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Infrastructure and Services**

PRACE-4IP

PRACE Fourth Implementation Phase Project

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[81] PRACE Summer of HPC Twitter Account, <https://twitter.com/SummerOfHPC>

List of Acronyms and Abbreviations

AISBL	Association International Sans But Lucratif (legal form of the PRACE-RI)
AG	Aktiengesellschaft – Share Corporation
ARC	Advanced Research Computing, University of Michigan
ARCHER	UK National Supercomputer
BoD	PRACE Board of Directors
BSC	Barcelona Supercomputing Center (Spain)
BSCW	PRACE shared workspace and document repository
bTV	Bulgarian TV station
CaSToRC	Computation-based Science and Technology Research Centre (Cyprus)
CINECA	Consorzio Interuniversitario, the largest Italian computing centre (Italy)
CINES	Centre Informatique National de l'Enseignement Supérieur (represented in PRACE by GENCI, France)
CSC	Finnish IT Centre for Science (Finland)
CSCS	The Swiss National Supercomputing Centre (represented in PRACE by ETHZ, Switzerland)
CCSAS	Computing Centre of Slovak Academy of Sciences (Slovakia)
CMS	Content Management System
CRM	Customer Relationship Management
Dx.x	Deliverable x.x
DECI	PRACE European Tier-1 HPC resources (national systems) access programme
DPD	Dynamic Parcel Distribution
EC	European Commission
EESI(2)	European Exascale Software Initiative (2)
EPCC	Edinburgh Parallel Computing Centre (represented in PRACE by EPSRC, United Kingdom)
EPSRC	The Engineering and Physical Sciences Research Council (United Kingdom)
ETHZ	Eidgenössische Technische Hochschule Zuerich, ETH Zurich (Switzerland)
ETP4HPC	The European Technology Platform for High Performance Computing
EXDCI	European Extreme Data & Computing Initiative
FIS	Faculty of Information Studies (3 rd Party of ULFME, Slovenia)
FZJ	Forschungszentrum Jülich (Germany)
GENCI	Grand Equipement National de Calcul Intensif (France)
HPC	High Performance Computing; Computing at a high performance level at any given time; often-used synonym with Supercomputing
ICHEC	Irish Centre for High-End Computing (Ireland), represented by NUIG in PRACE
ICT	Innovate, Connect, Transform/ Information Communication Technology Conference

IEP	Institute of Experimental Physics, SAS
IT4I	IT for Innovations (Czech Republic)
ISC	International Supercomputing Conference held annually in Germany
IT	Information Technology
IUCC	The Inter-University Computation Center (Israel)
JSC	Jülich Supercomputing Centre (Forschungszentrum Jülich, Germany)
KPI	Key Performance Indicators
NIIF	National Information Infrastructure Development Institute (Hungary)
MailPoet	A Mass mailing service for WordPress
MIPRO	International Convention on Information and Communication technology, electronics and microelectronics
MoU	Memorandum of Understanding
MPI	Message Passing Interface, a parallel message passing system
NUC	Next Unit of Computing, mini PC units by Intel
NUIG	National University of Ireland, Galway
NSCA	Bulgarian National Centre for Supercomputing Applications
OpenMP	Open Multi-processing, an application programming interface that supports multi-platform shared memory multiprocessing
PATC(s)	PRACE Advanced Training Centre(s)
PMO	PRACE Project Management office at JSC
PRACE	Partnership for Advanced Computing in Europe; Project Acronym
PRACE2	Internal notation for the continuation of PRACE's activities for the second phase of its development
PRACEdays	The annual PRACE Scientific and Industrial conference
PRACE-xIP	PRACE-x Implementation Phase Project
PRACE-PP	PRACE Preparatory Phase Project
PRIDE	Project Information and Dissemination Event
RISC	Research Institute for Symbolic Computation (Austria)
RIST	Research Organisation for Information Science And Technology, Japanese HPC organisation with an MoU with PRACE
SHAPE	SME HPC Adoption Programme in Europe: a pan-European, PRACE-based programme supporting HPC adoption by SMEs
SAS	Slovak Academy of Sciences
SC	Supercomputing Conference held annually in the USA
SoHPC	PRACE Summer of HPC, PRACE Summer placement programme for early-stage postgraduates and late-stage undergraduate students
SIVVP	Slovak infrastructure for HPC
STEM	Science, Technology, Engineering and Mathematics
Tx.x	Task x.x
Tier-0/Tier-1	Denotes the apex of a conceptual pyramid of HPC systems. In this context the Supercomputing Research Infrastructure would host the Tier-0 systems; national or topical HPC centres would constitute Tier-1
ULFME	University of Ljubljana, Faculty of Mechanical Engineering (Slovenia)
WordPress	A website content management system (CMS) used by PRACE
WPx	Work Package X

Executive Summary

This deliverable, entitled Communication and Outreach Report Year 1, follows on from Deliverable D3.1 - Communication and Outreach Update Plan [1] - and reports on the implementation of that plan by the PRACE Fourth Implementation Phase project Work Package 3 (PRACE-4IP WP3), in the reporting period 1 February 2015 to 30 April 2016.

PRACE-4IP Work Package 3 is composed of three tasks:

- Task 3.1 - Dissemination
- Task 3.2 - Brand, Image and Identity
- Task 3.3 - Outreach

The highlights of the dissemination task include:

- The production of the PRACE digest magazine under the theme “*Celebrating the Achievements of Women in HPC*” [4]
- PRACE booths at four events including the annual Supercomputing (SC) and International Supercomputing (ISC) conferences
- The second annual PRACE scientific and industrial conference, PRACEdays15 held in Dublin, Ireland and the organisation of PRACEdays16 to be held in May 2016

The highlights of the Brand, Image and Identity task include:

- The production of style guidelines
- Identification of a new customer relationship management system (CRM)

The highlights of the outreach task include:

- The successful completion of 20 projects by 20 students at nine High Performance Computing (HPC) sites during the PRACE Summer of HPC (SoHPC) 2015 and the selection of 21 students for placement at ten HPC sites for the SoHPC 2016 programmes
- PRACE presence at four science fairs and three science museums

PRACE-4IP WP3 has successfully communicated the results of the PRACE-4IP project and promoted and publicised the activities and outputs of PRACE through press releases, news articles, a digest magazine, presence at high-profile events and PRACEdays15. PRACE-4IP WP3 will build on this solid foundation in the next 12 months of the project delivering an additional digest magazine, presence at ISC16 and SC16, and the organisation of PRACEdays16 and SoHPC 2016.

1 Introduction

PRACE Fourth Implementation Phase project Work Package Three (PRACE-4IP WP3) builds on, complements and extends the work carried out during the PRACE Preparatory Phase (PP), PRACE-1IP, PRACE-2IP and PRACE-3IP projects.

The role of WP3 in PRACE-4IP is to disseminate the activities and results of PRACE, strengthen the brand and corporate image of PRACE and maintain and expand PRACE outreach.

To fulfil this role, WP3 is divided into three tasks:

- Task 3.1 - Dissemination
- Task 3.2 - Brand, Image and Identity
- Task 3.3 - Outreach

This deliverable follows on from PRACE-4IP D3.1 [1] and reports on the implementation of those plans by the PRACE-4IP project in the reporting period - 1 February 2015 to April 30 2016.

This deliverable is divided into five chapters. Chapter two describes the work of the Dissemination task; chapter three the work of the Brand, Image and Identity task, chapter four the work of the Outreach task and chapter five draws conclusions.

2 Dissemination

Dissemination allows PRACE to effectively communicate and connect with its multiple stakeholders, including the scientific community, the general public, users of PRACE services, new and upcoming user communities, governmental stakeholders and the media.

Dissemination material follows the Interim Brand, Image and Identity Guide outlined in PRACE-4IP D3.1 [1].

The dissemination task (Task 3.1) includes the following sub-tasks:

- 3.1.1 Web
- 3.1.2 Science Publications
- 3.1.3 Press
 - Press Releases
 - PRACE Newsletter / PRACE Info Bulletin
 - PRACE Brochure / Posters / Roll-Up
 - Advertising
- 3.1.4 Social Media
- 3.1.5 PRACEdays15 and PRACEdays16
- 3.1.6 General Events including SC and ISC

Each of these sub-tasks is reported on in detail in the following sections.

2.1 Web

The PRACE RI official website [5] continues to be the focal point of the project web presence. It is an integral part of the PRACE communication strategy. The PRACE web team is responsible for the day-to-day technical management of running the website, testing, stability, and security as well as content updates and technical improvements.

The PRACE website is hosted at CINES (Centre Informatique National de l'Enseignement Supérieur), FRANCE and uses the WordPress [33] content management system (CMS).

Content

Content has been continually updated during the reporting period including, among others, the addition of call information and results, success stories, press releases, job postings, Key Performance Indicators (KPIs) and PRACE publications. Furthermore, the site regularly promotes PRACE events, such as PRACEdays (the annual PRACE Scientific and Industrial Conference), PRACE Seasonal Schools and PRACE's presence at high-profile conferences.

Reviews of existing content have been undertaken and have resulted in the removal or amendment of dead links and out-dated content. This effort is on-going and will be continued in the next period of the project.

A review of data protection legislation was undertaken and as a result a cookie notification banner has been added, visible on first visit to the site.

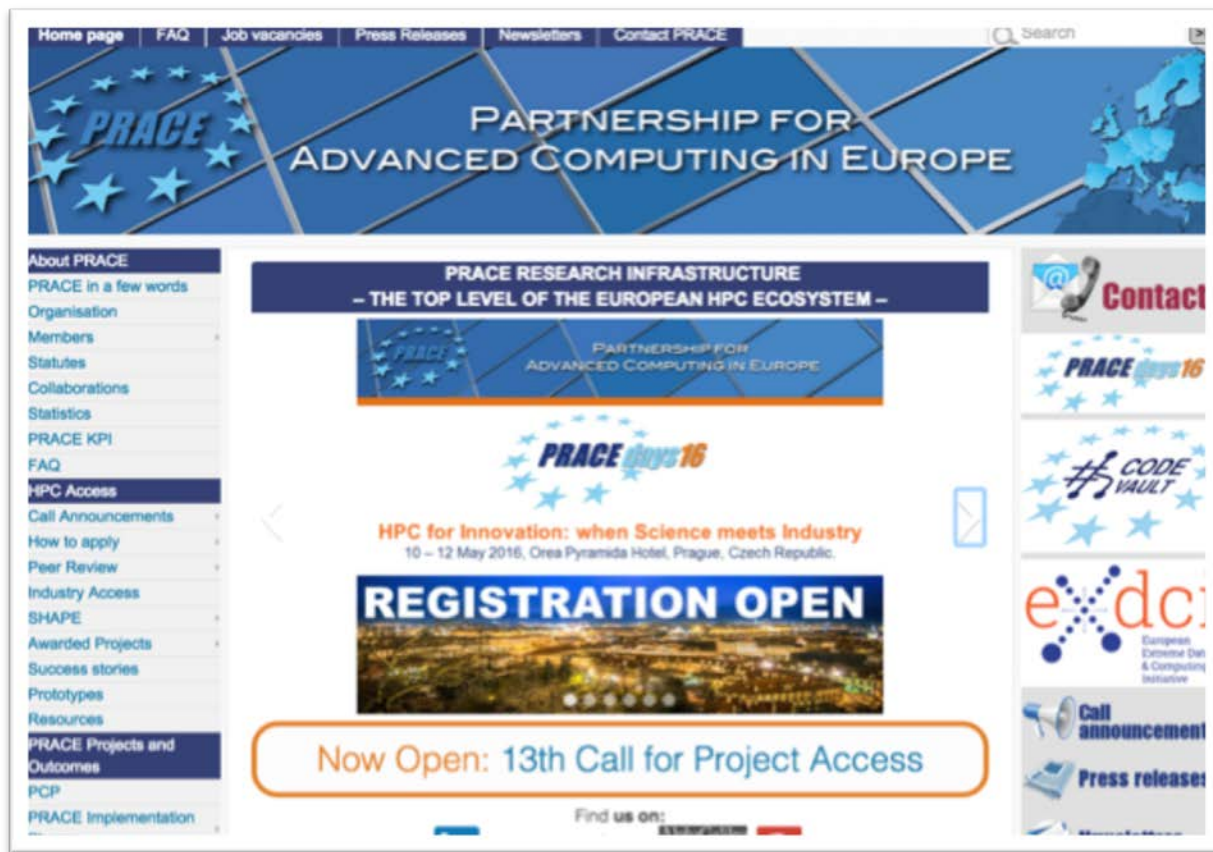


Figure 1: PRACE Website (www.prace-ri.eu)

Stability, Security and Performance

One of the primary objectives of the web task is to sustain high availability and integrity of the website and its content without disruption or performance issues. Over the course of the reporting period, the operation team continuously monitored the site to maintain a high level of security and to avoid any malicious events occurring, by analysing potential vulnerabilities. Furthermore, a test instance has been established and is used to test improvements and updates in advance. This has ensured that the site experienced no down time or unexpected behaviour on update to major new WordPress releases such as 4.3 (August 2015) and 4.4 (December 2015) [35].

