she participates in the formation of the joint PTC programme each year and is expected to take part in teleconferences and face-to-face meetings, e.g. the appraisal of the training programme with PRACE management.

## 4 Selection and Establishment of PTCs

The selection process and evaluation criteria used to establish four PTCs were disseminated to PRACE partners via a “Call for Hosts” document on 22<sup>nd</sup> February 2017 (Annex 6.1). The call document was approved by the PRACE-5IP Management Board (MB) prior to its distribution. Seven applications were received by 20<sup>th</sup> March 2017. These were assessed by an evaluation panel consisting of five individuals, with representatives from the PRACE-5IP WP4 leader, two PATCs (BSC and CSC), the PRACE Management Office, the PRACE-5IP MB and the PRACE BoD.

Having scored the applications, the evaluation committee selected four partners as PTCs; its decision was subsequently approved by the PRACE-5IP MB on 24<sup>th</sup> April 2017. The following partners represent the four selected PTCs:

- IT4Innovations national supercomputing center (IT4Innovations / IT4I), Czech Republic
- Greek Research and Technology Network, (GRNET), Greece
- Irish Centre for High-End Computing (ICHEC), Ireland
- SURFsara, The Netherlands

#### 4.1 Evaluation Criteria

Before each PTC application is scored, there is a check to ensure that the applicant has some basic resources considered minimal requirements for a PTC, and a commitment to provide such resources. These resources include availability of appropriate training facilities, local trainers and a prior track record in event organisation.

Should an applicant meet the basic requirements, applications are scored by the evaluation committee on the following criteria:

- Ability to carry out the requested number of training events.
- Consistency and track record of training activities.
- Pool of local trainers.
- Range of expertise and experience of local trainers.
- Justification for the tentative training programme as proposed in the application.
- Suitability of the hosting site for attracting students from local and surrounding regions.

A more detailed description of the evaluation criteria and how the applications are scored accordingly can be found in the PTC call for hosts document (Annex 6.1).

#### 4.2 PTC Programme for 2017-18

The four newly-established PTCs began quickly following their selection to draw up the pilot PTC programme of courses for the 2017-18 academic year. This pilot PTC programme is largely based on courses that have been proposed by the centres in their respective PTC applications. Each PTC applicant was asked to provide an indicative programme of courses it would deliver if selected, which is expected to leverage and to develop local training expertise at each PTC site, as well as to focus on regional interests or HPC training demands. The proposed courses by all the four PTCs are summarised in Table 1.

PTC	Title	Duration	Topic	Date
IT4I	CFD simulations using OpenFOAM	2	appl	Sep-17
IT4I	System administration tools	2	sys	Nov-17
IT4I	Intel Xeon Phi programming	2	knl	Feb-18
IT4I	PETSc tutorial	2	appl	May-18
GRNET	Introduction to parallel programming	3	par	Nov-17
GRNET	Efficient use of HPC systems	2	opt	Feb-18

PTC	Title	Duration	Topic	Date
GRNET	Introduction to Biomolecular modelling and Molecular dynamics in HPC (Classical and quantum)	1	appl	Apr-18
GRNET	Accelerator programming (GPU programming using CUDA and OpenACC)	2	gpu	May-18
GRNET	Meteorological and climate modelling	1	appl	Jun-18
ICHEC	High performance computing using Python	1	lng	Feb-18
ICHEC	Spring school in parallel programming	5	par	Mar-18
ICHEC	Many-core programming and performance profiling for molecular and atomic simulations	3	knl	May-18
SurfSARA	Data management with iRODS (Integrated Rule-Oriented Data System)	1	data	Sep-17
SurfSARA	Parallel and GPU programming in Python	2	lng	Dec-17
SurfSARA	Introduction to High-Performance Machine Learning	1	data	Feb-18
SurfSARA	Parallel programming with MPI/OpenMP	2	par	Mar-18
SurfSARA	Advanced topics in HPC programming	2	par	Apr-18
SurfSARA	Efficient data formats and Streaming data processing in the Apache Big Data ecosystem	1	data	Jun-18

**Table 1: List of courses in the 2017-18 pilot PTC programme**

The topics mentioned in Table 1 indicate the following covered areas:

