



## D2.2 Dissemination, Business and Exploitation Plan Version 1.0

### Document Information

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## Change Log

Version	Author	Description of Change
V0.1	Bernd Mohr	Initial Draft
V0.2	Katherine Cordery	Fleshed out skeleton draft of dissemination plan
V0.3	Bernd Mohr	Finished 1 <sup>st</sup> draft of deliverable with inputs from Samir Ben Chaabane for section 3+4
V1.0	Bernd Mohr	Final version after input from reviewers José Gracia and Maximilian Tandi



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## Executive Summary

The aim of this document is to define the dissemination, business, and exploitation plans for the third phase the POP CoE (Jan 2024 to Dec 2026).

### 1. Introduction

The objectives of the POP3 work package “Users” are twofold. First, to continue the successful POP branding established by POP1 and POP2 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. Secondly, to secure the business activity of the project by identifying and attracting potential POP users, especially from other EuroHPC JU CoEs. In addition, we want to maximise the impact of the project.

The following sections list the dissemination plan, which includes the website, The POP blog, webinars, newsletters, and social media posts, as well as the business development and exploitation plan for the project.

### 2. Dissemination Plan

#### 2.1 General Objectives

The objectives for the task T2.1 (Dissemination) of the POP3 project are to provide tools for project dissemination and to support the task T2.3 (Business development) in their marketing and community development work as well as the task T2.2 (Training):

- Disseminate the project objectives, activities, and results via the public website, press and social media;
- Participate in key conferences and events to publish project results and disseminate the offered services;
- Identify and perform training activities in order to engage interested parties in the usage of the offered services, both at POP member sites and directly at customer sites.

#### 2.2 Target Audience

This section lists the target groups for dissemination of the POP project. In particular, this project should be able to attract the attention of the following groups:

- POP project partners
- Scientific community involved in the topics related to the project especially developers, maintainers and users of scientific simulation software and HPC tools



- Related EU and international projects, especially EuroHPC JU CoEs, NCCs, and HPC projects
- European HPC and IT industry vendors and especially SMEs
- Politicians and governmental institutions
- Research organisations (like PRACE RI) and the European HPC Technology Platform (ETP4HPC)
- General public

## 2.3 Dissemination Team

The dissemination team includes all project member organisations, which are shown in Table 1. It also shows the total number of personal months in T2.1 for each partner.

Role	Participant organisation short name	Person(s) responsible	Person months
WP leader	JUELICH	Bernd Mohr, Katherine Cordery	15
Participant	BSC	Marta, Elena	3
Participant	HLRS	José Gracia	3
Participant	IT4I@VSB	Radim Vavřík	3
Participant	INESC-ID	Leonel Sousa	3
Participant	RWTH	Christian Terboven	3
Participant	TERATEC	Samir Ben Chaabane	6
Participant	UVSQ	Cédric Valensi	3

**Table 1: POP Dissemination Team**

It is important to highlight that each project partner will be responsible for identifying the contacts associated with their own institutions to be used to spread the results of the projects. Moreover, the T2.1 leader will ensure that each partner fulfils the following requirements:

- Include a link from the partner's website to the POP project website by month 6
- Disseminate the press releases to their own press contacts
- Include at least one article in an organisation-related publication (website, newsletter or other) during the project
- Disseminate the promotional material, when necessary

## 2.4 Corporate Image

A common graphic identity in all dissemination tasks ensures better visibility and recognition as well as branding of the project. All dissemination materials will include the name of the project, the website and the graphic elements

described in this section such as the logo, written in British English, Arial font, and the corresponding template, if applicable.

The brand of the POP project includes its corporate image, brand and style. Guidelines have been given to all partners to ensure coherence and consistency.

### 2.4.1 Logo

The main image of the project is the design of the logo, as follows:



Figure 1: POP Logo with Text

There are two versions of the same logo: one version with the project name spelled out and one version with the graphics only. Both are valid and can be used, depending on the space available and preferences.



Figure 2: POP Logo without Text

The original idea behind the design of the logo (done in the first phase of the CoE) was the idea to be able to explain the basics of the POP project to potential customers: The project acronym POP is drawn as a multi-colour twisted path with circles from left to right. It stands for the path HPC application developers have to take to optimise their applications. Often there is no clear direct way to achieve this and unexpected problems on the way result in no evident progress (“going in circles”). The colours are based on the colour-scale used by one of the tools of the project partners (Paraver). The symbols inside the logo, along the path, represent the three basic services provided originally by POP1:



- Performance audit: What are the performance problem(s) of the application (?)
- Performance plan: These are the root-causes of the issues found and approaches to address them (!)
- Proof-of-Concept: Experiments and projections to show the effect of the proposed optimisations ⇒ problem solved (✓)

In POP2, the Performance audit and Performance plan services have been merged to a new single Performance assessment service. However, it was decided to maintain the logo as is.

This logo, approved by all POP partners, should be included in all documentation related to the project and should be ideally used in colour. There will also be black and white versions of this logo, if needed. All versions of this logo can be downloaded in the “Further Information” section of the POP website (<http://www.pop-coe.eu/further-information/>).

### **2.4.2 Font**

The Arial font is recommended to be used for all documentation as the corporate font for the project and should be used in all dissemination materials.