The performance of automated mail sending is also under improvement, and regular updates from the webpage mail database to the CRM database were made.

Technical Improvements

Improvements to the site were also sought in the areas of performance, navigation, structure and integration.

Ways of improving performance were investigated by running performance profiling of all plugins. Those consuming resources without valuable function were disabled, and lightweight

alternatives were used, if required. The underlying systems including web server and content management system configurations were investigated to enhance performance, server side and CMS caching.

Mailpoet [40], a mass mailing service for WordPress was fine-tuned by improving mail sending mechanisms, templates and content of mails.

In addition, improvements to the contacts page and to the visualisation of events registered to the events portal were made.

Furthermore, solutions to improve search functionality were investigated to enable searching for keywords in documents uploaded to the website, and to enable search within different categories of content separately (e.g. within White Papers, Deliverables, Best Practice Guides, User Publications as a result of access). These improvements will be implemented in the next reporting period.

Finally, the Dare To Think the Impossible campaign page [57] was integrated into prace-ri.eu as a subpage to avoid additional hosting costs and to increase the coherence of the PRACE web offerings.

Web Statistics

Over 105,000 sessions and 225,000 page views were recorded on the PRACE website from 1 February 2015 – 31 March 2016. 70% of visits came from Europe, 14% from the Americas, 13% from Asia and 1% from each of Africa, Oceania and unknown (Figure 2). Visits from 185 countries worldwide were recorded with the top 5 most frequent countries including the United States, Germany, Italy, the UK and France (Figure 3). Most popular pages in this period include the home page [6], Intel Xeon Phi Best Practice Guide [58], Project Access [59], PRACE in a few words [60], Call Announcements [61] and PRACEdays15 [12]. This reflects the varied use and user base of the website, including those interested in PRACE events, basic information on PRACE, detailed technical information and best practice information, and PRACE access.

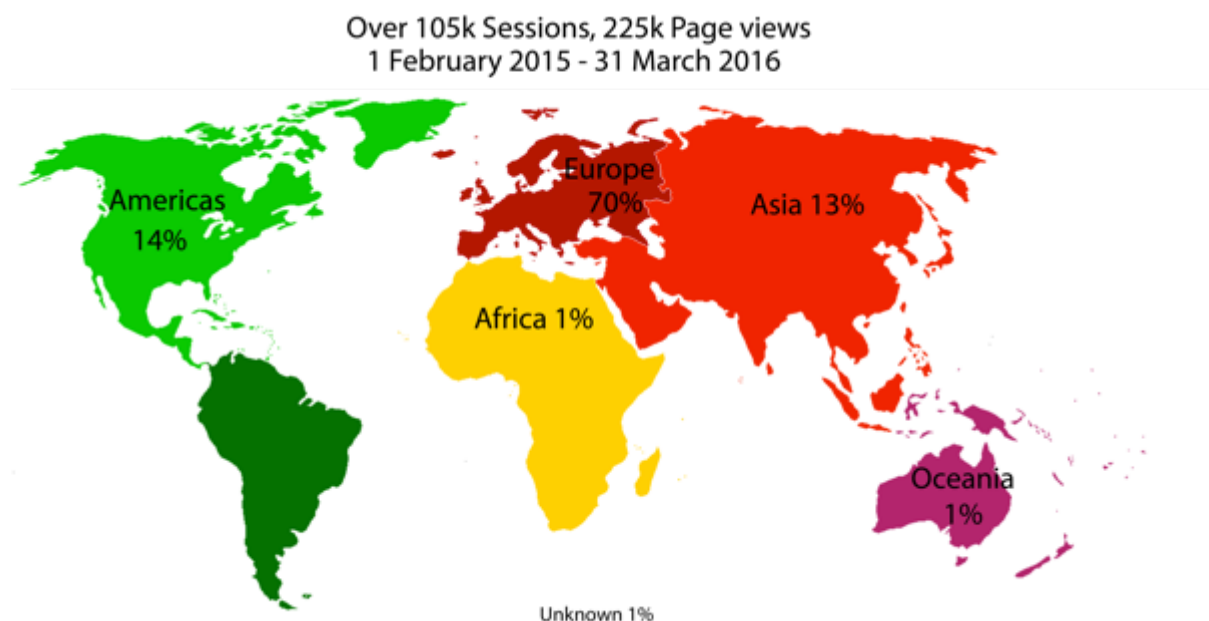


Figure 2: PRACE Website Traffic

	Country	Sessions	% Sessions
1.	 United States	11,237	 10.69%
2.	 Germany	9,648	 9.18%
3.	 Italy	9,507	 9.04%
4.	 United Kingdom	8,586	 8.17%
5.	 France	8,489	 8.08%
6.	 Spain	6,784	 6.45%
7.	 Belgium	5,235	 4.98%
8.	 India	2,920	 2.78%
9.	 Greece	2,166	 2.06%
10.	 Netherlands	2,141	 2.04%

Figure 3: Top 10 countries PRACE website

2.2 Science Publications

The objectives of the scientific publications sub-task is to showcase PRACE supported research results in order to disseminate news of PRACE activities and results, strengthen the PRACE brand and corporate image, foster a closer working relationship with researchers who use PRACE resources, and make a meaningful contribution to scientific literature resources.

Throughout the term of the PRACE-4IP project this is being accomplished via the publication of two PRACE Digest magazines and four standalone articles on research that made use of PRACE resources. Each edition of the PRACE Digest includes 14 articles; 7 on PRACE Project Access projects and 7 on DECI (PRACE European Tier-1 HPC resources - national systems - access programme) projects. Publication dates are scheduled to coincide with major HPC events and exhibitions that PRACE attends in order to leverage these events for maximal distribution of the publications. PRACE Digests are scheduled for publication at the Supercomputing (SC) exhibition held in November each year in the U.S. and two of the four articles coincide with the annual International Supercomputing (ISC) exhibition held in Europe in July.

For this task, the PRACE-4IP WP3 team works with INSIGHT Publishers [2] a specialist research dissemination agency that writes and publishes articles on a wide range of research projects across a broad spectrum of thematic areas. PRACE has a successful, long-term track record working with this agency and exploiting the full range of research dissemination services they offer.

Published in the reporting period

Three publications were published during the reporting period:

- The first PRACE Stand Alone Article [2] entitled *The Virtual Laboratory*, featuring research by Peter Coveney was published on 1 July 2015 and distributed at ISC15 (Figure 4 left)
- The PRACE Digest 2015 [4] was published in November 2015 under the topic of “*Celebrating the achievements of Women in HPC*”, and was distributed at SC15 (Figure 4 right)

- The second PRACE Stand Alone Article [41] entitled *Supercharged Supercapacitors*, featuring research by Mathieu Salanne published on 23 March 2016 (Figure 4 middle).



Figure 4: PRACE Stand Alone Article 1 (left) & Article 2 (middle) & PRACE Digest 2015 (right)

Upcoming Items

- Standalone Article 3 in July 2016. Scheduled for distribution at ISC16.
- PRACE Digest 2016 in November 2016. Scheduled for distribution at SC16
- Standalone Article 4 in March 2017

2.3 Press

The goal of the Press sub-task is to produce press releases, newsletters, advertisements, brochures, posters and roll-ups to promote PRACE in the media and at events. It is divided into four sub-sub-tasks: Press Releases; Newsletters; Brochure, Posters and Roll-up; and Advertising.

2.3.1 Press Releases

The Press Release template was updated at the start of the reporting period to improve the 'About PRACE' section and reflect the new grant agreement.

32 Press Releases or announcements, listed in Table 1 were published between 1 February 2015 and 30 March 2016. Each piece was published on the PRACE website, disseminated via a mailing list to press release subscribers (260), disseminated via Alpha Galileo (a specialist media service that connects journalists and research organisations) [36] and/or ScienceNode (on online science publication with a HPC focus) [37] and to editors of HPC specific publications such as HPCwire [42] or Scientific Computing World [42], where relevant. In addition, call notices were disseminated via a dedicated mailing list (1341 subscribers).

#	Date	Title
1	2015-02-09	PRACEdays15 packed with excellence
2	2015-02-09	PRACE 11th Call for Proposals opens 9 February 2015
3	2015-02-25	Explore supercomputing at the Summer of HPC 2015
4	2015-03-02	PRACE 10th Call for Proposals achieves 10 out of 10!
5	2015-03-16	PRACE Completes First Phase of Pre-Commercial Procurement
6	2015-03-30	MEP Awards 2015 – We have a winner!
7	2015-04-07	SHAPE Second Call awards 11 innovative projects
8	2015-04-10	New CRC Press Book Provides Global Overview of High Performance Computing's Industrial Impact
9	2015-04-16	PRACE Preparatory Access completes 20th cut-off with strong participation of industry
10	2015-04-23	PRACE turns 5: onwards and upwards!
11	2015-05-25	4th PRACE Implementation Phase Project Kick Off Meeting
12	2015-06-05	PRACE supercomputers help researchers calculate mass difference between neutrons and protons
13	2015-06-05	PRACE Awards Second Phase Contracts for Pre-Commercial Procurement
14	2015-06-09	PRACEdays15: HPC Brings Industry and Academia Together
15	2015-06-30	PRACE on the Road
16	2015-07-20	PRACE 11th Call for Proposals connects the international HPC ecosystem
17	2015-09-27	2015 Annual HPCwire Readers' Choice Awards
18	2015-09-28	MEP Awards 2016 - Nominations are open!
19	2015-09-30	PRACE 12th Call for Proposals now open!
20	2015-10-02	2015 Annual HPCwire Readers' Choice Awards
21	2015-10-30	Finalists Compete for Prestigious ACM Gordon Bell Prize in High Performance Computing
22	2015-11-01	MEP Awards 2016 – Shortlisted nominees for ICT POLICY announced!
23	2015-11-02	PRACEdays16 - Call for Contributions - Extended Deadline!
24	2015-11-16	PRACE Launches Third Call for Applications under SHAPE
25	2015-12-14	ACM Gordon Bell Prize in High Performance Computing Congratulations to the Winning Team!
26	2015-12-16	2016 International Summer School on HPC Challenges in Computational Sciences
27	2015-12-16	PRACE Announces Summer of HPC 2015 Award Winners!
28	2016-01-07	PRACE Summer of HPC 2016 opens for applications 13 January 2016
29	2016-01-11	PRACE CodeVault
30	2016-02-16	PRACEdays16 Registration Open
31	2016-03-14	PRACE Ada Lovelace Award for HPC Nominations Open!
32	2016-03-22	MEP Awards 2016-Female MEPs for Advancing Science and Technology

Table 1: PRACE Press Releases

2.3.2 Newsletters

PRACE newsletters are periodic publications, which include the latest PRACE related news and events reported in an easily digestible format. Newsletters are published online [13] and disseminated through a PRACE mailing list of Newsletter subscribers (1243).