- appl** Scientific applications, often domain-specific
- data** High performance data analysis, analytics and management; visualization
- gpu** Programming for GPUs
- knl** Programming for Intel Xeon Phi co-processors
- lng** Advanced features and novel programming languages for HPC
- opt** Performance analysis, optimisation; debugging
- par** Parallel programming paradigms
- sys** System workshops and architecture-focused programming

The joint PTC programme includes 18 courses constituting 35 training days. The courses cover quite a wide range of topics, demonstrated graphically in Figure 1. There are courses that cover the use of Python as an emerging tool to increase HPC productivity. As expected, the programme contains some introductory parallel programming, and performance engineering courses; however, there are also a few that focus on intermediate to advanced topics. Every PTC also covers the important area of accelerators (GPUs, Xeon Phi co-processors), and there are also courses dedicated to specific domains such as data management, processing, meteorology, molecular modelling and mathematical libraries.

In terms of training delivery, the joint programme from the PTCs collectively represent roughly the volume course load of an individual PATC (~35 training days). And while the PTC programme covers many of the same topics as the overall PATC programme, there are some differences. For example, there are somewhat more advanced/novel subjects that PATCs cover to a greater extent relative to PTCs, such as novel HPC programming paradigms, advanced parallel programming, I/O, and performance engineering. Conversely, there is proportionally more PTC focus on data management, analysis and analytics techniques and tools.

The PTCs have also developed the proposed 2017-18 programme in collaboration with PATCs, as well as with external partners such as the E-CAM CoE. Some PTCs are also expected to send trainers to PATC courses, so that it will acquire the expertise to deliver similar courses locally.

The pilot 2017-18 PTC programme as indicated above was approved by the PRACE BoD in June 2017 and delivery of courses have since begun since September 2017.

