



D4.1 First POP Dissemination and Training Report Version 1.0

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V0.2	Bernd Mohr	Further input and corrections from dissemination team
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Executive Summary

This report summarizes the dissemination, cooperation and training activities and events for the first 18 months of the second funded phase of the POP Centre of Excellence, POP2, from December 2018 to May 2020.

The project continued the successful POP branding and dissemination plan established by POP1¹. The dissemination team promoted project objectives, activities, and results via established dissemination channels, e.g. via 58 blog articles, 6 newsletters, 9 webinars, and numerous social media posts, and participated in key conferences and events including presenting 18 talks and posters. Four technical papers were accepted in peer-reviewed journals or conference proceedings. New categories POPCast, POP SME, and Tool Time for blog articles were introduced and the frequency of blog articles went up from two per month on average to three compared to POP1. Followers of our Twitter account increased by 85%, subscribers to our Newsletter by 60%, and offline views of our webinar presentations grew by 700%.

Training activities were also increased compared to POP1: in the reporting period, we organized two POP training events, co-organized another nine in cooperation with PRACE, other CoEs, and other organisations; contributed to three training events organized by other organisations, and performed two extensive internal POP analysts trainings. One was face-to-face and the other one was virtual based on video conferencing. Several training events planned for March to May 2020 were postponed due to the Covid-19 crisis and a Europe-wide supercomputer security incident. Three events were changed to online training based on video conference tools. Finally, we started to produce various self-study online training modules in the area of performance analysis and tools for beginners in cooperation with POP Work Package 2.

1. Introduction

This report summarizes the activities of the POP CoE Work Package 4 that is in charge of the general public dissemination and training activities for the first 18 months of the project (December 2018 to May 2020). The objective is to showcase the demonstrated gains achieved by the project service activities. In doing so, it will help Work Package 2 (Business Development and Sustainability) in attracting new potential customers.

In particular, the objectives of this Work Package are:

- To continue the successful POP branding established by POP1 by providing and maintaining material and tools for project dissemination, by disseminating project objectives, activities, and results via established and new dissemination channels, and by participating in key conferences and events.

¹ We will use the term POP1 to refer to the first phase of the POP Centre of Excellence, Oct 2015 to March 2018, Grant Agreement No 676553



- To identify and perform training activities in order to engage interested parties in the usage of the offered services and provide appropriate documentation.
- To cooperate with and support other EU H2020 CoEs and Projects to coordinate dissemination and training activities with FocusCoE, to support the governance of High Performance Computing Infrastructures.

In the following sections, we describe the Dissemination, Cooperation, and Training activities in detail.

2. Dissemination

In this area, the project continued the successful POP branding established by POP1 by providing and maintaining material and tools for project dissemination consisting of logo and other branding material, corporate design, public website, and printed material like flyers and brochures. These are documented in the POP1 deliverables D7.1 “[POP Promotional Plan](#)” and D7.2 “[POP Community Development and Marketing Tools](#)” available on the POP website (<https://pop-coe.eu/further-information/deliverables>). This enabled us to build on the successful branding and its awareness of POP1.

The dissemination team promoted project objectives, activities, and results via established dissemination channels (like blog articles, newsletter, webinars, and social media posts) and participated in key conferences and events.

The dissemination activities were guided by the original promotional plan defined in POP1. Key dissemination messages in all communication activities were refined using customer advocacy data from Work Package 3. They are summarized in the following table:

Target Audience	Dissemination Message	Dissemination Channels
Industrial HPC Users and Code Developers	<ul style="list-style-type: none"> • ROI through improved code and amount of savings • Increased competitiveness and market share • Faster time-to-solution 	Website (blog), social media, online press, newsletter, events, webinars
Academic HPC Users and Code Developers	<ul style="list-style-type: none"> • Better code performance or scalability • Ability to better explore parameter space and increase complexity 	Website (blog), social media, trainings, webinars
HPC Code Developers	<ul style="list-style-type: none"> • Importance of performance aware design 	Website (blog), social media, webinars, newsletter, publication



HPC Infrastructure and Service Centres	<ul style="list-style-type: none"> ROI through improved code performance 	Website (blog), social media, online press, newsletter, events, webinars
Standardization Bodies	<ul style="list-style-type: none"> Improved code performance 	Website (blog), social media, online press, newsletter, events

Table 1: Key Dissemination Messages

2.1 Adaption to new project phase

Once the second phase of the POP CoE started in December 2018, the changes in the basic project information, namely the new EC grant number and the changed name (“A Centre of Excellence in HPC” instead of “... in Computing Applications”) were updated for the

- Web server;
- LinkedIn, Twitter, and YouTube account information sections;
- Newsletter header and footer;
- Data Privacy Policy (<https://pop-coe.eu/contact/privacy-policy>);
- and in the POP project slide and deliverable templates.

These changes as well as descriptions of the new partners IT4I and UVSQ joining the project and the new tools they brought with them (MAQAO) were added to the website, to promotional material like the [project flyer](#), and the POP [Introduction](#) and [Advanced Introduction](#) slide sets available at the POP website (<https://pop-coe.eu/further-information>). These had to be updated again in February 2019, as the home organization of some project partners changed their logos.

We would also like to point out that dissemination activities (tweets, webinars, events) continued in the break between the first and second project phase from April to November 2018 in a “best-effort” (as unfunded) manner.