Two newsletters were published in the reporting period: Newsletter #15 in July 2015 and Newsletter #16 in September 2015. The publication of Newsletter #15 was moved from the anticipated June to July 2016 to correlate with the change in usual dates for the ISC conference. Newsletter #16 was also published one month later in response.



Figure 5: PRACE Newsletter #15 (left) & Newsletter #16 (right)

Newsletter #15 was distributed at ISC15 in Germany and contained articles on PRACE-4IP, the PRACE SME HPC Adoption Programme in Europe (SHAPE) programme and PRACEdays15, among others. Newsletter #16 was distributed at SC15 and featured articles on Women in HPC and Summer of HPC among others. Both documents were used for additional dissemination by PRACE partners and are available on a dedicated page [13] on the PRACE website. In Newsletter #15 and #16 new features were implemented: links to PRACE social media (see 2.4), a link to PRACE videos on YouTube [14], and a link to the PRACE press material request page [5].

The next edition of the newsletter is planned for June 2016. The content list and the timeline have been completed.

2.3.3 Brochure/Poster/Roll-Up

In May 2015, the PRACE marketing and press materials were updated. This included the PRACE brochure and a full series of posters. The task was to not only to update the appropriate texts, but also the existing PRACE brand was adjusted slightly in an attempt to achieve more uniformity and a more streamlined appearance.



Figure 6: Updated PRACE Brochure and Roll-Up

The entire poster series was recreated and a repository of print and source files collated in order to allow local centres print what they need for local or regional events and rely less on a central warehouse. This has proven to be very convenient and helps reduce costly warehousing and shipping expenses. These resources were made available on the PRACE BSCW repository as well as the PRACE press materials webpage [5].

At the same time, the Press Materials page on the PRACE website was updated and made to be more user-friendly so that partners and colleagues could more easily benefit from the resources.

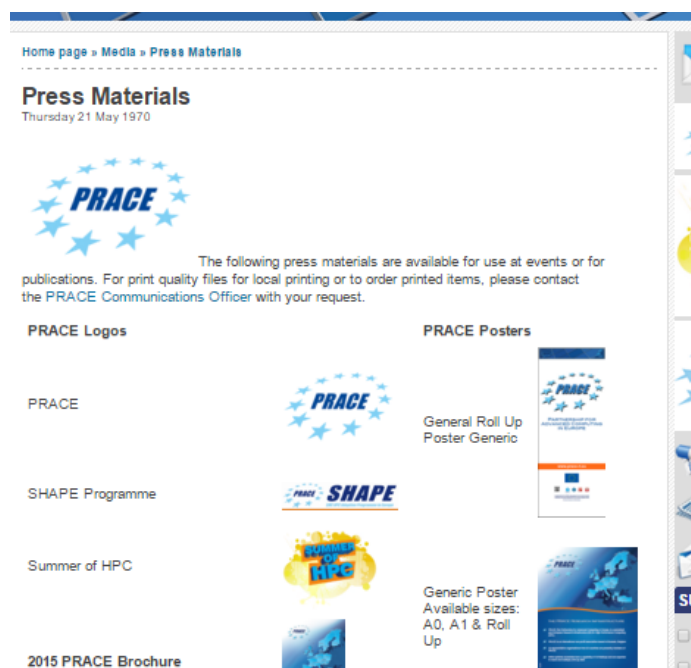


Figure 7: PRACE Press Materials page [5]

2.3.4 Advertising

The objective of the advertising task is to highlight PRACE offerings, promote PRACE presence at exhibitions and conferences and to introduce PRACE to new audiences.

In the reporting period, PRACE undertook five advertising campaigns across two media. In March 2015, a Facebook advertising campaign for the 2015 edition of the PRACE Summer of HPC (SoHPC) programme was launched. It promoted a Facebook post on the SoHPC Facebook page [8], which announced the launch of the programme. In June 2015, a full-page advertisement in Scientific Computing World (SCW) [42] was produced giving an introduction to PRACE and PRACE resources, and promoting the PRACE presence at ISC15 in Frankfurt, Germany (Figure 8). In October 2015, a similar advertisement was produced for the October/November edition of SCW, this time promoting the PRACE presence at the Supercomputing Conference in Austin, Texas.



Figure 8: PRACE Advertisements in SCW Jun/July 2015 (left) and Oct/Nov 2015 (right)

In January 2016, a Facebook advertising campaign was again undertaken to promote the opening of applications for the 2016 edition of the SoHPC. In February 2016, a half page advertisement promoting the 3rd annual PRACE Industrial and Scientific Conference, PRACEDAYS16, to be held in Prague, Czech Republic was produced in SCW (Figure 9). This replaced the planned advertisement in Parliament Magazine's Research Review [62], as this advertisement was negotiated as part of a media sponsorship agreement for PRACEDAYS16 between PRACE and SCW. An additional agreement with SCW was reached for a reduced rate on four further advertisements planned for 2016.



Figure 9: PRACEdays16 advertisement in Feb/Mar 2016 Edition of SCW

A half-page advertisement in April/May edition of SCW to be distributed at PRACEdays16 is currently in production.

The following additional advertisements are planned in 2016/2017:

- Full page in June/July edition of SCW, promoting PRACE activities at ISC16 and to be distributed at ISC16
- Full page in Aug/Sept edition of SCW to promote PRACE training activities
- Full page in Oct/Nov edition of SCW promoting PRACE activities and SC16 and to be distributed at SC16
- Facebook advertisement Jan/Feb 2017 to promote the 2017 SoHPC programme

2.4 Social Media

The main objectives of the social media sub-task are:

- To investigate and define the relevant social media channels for PRACE
- To set up an appropriate monitoring tool for social media data e.g. twitter followers, engagement on LinkedIn posts etc.
- To collect and manage all the login data of existing social media platforms
- To merge multiple profiles on the same platforms if possible
- To adjust the different designs of the social media profiles
- Organise on-going key activities
 - Publish and post regularly relevant information about PRACE (active dissemination)
 - Observe the activities on all social media platforms (passive observation)
 - Analyse and create statistics about all activities (monitoring)
 - Grow the community and generate more followers and readers
 - Offer followers and readers valuable external content (content curation)

Investigation and definition of relevant social media channels for PRACE

One of the main objectives of the communication activities within PRACE is to interact with the various stakeholders. One way to reach target groups is using social media, which is understood as *"a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content."* [16]

There are a variety of different types and providers of social media platforms, as outlined in Figure 10 [17][18].

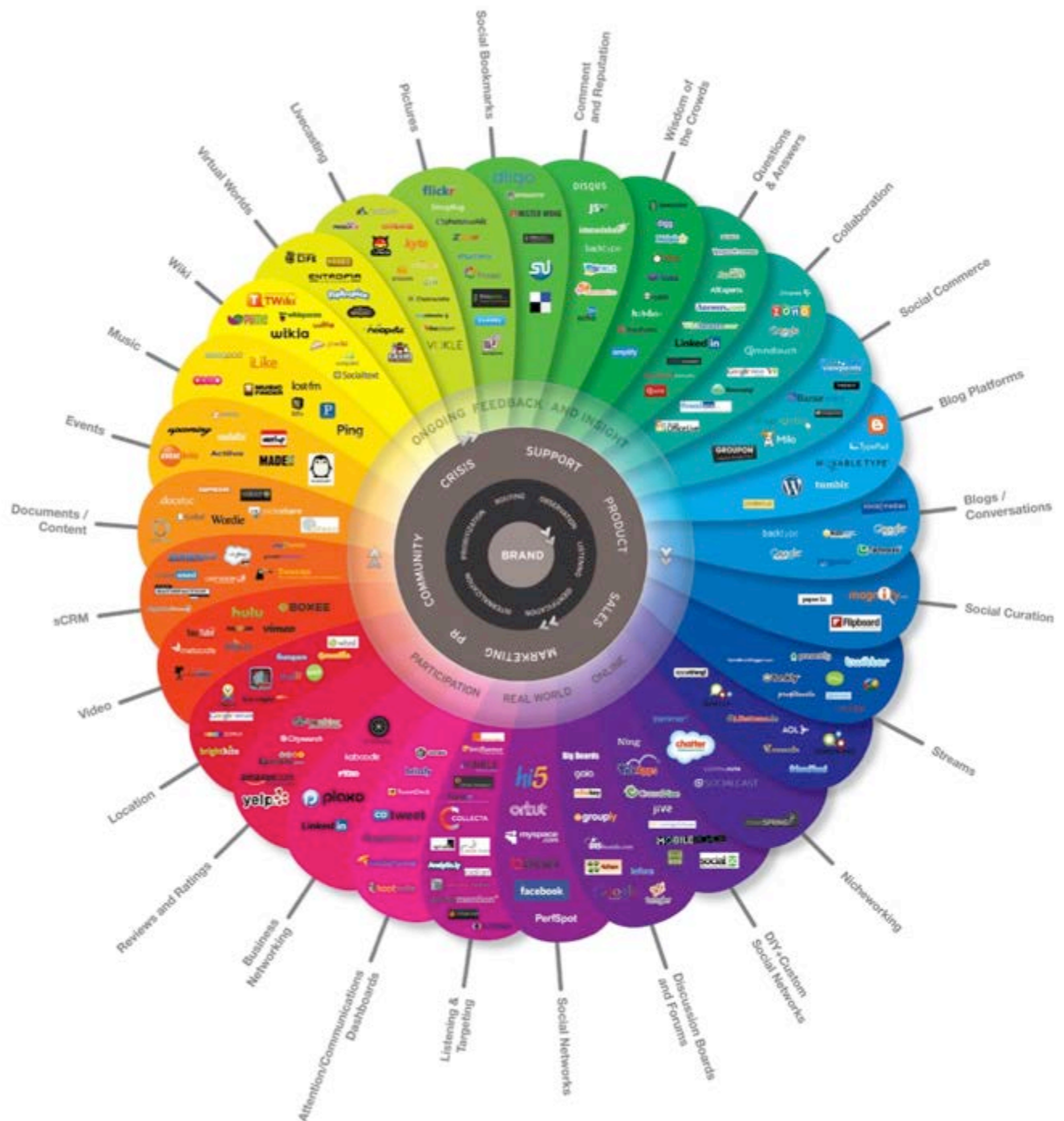


Figure 10: The Conversation Prism 2.0 [17]

This sub-task investigated existing and potential PRACE social media channels on their effectiveness to meet the objectives of the communication activities and the target groups. Table 2 gives an overview of the various channels compiled from Leverage, a media consultancy company [18], YouTube [20] and Slideshare [21].