### **2.4.3 Language**

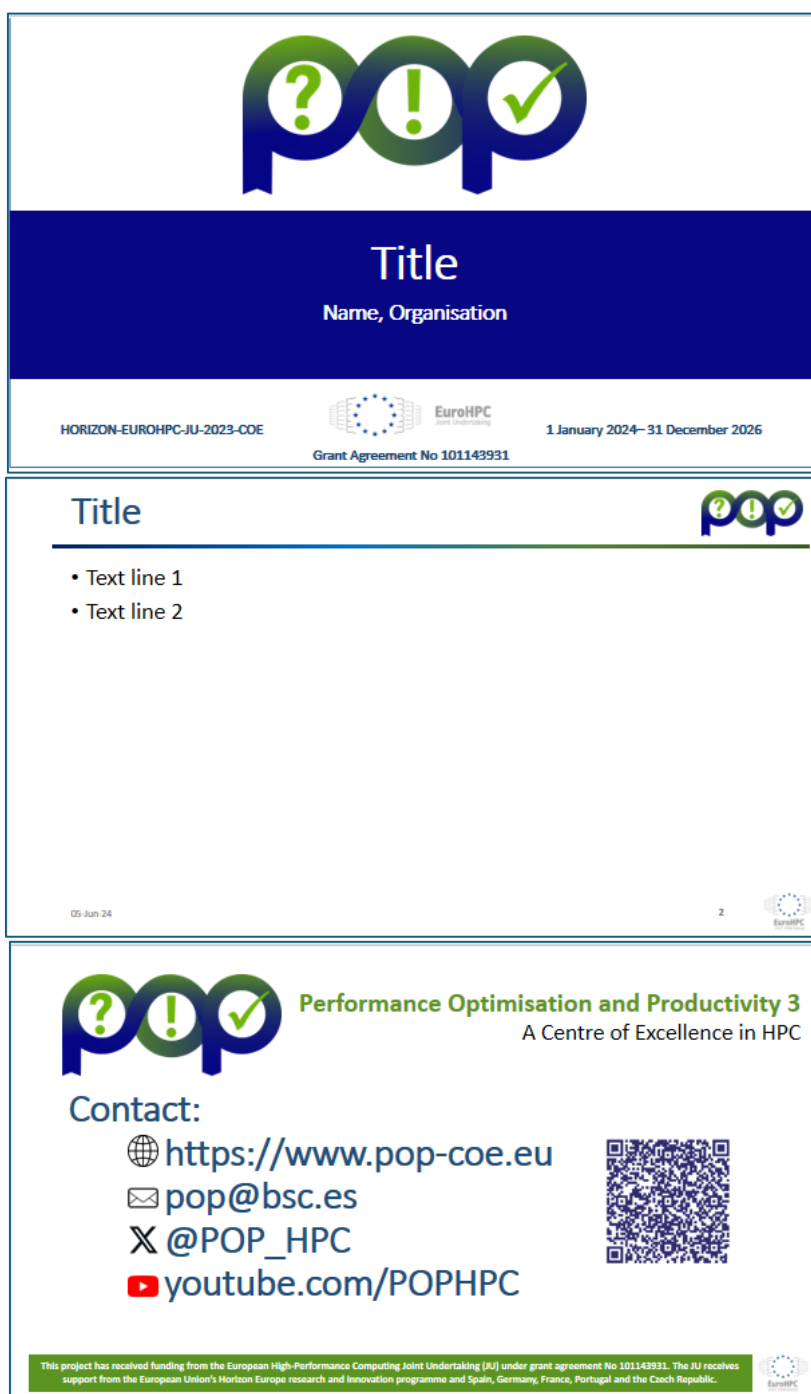
The official language of POP project is British English. However, the dissemination material should be translated into the different partners’ languages, where possible. Each partner should ensure that the materials are adequately translated into the local languages, e.g. in the case of the press releases for the local media. Funding for this is not included in the dissemination budget.

### **2.4.4 Project Templates**

A set of designed templates for project deliverables will be used in the project.

#### **2.4.4.1 Slide Template (PowerPoint)**

The power point template will be used in all presentations done by all partners and is available in the internal project wiki for all partners to be used. This template gives some design guidelines, as well as a general-purpose POP PowerPoint content template that can be incorporated into other presentations in order to disseminate the project and its results.



**Figure 3: POP Slide Template Version February 2024**  
(title page: top, regular text page: middle, final page: bottom)

Update for POP3 (Feb 2024): On the title slide the project duration and grant agreement number were adapted. On all slides, The EU logo was replaced the EuroHPC JU logo.

#### 2.4.4.2 Deliverables

All deliverables will follow a similar look and feel, and structure. As stated in the DOW, this facilitates the reading. The template, created by the management



work package (WP1), is available in the internal wiki. A Microsoft Word and a LaTeX template were created. This deliverable was created using the Word template. All public deliverables will be uploaded (once approved) onto the website under the section “Deliverables”.

#### **2.4.4.3 Publication acknowledgement sentence**

All resulting publications (publications, white papers, technical reports, etc.) should include the following sentence:

*The research leading to these results has received funding from the European High-Performance Computing Joint Undertaking (JU) under grant agreement No 101143931. The JU receives support from the European Union’s Horizon Europe research and innovation programme and Spain, Germany, France, Portugal and the Czech Republic.*

#### **2.4.5 Marketing Material**

Marketing material was created in the beginning of the project for POP community development. This includes a service catalogue in the form of a leaflet, a contact (business) card, as well as a PowerPoint presentation that can be distributed and presented to potential customers and users at communication events or during customer’s visits. All material was designed based on the POP corporate design guidelines as outlined above.

