



## D2.4 First Customer Feedback Measurement Version 1.0

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## Change Log

Version	Author	Description of Change
V0.1	Saber Zribi	Initial version
V0.2	Saber Zribi	Internal review
V0.3	Saber Zribi	Internal review
V0.5	Samir Ben Chaabane	Teratec internal review
V0.6	Bernd Mohr	POP internal review
V1.0	Samir Ben Chaabane	Final version

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## Executive Summary

This report presents the methodology and findings from the initial customer feedback measurement for the POP3<sup>i</sup> project. It provides a comprehensive analysis of user satisfaction with POP3 services, collected during the first year of the project.

Additionally, the report includes a partial evaluation of the return on investment (ROI) for the completed POP1<sup>ii</sup> and POP2<sup>iii</sup> projects, offering insights into the impact and value delivered through these prior initiatives.

## 1. Introduction

The objective of WP2, Task 2.4 "Customer Advocate," as defined in the project GA, is to ensure that the POP CoE meets user satisfaction goals while advocating for user interests within the project's governance. By systematically gathering and analysing user feedback, the customer advocate helps shape project operations, aiming for a target of over 90% customer satisfaction and 80% response rate.

To support this, we employ the methodology outlined in deliverable D2.1 ("Customer feedback methodology"), which provides a framework for collecting and assessing feedback through multiple touchpoints. User satisfaction for POP3 is measured for performance assessments and second-level service surveys. For the completed POP1 and POP2 projects, a Return on Investment (ROI) analysis was carried out to assess their long-term impact.

Core elements of this feedback process include:

- Inviting users to complete a survey each time they receive a POP service, along with the corresponding report.
- Sharing survey feedback with the relevant POP analysts to ensure services are better aligned with user needs; survey results are also published on the WP3 POP Wiki page<sup>iv</sup> for transparency.
- Referring users interested in additional Second Level Services to the appropriate personnel, so that these requests can be addressed.

The methodology also incorporates follow-up interviews to address specific user concerns and to clarify expectations. Although these steps are part of the feedback strategy, they have not yet been performed at this stage and are planned for future project phases.

These actions are intended to maintain high standards of service quality within the POP CoE, strengthen relationships with users, and build a connected user community. In addition to assessing ROI for the completed POP1 and POP2 projects, the ROI of POP3 will also be evaluated in later stages to further gauge its impact and value. The following sections of this report provide a detailed

analysis of customer feedback and offer recommendations to sustain and enhance the quality of services provided by the POP CoE.

## 2. Customer Methodology and Setup

The customer satisfaction approach relies on a series of carefully designed surveys that assess user experiences and achievements within the POP process. This methodology is essential to ensure that user feedback contributes effectively to services improvement.

### 2.1 Overview of Methodology

The methodology outlined in deliverable D2.1 aims to gather straightforward feedback from POP3 users about the services they receive. It consists of three main questionnaires implemented on the European Commission's EUSurvey platform, which facilitates the creation, management and statistical analysis of surveys, while ensuring the confidentiality of responses.

The three questionnaires include:

- **Performance Assessment Survey (PA):** This survey evaluates user satisfaction with the performance assessment services provided by POP.
- **Second Level Service Survey (SLS):** Replacing the previous Proof of Concept questionnaire, this survey assesses the follow-up services offered after the initial performance assessment, focusing on aspects such as implementation of recommended modifications of the code, potential optimisations and energy efficiency.
- **Return on Investment Survey (ROI):** This survey quantifies the benefits obtained by users, during operating conditions, after implementing the recommendations of POP analysts.

### 2.2 Survey Setup

Surveys are sent to users, inviting them to share their feedback through unique links generated by the EUSurvey platform. The PA and SLS surveys are sent after users receive their service reports, to ensure meaningful and consistent responses, while the ROI survey is sent afterward to evaluate the investment's impact.

The setup ensures that each user can complete the questionnaire only once, promoting the integrity of the data collected.

To maintain confidentiality and trust, the surveys do not request personal data; instead, they only require the report number and application name. The POP project guarantees that all collected data will remain confidential<sup>v</sup>. Consent for publication of the assessment reports is obtained from participants, ensuring compliance with privacy policies<sup>vi</sup>.