Twitter	Facebook
<ul style="list-style-type: none"> - 289 million active users - Micro blogging social site that limits posts to 140 characters - Largest penetration in the US but spreading slowly and steadily - 9 100 tweets happen every second 	<ul style="list-style-type: none"> - 1.5 billion monthly active users - Mobile is Facebook's cash cow – 1.31 billion monthly active mobile users - Mobile ad revenue makes up 76% of all ad revenue (\$2.9 billion in Q2 of 2015) - Users share 1 million links every 20 minutes
Google +	LinkedIn
<ul style="list-style-type: none"> - 300 million active users - Social network built by Google that allows for brands and users to build circles - Not as many brands active but the ones that are tend to be a good fit with a great following - Hangouts and Photos have been separated from Google+ but posts remain as 'streams' 	<ul style="list-style-type: none"> - 380 million users worldwide - Business oriented social networking site - Brands that are participating are corporate brands giving potential and current associates a place to network and connect - 79% of users are 35 or older
Pinterest	Instagram
<ul style="list-style-type: none"> - 70 million users - Social site that is all about discovery - Largest opportunities are in decor, crafts/DIY, cooking, health, and fashion - Users are 20% male and 80% female 	<ul style="list-style-type: none"> - 300 million active users - Social sharing site all around pictures and now 15 second videos - Many brands are participating through the use of hashtags and posting pictures consumers can relate to - Most followed brand Nike
YouTube	Slideshare
<ul style="list-style-type: none"> - Social network for video sharing - 80% of YouTube's views are from outside of the U.S. - Over a billion users - More than half of YouTube views come from mobile devices. 	<ul style="list-style-type: none"> - Hosting service for sharing presentation/slides - 70 million visitors per month

Table 2: Investigation of Social Media Platforms [19], [20], [21]

Given the needs of PRACE communications, presence on the following social media platforms was deemed appropriate:

- Twitter [22]
- YouTube [23]
- LinkedIn [24]
- Google + [25]

Furthermore, Summer of HPC, a PRACE outreach programme has a Facebook presence [26]. This special case is due to the target demographic of senior undergraduate and junior postgraduate university students and the specific tailored messaging for the programme. Facebook is not seen as a good fit for the wider project.

Other channels like Instagram or Pinterest were found to be inappropriate due to the focus on picture content. SlideShare has potential for PRACE and is worthy of further consideration.

Setting up an appropriate monitoring tool

The following characteristics were discovered as relevant features for PRACE using a social media-managing tool:

- Covering all chosen social media channels (Twitter, LinkedIn, Google+ and YouTube)
- Scheduling numerous posts: automatically publishing of posts on different channels
- Engagement with follower across the channels (questions, messages)
- Collaboration within team possible
- Analytics report (also for PRACE WP2 who produce PRACE KPIs)

The following providers were investigated:

- SumAll [30]
- Buffer [31]
- Sprout Social [32]
- HootSuite [33]

After a deep investigation it was clear, that a free version of these services would not meet our requirements. The sub-task decided to choose “HootSuite Pro” as it met all the requirements with a comparatively minimal monthly fee of 7.99 EUR.

In addition to the monthly report from HootSuite, statistics from Twitter, YouTube and LinkedIn itself are added to a monthly statistical report on Social Media. This monthly report is also passed on to PRACE-4IP WP2, who are responsible for producing PRACE-4IP KPIs.

Collection and management of login data of existing social media platforms

All login data from all existing social media platforms were collected via secure methods. The sub-task leader stores the login data securely. By introducing the management and monitoring tool HootSuite [33], everybody who has access data to this can access the social media platforms.

In possession of the login data is:

- Marjolein Oorsprong as WP3 leader,
- Cornelia Staub as sub-task leader
- Johanna Kaunisvaara as sub-task member

Merging multiple profiles on the same platforms if possible

In the beginning of the project it was proposed to merge several YouTube channels held by PRACE:

- PRACE RI: general representation of PRACE, videos about PRACE events, and other PRACE videos [23]
- Dare to think the impossible: special channel for the former campaign “Dare to think the impossible”, target groups are children and teenagers [26]
- Summer of HPC: special channel for the training event Summer of HPC, target group teenager and students [27]
- PRACE Courses: channel with videos of training courses, referring to WP4 [29]

After investigating the rules of YouTube, it was found out, that it is technically not possible to merge all channels together. The only possibility would have been to delete all channels up to one and re-load all videos again to YouTube. However, all statistics, links and followers would have been deleted as well. Therefore it was decided to re-organise the YouTube Channels and link one to another, so that for visitors it looks like they are one.

Statistics

In the reporting period, 1 February 2015 – 30 April 2016, the following engagement on Social Media was recorded:





 Twitter	<ul style="list-style-type: none"> • Over 170 Tweets which were retweeted over 260 times • Approximately 130 Twitter mentions • Increase in Twitter followers from 800 to over 1250
	<ul style="list-style-type: none"> • Over 60 LinkedIn updates
 Google +	<ul style="list-style-type: none"> • 470 views of posts on Google+
	<ul style="list-style-type: none"> • Over 1,500 views on YouTube

Table 3: Social Media Statistics

Adjusting the different designs of the social media profiles to one same look

Due to the progressive adoption of social media by PRACE, the existing social media channels had a variety of head pictures, banners or profile pictures. Furthermore, the image sizes and requirements for pictures and profiles do change on the social media platforms. All banners, and images were adjusted across all PRACE social media to be consistent and coherent with each other and the PRACE brand.

Organising on-going key activities

The focus of on-going activities is to:

- Grow the community and generate more followers and readers
- Offer followers and readers valuable external content (content curation)

Publishing and posting regularly relevant information for the target group is paramount. Relevant content for social media networks published were press releases, announcements,

content from newsletters, fact sheets, videos, event announcements and direct on site activities on conferences and fairs.

The content for YouTube is produced by sub-task 3.3.2 Videos (see section 4.2). This sub-task provides the video files, a description text and relevant key words for YouTube.

On Twitter, hashtags used in relation to PRACE are:

- #HPC
- #PRACEdays16
- #Science
- #Industry
- #Supercomputer
- #CodeVault

By offering relevant content and following opinion leaders on all social media channels, the audience of PRACE social media increases. Retweeting other posts on Twitter, which are useful for the followers, is also valuable. In the future, it is planned to include and share more external news. The best method to achieve this is under investigation.

2.5 PRACEdays

PRACEdays is the name given to the annual PRACE Scientific and Industrial Conference, which brings together experts from academia and industry, who present their advancements in HPC-supported science and engineering. PRACEdays15 took in Dublin, Ireland, 26-28 May 2015. Preparations are currently underway for PRACEdays16, which will take place in Prague, Czech Republic 10-12 May 2016 as part of the 'European HPC Summit Week' organised by the European Extreme Data & Computing Initiative (EXDCI), 9-12 May 2016.

2.5.1 PRACEdays15, May 26-28 2015, Dublin, Ireland

PRACEdays15 took place in the Aviva Stadium in Dublin, Ireland in May 2015 under the motto of "Enable Science Foster Industry". Close to 200 experts from academia and industry attended the event hosted by the Irish Centre for High-End Computing (ICHEC). The conference also included two satellite events focusing on Women in HPC and Exascale European projects. In addition, the European Exascale Software Initiative (EESI2) held a complementary conference in conjunction with PRACEdays15, on 28-29 May 2015.



Figure 11: PRACEdays15 Banner

The PRACEdays15 programme included keynotes sessions from well-known academic and industrial researchers from Europe and Asia, including the keynote from Masahiro Seki, President of the Research Organisation for Information Science and Technology (RIST), Japan. In addition, there were six heavily subscribed parallel streams across various scientific and industrial themes including a session on HPC in Industry in Ireland. A panel discussion entitled "Science and Industry: Partners for Innovation", moderated by Tom Wilke of Scientific Computing World brought together high level representatives from the European

Commission, industry and academia and prompted much interesting debate. In the poster session, Panchatcharam Mariappan was awarded €1 500 towards attendance at a HPC conference or event for his excellent poster “*GPU accelerated finite element method for radio frequency ablated cancer treatment*”. The full PRACEdays15 programme [9], presentations [10] and posters [11] can be found on the PRACEdays15 webpage [12].



Figure 12: Group photo of PRACEdays15 attendees

2.5.2 PRACEdays16, May 10-12 2016, Prague, Czech Republic

PRACEdays16 will take place in the Orea Pyramida Hotel, Prague, Czech Republic on 10-12 May 2016, as the central part of European HPC Summit Week [64].

Registration is currently open and over 200 attendees are expected. The conference programme includes keynote presentations from high-level scientists and researchers from academia and industry including Sharon Broude Geva, Director of Advanced Research Computing (ARC), University of Michigan, Christoph Gümbel, Director Virtual Vehicle, Porsche AG, Germany; and Martin Winter, European Chemical Industry Council, among others.

In addition, 18 parallel sessions featuring industrial and scientific presentations, a poster session and a closing panel moderated by Tom Wilkie of Scientific Computing World will take place. Highlights of the social programme include a cocktail reception and a networking dinner. Other events include an Open Session of the PRACE User Forum and Awards presentations.

The European Extreme Data & Computing Initiative (EXDCI) project [65], coordinated by PRACE together with The European Technology Platform for High Performance Computing (ETP4HPC) [62] will organise workshops alongside PRACEdays16 as a part of the European HPC Summit Week.

The full programme for the PRACEdays16 and additional information is available on the PRACEdays16 page on the PRACE website [15].

2.6 Events

In order to promote and disseminate the activities and results of PRACE, PRACE was represented at four high profile HPC or ICT conferences and exhibitions during the reporting period.

International Supercomputing Conference 2015

The International Supercomputing Conference and exhibition (ISC) [66] attracts the main players from the European HPC community to take part in its world-class programme and engage with key HPC stakeholders from across academia and industry, including PRACE, at their stands in the exhibition space.

In 2015, ISC was held in Frankfurt, Germany from 13-15 July. A wide range of activities attracted over 300 visitors to the PRACE booth. These included the PRACE Treasure Hunt, mini presentations and a car racing video game called ParallelRACE. PRACE organised a half-day workshop on training that focused on presenting the experience of the PRACE Training team. The workshop emphasised the importance of opening a dialogue with the stakeholders in the European HPC ecosystem to address the challenges and tackle the skills gap in HPC and Computational Science. PRACE awarded the best paper submitted to the ISC Research Paper Sessions. The winner was David Rohr from the University of Frankfurt with his paper entitled: *Lattice-CSC: Optimizing & Building an Efficient Supercomputer for Lattice-QCD & to Achieve First Place in Green500*.



Figure 13: PRACE Staff at ISC15

PRIDE 2015

Project Information and Dissemination Event 2015 (PRIDE) [68] was held in Opatija, Croatia as a part of the 38th International Convention MIPRO 2015 from 25-29 May 2015. MIPRO [69] is a big international convention (more than 1 000 participants from 30 – 40 countries) dedicated to information and communication technology, electronics and microelectronics. More than 370 papers from 38 countries were presented at 10 conferences. PRACE, among

other research infrastructures and projects, was represented with a booth where the activities and results of the project were presented.



Figure 14: PRACE Booth at PRIDE (left). Alison Kennedy, PRACE aisbl giving a presentation at ICT2015 (right)

ICT 2015

The ICT 2015 - Innovate, Connect, Transform [70] event was held on 20-22 October 2015 in Lisbon, Portugal. PRACE organised a networking session *"High Performance Data Analytics to conquer Europe"*. Experts from the fields of HPC, data analytics, infrastructures and archiving, representatives from scientific user communities, government officials, representatives from European projects on related topics joined the session and participated in an active discussion about HPC data analytics after the presentations given by international HPC and Big Data experts.

SC 2015

The Supercomputing Conference (SC) [67] is the main HPC event that brings together the international supercomputing community on a global level. The exceptional program and the exhibition guarantee high number of visitors from all over the world.

In 2015, this event was held in Austin, Texas in the United States. PRACE represented the European HPC infrastructure with a booth where visitors found information about PRACE activities and results. Mini-presentation highlighted interesting topics like training, women in HPC and PRACEdays16. Over 550 visitors had the chance to try out the car racing game called ParallelRACE and could join PRACE Treasure Hunt in order to win valuable prizes.