The marketing material will be constantly updated according to the needs and requirements of the POP business development task T2.3, if necessary. Once available, additional material, for example describing POP success stories in the form of brochures, a newsletter, and short videos, or service statistics including important information like ROI for customers will be created and made available. Success stories and service statistics will also be added to the project introduction slides, so that the material is also able to cover longer (e.g. 30 minutes) presentations.

### **2.5 Dissemination Channels and Tools**

In order to effectively reach the targets for dissemination and to maximise the visibility of the project, a broad spectrum of dissemination channels will be used. The public website is the first contact and plays a central role in dissemination followed by a carefully chosen list of events, as well as the rest of the external dissemination tools described below.

The role of the dissemination tools or activities should ensure that the different targets specified above are aware of the POP project and the strategic relevance and impact of this project for Europe. This also includes intensive communication with researchers and industry partners.



### 2.5.1 Website

We will continue 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 layout will not be changed in this third phase of the project as it is well known by now to our customers and users. It consists of a fixed header and footer as well as an 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 Figure 4 and Figure 6). The main landing page (shown in Figure 4) displays the overall mission, an introductory video about POP (which changes from time to time), a “latest-news” sticker (in green, top right), links to the social media channels, and the latest news from the POP project.

The design favours information and function over appearance, i.e., it focuses on quick and easy access to information rather than focusing on looking “nice” and thus avoids 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 was also set up to inform individuals about the latest updates of web pages.



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**Mission**

The **Performance Optimisation and Productivity Centre of Excellence in HPC** provides performance optimisation and productivity services for (your?) **academic AND industrial code(s) in all domains!**

**Services** are **free of charge** to organisations / SMEs / ISVs / companies in the EU!

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WE ARE THE POP CENTRE OF EXCELLENCE AND WE HAVE A MISSION!

Ansehen auf YouTube

**Latest News**

Follow us on [@POP\\_HPC](#), subscribe to our [POPHPC YouTube Channel](#), or see our [LinkedIn page](#).  
For more detailed news and reports, please see our [POP Blog](#), list of [News](#), past [POP Newsletters](#), and [POP organized Events](#).

**10 - 13 Jun 2024** **POP 45<sup>th</sup> VI-HPS Tuning Workshop**  
POP experts will explain the functionality of individual performance tools, and how to use them effectively, and offer hands-on experience and expert assistance using the tools at the [45th VI-HPS Tuning Workshop](#).

**30 Apr 2024** **27<sup>th</sup> POP Webinar - Performance Analysis of OpenMP Target Offloading in Score-P**  
In this [live webinar](#), Jan Andre Reuter (JSC) will present first results in adding support for OpenMP offloading to our instrumentation and measurement infrastructure Score-P using the OpenMP Tools Interface.

**20 - 23 May 2024** **POP @ HPCSE 2024**  
POP partner IT4I will present a POP poster at the [High Performance Computing in Science and Engineering 2024 conference](#) (HPCSE 2024).

**12 - 16 May 2024** **POP @ ISC High Performance 2024**  
Visit our experts at the research exhibition booths of BSC (#L30), IT4I (#J22) or JSC/HLRS (#K02) at the [ISC High Performance 2024](#) conference. On May 12, POP experts also contribute to the ISC tutorials "Determining Parallel Application Execution Efficiency and Scaling using the POP Methodology" (BSC, JSC) and "Continuous Correctness Checking for HPC Applications" (RWTH). Finally, on May 16, POP organizes the workshop "First International Workshop on Readiness of HPC Extreme-scale Applications".

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 676553 (POP1) and 824080 (POP2).


Currently, the project receives funding from the European High-Performance Computing Joint Undertaking (JU) under grant agreement No 101143931 (POP3). The JU receives support from the European Union's Horizon Europe research and innovation programme and Spain, Germany, France, Portugal and the Czech Republic.

EuroHPC  
Joint Undertaking

Figure 4. POP main website (May 2024)

## 2.5.2 Website for Resources for Co-Design

A website dedicated to resources for co-design, which was implemented as part of WP7 for the POP2 project, will continue to be maintained and extended as part of the POP3 Task T4.1. It provides information for application developers, performance analysts and system designers. It can be reached via the URL <https://co-design.pop-coe.eu> but it is also has been completely integrated with the main website (via the “Resources for Co-Design” menu item).



The screenshot shows the landing page for the POP resources for co-design. The header includes the POP logo and the text 'Performance Optimisation and Productivity - A Centre of Excellence in HPC'. A search bar is located in the top right. The main navigation menu on the left lists various categories, with 'Resources for Co-Design' highlighted. The main content area is titled 'Description and main goals' and contains the following text:

The main objective of this site is to build a database with the performance **metrics** for different applications used within the POP Center of Excellence project. These metrics will allow characterizing the behavior of the corresponding application and could be queried by system designers (architecture, system software) in projects outside POP to demonstrate the potential of their proposed approaches and get a rough estimate of which codes their techniques will have an important impact on.

We also describe typical behavioural **patterns** (that may result in potential performance degradations) that we have identified in the analysis of applications using different **algorithms** in different **disciplines**. The objective then is to identify such patterns in generic terms, provide links to **programs** that expose them and links to the correspondent **best-practice(s)** that should address it. Some of these programs include additional versions that allow comparing the behaviour before/after applying a given best-practice.

Programs included in this site use different programming **languages** and leverage some of the most popular parallel programming **models** used in the HPC community.

The footer banner states: 'This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 676553 and 824080.' The European Union flag is also present in the footer.