The ongoing review process supports POP's continuous improvement goals, helping the team to track progress toward the target of achieving a customer satisfaction rate of over 90%. The ongoing refinement of the methodology ensures that the customer feedback loop remains a key driver of service excellence within the POP framework.

Using the EUSurvey platform, three questionnaires were created to gather targeted feedback on key service areas within the POP framework. As an example, a screen shot of the first page of the performance assessment survey is highlighted here.

### **Important! - Invitation to answer the POP Performance Assessment PA Evaluation (survey)**

Fields marked with \* are mandatory. ×

**Disclaimer**  
The European Commission is not responsible for the content of questionnaires created using the EUSurvey service - it remains the sole responsibility of the form creator and manager. The use of EUSurvey service does not imply a recommendation or endorsement, by the European Commission, of the views expressed within them. ×



#### About the Survey

##### **POP Performance Assessment Evaluation**

Fields marked with \* are mandatory.

Welcome and thank you in advance for answering this survey.

It will only take out a few minutes of your time to complete this short survey.

It's very important for the POP team to appreciate the quality of the performance assessment carried out by POP experts to help you optimise your application.

Thank you for your participation!

As stated in the 'Terms and Conditions', if you become a POP user you agree to give us feedback on the quality of the service you obtain from POP, and grant us permission to publish statistical information on the percentage of potential performance improvement, the potential savings and other equivalent metrics that measure the results and impact of the POP service. Your response is completely confidential, so don't hesitate to answer honestly; POP undertakes that all such data will be anonymized before publication, and that we will not publish any other information concerning the service that we provided to you without your explicit permission. For more details, please see our full 'Data Privacy Policy'.

Your feedback is very important to us as it directly contributes to the improvement of the quality and efficiency of the POP services that we provide.

#### The Survey

\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

\* 2. Application name

**Figure 1: Overview of the Performance Assessment survey developed using the EUSurvey platform**

### 3. Performance Assessment Feedback

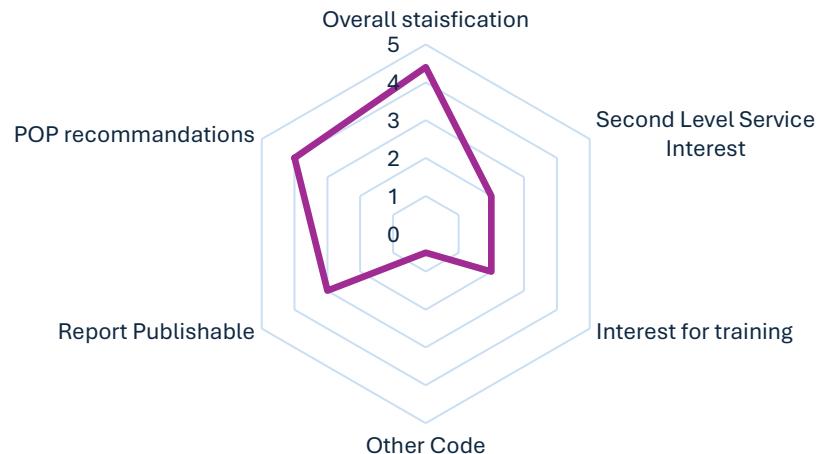
In this section, the results of our POP3 PA service satisfaction survey are presented (Annex 1) and analysed. This analysis will give us a clear understanding of how our customers perceive the quality, performance, and efficiency of the POP3 PA service. Through systematic collection and analysis of POP3 users feedback, we've gained valuable insights into key areas where our services are performing well and others where there's potential for improvement. These insights are being shared with experts to drive targeted enhancements and elevate the overall user experience. By focusing on these findings, we can better address user needs, optimise our processes, and ultimately drive higher levels of satisfaction and loyalty among our customers. Let's take a closer look at the data from the Performance Assessment survey to understand our current service impact and identify opportunities for improvement.

The detailed PA survey answers are presented in Annex 1.

#### Feedback overview

Results from surveys of completed assessments show that users expressed high levels of satisfaction with the POP performance assessment service, indicating that they found it valuable and useful.