Figure 15: PRACE Staff at PRACE booth at SC15

Future events

Preparations are already underway for the PRACE presence at ISC2016 in Frankfurt 19-23 June 2016. The Events team has developed the booth layout and the design is about to be finalised. The booth activities will focus on short presentations that will be held multiple times a day.

PRACE will also be represented at SC16 in Salt Lake City, Utah in the United States 13-18 November 2016.

3 Brand Image and Identity

Task 3.2, Brand Image and Identity aims to ensure that visibility of PRACE as the European HPC Research Infrastructure is strengthened through strong branding, and clear and consistent corporate image and identity. This task is designed to support the Research Infrastructure into its next phase, PRACE 2.

The task consists of four sub-tasks:

- Task 3.1 Corporate Identity Manual & Design
- Task 3.2 Promotional Material
- Task 3.3 Database Management
- Task 3.4 Transition Report

3.1 Corporate Identity Manual & Design

A corporate identity manual or brand book is a set of rules and guidelines relating to the brand identity of an organisation and the communication of that brand. The proposed PRACE corporate identity manual was intended to consist of approved messaging including text,

logos, slogans, images, colours, and style guidelines that reflect PRACE and the messages it wishes to convey to its stakeholders.

However, in response to the on-going negotiation of PRACE 2 (internal notation for the continuation of PRACE's activities for the second phase of its development), it has been established that refining and defining PRACE messaging and core imagery during the PRACE-4IP project is premature, as it is subject to change once PRACE 2 has been agreed.

As an alternative, in this reporting period a draft PRACE style guideline was produced which outlines guidelines for writing in "PRACE style" and outlines rules for using existing PRACE colours and visuals. A glossary of common HPC and PRACE terminology was also developed along with a word cloud. The language guide is based on the EU English Style Guide [37] with some deviations specific to PRACE. Once refined and approved, this style guide will be disseminated among the PRACE partners and used to create and review texts and imagery issued by PRACE or in the name of PRACE.

For new visuals and standard imagery, an incremental approach has been adopted, as can be seen in the dissemination task (Section 2). Incremental changes to current designs have and will be made as needed and additional graphic design completed whenever a certain dissemination material or graphical asset (e.g. PRACE brochure, posters, etc.) needs updating. Component parts will be made available for future design tasks and in this way a library of more current imagery will be produced. This process of incremental changes will be augmented by requests for specific templates (e.g. Power Point slides) and will replace the initial plan to bundle all requests together and do a full tender for a suite of templates.

The outcomes will improve upon and enlarge the existing PRACE imagery and style guide.

3.2 Promotional Material

The goal of the promotional material sub-task is to order, store and supply appropriate high-quality giveaways and promotional materials for PRACE conferences, exhibitions and outreach and training events. Key factors of choosing the suppliers are: price, quality and delivery times.

PRACE promotional material features PRACE core imagery and messaging, as outlined in the interim style guidelines included in PRACE-4IP D3.1 [1].

Promotional material is ordered, stored and shipped by the Research Institute for Symbolic Computation (RISC), Austria. Sub-task leaders or PRACE Advanced Training Centres (PATCs) coordinators request promotional material by email and subject to stock levels; requests are fulfilled within two weeks. In the case of large events, individual giveaways are produced with an appropriate lead-time. At the start of the project, investigation was conducted into appropriate delivery services and Dynamic Parcel Distribution (DPD) [39], was chosen as the provider.

In the reporting period, there were two main large orders to stock the warehouse with standard promotion materials and several smaller orders for special events and conferences. Furthermore, there were approximately 30 requests for promotional materials for PATC, trainings or other events.

For all items, at least three suppliers were approached to provide a quote. This was to facilitate the comparison of price and quality. Orders are outlined below:

Standard promotional materials ordered:

- 6 000 Pens

- 3 000 Lanyards
- 3 000 USB sticks
- 3 000 A5 pads
- 2 500 PRACE brochures

Special promotional materials ordered for events

- Approximately 745 T-Shirts
- 300 neck pillows
- 1 000 buttons with pins
- 500 neck pillows



Figure 16: PRACE Pen



Figure 17: PRACE USB

3.3 Database Management

The PRACE Customer Relationship Management (CRM) is a database, which stores contact details from those who have consented to contact from PRACE. The information stored for each contact includes general details such as their title, full name, position, email address, institution for which they work and country of their institution along with some relative metadata.

During the first 15 months of the PRACE-4IP project, activity in this task took place under two main headings:

- Maintenance and use of the CRM
- A search for a new and alternative CRM system

Maintenance and use of the CRM

Maintenance of the CRM involves the management of the PRACE contact details. New contacts whose details were gathered through registration and attendance of PRACE events – such as PRACEdays, PRACE training events, registering to be part of PRACE mailing lists and visiting the PRACE booth at conferences such as ISC/SC were added to the CRM. Between February 2015 and March 2016 the number of CRM contacts grew from 8 360 to 9 712.

Contacts whose details are no longer valid or who no longer wish to have their details stored were removed from the CRM database and those contacts whose contact details changed had their records altered.

During the past 15 month the PRACE CRM has also been used on 15 different occasions to send emails to all PRACE contacts to inform them of PRACE events, news and related activities.

The details and metadata of the stored contacts have also been useful in the creation of useful PRACE contact statistics. An example of this is the following:

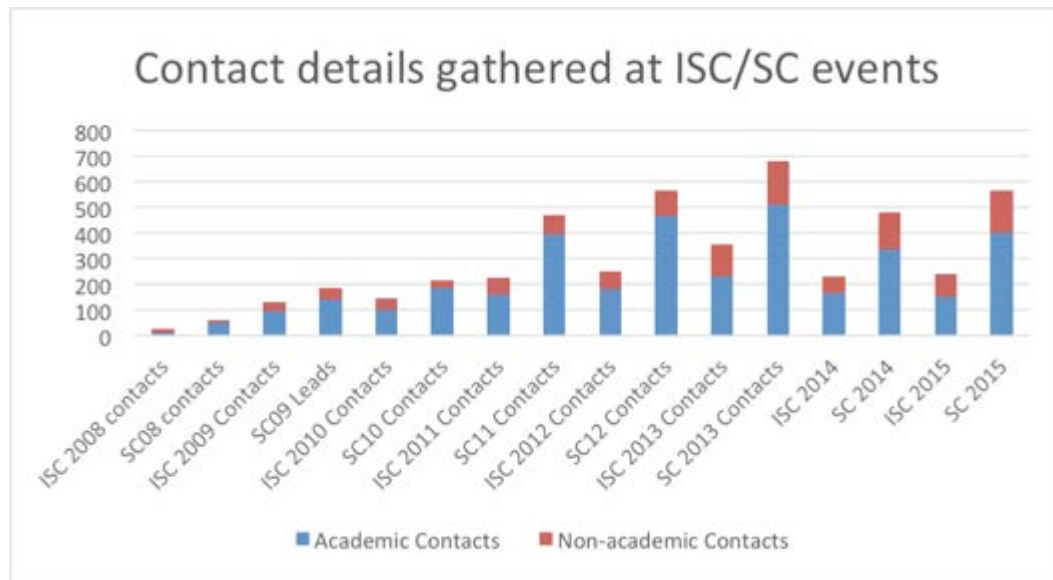


Figure 18: PRACE CRM Contacts

Alternative CRM

The PRACE CRM currently uses SUGARCRM [71] as the platform upon which it runs. This has fully covered the requirements of a CRM system so far – mainly the maintenance of a contact database and mass mailing capability of HTML based messages. However, the services it offers are somewhat limited and thus a new set of CRM requirements were drawn up by WP3 for the search of new CRM software.

These set of requirements included the ability of email tracking which can provide statistics such as which contacts opened an email and tracking of links followed by contacts.

After an online search for alternative software Mailchimp [45] was found to be the most suitable. Although Mailchimp is not a CRM but an online email marketing service, it was found to best satisfy WP3's requirements.

Currently, a move to Mailchimp or similar service is being investigated with particular emphasis on data protection issues. Once finalised, a steady and stable transition from SUGARCRM to Mailchimp or similar service will occur.

3.4 Transition Report

The transition report task aims to provide a report on all essential activities of PRACE-4IP WP3 and details on how to transition those tasks to the PRACE aisbl or a subsequent PRACE project.

Consequently, effort in the Transition Report task is back-loaded to the end of the PRACE-4IP Project and the majority of this task will be completed in the next reporting period. However, in this reporting period, activities, which need to be included in such a transition plan, have been identified as:

- The PRACE website now hosted at Centre Informatique National de l'Enseignement Supérieur, France (Cines), and Training Portal now hosted at Computation-based Science and Technology Research Centre, Cyprus (CaSToRC)
- The CRM system hosted at CaSToRC
- The PRACE Summer of HPC, currently managed by University of Ljubljana, department of Mechanical Engineering (ULFME), blog hosted by the Irish Centre for High-End Computing (ICHEC).
- The PRACE social media accounts including HootSuite (currently managed by RISC)
- The PRACE Digest
- PRACE's presence at ISC and SC
- PRACEdays – the PRACE Scientific and Industrial Conference
- Storage, shipping and production of promotional materials and publications

4 Outreach

The principal objective of the outreach task in PRACE-4IP is to enlighten the general public and the next generation of HPC users on the benefits of HPC and its ability to address society's grand challenges. It also aims to encourage the younger members of our society to work in the area of supercomputing.

These objectives are addressed through four sub-tasks:

1. **Summer of HPC (SoHPC):**
A summer internship programme for undergraduate and junior postgraduate students at HPC centres across Europe
2. **Videos:**
Videos illustrating HPC and PRACE activities
3. **Science Fairs and Museums:**
Hands-on exhibits at science fairs and museums designed to engage and inform the general public and students about HPC
4. **Factsheets:**
A set of 4-page A4 flyers with easily digestible information about HPC and PRACE that can be combined to provide information to a variety of PRACE stakeholders

4.1 Summer of HPC

The PRACE Summer of HPC (SoHPC) outreach programme continues the successful SoHPC pilot programme started in 2013 and light edition of SoHPC 2014 completed in the no cost extension to the PRACE-3IP project. Each year the programme prepares projects at up to ten PRACE HPC member sites, which are completed by students under the mentorship of Project Mentors. Each site nominates a Site Coordinator who is responsible for the day to day running of the programme on site.

Summer of HPC projects are related to PRACE technical and other PRACE work with emphasis on visualisations that students may prepare as an outcome of each project. Attention is given to outreach aspects of the programme, which aims to introduce future engineers and scientists to HPC and its applications in the modelling and simulation of natural and man-

made objects and processes, thus inspiring them to engage with HPC in their future careers. Outreach is conducted through social media activities and a blog on the PRACE Summer of HPC website [49]. Students contribute posts during the summer, while they complete their projects and attempt to engage their peers and the general public in discussion about HPC and its applications. Further outreach and interest in HPC is created through the *PRACE HPC ambassador* and *Best visualisation* awards that are presented at the end of each year's programme. A training week is also provided to give participants an introduction to PRACE, HPC and visualisation. The goal of the SoHPC programme is to ensure a positive experience for all students and encourage them to become HPC users in future and by example show what can be achieved. Visualisations created by students are available to PRACE for further outreach and dissemination activities.

Timeline and current status

Preparations for SoHPC 2015 edition started in November 2014, by establishing programme coordination bodies and preparing timeline for immediate announcement at the start of the PRACE-4IP project. Leon Kos, ULFME, Slovenia and Emma Hogan, ICHEC, Ireland carried out the coordination of SoHPC 2015 with support for student selection coordination by Karina Pešatova, IT4Innovations, Czech Republic and student outreach support by the Faculty of Information Studies (FIS), Slovenia. The timeline for SoHPC 2015 is shown in first column of Table 4. In 2016, the same team undertook the coordination with additional effort from ULFME on student outreach support. The timeline for 2016 is shown in column 2 of Table 4.