Figure 5. POP resources for co-design landing page

## 2.5.3 Events

Another important dissemination channel will be attendance and presentations at high-level peer-reviewed conferences in the field of HPC, supercomputing, computational science, parallel computing, etc. Presenting the latest updates and success stories of the project at such events, tutorials, meetings or workshops will be an effective means of involving industry leaders in standards discussions early on. The list of targeted academic/industrial events includes conference and networks of excellence, see tables below.



### 2.5.3.1 Conferences and events

Event	Date and Location
ISC 2024	Hamburg (Germany), 12 <sup>th</sup> – 16 <sup>th</sup> May 2024
ISC 2025	Hamburg (Germany), 10 <sup>th</sup> – 13 <sup>th</sup> June 2025
ISC 2026	TBA
TeraTec 2024 Forum	Paris (France), 29 <sup>th</sup> – 30 <sup>th</sup> May 2024
TeraTec 2025 Forum	TBA
TeraTec 2026 Forum	TBA
SC 2024	Atlanta, Georgia (USA), 17 <sup>th</sup> – 22 <sup>nd</sup> November 2024
SC 2025	St. Louis, Missouri (USA), November 2025
SC 2026	TBA, November 2026
EuroHPC JU Summit 2024	Antwerp (Belgium), 18 <sup>th</sup> – 21 <sup>st</sup> March 2024
EuroHPC JU Summit 2025	TBA
EuroHPC JU Summit 2026	TBA

**Table 2: Main Target Dissemination Conferences**

### 2.5.3.2 Events of Networks of Excellence and Other Groups

- [HiPEAC](#) (European Network of Excellence on High Performance and Embedded Architecture and Compilation)
- [HPC Advisory Council](#) (Community effort support centre for HPC end-users)
- [IDC HPC User Forum](#)
- [PROSPECT](#) (Consortium for the Promotion of Supercomputing Partnerships for Economic Competitiveness and Technology)
- [ETP4HTP](#) (European Technology Platform for High Performance Computing)
- [PRACE](#) (Partnership for Advanced Computing in Europe)

### 2.5.4 Blog

Another pillar for POP dissemination will be online news. The POP blog (<https://www.pop-coe.eu/blog/>), which is integrated in the main POP website features articles about major project results, customer success stories, reports from training and dissemination events and other news items interesting to POP customers. While most of the blog entries are written by the dissemination team with input from the other work packages, this also allows publishing 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 also 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. At least two articles per month (on average) should be published.

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## Blog

**28 MAY** **27th POP Webinar - Performance Analysis of OpenMP Target Offloading in Score-P**  
With increasing demand in compute performance of HPC systems, accelerators are getting the main f  
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**23 MAY** **POP @ HPCSE24**  
IT4Innovations National Supercomputing Center was organising the  
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**16 MAY** **POP @ ISC24**  
From May 12 to 16, 2024, POP experts participated in the ISC Hig  
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**09 MAY** **POP @ Durham Performance Analysis Workshop Series 2024**  
POP contributed to a  
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**30 APR** **26th POP Webinar - Asynchronous GPU Programming in OpenMP**  
The OpenMP 4.0 standard introduced support for accelerator and GPU programming and there are many  
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**08 APR** **POP tool descriptions: RWTH performance and correctness tools**  
The IT Center of the RWTH Aachen University develops the correctness analysis tools MUST and Arch  
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**21 MAR** **POP @ EuroHPCSummit 2024**  
Various POP partners participated in the EuroHPC Summit 2  
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**01 MAR** **POP @ 44th VI-HPS Tuning Workshop**  
Instructors from the POP partners JSC, RWTH Aachen and UVSQ supported the  
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**16 FEB** **POP partner profile: The HPCAS group of INESC-ID R&D Institute**  
INESC-ID is a Lisbon-based R&D+I (Research, Development and Innovation) center, mainly owned  
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**01 FEB** **POP @ 43rd VI-HPS Tuning Workshop**  
Instructors from the POP partners JSC and UVSQ supported the  
[READ MORE](#)

1 2 3 4 5 6 7 8 9 ... next > last >

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No 676553 (POP1) and 824280 (POP2).

Currently, the project receives funding from the European High-Performance Computing Joint Undertaking (JU) under grant agreement No 101143931 (POP3). The JU receives support from the European Union's Horizon Europe research and innovation programme and Spain, Germany, France, Portugal and the Czech Republic.

Figure 6: POP Blog (May 2024)



The blog also serves as an easily accessible news archive for the project. It also allows people to look up specific subsets of articles based on tags via a special URL, e.g., <https://pop-coe.eu/blog/tags/success-stories> or via a tag cloud (see Figure 6, top right) or to easily browse them by (publication) time.

For webinars (see below), the blog articles summarise 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.

## 2.5.5 Webinars

Webinars have been added as an important dissemination and training tool in POP2. POP members and external guests will be asked to give a presentation on a variety of related topics, results or success stories.

The webinars will be promoted via the website as well as social media channels and recordings will be made available in the POP YouTube channel (<https://www.youtube.com/POPHPC>). In addition to the 25 webinars already published in earlier phases of the project, POP3 will add an additional 18 new webinars.

## 2.5.6 Newsletter

A quarterly (email) newsletter is mailed to a list of subscribers. Initially, the newsletter was mailed to POP project members and customers. Meanwhile, as of May 2024, the newsletter has 1560 subscribers.