The recommendations provided by POP3 experts were also well-received, indicating that the guidance and insights were seen as useful and actionable. Interest in further services, such as second-level support and training, was presented, suggesting that while some users might benefit from deeper engagement or additional instruction, the majority felt that their needs were sufficiently addressed by the initial assessment, underlining its effectiveness in providing appropriate support. To date, only one user has expressed an interest in submitting additional application for analysis. Therefore, the focus remains on optimising the application that users are developing in their COE. The willingness to make the report publishable was 6 of 10, with one user open to public sharing under specific conditions, while 3 preferred to keep results confidential.

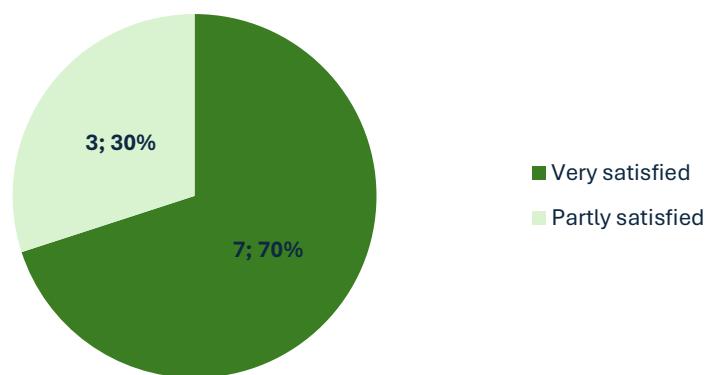


**Figure 2: Feedback overview on Performance Assessment**

### Overall Satisfaction:

The feedback for overall satisfaction with the assessment was highly positive. Most respondents rated their satisfaction as "Very Satisfied", indicating that the majority found the assessment valuable and effective. However, a small number of users rated their satisfaction as "Partly Satisfied," pointing out areas for enhancement. Specifically, issues with the tracing tool, overly broad analysis, and technical difficulties with multi-core profiling were mentioned, suggesting that improvements are needed in the tool's accuracy, analysis depth, and technical stability.

Overall, are you satisfied with this assessment?



**Figure 3: Overall User Satisfaction**

### Performance Assessment Efficiency:

The assessments were mostly rated as "Very Efficient" or "Fairly Efficient," though a few reported difficulties due to technical constraints. The profiling difficulties stemmed from issues with a tracing tool, including unrecognised CUDA special configuration, missing features, and an unidentified bug tool that prevented running on production-size meshes.

How has this performance assessment  
been carried out?

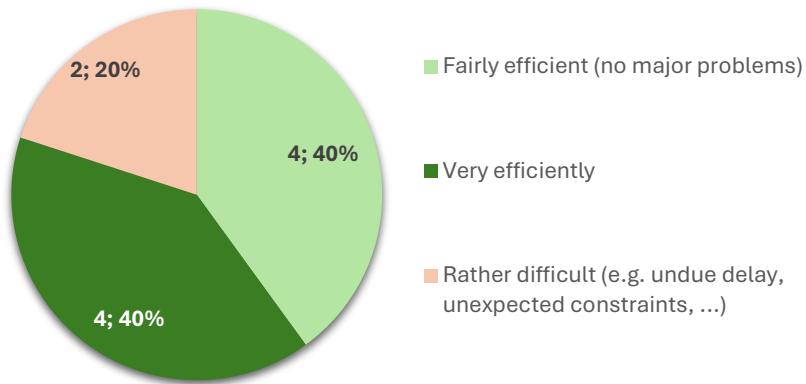


Figure 4: Performance Assessment Efficiency

### Satisfaction of Users Expectations:

Responses varied, with some users reporting that the recommendations confirmed their expectations, while others were surprised by specific findings such as inefficient communications or unexpected kernel execution times. This indicates that the assessments provide valuable new insights for many users, even those already familiar with their applications.

Did this performance analysis  
meet your expectations?