SoHPC 2015	SoHPC 2016	Milestone
01 December 2014	01 December 2015	Call for participation and project proposals
15 January 2015	05 January 2016	Programme announced
01 February 2015	05 January 2016	Projects are available for preview
20 February 2015	13 January 2016	Application starts
08 March 2015	31 January 2016	Application closes
15 March 2015	19 February 2016	Application closes (extended)
22 March 2015	26 February 2016	Recommendation deadline
23 March 2015	03 March 2016	Review starts
30-31 March	22-23 March 2016	Consensus meeting
01 April 2015	25 March 2016	Student invitations and survey
03 April 2015	28 March 2016	Student acceptance/reserves, rejects deadline
29 June 2015	3 July 2016	Training week starts
06 July 2015	11 July 2016	Participants start with projects at sites
21 July 2015	21 July 2016	Week 3 Plan submitted
25 August 2015	25 August 2016	Final Report submitted
27 August 2015	29 August 2016	Presentations
31 August 2015	31 August 2016	Programme ends
15 December 2015	October 2016	Awards Ceremony

Table 4: PRACE Summer of HPC 2015 and 2016 timeline

The SoHPC programme covers travel, accommodation and living costs for student placement at HPC sites around Europe. For that purpose the budget is divided among SoHPC sites by following Country Correction Coefficients from Marie Skłodowska-Curie actions [51].

Project Selection

Calls for SoHPC 2015 and SoHPC 2016 participation and proposals resulted in Table 5, where 20 projects [52] for SoHPC 2015 and 21 projects [53] for SoHPC 2016 in total were evaluated by the programme coordinator who worked with sites to ensure they met required criteria.

Country	Organisation	SoHPC 2015	SoHPC 2016
Czech Republic	IT4Innovations	3	2
Cyprus	CaSToRC	2	2
Germany	JSC	2	2
Greece	GRNET	0	2
Hungary	NIIF	2	0
Ireland	ICHEC	2	2
Italy	CINECA	2	2
Slovakia	CC SAS	0	2
Slovenia	ULFME with FIS	2	2
Spain	BSC	2	2
UK	EPCC	3	3

Table 5: Summer of HPC 2015 and 2016 Project proposals overview

Mentors were required to prepare viable timeline for projects proposed with adaptation measures of the difficulties in order to tailor the project to participant ability. In SoHPC 2015 co-mentors were introduced and required by each project to assure full support to students during their placement in July and August and to ensure holiday cover. Each HPC site, led by a site coordinator was required to host at least two projects and students. A list of SoHPC projects with mentors and site coordinators for 2015 is shown in Table 6 and for 2016 in Table 7.

Country	Full Project Name	Mentor	Site Coordinator
Czech Republic	ESPRESO API For ParaView Catalyst to perform In situ Analysis	Tomas Brzobohaty	Karina Pesatova
Czech Republic	Modelling of Wi-Fi signal propagation using the boundary element method	Tomas Brzobohaty	Karina Pesatova
Czech Republic	Medical image segmentation and visualization	Lubomir Riha	Karina Pesatova
Cyprus	Hybrid CPU-GPU implementation of deflation in the linear solver for lattice QCD	Giannis Koutsou and Constantia Alexandrou	Constantia Alexandrou
Cyprus	Optimal deflation in the linear solver for lattice QCD	Giannis Koutsou and Constantia Alexandrou	Constantia Alexandrou
Germany	A Fast Multipole Toolbox for GPU cluster	Andreas Beckmann	Ivo Kabadshow
Germany	Marking Quarks phli further	Stefan Krieg	Ivo Kabadshow
Hungary	Visualization and GPU Performance Analysis of PRACE material Science Community Code: Quantum Espresso	Gabor Roczei and Tamas Hornos	Tamas Hornos
Hungary	Visualization and CPU Performance Analysis of PRACE Material Science Community Cods: Siesta	Gabor Roczei and Tamas Hornos	Tamas Maray
Ireland	Enabling Real-Time Visualisations of molecular Dynamics Properties in DL_POLY_4 (Proof of Concept)	Alin Elena and Michael Lysaght	Simon Wong
Ireland	Interactive Manipulation of Weather Regimes during Continuous Climate Simulations	Paul Nolan and Enda O'Brien	Simon Wong
Italy	Exploring Mars Surface – 3D Visualization of post processed MARSIS data	Roberto Orosei	Massimiliano Guarrasi
Italy	Visualization tool for olfactory bulb data	Michele Migliore	Francesca Delli Ponti
Slovenia	Parallel boundary point method	Janez Povh	Leon Kos
Slovenia	Using Open Source CFD (OpenFOAM) for turbulence modelling of deferent wall-bounded flow regimes	Marijo Telenta	Leon Kos

Spain	Collaborative interface for in-situ visualization and steering of HPC molecular dynamics simulations	Fernando Cucchietti	Maria Ribera Sancho
Spain	Graphical interface for real time monitoring, automatic event detection, and alert triggering in HPC parallel software	Fernando Cucchietti	Maria Ribera Sancho
UK	Developing the user interface for the Fluctuating Finite Element Analysis (FFEA) tool	Toni Collis	Catherine Inglis
UK	An "HPC Cluster Challenge" app for public outreach	Nick Brown and Amy Krause	Catherine Inglis
UK	Implementing MPI parallelisation in a the Fluctuating Finite Element Analysis (FFEA) tool	Toni Collis	Catherine Inglis

Table 6: Summer of HPC 2015 project mentors and site coordinators

Hosting site and country	Full Project Name	Mentor	Site Coordinator
BSC, Spain	Visualization data pipeline in PyCOMPSs/COMPSs	Fernando Cucchiatti	Maria Ribera Sancho
BSC, Spain	Development of sample application in PyCOMPSs/COMPSs	Rosa Badia	Maria Ribera Sancho
CaSToRC, Cyprus	Topological susceptibility by direct calculation of the eigenmodes	Constantia Alexandrou	Stelios Erotokritou
CaSToRC, Cyprus	Mixed-precision linear solvers for lattice QCD	Giannis Koutsou	Stelios Erotokritou
SAS, Slovakia	Calculation of nanotubes by utilizing the helical symmetry properties	Jozef Noga	Lukáš Demovič
SAS, Slovakia	Apache Spark: Bridge between HPC and Big Data?	Michal Pitoňák	Lukáš Demovič
CINECA, Italy	In Situ Visualization of Navier-Stokes Tornado Effect	Paolo Lazzari	Massimiliano Guarrasi
CINECA, Italy	In Situ or Batch Visualization of biogeochemical state of the Mediterranean Sea	Sandro Frigio	Luigi Calori
EPCC, UK	Parallelising Scientific Python applications	Neelofer Banglawala	Catherine Inglis
EPCC, UK	Weather forecasting for outreach on Wee Archie supercomputer	Nick Brown	Catherine Inglis
EPCC, UK	Smartphone Task Farm	Amy Krause	Catherine Inglis
GRNET, BRFAA, Greece	Re-ranking Virtual Screening results in computer-aided drug design	Zoe Cournia	Ioannis Liabotis
GRNET, BRFAA, Greece	Molecular Dynamics simulation of the E545K PI3Ka mutant	Zoe Cournia	Ioannis Liabotis
ICHEC, Ireland	Visualisation of fluids and waves	Adam Ralph	Simon Wong
ICHEC, Ireland	Development of a Performance Analytics Dashboard	Michael Lysaght	Simon Wong
IT4Innovations, Czech Republic	Visualization of real motion of human body based on motion capture technology	Petr Strakoš	Karina Pešatová
IT4Innovations, Czech Republic	Journey to the centre of the human body	Milan Jaroš	Karina Pešatová

JSC, Germany	Shape up or ship out – You decide!	Andreas Beckmann	Ivo Kabadshow
JSC, Germany	Phine quarks and cude gluons	Stefan Krieg	Ivo Kabadshow
UL, Slovenia	The CFD devil is in CAD details	Marijo Telenta	Leon Kos
UL, Slovenia	Link prediction in large-scale networks with Hadoop framework	Andrej Kastrin	Leon Kos

Table 7: Summer of HPC 2016 project mentors and site coordinators

Application Process and Student Selection

In 2015, concrete implementation of the application process waited until official approval of PRACE-4IP start with backdating, while in 2016 the application process began promptly in the New Year.

In both years, project information was presented on the PRACE SoHPC website, alongside frequently asked questions, eligibility information, information on how to apply and a link to the application page. The opening of applications was advertised on the PRACE website, through PRACE and SoHPC social media (including advertising campaigns see section 2.3.4), and through a PRACE CRM mailing.



Figure 19: Summer of HPC 2015 and 2016 flyer

A flyer, shown in Figure 19 was emailed to PRACE-4IP members with a request to forward to contacts in universities. Figure 20 illustrates how participants in 2015 became aware of the programme.

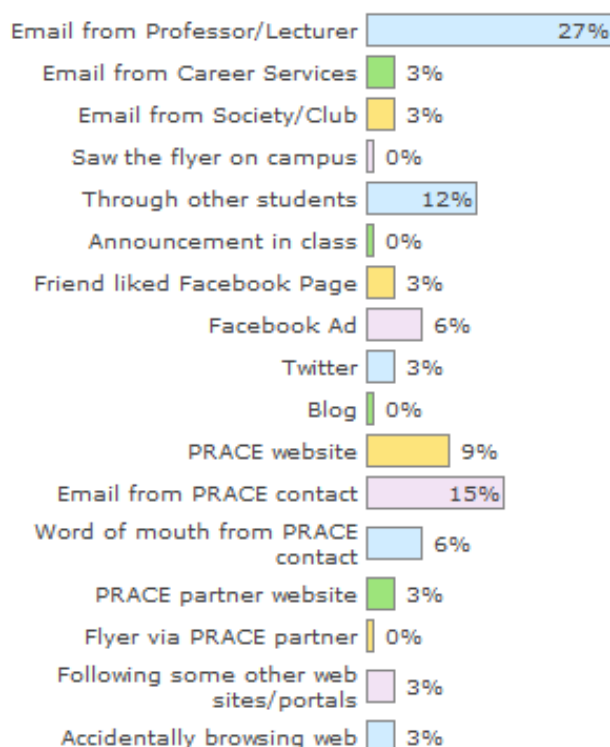


Figure 20: SoHPC 2015: Survey on how the students became aware of the programme

The most successful ways of reaching applicants were through professors/lecturers, through emails from PRACE contacts and through other students.

80 applications were received in 2015 and 110 application in 2016. Applications consisted of contact information, CV, nominated referee, code test and statements of motivation.

Applicants were also given the opportunity to select their top three projects. The distribution of applicants to the 2015 programme by location of study with Italy, Ireland, Turkey, Spain and Greece/Germany (tie) making up the top 5 is show in Figure 21.

At the close of applications, an eligibility review was conducted; references for each applicant sought and eligible applications were distributed to reviewers. Each application received two reviews and was graded on motivation, potential to be a PRACE HPC ambassador; technical ability and if they met desired project prerequisites. The student selection panel, consisting of project mentors, site coordinators and the SoHPC coordination team met to evaluate applications and assign applicants to projects. In keeping with the outreach goal of the programme representation across country of study, level of study and gender was sought.

For the 2015 programme, 20 students from 13 countries were selected including four female participants. They ranged in age from twenty to thirty and came from across undergraduate and postgraduate levels in a variety of disciplines. The 2016 programme has selected 21 participants, and is currently in the process of itinerary arrangements for the training week in Juelich and placement on HPC sites. In 2016, participants represent 12 countries, range in age from 21 to 28, include seven female participants and come from disciplines across science, technology and mathematics.