2.2 Website

We continued to use and maintain the main project website (<https://pop-coe.eu>) for overall presentation and dissemination of the project. At this website, interested individuals can find news regarding the progress and outcomes of the project. The website also includes the POP blog (see below) as well as the online archive for project and training material.

The basic page layout consists of a fixed header and footer and the always-visible menu bar on the left side, which provides quick-access to all parts of the website. It provides the same basic look-and-feel for all pages of the website (for example, compare Figures 1 and 2). The main landing page (shown in Figure 1) displays the overall mission, an introductory video about POP, a highlighted blog article, a “latest-news” sticker (in green, top right), links to the social media channels, and the latest tweets from the POP Twitter channel.



Figure 1: POP Main Website Landing Page

The design favors information and function over appearance, i.e., it focuses on quick and easy access to information rather than focusing on looking “nice” avoiding the use of large pictures and video content. This is considered important by the project members because we are a **technical** CoE with a focus on **performance**. Another important aspect of the design was to make it easily accessible for different devices (e.g. desktop computer, laptop, tablet, or smartphone).

The website is based on the Drupal Content Management System. The project coordinator (BSC) is hosting the system and the dissemination team located at Jülich Supercomputing Centre is managing it. A RSS feed system is set up to inform individuals about the latest updates of web pages.





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I'm not a robot

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Blog

15
MAY



15th POP User Webinar - Addressing Biomedical Challenges with High Performance Computing

CompBioMed is a European Commission H2020 funded Centre

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12
MAY



POPCast #2: The User Perspective

We are pleased to announce the release of our second POPCast, the interviews which shine

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28
APR



POPCast #1: The POP Centre of Excellence

The POP Team have been busy working on a series of interviews, or POPCasts! The interview

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24
APR



4th POP2 Project Meeting

On April 23 and 24, 2020 the partners of the POP CoE (Second Phase) wanted to meet in Ostrava, Cze

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02
APR



14th POP Webinar - Energy Efficient Computing using Dynamic Tuning

We now live in a world of power-constrained architectures and systems and power consumption repre

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06
MAR



POP Supports SMEs to get more out of their Investment in Parallel Software

High Performance Computing (HPC) is the engine that powers the digital economy.

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06
MAR



Cost Efficient HPC - Is your software wasting your time and money?

The emergence of cloud computing has revolutionized hi-tech business, but as technical po

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20
FEB



190x strong-scaling speed-up of HemeLB simulation on SuperMUC-NG

HemeLB is an open-source lattice-Boltzmann code for simulatio

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06
FEB



Tool Time: Measurement of External Libraries with Score-P

Very often scientific applications are using third-party libraries, e.g.

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23
JAN



13th POP Webinar - Guided Performance Analysis and Optimization using MAQAO

MAQAO (Modular Assembly Quality Analyzer and Optimizer) is a performance analysis and optimization

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Tags

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15 MAY
[15th POP User Webinar - Addressing Biomedical Challenges with High Performance Computing](#)

12 MAY
[POPCast #2: The User Perspective](#)

28 APR
[POPCast #1: The POP Centre of Excellence](#)

24 APR
[4th POP2 Project Meeting](#)

02 APR
[14th POP Webinar - Energy Efficient Computing using Dynamic Tuning](#)

1 2 3 4 5 6 7 8 9 ... [next](#) [last](#) »

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Figure 2: POP Blog

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2.2.1 Blog

Besides the website, another pillar for POP dissemination is the POP blog, (<https://pop-coe.eu/blog/>) integrated in the main POP website. It features articles about major project results and outcomes, reports from training and dissemination events, and other news items interesting to the HPC community. While the dissemination team writes most of the blog entries (based on the input provided by other project members), it also allows to publish news items and stories related to POP or about POP written by project externals, as blog entries can have a specified (visible) author. Blog articles are typically written in a more personal, sometimes even opinionated, style that is hopefully more attractive to the targeted audience than formal newsletters and press releases.

The blog also serves as an easily accessible news archive for the project. It allows people to look up specific subsets of articles based on tags via a special URL, e.g., <https://pop-coe.eu/blog/tags/sme> or via a tag cloud (see Figure 2, top right) or to easily browse them by (publication) time.

The categories **POPCast**, **POP SME**, and **Tool Time** were created for the second project phase. **POPCasts** are interviews conducted by the POP Work Package 2 team that shine a light on what the project does, how it does it, and all the benefits that can be brought to customer codes. **POP SME** are news and information especially targeting SMEs. Finally, **Tool Time** provides tips and hints for users of performance analysis tools.

For the categories **POPCast** and **Webinar**, the blog articles summarize the content of the interview or presentations, and include the recording as embedded video. If available, links to other material (e.g. the slides that were presented) are also included.

The following articles were published in the reporting period:

Events (22)

- [POP @ 5th ENES/ESiWACE workshop](#)
- [POP @ E-CAM CoE Workshop](#)
- [POP @ 30th VI-HPS Tuning Workshop](#)
- [POP @ Research Software workshop in London](#)
- [POP @ 31st VI-HPS Tuning Workshop](#)
- [POP @ 32nd VI-HPS Tuning Workshop](#)
- [POP @ EuroHPC Summit Week 2019](#)
- [POP @ HPCSE 2019](#)
- [POP @ Teratec Forum 2019](#)
- [POP @ PASC 2019](#)
- [POP @ ISC High Performance 2019](#)
- [POP goes Australia](#)
- [POP @ ANF Evaluation de Performance des Applications Scientifiques HPC](#)
- [POP @ ScalPerf'19](#)