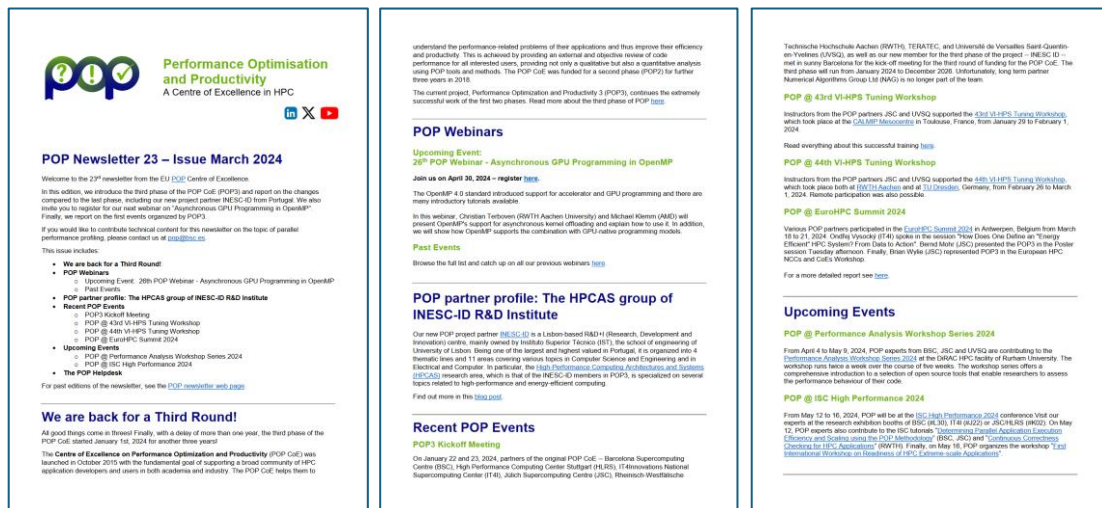


Figure 7: POP Newsletter 23 - Issue March 2024



The POP website maintains an archive of all published newsletters so far (under the menu item “Newsletter”) and provides a simple way to subscribe to the newsletter.

## 2.5.7 Social Media

Traditional social media channels like LinkedIn or X (formerly known as Twitter), and the “News” section on the POP website will mainly be 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.

### 2.5.7.1 X

X is the established short message service and experience shows that HPC online news sites (like HPCwire and InsideHPC) typically follow HPC project posts. When using X, we have found that including images into posts 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. In addition to 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 X has helped us be more accessible and engaged with our community on POP2 and we plan to continue the dissemination efforts through this channel. X is also a useful way to highlight the impact of the project and reach a wide audience of influencers; however, we have been careful to balance self-promotion with other forms of content to ensure our followers remain.

The POP X channel @POP\_HPC ([https://x.com/POP\\_HPC](https://x.com/POP_HPC)), see Figure 8, currently has 1,129 followers, compared to 420 at the time of the POP1 final review in May 2018. During POP2, the posts earned about 12,000 impressions in total on average per month, compared to 8,500 during POP1. Twitter impressions are the number of times a post shows up in somebody's timeline. Top posts get up to 2,000 to 3,500 impressions showing that our posts reach beyond our own followers.

**POP\_HPC**  
@POP\_HPC

EuroHPC JU funded Centre of Excellence Performance Optimisation and Productivity (POP) to boost performance and productivity in HPC applications.

[pop-coe.eu](https://pop-coe.eu) Born October 1, 2000 Joined October 2016

576 Following 1,127 Followers

Posts Replies Highlights Articles Media Likes

Pinned

**POP\_HPC** @POP\_HPC · May 13

You can sign up for the upcoming POP webinar now!

Jan André Reuter will be talking about performance analysis of OpenMP target offloading in Score-P and presenting his first results.

To find out more and sign up to the webinar, go to:  
[pop-coe.eu/news/events/27...](https://pop-coe.eu/news/events/27...)

**27th POP Webinar – Performance Analysis of OpenMP Target Offloading in Score-P**

Tuesday, 28 May 2024, 15:00 CEST

**Jan Andre Reuter**

Jülich Supercomputing Centre

4 replies 6 likes 380 views

Figure 8. POP X channel (May 2024)

### 2.5.7.2 LinkedIn

In addition to X, we will also announce webinars, newsletters and training events on the POP LinkedIn page, which was created in 2020 in order to disseminate to a wider professional community. It currently has 235 followers in May 2024 and we will aim to increase our reach. It can be found at <https://www.linkedin.com/company/performance-optimisation-and-productivity-pop/>.