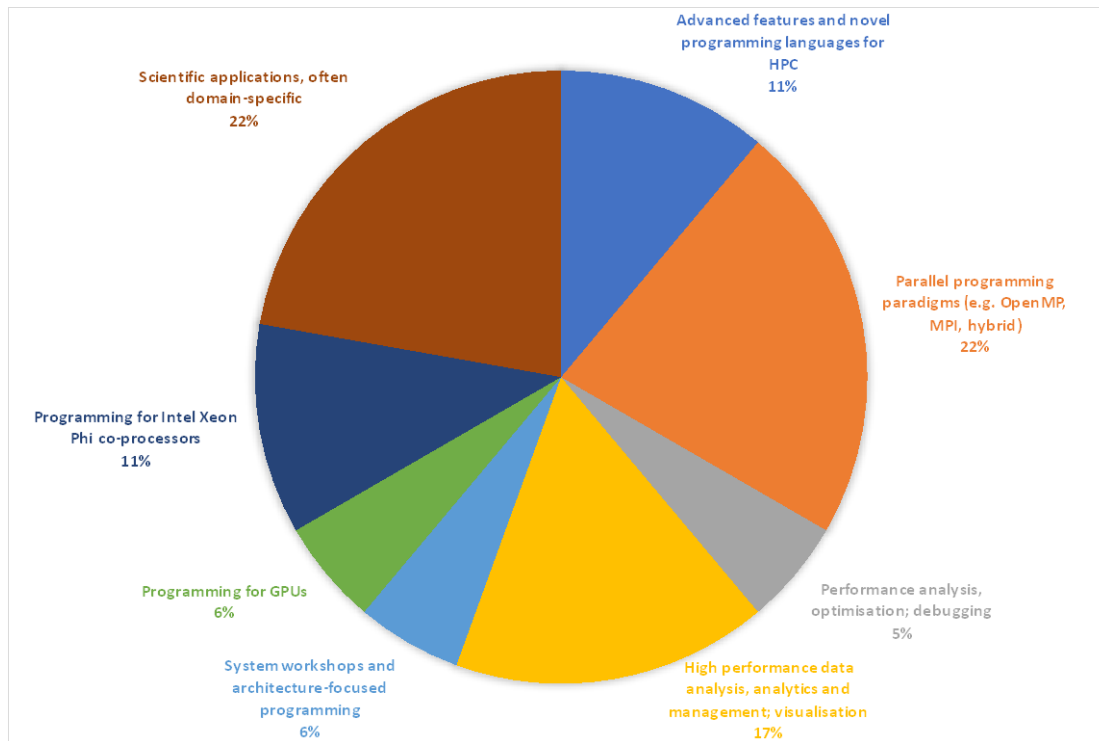


Figure 1. Topical coverage of the 2017-18 pilot PTC programme

## 5 Conclusion & Outlook

In summary, this document has described the key points and outcomes from the conception of the PTCs, the characterisation and *modus operandi* of the PTC network to the successful selection and launch of the four PTCs (IT4I, GRNET, ICHEC and SURFsara) that have since begun course deliveries according to its 2017-18 pilot programme.

The activities of the PTCs will be assessed after July 2018 (the end of its pilot 2017-18 training programme) to examine its impact. The PTCs will also feature in ongoing discussions about the future training strategy of PRACE in the pre-exascale era, i.e. the use of different PRACE training instruments such as the PATCs and PTCs, potential re-configuration and/or re-branding of some of these instruments or activities (e.g. potential re-naming of the PTCs to differentiate its activities of the similarly-named PATCs).

## 6 Annex

### 6.1 PRACE Training Centres – Call for Hosts

#### PRACE Training Centres – Call for Hosts

**Opening of call: 22<sup>nd</sup> February 2017**

**Closing of call: 20<sup>th</sup> March 2017**

**Start of operation: 19<sup>th</sup> April 2017 (pending MB approval)**

##### Introduction

This call aims to establish a network of PRACE Training Centres (PTCs) who will collectively provide a coordinated programme of training courses on HPC and computational science for European researchers. The PTCs will complement the activities of the 6 PRACE Advanced Training Centres (PATCs) in Finland, France, Germany, Italy, Spain and the United Kingdom to widen the reach of PRACE training across Europe.

The PTCs will implement a collective training programme jointly coordinated by PRACE, where each PTC will focus on subject areas that may be of particular relevance or interest to industry and/or the research communities of the local and surrounding region. Each PTC is expected to deliver 2-3 training events annually, representing up to 9 training days. Courses should be open to all researchers, free of charge (for participation) and preferably given in English.

##### Scope of the call

This call is aimed at PRACE-5IP project partners (apart from those located in PATC-hosting countries). Its purpose is to invite applications for hosting a PRACE Training Centre for at least the duration of the PRACE-5IP project. All interested sites/centres are encouraged to submit an application.

##### Roles and responsibilities of the PTCs

Each selected PTC is expected to contribute to the planning and delivery of a joint PTC training programme that is jointly coordinated by PRACE. The responsibilities of each PTC includes:

- Planning of its courses (e.g. make course proposals, and modify according to feedback if requested) ahead of each academic year (1 Aug to 31 Jul). Courses may have to be planned far ahead in advance (e.g. up to 18 months before delivery in some cases).
- Dissemination and delivery of courses (up to 9 course days per year) utilising local resources (e.g. instructors, facilities). Limited “out-sourcing” is allowed (e.g. recruiting PATC trainers for local course delivery for training local trainers).
- Reporting of its activities (e.g. participant statistics, course evaluations) for PRACE deliverables and dissemination.
- Provide a single point of contact to represent the PTC and to facilitate communication (including participation in PRACE teleconferences to coordinate its activities).
- Work with a “mentor” PATC site (if suitable and chosen after PTC selection) for guidance.

PTC courses are expected to conform to the following:

- Every PTC course must be open to all researchers, free of charge (for participation).
- Course material must be in English, and made available on the PRACE Training Portal where feasible.
- Courses are to be delivered verbally in English by default to ensure accessibility; although verbal instruction may be provided in a local native language provided sufficient justification.
- Each PTC course must be set up on the PRACE events website ([events.prace-ri.eu](http://events.prace-ri.eu)) for consistency of providing course information, and collecting registrations, evaluations, etc.
- Each PTC course is expected to be 1-3 days in duration, i.e. a PTC programme should not consist of a series of half-day courses over a term.

#### Process

The call is open from 22<sup>nd</sup> February until 20<sup>th</sup> March 2017, 17:00 CET. All submitted applications are then evaluated and marked by 5-person evaluation panel (see below). Based on the scores, 4 PTCs will be selected by the evaluation panel with the final results subject to approval by PRACE management (MB). After MB approval, the PTCs are expected to commence operations immediately to prepare for the 2017-18 PTC training programme.