- [POP @ CompBioMed2019](#)
- [POP @ EoCoE-II Performance Evaluation Workshop](#)
- [POP Performance Analysis Training and Dassault Systems BIOVIA](#)
- [POP @ 2019 International CAE Conference and Exhibition](#)
- [POP @ MNHACK19 \(2nd MareNostrum Hackathon\)](#)
- [POP @ SC19](#)
- [POP @ AdvCompBio 2019](#)
- [POP @ BioFIT 2019](#)

Webinars (9)

- [\[7\] Large-Scale Application Execution Performance Assessment](#)
- [\[8\] POP Case Study: 3x Speed Improvement for Zenotech's zCFD Solver](#)
- [\[9\] \[USER\] Exascale Matrix Factorization: Using Supercomputers and Machine Learning for Drug Discovery](#)
- [\[10\] \[GUEST\] Software for Linear Algebra Targeting Exascales \(SLATE\) Project](#)
- [\[11\] \[GUEST\] Implementing I/O Best Practices to Improve System Performance with Ellexus](#)
- [\[12\] \[USER\] The Successful Interaction of ChEASE and POP](#)
- [\[13\] Guided Performance Analysis and Optimization using MAQAO](#)
- [\[14\] Energy Efficient Computing using Dynamic Tuning](#)
- [\[15\] \[USER\] Addressing Biomedical Challenges with High Performance Computing](#)

POPCast (and SME) (3)

- [POPCast #1: The POP Centre of Excellence](#)
- [POPCast #2: The User Perspective](#)
- [POPCast #3: The Role of the POP Application Analyst](#)

POP SME (3)

- [IMPACT: POP improves the Performance, Efficiency, and Productivity of HPC Applications in Science and Industry](#)
- [Cost Efficient HPC – Is your software wasting your time and money?](#)
- [POP Supports SMEs to get more out of their Investment in Parallel Software](#)

Tool Time (12)

- [Instrumenting Code Regions Using the Intel Trace Analyzer and Collector Profiling Tool](#)
- [Automatic Calculation of POP Metrics Using Scalasca](#)
- [Installing and Managing HPC Software with Spack](#)
- [CubeGUI and its Plugins](#)
- [Measuring OpenMP Serialisation in Hybrid MPI and OpenMP Codes in Scalasca](#)
- [Do I scale?](#)
- [Tool Support for GPU Programming](#)



- [Create Filter for Score-P Measurement in a Snap](#)
- [Measurement of External Libraries with Score-P](#)
- [Tool Time: Profiling Parallel HDF5 using Darshan](#)
- [Tool Time: Instantaneous Parallelism in Paraver](#)
- [Tool Time: Using the Python Extrae API to Profile a Region of a Code](#)

Project News (8)

- [POP Project Restarted 1st December 2018](#)
- [POP partner profile: The Performance Tools team at UVSQ](#)
- [POP tool descriptions: UVSQ performance tools](#)
- [POP partner profile: IT4Innovations at VSB-TUO](#)
- [Our 2nd Round Kick-off Meeting](#)
- [2nd POP2 Project Meeting](#)
- [3rd POP2 Project Meeting](#)
- [4th POP2 Project Meeting](#)

Success stories (1)

- [190x strong-scaling speed-up of HemeLB simulation on SuperMUC-NG](#)

This means that in the first 18 months of the project 58 blog articles were published, or 3.2 articles per month on average (compared to 2.5 articles per month in POP1).

2.2.2 Other changes and enhancements

Beyond regularly updating the POP website with new material (new blog articles, news and event items, newsletters), and the update because of the start of the second funded phase of the project (see Section 2.1), there have been only a few other changes to the POP website.

- If new versions of the performance tools used in the POP project are released (once or twice a year), the performance tools documentation in the website section “Further information” is updated if necessary.
- In December 2019, before the EU CoE Cluster Review, we changed the main landing page to include an introduction video, and to display only one blog highlight (see Figure 1). Before that, the page displayed three blog highlights.
- From time to time, additional example performance assessment reports are added to the website; either when we considered them interesting or important, or when customers want to refer to them from their website or social media channels. In February 2020, a new section “Performance Reports” was added in the navigation menu, under “Customer Code List”. Before that, the list of example performance audits, performance plans, performance assessments, and proof-of-concept reports were part of the “Customer Code List section”, but this page got too long / extensive, so a new section was created.
- The section “Online Training” was added in the navigation menu under “Further Information” in May 2020. For more details, see Section 4.5.

2.3 Social media

Traditional social media channels like LinkedIn or Twitter, and the “News” section on the POP website are mainly used to notify readers and followers about new content published at the POP website or blog. This strategy allows the social media messages and news items to be short, with all details available and easily accessible at the blog site.



Figure 3: POP Twitter Channel

2.3.1 Twitter

Twitter is the established short message service and experience shows that HPC online news sites (like HPCwire and InsideHPC) typically follow HPC project tweets. When using Twitter, we have found that including images into tweets helps increase their reach, as it is more interesting and eye catching as well as posting mid-week and early in the morning to get the most views. As well as publishing new material related to the POP project, we use it to signal boost other projects, and articles that may be of interest to our markets. Reaching out to people and other projects on Twitter has helped us be more accessible and engaged with our community. Twitter is also a useful way to highlight the impact of the project and reach a wide audience of influencers; however, we have to be careful to balance self-promotion with other forms of content to ensure our followers remain.