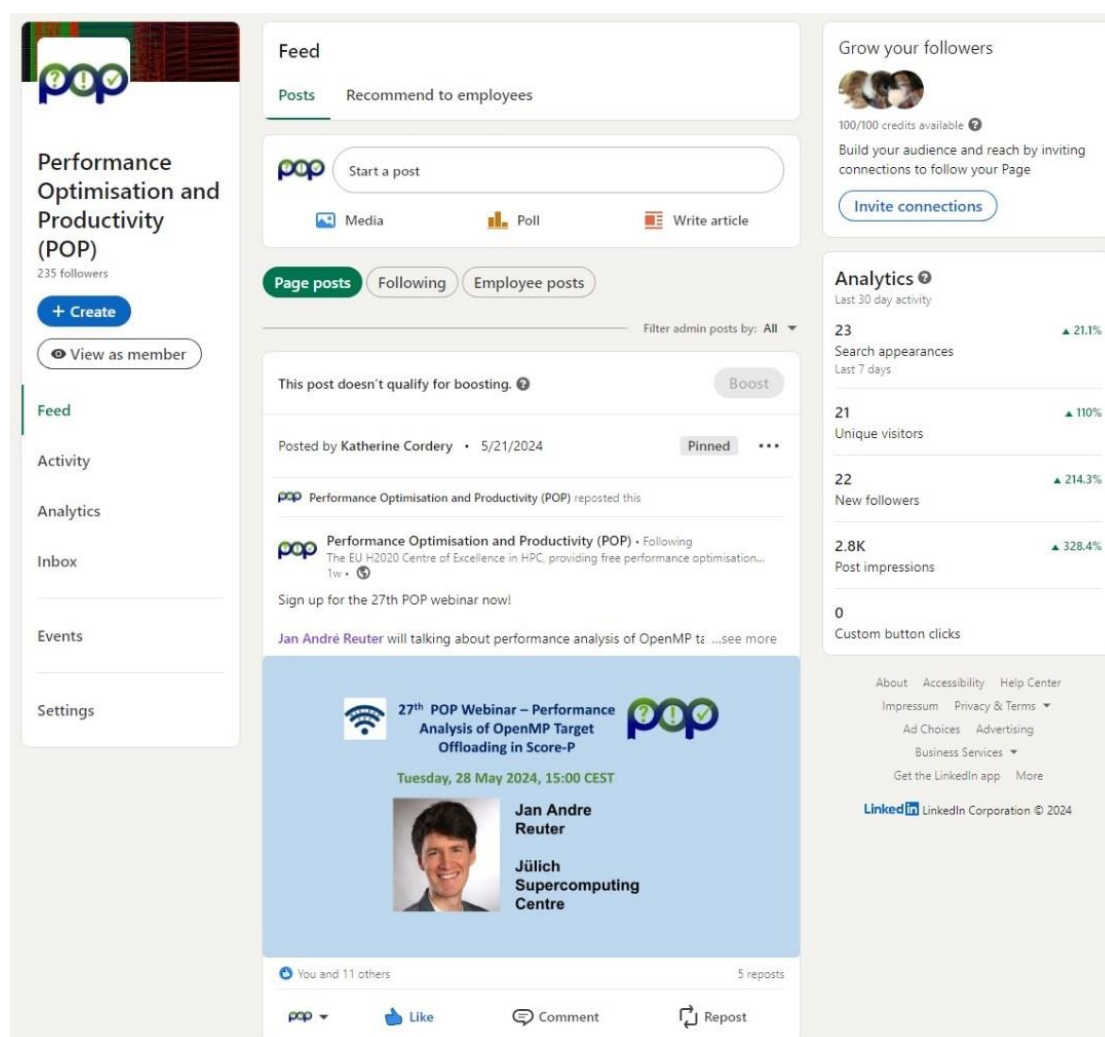


Figure 9. POP LinkedIn page (May 2024)

A LinkedIn group, which served as a discussion board for POP members was found to be very limited in its reach and is therefore no longer updated.

### 2.5.7.3 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 (POP2 only), and the POP Online training modules, as well as introduction and overview videos about the POP CoE. The POP YouTube channel will continue to be used to make webinars and online training modules available.