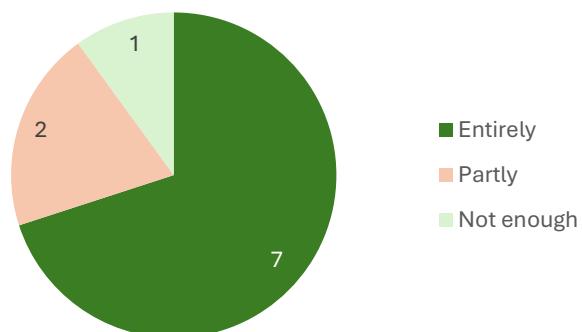


Figure 5: Performance Analysis and user expectations

### Performance Assessment Report:

Most participants found the assessment report 'Easy to Understand and Clear,' with only one user indicating it was 'Somewhat Difficult to Understand.' This suggests a high level of satisfaction with the clarity and presentation of the results, although there may be opportunities to simplify explanations for more complex findings. Please note that the final reports and findings are presented to the users by the experts during an online meeting.

#### How did you find the Performance Assessment Report?

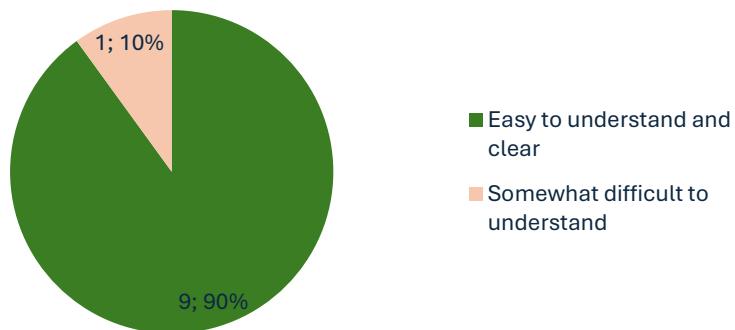


Figure 6: Performance Assessment Report

### User Effort Required for Performance Assessment Completion:

The effort required by the users to complete the performance assessment. Most respondents (60%) reported it took a few person days, while 20% estimated it took a few person weeks. Ten percent each either took a few person months (we think this user is referring to elapsed time) or were unsure (I don't know). This shows that the majority of users found that the assessment requires little effort for them.

#### How much effort was required from you to complete this Performance Assessment?

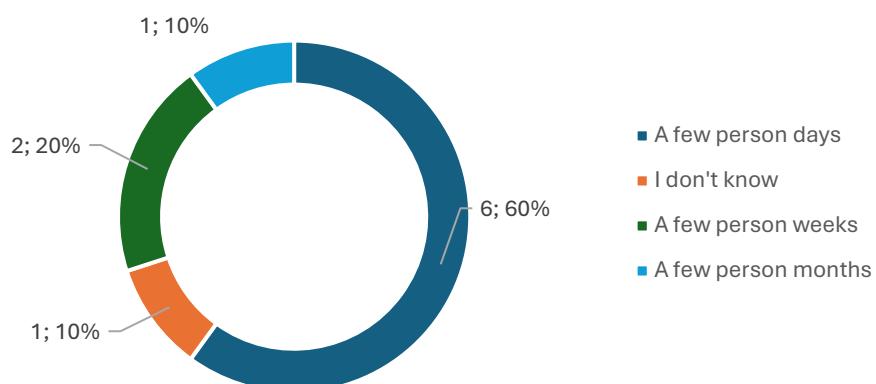
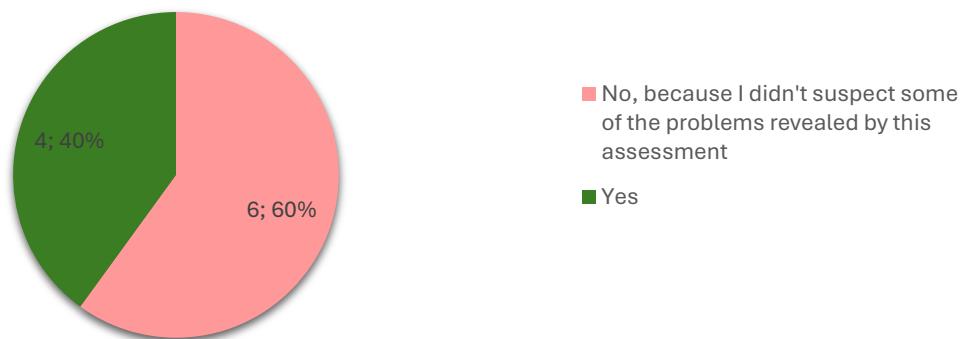


Figure 7: Estimated user Effort for Completing the Performance Assessment

### Did users suspected that were identified:

The majority (60%) indicated that the recommendations did not just confirm previous knowledge, as they revealed new problems that were not previously suspected. On the other hand, 40% of respondents felt that the recommendations did confirm what they already knew from prior analysis or their own experience. This indicates that while most participants gained new insights, and a significant portion found the recommendations aligned with their existing understanding.

Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?



**Figure 8: Confirmation or not of the expectation of the users**

### Unexpected problems:

Unexpected issues included load balancing problems in some CUDA kernels, delayed communications due to prolonged kernel execution times, and a specific rank handling disproportionately high data transfers, resulting in increased compute time. Below are the unexpected issues of the applications analysed discovered during the assessment:

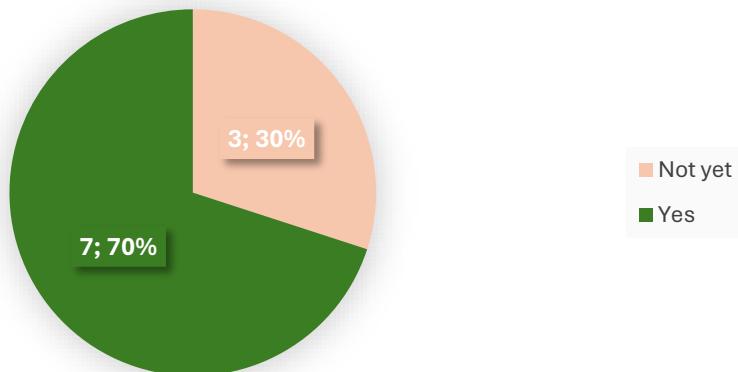
Report Id	Application name	Problems
POP3_AR_001	Tsunami-HySEA	Some CUDA kernels with low load balancing numbers
POP3_AR_004	FALL3D	Inefficient communications (MPI, I/O, ...); Poor scalability
POP3_AR_008	xshells	Inefficient communications (MPI, I/O, ...); Some kernel execution times are delaying dependent communications; I did not expect this at all.
POP3_AR_009	tandem	One specific rank sends and receives much more data than others and takes more than twice compute time

**Table 1: Performance Assessment Problems**

### **Code modification:**

The majority of respondents indicated that they plan to modify their code, with completion expected within a timeframe ranging from a few months to over a year. Some have already initiated the implementation of recommendations, which demonstrates a clear commitment to applying the findings to enhance their application performance.

### **Do You Have a Plan to Modify Your Code Based on the Recommendations?**



**Figure 9: Intention of code modification**

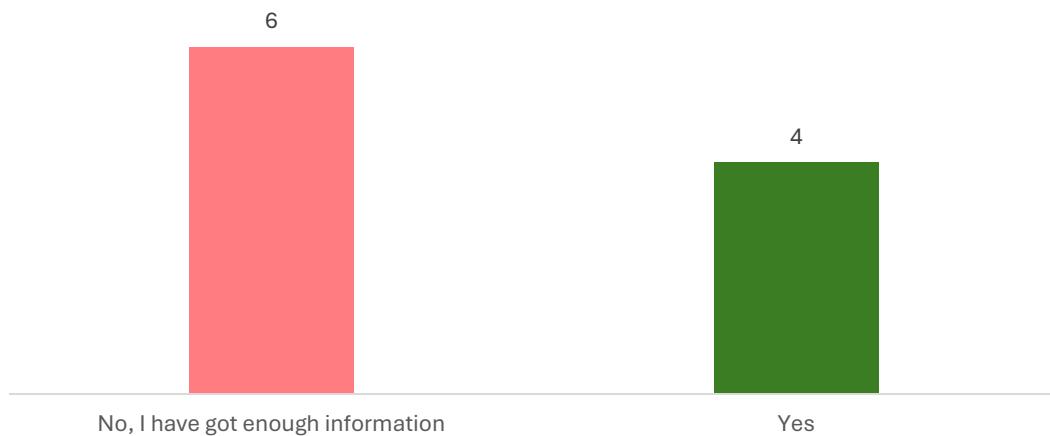
### **Additional Applications for Performance Assessment:**

Interest to submit additional applications for assessments was generally low, with most users focusing on optimising their primary application they are developing. This is understandable, as the majority of the analysed codes during this first year come from COEs, and users are primarily concerned with their COE-related development. Only one of ten users expressed potential interest in submitting other codes, depending on future project needs.