The POP twitter channel **@POP_HPC** (https://twitter.com/POP_HPC), see Figure 3, currently has 790 followers, compared to 420 at the time of the POP1 final review in May 2018. The tweets earned about 12,500 impressions in total on average per month, compared to 8,500 during POP1. Twitter impressions are the number of times a tweet shows up in somebody's timeline. Top tweets get up to 2,000 to 3,500 impressions showing that our tweets reach beyond our own followers.

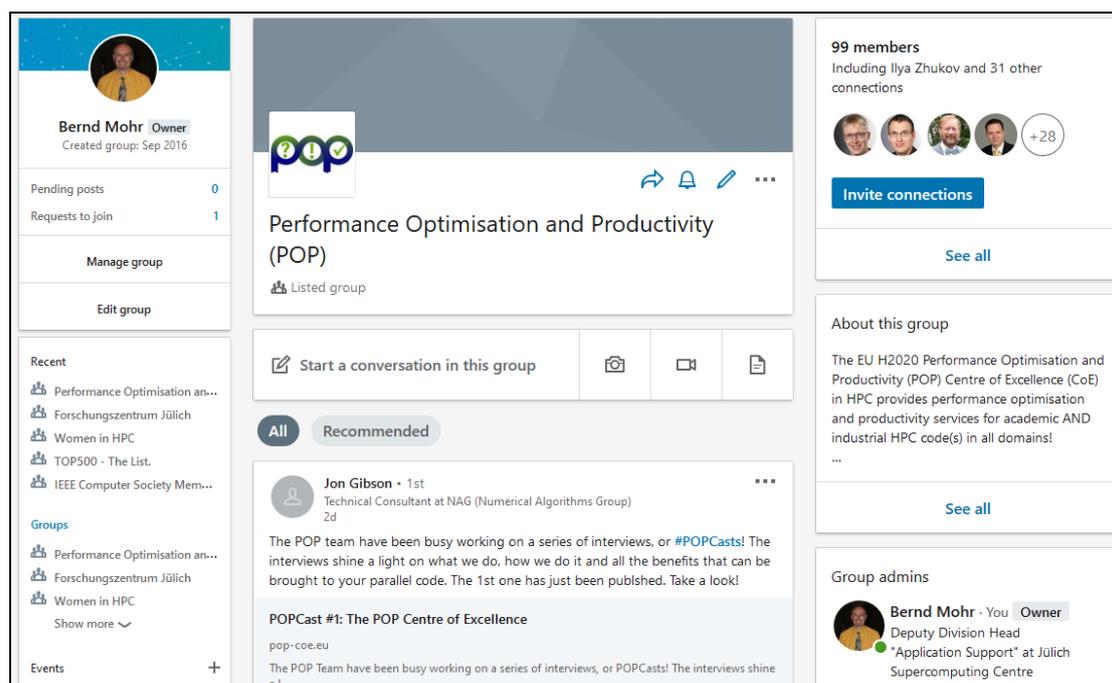


Figure 4: POP LinkedIn Group

2.3.2 LinkedIn

As a second social media channel, we use LinkedIn as it is clearly a professional social media channel compared to Facebook, which typically has a more private and personal news content. Like on twitter, we announce and post links to our webinars, newsletters and training events.

The POP LinkedIn group (<https://www.linkedin.com/groups/12004488/>) currently has 101 members, compared to 79 at the time of the POP1 final review.

2.3.3 YouTube

All video content produced by POP is made accessible through the POP HPC YouTube channel (<https://www.youtube.com/POPHPC>). It contains recordings of the POP webinars, the POPcasts, and the POP Online training modules, as well as introduction and overview videos about the POP CoE. The creation of this online content is managed by Work Package 2.

Currently the channel provides 15 webinars (6 from POP1), 3 POPcast, and 6 Online training modules. The webinars currently have 3399 offline views,

compared to 445 at the time of the POP1 final review. The POPcasts got over 200 views within their first month. The Online training modules videos have only been recently added (in late May 2020), so no meaningful usage statistics exists yet.