The evaluation panel shall consist of five individuals: Jussi Enkovaara (PRACE WP4 leader and PATC director at CSC), another PATC director (TBC), 2 BoD representatives (TBC) and a PMO representative (TBC).

#### Eligibility

All PRACE-5IP project partners are eligible for hosting a PTC (apart from those located in PATC-hosting countries). In order to be selected as a host, availability of basic resources needs to be demonstrated in the application (e.g. training facilities and prior track record in training delivery). Each application must come from a single legal entity, i.e. joint applications by multiple centres is not permitted for PTCs. Each hosting site, when selected, shall commit at least 3 PMs for PTC-related activities in WP4 of the PRACE-5IP project; partners with insufficient WP4 PMs should state in their application a commitment of staff effort for PTC activities (e.g. re-allocation of resources from other WPs).

#### How to apply

Applications (free-form text in PDF format, max 6 pages excluding an Annex for reference information) are to be sent via e-mail to the following persons via e-mail no later than 20<sup>th</sup> March 2017 17:00 CET:

- Jussi Enkovaara, [jussi.enkovaara@csc.fi](mailto:jussi.enkovaara@csc.fi)

#### Evaluation criteria

Each applicant must have some basic resources, and a commitment to provide such resources if selected, before being considered to be a candidate PTC hosting site, i.e. the application needs to demonstrate:

- Availability of appropriate physical training facilities, e.g. room for at least 20-25 students with AV equipment. On-site workstations for students is not a compulsory

requirement. Please describe such resources and how they are made available in the application.

- Prior track record in event organisation, e.g. local/national/PRACE events (minimum score of 2 pts in each evaluation criteria A and B below).
- Availability of local trainers, e.g. availability of local trainers and/or staff representing future trainers (minimum score of 2 pts in evaluation criteria C below).

Having met the basic requirements, applications are then scored by the evaluation panel on the following criteria:

- A. *[Weight: 20%]* Ability to carry out the requested number of training events [0-4 pts, highest number of HPC training days in a year, from the past two years: 0.4 pt per training day, maximum 4pt for 10 or more days]. Please, list in the annex for each training event the location; the dates; the number of days; the title (and topics), percentage of beginners, intermediate and advanced level; percentage of training covered mainly by local trainers, by other trainers from the own country, and by trainers from abroad; number of participants; name of the lecturers.
- B. *[Weight: 20%]* Consistency and track record of training activities [0-4 pts, +1pt if apart from the criterion above there is another year with 10+ training days, +1pt if there are three training events in the past year with each more than 2 days and more than 25 participants, +1pt if there is at least one international training event in the past two years, +1pt if the future training plan is consistent (within 70%) with the previous year in activities]
- C. *[Weight: 20%]* Pool of local trainers [0-4 pts, 0,5 pt per local trainer, maximum 4pt for 8+ trainers] Please list in the annex for each trainer, his/her name, where she/he is located, selected courses or course topics, and the years of his/her course experience.
- D. *[Weight: 10%]* Range of expertise and experience of local trainers [0-2pt, +1pt for top four applications regarding the expertise covers a wide range of HPC topics, +1pt for the top four applications regarding the level of experience of the HPC trainers]
- E. *[Weight: 10%]* Justification for the tentative training programme as proposed in the application, i.e. the benefits of setting up the PTC in question, regarding:
  - a. Special relevance/interest to local communities.
  - b. Interest to the wider community across Europe.
  - c. Coverage of subject areas that are not in prior PATC training programmes.
  - d. Development of local capabilities in training.
  - e. Value-add potential or commitment shown by the applicant to enhance the PTC programme if selected.
  - f. [0-2pts, +0.5pt for each subtopic, maximum of 2pts]
- F. *[Weight: 20%]* The suitability of the hosting site for attracting students from local and surrounding regions, in particular "filling in the gaps" of the geographical coverage of the PATC network. [0-4 pts, ranked 1pt for 10 participants/course in the past, 2pt for 15, 3 pt for 20, and 4pt for more 25 and more, (average from at least 3 HPC events per year)]