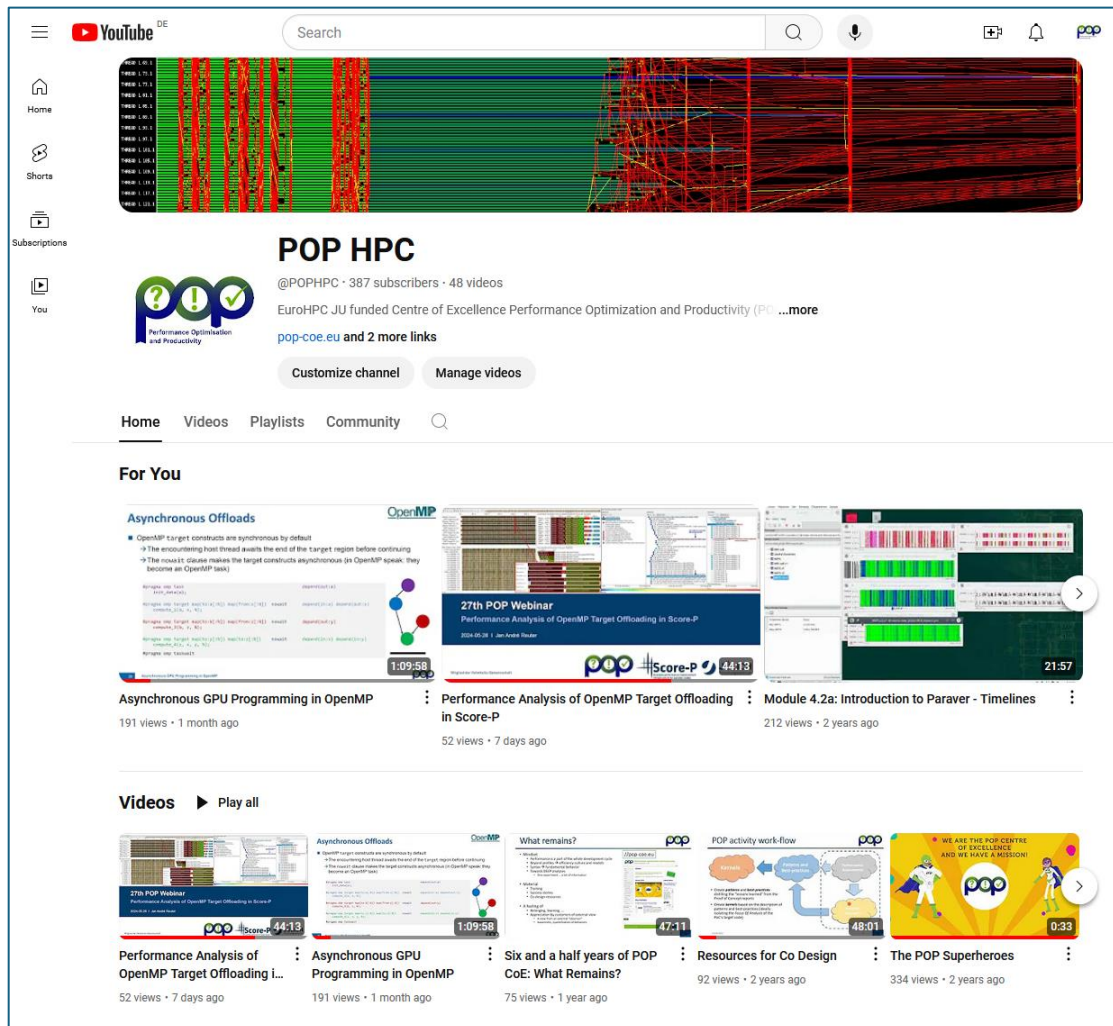


Figure 10. POP YouTube channel



## 3. Business Development Plan

To ensure the business viability of the project, we focus on identifying and attracting potential POP users. This involves actively seeking out new customers who can benefit from our services, thereby expanding our user base and sustaining the growth of the project.

In contrast to POP2, most of the services provided by POP3 (65%) will be delivered to the other Centres of Excellence (CoEs), accounting for approximately 80 services. About 120 services in total are planned for POP3, therefore about 40 services will be distributed among other categories: academic and research institutions outside the CoEs, industry and enterprises, with a target of 12 services specifically for SMEs.

The following sections will outline the methodology for identifying and engaging the remaining 40 users, with a special focus on the 12 SMEs. All POP3 partners are involved in this effort. Our approach will mainly focus on exploiting the POP3 partners' contacts with the HPC ecosystem and making effective use of our collaboration with EUROCC2 and Castiel2. Attending events and organising webinars will also be considered.

### 3.1 Services to CoEs

Centres of Excellence (CoEs) are some of our most important customers, relying on us to help them make efficient use of very large computing platforms. These organisations often perform complex, resource-intensive tasks that require high-performance computing capabilities. By thoroughly assessing their needs and challenges, we can tailor our services to help them optimise their use of these platforms, ensuring they achieve maximum efficiency and performance. This, in turn, reinforces our role in facilitating cutting-edge research and development within these CoEs. The CoEs constitute the main set of POP3 users.

Indeed, we have been planning and scheduling services for CoEs since the proposal preparation increasing the collaboration started in POP2 with them. We have compiled a list of applications from each CoE that are interested in receiving POP3 assessments. These expressions of interest represent our primary customer base (see **Error! Reference source not found.**).



CoE	Codes indentified in the support letter	Number of codes
bioExcel-3	GROMACS	1
CEEC	FLEXI, Alya, Nek5000/NekRS, Neko, waLBerla	5
ChEESE2	SeisSol, SPECFEM3D, pTatin3D, TANDEM, HxaHyPE, xSHELLS, HySEA, FALL3D, Open-PDAC, Elmer/ICE, LaMEM	11
EoCoE	<i>Not specified</i>	5
ESiWACE	EC-Earth, IFS, NEMO, ICON	6
EXCELLERAT2	Nekom Alya, M-AIA, VISTLE	6
Hidalgo2	OpenFOAM, EULAG, waLBerla	3
BrainScoEPE	Arbor, NEST, ATLaS, ExTract, MiMiC	6
MAX	Qunatum ESPRESSO, SIESTA, BigDFT, Fleur, Yambo	5
MultiXscale	ESPResSo	3
PermedCoE	PhysBoSS	3
Plasma-PEPSC	BIT1, BIT3, GENE-X, PIconGPU, Vlasiator	4
SPACE	OpenGADGET, PLUTO, RAMSES	3
TREX	<i>Not specified</i>	2
	<b>Total</b>	<b>64 codes. 82 studies</b>

Table 3. Planned CoE Campaigns

The other CoEs will be contacted later to start a collaboration, our collaboration with Castiel2 project can facilitate this aspect. In this context, discussions with certain centres of excellence took place at the Castiel2 AHM in April in Slovakia and a detailed presentation of POP3 services and activities is to be planned with the centres of excellences through the Castiel2 project.

As with POP2, there will be a campaign per CoE for the analysis of the codes submitted by the CoE members. A first campaign started since December 2023 with ChEESE2 CoE such as shown in Table 4.

Code	ChEESE partner	POP partner
HySEA	UMA	BSC
Specfem3D	CNRS	JSC
Elmer/ICE	CSC	HLRS
Fall3D	CSIC	BSC
Tandem	LMU	JSC
LaMEM	UM	HLRS
OpenPDAC	INGV	HLRS
pTatin3D	CNRS	HLRS
ExaHyPE	TUM	AACHEN
xSHELLS	CNRS	HLRS/BSC
SeisSol	LMU	BSC

Table 4. Assessments in progress or completed for the ChEESE2 CoE

## 3.2 Users other than the CoEs

Prospecting for users other than CoEs is quite limited in comparison to POP2. In fact, given that the number of services pre-agreed with the CoEs amounts to 80 services and that the total number of services planned is 120 services, we still need to find 40 other services among manufacturers, ISVs and possibly research organisations.

Of these 40 services, at least 12 should be provided to SMEs. As a result, business development efforts are reduced in POP3 compared to POP2 and all POP3 partners are involved in business development activities. A lead tracking file has been created and must be filled in by the partners each time they identify and contact a possible user.