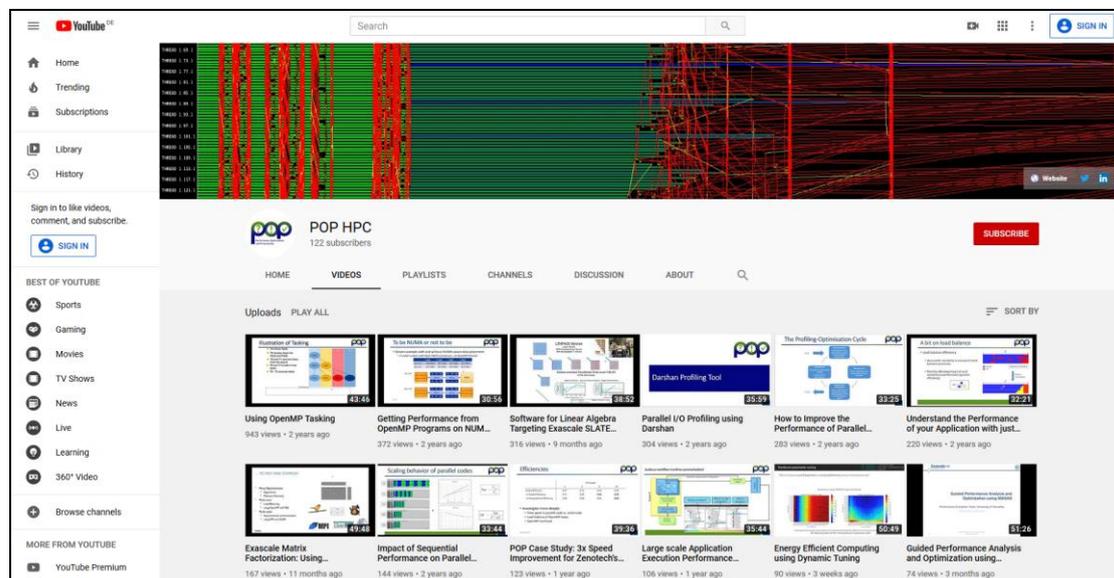


Figure 5: POP YouTube Channel

2.4 Other media

Beyond the POP main project website and the POP social media channels, we use email newsletters, scientific papers, and attending and presenting at events as additional dissemination channels. In addition, we try to position articles and other contributions on other HPC focused websites and in HPC media and related project newsletters.

2.4.1 Newsletter

We also continued the quarterly POP Newsletter started in POP1, which features summaries of the main project activities and results from the past three months as well as announcements of upcoming events and project activities. The newsletter is distributed by HTML email but it is also archived on the project website (<https://pop-coe.eu/news/newsletter>) in HTML and PDF format.

In the first 18 months of the second phase of the POP project, we published six new newsletters (December 2018 to March 2020). The newsletter subscriber list currently has 847 members, compared to 515 at the time of the POP1 final review.

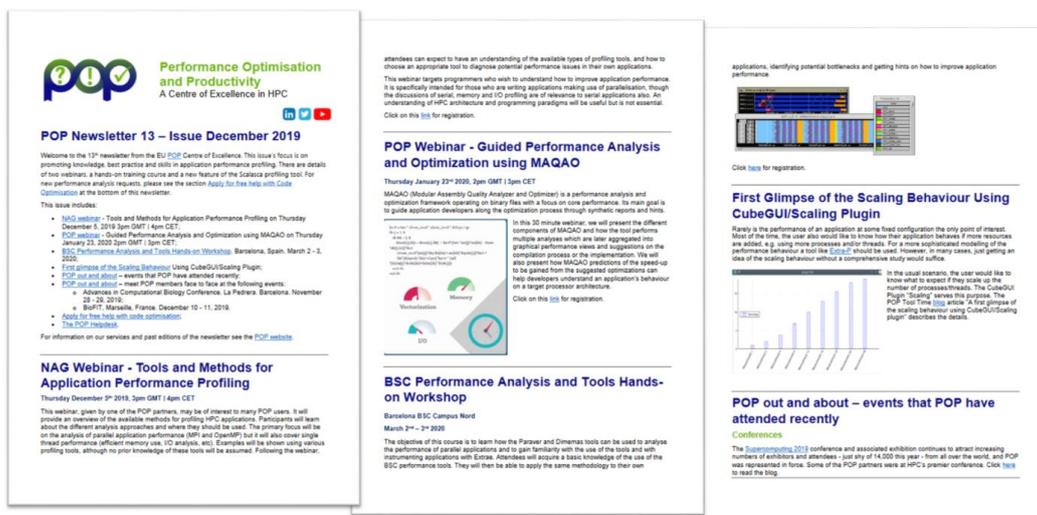


Figure 6: POP Newsletter

2.4.2 Scientific papers

Although POP is a service-oriented EU Centre of Excellence and not a research and innovation action, we still try to publish important results, procedures, methodologies, or insights in peer-reviewed scientific/technical papers. In the reporting period, we were able to get four papers accepted²:

1. H. Zhou, J. Gracia, R. Schneider, *MPI Collectives for Multi-core Clusters: Optimized Performance of the Hybrid MPI+MPI Parallel Codes*, In: ICPP 2019: Proceedings of the 48th International Conference on Parallel Processing: Workshops, August 2019, article no. 18, pages 1–10, [doi:10.1145/3339186.3339199](https://doi.org/10.1145/3339186.3339199).
2. C. Feld, S. Convent, M.-A. Hermanns, J. Protze, M. Geimer, B. Mohr, *Score-P and OMPT: Navigating the Perils of Callback-Driven Parallel Runtime Introspection*, In: OpenMP: Conquering the Full Hardware Spectrum. Proceedings of IWOMP 2019. LNCS 11718, Springer, [doi:10.1007/978-3-030-28596-8_2](https://doi.org/10.1007/978-3-030-28596-8_2).
3. F. Banchelli, K. Peiro, A. Querol, G. Ramirez-Gargallo, G. Ramirez-Miranda, J. Vinyals, P. Vizcaino, M. Garcia-Gasulla, F. Mantovani, *Performance study of HPC applications on an Arm-based cluster using a generic efficiency model*, In: Proceedings of the International Conference on Parallel, Distributed, and Network-Based Processing (PDP 2020), March 2020, CPS.
4. M. Knobloch, B. Mohr, *Tools for GPU Computing – Debugging and Performance Analysis of Heterogeneous HPC Applications*, In: Supercomputing Frontiers and Innovations, [S.I.], vol. 7, no. 1, pages 91-111, April 2020, [doi:10.14529/jsfi200105](https://doi.org/10.14529/jsfi200105).

² This information has also been uploaded into the “Publication” tab of the reporting module of the EU project portal.



2.4.3 Other websites and newsletters

Besides publishing on the POP website, blog and social media channels, we also try to place important POP news and results in media channels operated by our customers, collaborators, and general HPC online news sites.