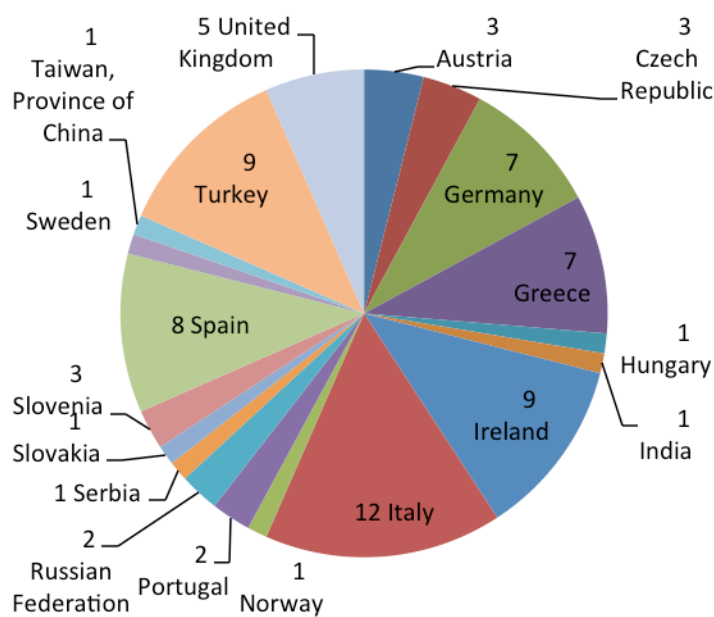


Figure 21: Summer of HPC 2015 applicants by country

Training week

The PRACE SoHPC training week introduces participants to HPC, PRACE and the SoHPC programme and provides training in HPC, outreach and visualisation. Team building is also an important part of the week.

Training week 2015 took place in Barcelona Supercomputing Center in Spain. The programme [54] included an introduction to PRACE, SoHPC and Social media, a visit to the MareNostrum Supercomputer, an introduction to HPC and MPI (Message Passing Interface, a parallel message passing system) [76], a Performance Analysis and Prediction session, training in visualisation tools ParaView [78], VisIt [79] and OpenGL [80] and an introduction to OpenMP (Open Multi-processing, an application programming interface that supports multi-platform shared memory multiprocessing) [77].

Due to the timing of SoHPC16, it was possible to plan the programme well in advance and therefore, a call for participation for training week in 2016 was issued. The programme coordinator received several proposals for organisation of the training week. Criteria were established, and the selection committee consisting of the programme coordinator and PRACE-4IP WP3 co-lead selected Juelich Supercomputing Centre (JSC), Germany, to organise the training week in 2016. Planning is ongoing and SoHPC training week will take place between 4 and 8 July 2016. A tentative programme is available online [56].



Figure 22: SoHPC15 Participants at Training Week at BSC

Social Media and Blog Outreach

As the goal of SoHPC is outreach, there is a particular emphasis on social media and the blogs written by the participants. Participants are required to write at least 3 blog posts for the SoHPC website, which must highlight the project they are working on and the host site they are working with. Participants are encouraged to share this on their personal social media and it is of course promoted on the official SoHPC social media.

The SoHPC website [7] received 68 675 page views from 15 821 users during 2015. Peaks of visits occurred during February/March 2015 during the application window and July/August 2015 when students were blogging. Views from 143 countries were recorded with Italy, the United States, Germany, Spain and Slovenia comprising the top 5 countries with approximately 45% of total views.

The PRACE SoHPC Twitter account [81] has 232 followers and has tweeted 210 times. During student placements 1 July – 31 August 2015, the SoHPC account tweeted 18 times and earned 15 300 impressions.

The PRACE SoHPC Facebook Page [8] has 1 067 likes and during the July/August 2015 reached an average of over 500 people a week.

In 2015, the PRACE SoHPC YouTube Channel [27] received 10 611 views, 186 likes and 65 shares. Peaks in views were observed in August and September 2015, once participants' videos were posted.

The combined SoHPC Social Media mix has been very successful and has reached in excess of 25 000 individuals in 2015. It is anticipated that similar numbers will be reached during 2016.

Award ceremony

The PRACE SoHPC participants compete for two awards during their placement, the *PRACE HPC Ambassador Award* which is presented to the participant who best embodies the outreach spirit of the programme and the *PRACE SoHPC Best Visualisation Award* which is awarded to the participant who produces the best visualisation.

In 2015, Alberto Garcia Garcia and Simons Kazantzidis were awarded the *PRACE HPC Ambassador* and *PRACE SoHPC Best Visualisation Award* by Oriol Pineda, Member of the PRACE Board of Directors at an award ceremony in BSC, Spain.

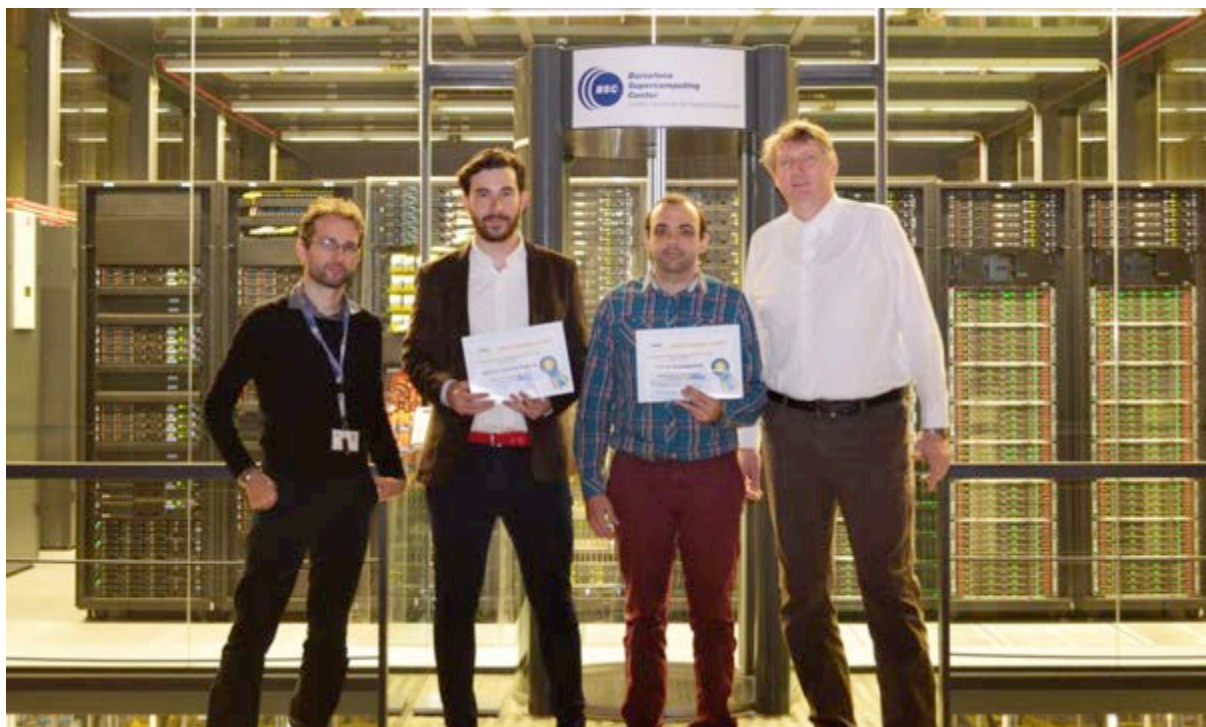


Figure 23: PRACE Summer of HPC 2015 Award winners (centre), Oriol Pineda, PRACE Member of the Board of Directors (left) and Leon Kos, University of Ljubljana, PRACE (right)

Alberto and Simons each received €1 500 towards attending a HPC related conference or training event, a SoHPC Award Trophy and Award Certificate.

For the 2016 awards ceremony, expressions of interest were sought from SoHPC sites and after an evaluation process, CINECA, Italy were chosen to host the ceremony in October/November 2016.

Next Steps SoHPC 2016

Selected participants have received placement offers for Summer of HPC 2016. Over the coming weeks, the participant list will be finalised and travel and accommodation will be booked for 21 students at the 10 sites across Europe.

Preparations for training week are underway and it will take place 4 to 8 July 2016 in JSC, Germany. Participants will begin their projects at their placement site on 11 July 2016.

4.2 Videos

Video is a powerful tool for communication of PRACE messaging and to raise awareness about PRACE and HPC in Europe. The main objectives of the PRACE video task are:

- To bring knowledge about particular HPC topics to a large audience
- To promote existing PRACE social media channels, especially, the YouTube channel (and increase its subscribers)
- To promote PRACE outreach activities such as Summer of HPC and science fairs and museums
- To promote PRACE scientific and industrial results

In order to have consistency of all videos in one single place, all PRACE videos will be posted on the PRACE YouTube channel [23]. The social media team has organised this channel with all PRACE existing videos. This will allow the embedding of videos on websites, in press releases, in the PRACE newsletter, via social media channels, etc. The video team is responsible for providing content to feed this channel and increase its subscribers.

An internal working procedure has been put in place in order to define responsibilities and tasks. This procedure covers the creation of a video from idea, through development and validation of the storyboard or script, via video recording and editing, to final approval until the posting on the YouTube channel.

A single provider will produce all videos: Vision Communications [44]. This guarantees the consistency of the brand identity in all videos, as well as coherence in structure and content.

From February 2015 to April 2016, the following videos were developed:

Title	Description
PRACEdays15 videos [46]	8 videos to promote this event including a highlight video and several interviews.
PRACE Summer of HPC 2015 [47]	A video to promote the programme Summer of HPC 2015 as well as its training week organised in Barcelona.

Table 8: List of PRACE Videos February 2015 to April 2016

The plan for videos in the next reporting period includes the following:

Title	Description	Calendar
Outreach video		Tbd
Training video	The aim of this video is to promote all training activities where PRACE has a role.	April 2016
PRACEdays17	The promotion on this event is key as it is the central conference for PRACE.	May 2016
PRACE in industry	The promotion of the European HPC infrastructures in companies and its industrial applications is key for the future of HPC.	November 2016

Table 9: PRACE Video Plan until November 2016 / end of 2016

4.3 Science Fairs and Exhibitions at Museums

In the sub-task Science Fairs and Museums, outreach events targeted at school age children and the general public are organised. In collaboration with a PRACE partner acting as local host, the PRACE RI is presented at local science fairs and museums. The aim of these

outreach events is to inform and inspire the next generation of HPC users about Science, HPC and PRACE.

To achieve this, exhibits, games and demos that highlight the applications of supercomputers and HPC to the audience are used. These exhibits are often products of other PRACE outreach activities such as the Summer of HPC and the PRACE Dare to Think the Impossible campaign. PRACE showcase the use of supercomputers in astrophysics with the Shooting Stars games, in engineering and aerodynamics with a car racing game ParallelRACE and in palaeontology with a Dinosaur Racing game, the later two of which are a product of the PRACE Summer of HPC programme. Other exhibits provided by the local partners are also utilised.

During the reporting period PRACE was represented at four science fairs and three science museums.

Science fairs attended

- 14 – 15 May, 2015, Sofia, Bulgaria, Sofia Science Festival
- 6 – 9 January, 2016, Dublin, Ireland, BT Young Scientist and Technology Exhibition (BTYSTE)
- 16 – 19 March, 2016, Birmingham, UK, Big Bang Fair
- 22 April, 2016, Hagenberg, Austria, Long Night of Science

Exhibitions in museums

- 24 – 25 October, 2015, Košice, Slovakia, Slovak Technical Museum
- 27 – 28 November, 2015, Ostrava, Czech Republic, Science and Technology Center Ostrava
- 5 – 6 March, 2016, Helsinki, Finland, Heureka Science Park

Sofia Science Fair

The Sofia Science Festival took place in Sofia, Bulgaria from 14 - 17 May 2015. The science festival was created in 2011 by the British Council and the Forum Democrit, and under the patronage of the Bulgarian Ministry of Education and Science, has attracted a large number of supporters each year. It provides a space where there is no dividing line between culture and science.