### *Image lead*

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1																				
2																				
3																				
4																				
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13																				
14																				
15																				

**Figure 11: Shared excel file standing as a CRM to track leads**

Different types of channels are used to acquire POP3 customers. These include:

- List of all former POP1 and POP2 contacts who may or may not have benefited from the services provided by POP.
- Make use of the contacts and the stakeholders of the different partners of the POP.
- Take part in events and conferences as a participant or as an attendee. Some members of the CoE POP have already taken part in events (EuropHPC Summit, ISC, Forum Teratec, etc.). The list of attended events is listed in Table 2: Main Target Dissemination Conferences.
- Webinars and training courses offered by POP CoE members also contribute to business development.
- Use of the official POP website and the websites of all POP partners.
- Use of the official POP newsletter and the newsletters of all POP partners.
- Make best use of working with the NCCs through the Castiel2 project. In fact, the NCC network can provide an excellent address book, rich enough to identify users who are new to POP services.



## 4. Exploitation Plan

The extensive experience of the COE POP teams has enabled us to identify several deliverables from the submission of the proposal. These can be exploited and disseminated to all HPC developers and users through events and conferences attended by our experts, expert reports and publicly available success stories.

In addition, significant contributions can be made to the development of a number of free and open source software solutions (the assessment tools) that are being developed by the POP teams. This includes the following tools:

- Scalasca [3-clause BSD License] (JUELICH)
  - Trace Tools
  - Cube
  - Cube POP Advisor
- BSC performance tools [GNU Lesser General Public License] (BSC)
  - Paraver
  - Extrae
  - Dimemas
  - Basic analysis
  - Clustering
  - Tracking
  - Folding
- Score-P [3-clause BSD License] (JUELICH, RWTH)
- MAQAO and OneView [GNU Lesser General Public License] (UVSQ)
- MERIC and RADAR visualizer [3-clause BSD License] (IT4I@VSB)

The standardised methodology and advanced tools developed in this project will enable the HPC centres - BSC, USTUTT, IT4I@VSB, JUELICH and RWTH - to provide outstanding services to the scientific community using their high-performance computing systems.

To highlight the results and benefits and the impact of code optimisation, the POP teams have planned to attend at least 10 events and conferences. These are listed in the table below:



Event Type	Event Name	No. of Attendees	Target
Conference, Tutorials, Workshops, and Exhibition	ISC (Germany), SC (USA), PASC (Switzerland)	3.000, Over 10.000, 500	Academic and Industrial HPC users, policy makers
Training events	PATC successor, VI-HPS tuning workshops, but also regional events at BSC, USTUTT, RWTH, IT4I, UVSQ, and JUELICH	30 - 50	Training attendees (application developers and performance analysts)
Conference	EuroHPC Summit	300-600	Academic and Industrial HPC users, policy makers
Conference	Teratec Forum	1300	Academic and Industrial HPC users
Conference	HiPEAC Events	300-700	Academic and Industrial HPC users
Conference	HPC User Forum	210	Academic and Industrial HPC users

**Table 5. Foreseen events**

Another notable activity being undertaken in POP3 is co-design, which involves the collection of data on common performance issues in HPC applications and the development of a set of kernels derived from real applications, each of which represents a fundamental performance behaviour. POP3 will maintain and improve the POP website in connection with this activity.

This will provide hardware architects and system software designers from other EU projects with quantitative data to help assess the potential impact of the architectural or software approaches they are using. The kernels also constitute valuable training materials and examples of the advantages of the programming model features and practices promoted by POP CoE. The KPI is to add at least 12 new kernels to the existing database.

In parallel, POP3 will provide application-oriented input and feedback to the developers of the hardware and software platform as part of the European Processor Initiative (EPI). The emphasis will be on three EPI projects: the RHEA ARM processor, the VEC RISC-V accelerator and the STX (Stencil/AI) accelerator. After identifying key applications, we will conduct experiments with simulators and early prototypes, and then analyse the architecture and compiler to identify strengths and weaknesses. Our goal is to share our findings with hardware designers and compiler developers for integration into current or future generations.



## Acronyms and Abbreviations

- 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
- HPC – High Performance Computing
- IPR – Intellectual Property Right
- KPI – Key Performance Indicator
- M – Month
- MS – Milestones
- PEB – Project Executive Board
- PM – Person month / Project manager
- POP – Performance Optimization and Productivity
- POP1 – POP CoE first phase (2015 – 2018)
- POP2 – POP CoE second phase (2019 – 2022)
- POP3 – POP CoE current phase (2024 – 2026)
- R – Risk
- RV – Review
- WP – Work Package
- WPL – Work Package Leader

### POP3 Beneficiaries

- BSC: BARCELONA SUPERCOMPUTING CENTER - CENTRO NACIONAL DE SUPERCOMPUTACION
- FZJ: FORSCHUNGSZENTRUM JÜLICH GMBH
- RWTH: RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN
- IT4I@VSB: TECHNICAL UNIVERSITY OF OSTRAVA
- INESC ID: INSTITUTO DE ENGENHARIA DE SISTEMAS E COMPUTADORES, INVESTIGACAO E DESENVOLVIMENTO EM LISBOA
- TERATEC: TERATEC
- UVSQ: UNIVERSITE DE VERSAILLES SAINT-QUENTIN-EN-YVELINES
- USTUTT: UNIVERSITY OF STUTTGART FOR ITS HIGH PERFORMANCE COMPUTING CENTER STUTTGART



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