- Article "The Performance Optimization and Productivity (PoP) Project: Pursuing the Never-Ending Quest for Performance", [Intel Parallel Universe Magazine - Issue 37](#), Jul 2019
- Introduction article for [FocusCoE Newsletter Sep 2019](#), Sep 2019
- Article "POP = Performance Optimisation and Productivity - A Centre of Excellence in HPC", [EnginSoft magazine year 16, no. 4](#), Winter 2019
- Article "[POP and CompBioMed Collaboration on HemeLB assessment](#)", CompBioMed CoE news, 19 Feb 2020
- Article "Toward the first full scale virtual human simulation at the exascale", [CompBioMed Newsletter No. 9](#), Feb 2020
- Article "[Video: Energy Efficient Computing using Dynamic Tuning](#)", Inside HPC online news, 10 Apr 2020
- Article "[Tools for GPU Computing – Debugging and Performance Analysis of Heterogenous HPC Applications](#)", high performance computing on graphics processing units: hgpu.org, 03 May 2020
- Article "Focus On: POP CoE", [Focus CoE - Newsletter 05/2020](#), 26 May 2020

2.4.4 Events

Another important dissemination channel is attendance and presentations at high-level peer-reviewed conferences in the fields of HPC, supercomputing, computational science, parallel computing, etc. and European events like HiPEAC or PRACE events or the European HPC Summit Week. Presenting the latest updates and success stories of the project at such events, tutorials, meetings, or workshops is an effective means of involving industry leaders in standards discussions early on.

These activities largely overlap with Work Package 2, as of course these events also serve as business development. For a full description, we refer to the WP2 deliverable D2.3 ("First Business Development and Sustainability Review"), Section 8.1. A short list of the events POP participated in can be found in section 2.2.1 of this document under the category "Events".

In addition, we contributed to various scientific conferences and workshop by presenting regular and invited talks or posters:

- Invited talk "ROI of Performance Analysis of HPC Applications"
DOE Salishan HPC Conference, 23 Apr 2018
- Customer talk "POP assessments of the APES Suite"
WCCM 2018, 22 Jul 2018
- Talk "ROI of Parallel Performance Optimization"
CCDSC 2018, 4 Sep 2018



- Invited talk “On the ROI of Parallel Performance Optimization”
RuSCDays 2018, 23 Sep 2018
- Talk “Fortran 2018: What’s New“
RSE London, 07 Feb 2019
- Talk “POP - The Quest for Performance Continues”
9th JLESC Workshop, 15 Apr 2019
- Poster “POP: A Transversal HPC Centre of Excellence in Performance
Optimisation and Productivity”
EuroHPC Summit Week 2019, 14 May 2019
- Talk and Poster “Performance Profiling Fortran Codes Using Open
Source Profiling Tools“
Platform for Advanced Scientific Computing (PASC), 12 Jun 2019
- Talk “POP - We are the "Performance" in HPC”
PRACE Booth ISC HPC 2019, 18. Jun 2019
- Talk “MPI Collectives for Multi-core Clusters: Optimized Performance of
Hybrid MPI+MPI Parallel Codes”
ICPP 2019, 5 Aug 2019
- Talk "Score-P and OMPT: Navigating the Perils of Callback-Driven
Parallel Runtime Introspection"
IWOMP 2019, 11 Sep 2019
- Talk “On the ROI of Parallel Performance Optimization”
ScalPerf 2019, 23 Sep 2019
- Invited talk “Performance Tool Development for Exascale Systems”
SPPEXA Final Symposium, 21 Oct 2019
- Talk ”The human heart seen by the eyes of a computer scientist”
Advances in Computational Biology Conference 2019, 28 Nov 2019
- Talk “The Parallel Programming Osmotic Membrane”
ORAP Forum, 29 Nov 2019
- Poster “POP: A Transversal HPC Centre of Excellence in Performance
Optimisation and Productivity”
Austrian HPC Meeting 2020, 20 Feb 2020
- Poster “Performance Optimisation & Productivity (POP) CoE JSC
highlights”
10th NIC Symposium, 27 Feb 2019
- Talk “Performance study of HPC applications on an Arm-based cluster
using a generic efficiency model”
PDP 2020, 11-13 Mar 2020

At large events that offer an exhibition in addition to a technical program, such as SC in the USA and ISC-HPC in Germany, BSC, HLRS, IT4I, JUELICH, and NAG had exhibition booths showcasing their latest technology, including live-demos of visualizations of tools to attract visitors. This gave these partners and their results high visibility.

- ISC HPC 2019 Research exhibition booths, Frankfurt, Jun 2019
BSC (#A-1412), IT4I (#H-613), or JSC/HLRS (#B-1310)
- SC 2019 Research exhibition booths, Denver, Nov 2019
BSC (#1975), HLRS (#409), IT4I (#2219), JSC (#1563), or NAG (#932)



2.4.5 New dissemination material

Again, these activities largely overlap with Work Package 2, as of course this material also serves for business development. In summary, the following new material was developed:

- Roll-up banner
- Updated one-page and two-page flyers
- Various new posters
- New glossy brochure
- Sectorial flyers for Computer-aided Engineering (CAE), Computational Biology, and Energy Efficiency

For a full description of new material developed, we refer to the WP2 deliverable D2.3 (“First Business Development and Sustainability Review”), Sections 2.4 and 8.3.