Throughout the four days of the festival, 65 events on three stages took place and 30 booths in 13 pavilions in the Zaimov Park were presented. More than 70 young and established scientists from Bulgaria, Czech Republic, Italy, Ireland, Poland, Spain and UK presented and 6,500 people attended the stage-events.

In 2015, for the first time, supercomputers and supercomputing were presented at the festival by the Bulgarian National Center for Supercomputing Applications (NCSA) – the Bulgarian PRACE representative. A prime-time lecture *"Supercomputers - from the Nobel Prizes to the high-speed trains"* was presented. PRACE exhibited at a booth where the Shooting Stars and ParallelRACE PRACE games were available to play. In addition, a structured programme of PRACE-videos and posters, presenting HPC in Bulgaria, PRACE and Bulgarian participation in the PRACE project were on show. The booth was among the most popular places in the pavilions, with an estimated number of visitors of 1 000 with an additional 250-300 people attending the lecture. A booth digest was aired in the main news emission on bTV [72] – the biggest private media group in Bulgaria – on the opening day, 14 May.



Figure 24: Audience at the PRACE Booth at the Sofia Science Fair

BT Young Scientist and Technology Exhibition

In conjunction with the Irish Centre for High-End Computing (ICHEC), PRACE presented engaging, hands-on and educational exhibits at the BT Young Scientist & Technology Exhibition, held at the RDS in Dublin, Ireland between 7 and 9 January 2016. Primary and secondary schools students and members of the general public were introduced to PRACE, HPC and the many applications of supercomputing.

An estimated 50 000 visitors attended the event, where talented young scientists and technologists present projects and compete to be crowned BT Young Scientist of the Year. All attendees had the opportunity to visit the PRACE booth in the World of Science and Technology and were inspired by the engaging, hands-on demonstrations of the applications of HPC.



Figure 25: Students playing the Parallel Race Game at the BTYSTE

Visitors to the booth could try their hand at the PRACE ParallelRACE game, developed at IT4Innovations during the PRACE Summer of HPC or the PRACE Shooting Stars game, both of which illustrate common HPC applications and requirements of PRACE scientific and industrial users. Other exhibits included a presentation on the numerical simulation involved in weather and climate forecasting and a virtual crash-test dummy demonstration where students could simulate a crash-test dummy being struck by a projectile.

Big Bang Fair

The Big Bang Fair is the largest celebration of science, technology, engineering and maths (STEM) for young people in the UK. Held across 4 days the event saw over 70 000 people attend, the majority of whom were between the ages of 7-19. The first three days of the event were open to schools and saw schools from across the UK attend. The final day was open to the public. This event is the largest and most appropriate event in the UK to explain the relevance of supercomputing to young people and to encourage them to consider careers in computing and in computational science.



Figure 26: Students playing the Dinosaur Race game at the Big Bang Fair

ARCHER, the UK's National HPC system [73] had a booth at the event. One of the main demos on the booth was a dinosaur-racing demo, originally developed by a PRACE Summer of HPC student. The demo runs on Wee ARCHIE, a mini version of the ARCHER supercomputer. It is a portable cluster that is used to demonstrate applications and concepts of HPC to the wider public. The dinosaur demo runs in parallel and demonstrates key HPC concepts, as well as highlighting one of the scientific applications of supercomputing.

Long Night of Science

On 22 April 2016, the traditional Long Night of Science was held throughout Austria. In Hagenberg, RISC presented PRACE to visitors at a small booth. The visitors were mostly small children between the ages of 4 and 12, accompanied by their parents. Overall approximately 1 500 visitors learned about HPC and its use in scientific and industrial research and development. They had the chance to play the car racing video game ParallelRACE developed by the PRACE Summer of HPC students.

A guide and information about the PRACE booth is available online [48].

Slovak Technical Museum

Extrapolácie 2015 took place from 24 – 25 October 2015 in Košice, Slovakia. The main goal of the event was to inform the general public and young people especially about the history and present state of HPC and of computers in general in Slovakia. The main part of the event was an exhibition in the Slovak Technical Museum. The exhibition covered the development of informatics in Slovakia since its beginning in 1956 to the current HPC and network services and was complemented by many exhibits including the whole RPP-16 computer which was developed in Slovak Academy of Sciences (1965-1973) and was applied in many fields of industry in former Czechoslovakia. The present state of HPC in Slovakia was presented on a panel where SIVVP (Slovak infrastructure for HPC) project was introduced – this is the major infrastructure project in which five Slovak universities and SAS decided to cooperate and operate HPC sites available to all Slovak academic researchers. Special attention was dedicated to the most powerful component of SIVVP project – the Aurel supercomputer that is operated by Computing Center of SAS (CC SAS). Visitors could even run a sample application on the supercomputer and thus gain some insight to the work of scientists who use HPC devices on daily basis. Since Slovakia is a member of PRACE (where it is represented by CC SAS) a poster outlining the benefits of PRACE was displayed on the same spot. The exhibition was altogether visited by 1 748 visitors (including 53 groups of students).



Figure 27: Students visiting the exhibition at the Slovak Technical Museum

One of the satellite lectures was “*The present state and the future of HPC in Slovakia and in Europe*” by Lukáš Demovič from CC SAS and Martin Vaľa from Institute of experimental physics (IEP) SAS. The lecture took place on 29 September 2015 and was attended by approximately 30 researchers and students from SAS and universities. It took place in the IEP building and attendees could see one of the HPC clusters on the spot. The topics presented in the lecture were more advanced than general introduction and covered the hardware and software details of clusters in SIVVP, the most prominent applications that were computed on the devices and on how one can gain access to the clusters.

Apart from the SIVVP project a special focus was dedicated to an introduction to PRACE and benefits of Slovak membership for students and researchers. Students were invited to join some of the PRACE Seasonal Schools and PRACE Summer of HPC.

Science and Technology Center Ostrava

On 27 and 28 November 2015 a presentation on PRACE, supercomputers and HPC took place in the Science and Technology Center in Ostrava. This science museum was opened in September 2014 with the aim to popularise the subject of science, research and engineering branches to pupils, students and the general public in a fun and innovative way.

The visitors on the first day were mainly schools, whereas on the weekend whole families with children came to see the exhibition. In total, around 400 visitors were attracted by the two day presentation, which was composed of three interactive exhibits: the ParallelRACE car racing game that aims to explain the use of supercomputers and HPC for car design and manufacturing, the Shooting Stars game showing the simulations of astronomical objects and a Leap motion computer hardware sensor device that supports hand and finger motions as input for visualization of 3D biomedical data processed with HPC. A cluster made of Raspberry Pi cards was used to explain the means of parallel computing.



Figure 28: Children playing the interactive games at the Science and Technology Center in Ostrava

Heureka Science Park

CSC – IT Center for Science organised a supercomputer building weekend event at Heureka, Vantaa, Finland on 5 and 6 March 2016. The event was targeted to children and families and the general public. Anyone who wanted to sign up for the workshops had the chance to build a fully functional supercomputer, Sisunen ("Little Sisu") together with CSC experts. The event grew bigger than first planned with huge interest from inside and outside CSC, including the media, since this was the first time ever that a supercomputer was assembled or shown to general public.

Little Sisu was assembled from 10 Next Unit of Computing (NUC) Mini PC –units [74] and its peak performance was 3 100 gigaflop/s. Altogether Sisunen was assembled about 8-10 times over the weekend, including for the Science TV series Future of Finland. The youngest participants were 5 years old, oldest about 17 years of age. Approximately 600-700 people

came to see the event over the weekend and approximately 100 children came to build the supercomputer themselves along with their parents.

In the workshops children (of both school age and under) built and had a chance to try out a supercomputer under the guidance of CSC's experts. When Sisunen was complete, workshop participants had a chance test the system by, for example, running demos that demonstrate the power of supercomputers, programming complex tasks, and creating 3D models using open-source Blender software [75]. The computing power of Sisunen is many times that of a regular home computer. This was demonstrated using Mandelbrot (fractal visualisation), Game of life (cellular automaton where cells live, die or multiply depending on initial conditions), Blender and other demos.

In addition to building Sisunen, there was also a supercomputer-themed “game cave” with huge wall display where older children were able to show off their gaming skills with PRACE Shooting Stars game, a supercomputer-related game set in space. PRACE Rollup, pens and PRACE Dare to Think the Impossible campaign [57] materials were present. Best young players who reached the final level were given T-shirts and movie tickets.

There were activities also for younger members of the family. They could colour their own supercomputer or visualisations from science projects. There was also a Supercomputer guru quiz in which you could test, if you actually are a supercomputer guru, with PRACE related questions as well. All the participants took part in a raffle where movie tickets were awarded as prizes.

4.4 PRACE Fact Sheets

In PRACE-4IP a new task was added to the already existing list of communication and dissemination activities. It was foreseen that during the first 12 months of the project, 6-8 fact sheets would be produced. Following this plan the work was divided into two phases: first to produce the first set of most urgently required four fact sheets and once those were finalised to prepare the second set of fact sheets according to the needs at that time.

The first set of the fact sheets included following publications:

- What is PRACE?
- What is HPC?
- PRACE in Numbers
- PRACE for Society: How HPC helps you

The topics were agreed and work on drafting the text started immediately. Once a broad consultation and approval of WP3 members had taken place, an external company prepared the graphic design. After additional comments and feedback, the facts sheets were finalised and approved by the PRACE Project Management Office (PMO) and PRACE Board of Directors (BoD) at the end of 2015. In January 2016, the four documents were published on PRACE website [5].

While finalising the first set of fact sheets, the work on the second set began. Based on the needs and requests it was agreed that following additional four publications were be produced and published:

- PRACE for Industry
- PRACE Training and Education
- PRACE Success Stories
- PRACE Summer of HPC

By the end of January 2016, the text of all the remaining four documents were finalised and consultations had taken place with PRACE-WP3 and PRACE-WP4 team members (in respect to training and education) and with external experts and project Principle Investigators (in regards to success stories and project examples). In February and March the text went through very thorough proofreading and PMO and BoD approval. Finally the external company proposed a graphic design and included the narratives in the appropriate layout. Figure 29 demonstrates examples of the final publications.



Figure 29: PRACE Factsheets

All the fact sheets were published on PRACE website in the press materials section [5]. From January 2016, each PRACE partner could also request, if necessary, printed versions of those documents for all PRACE events, workshops, schools or conferences.

It is foreseen that during the remaining months of PRACE-4IP, those documents will be updated when required and that additional PRACE Success Stories may be written.

5 Conclusions

The results from the first fifteen months of PRACE-4IP WP3 have been outlined in this deliverable.

WP3 has successfully communicated the results of the PRACE-4IP project and promoted and publicised the activities and outputs of PRACE through press releases, news articles, a digest magazine, presence at high-profile events and PRACEdays15.

PRACE style guidelines have been drafted and will be refined and approved in the next reporting period. Consistent improvements in reach have been achieved in PRACE social media and through the PRACE CRM.

PRACE have engaged in successful outreach activities including the 2015 edition of the Summer of HPC, presence at four science fairs and three museums, and the production of factsheets and videos.

PRACE-4IP WP3 will build on this solid foundation in the next 12 months of the project delivering an additional digest magazine, presence at ISC16 and SC16, and the organisation of PRACEdays16 and SoHPC 2016.