3. Cooperation

Besides POP dissemination and training activities, Work Package 4 is also responsible to **coordinate dissemination and training activities** with PRACE and the FocusCoE CSA. A summary of the work in this area is reported below. In addition, there is also a cooperation between POP and FocusCoE regarding sustainability of CoEs and business development (which is reported in the deliverable of Work Package 2 Deliverable D2.3 Section 3.1) and cooperation between POP and other CoEs as well as EU FET projects to organize formal periodic campaigns (which is reported in the deliverable of Work Package 5).

Prior to the start of the second phase of funding for CoEs, 30th to 31st October 2018, PRACE organised a workshop in Bruehl, Germany, to coordinate HPC community activities with and between CoEs and European Exascale projects. Dissemination and training efforts were presented and discussed, as well as engagement with industry.

Next, POP participated in the CoE Workshop organized and hosted by FocusCoE in Frankfurt on 21st February 2019. In the workshop, the interactions of the CoE with FocusCoE were discussed, especially the promotion of CoE results and outcome by FocusCoE and the dissemination and coordination of training events. PRACE 5IP was also invited to this meeting to clarify the role of PRACE and other players regarding training in the EU HPC ecosystem.

Finally, FocusCoE organised a European HPC Training Stakeholder workshop for the EC in Brussels on 7th October 2019 where POP participated. Training needs and challenges were collated, lessons learned summarised, and recommendations documented in the associated FocusCoE report D4.3.



The follow-up meeting planned to be held as part of the March 2020 EuroHPC Summit Week in Porto could not take place and has not yet been rescheduled.

PRACE was tasked with developing a training portal and FocusCoE with developing a training registry for aggregating training events from the CoEs and others, for which a prototype is now being evaluated. While the priority is focused on currently scheduled (as opposed to historical) training events, all of the near-term in-person events are being forced to cancel, postpone or transition to online events. POP training events organised for and in cooperation with third parties are often constrained in size and open only to selected participants (e.g. from a particular CoE or company), however, other events will appear in the public registry.

4. Training

In this area we improved, and enhanced the online training material and documentation on standard parallel programming models and performance analysis tools and processes, which were created during POP1. We also performed tutorial and workshop events for POP customers in various forms. In order to gain international visibility to the POP training activities, we contributed to selected tutorials, workshops at key conferences with high visibility (i.e. ACM/IEEE SC, ISC High-Performance), VI-HPS events, and Bring-your-own-code activities with staffing and material.

The project partners have a long record of organising and contributing to training events where they teach the effective use of their tools for performance assessments. The spectrum of activities ranges from half- or one-day conference tutorials to tuning workshops lasting up to a week. POP partners BSC, HLRS, IT4I, JUELICH and UVSQ are part of their national PRACE (Advanced) Training Centres. In addition, the project partners BSC, HLRS, JUELICH, RWTH, and UVSQ bundle their training activities in the framework of the Virtual Institute – High Productivity Supercomputing (VIHPS, <https://www.vi-hps.org>), which offers effective advertisement channels, including a website, a mailing list, a “VI-HPS Tools Guide”, and flyers. VI-HPS is an initiative of currently fourteen HPC tool builders in Europe and the USA, including universities, national labs, and companies. Next to the development of state-of-the-art productivity tools for high performance computing, VI-HPS also provides training in the efficient use of these tools.

Workshops and tutorials were orchestrated in close collaboration with the host organisation to fit the individual need of the audience. Training events can be a tuning workshop, a special bespoke workshop, or a tutorial conducted in collaboration with an HPC-related conference. VI-HPS Tuning Workshops are the major training vehicle where between 15 to 30 participants receive instruction and guidance applying VI-HPS tools to their own parallel application codes, along with advice for potential optimisations. Feedback to tools developers also helps direct tools development to user needs, as well as improve tool documentation and ease of use. So far, VI-HPS has organised



over 33 Tuning Workshops since 2008 all over the world and will continue to organise these workshops of three to five days at HPC centres two to three times per year. These were complemented with additional courses and tutorials at conferences (e.g., SC and ISC HPC), seasonal schools, and other invited training events (e.g., PATC courses). Coordinated tools training material is available with emphasis on hands-on exercises using VI-HPS tools individually and inter-operably.

As can be seen from the tables below, the current Covid-19 crisis quickly affected the POP training schedule. Events in March and April 2020 had to be cancelled and postponed to a later point. Currently, we investigate and experiment with how at least some of our training activities can be continued **online** based on video conference technology. This can be done for some part of the training with reasonable effort, especially the part where we introduce the topic, methods, and tools, and demonstrate their use. However, we still struggle with how to implement the most valuable part of our training strategy, where users try to apply the methods and tools they just learned to their own application codes under the supervision of our experts. In a physical event, one POP expert can support three to five code teams by going from table to table, however this cannot be done easily in the virtual world. The obvious solution to team up a POP expert and a code developer team in a separate virtual room does not scale. Nevertheless, we will continue to try to develop useful online forms of our training activities. A first attempt will be to execute a full five-day VI-HPS Tuning Workshop as a virtual event in the last week of May 2020.

Finally, two of the online trainings in May (the last entries in table 3 and 4) had to be postponed to June due to a European-wide security incident that affected the systems, which were planned to be used in these events.

4.1 POP Training Events

POP training events are organized, sponsored, and hosted by POP partners.

Date	Location	Event
2019-10-15	Cambridge	Dassault Systems BIOVIA Performance Analysis Workshop

Table 2: POP Training Events

4.2 Training events in cooperation with POP

POP training events in cooperation with POP are co-organized and co-sponsored in cooperation between POP partners with other EU projects or organizations, mostly the PRACE (Advanced) Training Centres, the VI-HPS, and other CoEs. This is our preferred type of training activities because it shows the effective cooperation of organizations in the EU HPC ecosystem, and it re-uses rather than re-invents existing infrastructures.



Date	Location	Event	Co-Sponsor
2019-01-08 – 01-11	Dublin	Extended Software Development Workshop	E-CAM
2019-01-21 – 01-25	BSC	30 th VI-HPS Tuning Workshop	PRACE
2019-04-09 – 04-12	Knoxville	31 st VI-HPS Tuning Workshop	JLESC
2019-04-24 – 04-26	Bristol	32 nd VI-HPS Tuning Workshop	PRACE
2019-06-16	Frankfurt	Performance Engineering Tutorial	ISC HPC 2019
2019-06-24 – 06-28	JSC	33 rd VI-HPS Tuning Workshop	PRACE
2019-09-16 – 09-20	OHP	ANF Evaluation de Performance des Applications Scientifiques HPC	EoCoE
2019-10-07 – 10-10	Erlangen	Performance Evaluation Workshop	EoCoE
2019-11-04 – 11-06	BSC	2 nd MareNostrum Hackathon	EPEEC
2019-11-18	Denver	Performance Engineering Tutorial	SC19
2020-03-31 – 04-03 postponed	BSC	Hackathon	EoCoE
2020-04-22 – 04-24 postponed	CINECA	VI-HPS Tuning Workshop	CINECA
2020-05-25 – 05-29 postponed	Online	34 th VI-HPS Tuning Workshop	PRACE

Table 3: Training Events in cooperation with POP

4.3 Training events with POP contributions

Training events with POP contributions are events organized, sponsored, and hosted by other organizations where POP experts were invited to contribute to parts of the program.

Date	Location	Event	Sponsor
2019-02-18 – 02-22	JSC	HPC Tunathon	JSC
2019-09-16 – 09-18	Brisbane	HPC workshop: Advanced Parallel Application Profiling	Univ. of Queensland Research Computing Center
2020-04-27 – 04-30	Online	Optimization and Scaling Workshop	HLRS
2020-05-25 – 05-29 postponed	JSC	HPC Tunathon	JSC
2020-05-25 – 05-27 postponed	Online	GPU Onlineathon	Nvidia Application Lab

Table 4: Training Events with POP contributions



4.4 Internal training for POP analysts

Internal training for POP analysts is training targeting performance analysts working in the POP CoE and close collaborators. It is organized to get new members of the POP staff up-to-speed quickly and for skill enhancement of the existing POP experts. In the future, it is planned to offer this training also to external performance analysts, e.g. support staff in HPC centres.

Date	Location
2019-03-18 – 03-22	JSC
2020-04-17 (3h)	Online
2020-04-21 (3h)	Online
2020-05-05 (3h)	Online
2020-05-20 (3h)	Online

Table 5: Internal training for POP analysts

As this training activity is currently completely internal to the project, and the number of people involved is still reasonably small (15 to 20 persons), we were able to quickly re-organize this activity based on video conferences when meeting and travel restrictions arose in early April 2020. However, instead of doing a compact three-day in-person meeting, we spread out the second internal training over multiple weeks in separate three-hour modules.

4.5 Online Training

This new activity, started in 2020 in cooperation with Work Package 2, produced various self-study online training modules in the area of performance analysis and tools. The main target audience are beginners and code developers with little experience in methods and tools for performance analysis of HPC applications. All online training modules are available under <https://pop-coe.eu/further-information/online-training>.

5. Conclusion

The project continued the successful POP branding and dissemination plan established by POP1. POP news, outcomes, and results were successfully disseminated through the POP blog on the POP website and our social media channels. The quarterly E-mail Newsletter as well as the POP webinar series was continued. New forms of communication in the form of POPCast video interviews, blog articles focused on a SME audience and on tips and tricks for the use of performance tools and methods, and self-study online training modules for beginners were introduced.

Training activities also greatly increased compared to POP1. Due to the Covid-19 crisis, several training events were changed to online trainings based on video conference tools. We expect that this will continue to be the case as long as meetings in larger groups and business travel is not allowed.



Acronyms and Abbreviations

- BSC – Barcelona Supercomputing Center
- CA – Consortium Agreement
- CAdv – Customer Advocate
- D – deliverable
- DoA – Description of Action (Annex 1 of the Grant Agreement)
- EC – European Commission
- GA – General Assembly / Grant Agreement
- HLRS – High Performance Computing Centre (University of Stuttgart)
- HPC – High Performance Computing
- IPR – Intellectual Property Right
- IT4I - IT4Innovations National Supercomputing Centre, Vysoka Skola Banska - Technicka Univerzita Ostrava
- Juelich – Forschungszentrum Juelich GmbH
- KPI – Key Performance Indicator
- M – Month
- MS – Milestones
- PEB – Project Executive Board
- PM – Person month / Project manager
- POP – Performance Optimization and Productivity
- R – Risk
- RV – Review
- RWTH Aachen – Rheinisch-Westfaelische Technische Hochschule Aachen
- USTUTT (HLRS) – University of Stuttgart
- UVSQ - Université de Versailles Saint-Quentin-en-Yvelines
- VI-HPS – Virtual Institute – High Productivity Supercomputing
- WP – Work Package
- WPL – Work Package Leader



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