### **Interest in Second Level Service:**

Interest in additional services was 4 from 10, with a few users open to further support such as proof-of-concept or advisory studies.

Are you interested in a Second Level service?

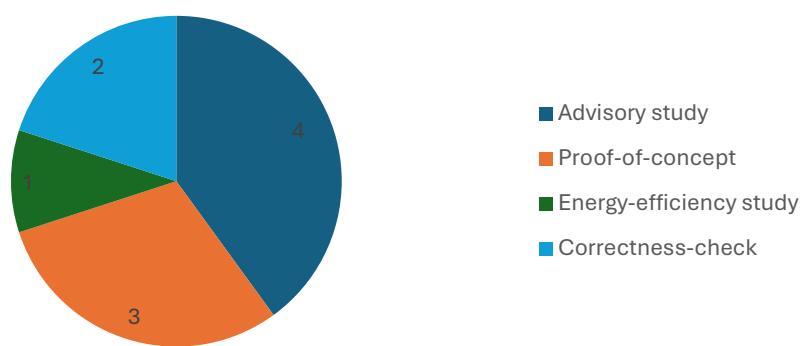


**Figure 10: Second Level Service Interest**

Second Level Services (SLS) include four types of services—Advisory study, Proof-of-concept, Energy efficiency study, and Correctness-check—and users have the option to select multiple services.

Interest in Second Level Services highlights a strong preference for advisory studies and proof-of-concept services. In comparison, there is noticeably less enthusiasm for energy-efficiency studies and correctness-check services. This suggests that participants are more inclined toward strategic guidance and practical demonstrations before asking for energy efficiency assessments or validation checks.

Which service would you be interested in?



**Figure 11: Second Level Service Interest by Type**

### **Training:**

Interest in training was 4 from 10, with some users expressing a need for specific skills, like creating performance plots or profiling. However, the majority

of respondents were satisfied that the current evaluation process provided them with sufficient information.

Would you be interested in receiving any training on performance assessment?

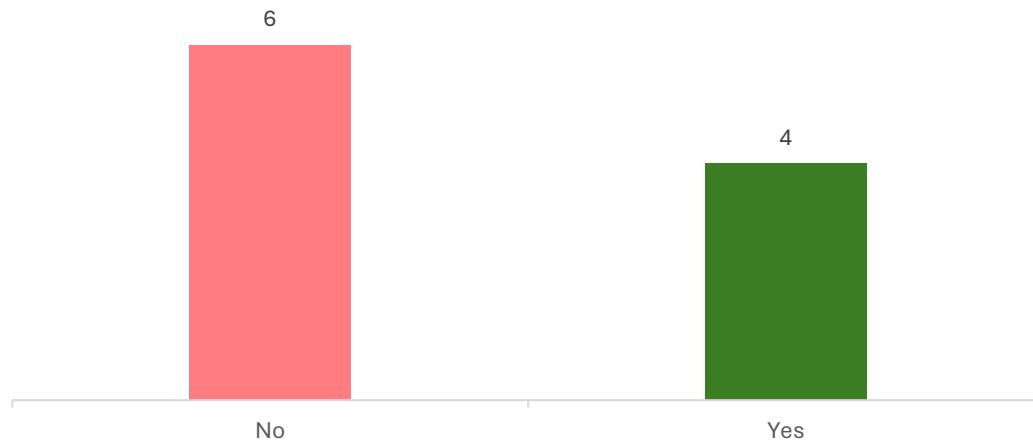


Figure 12: Interest in trainings

#### Willingness to Recommend the POP Service

Most respondents said they would be very likely to recommend the POP service. They pointed to the helpful insights and efficient support. Two were hesitant, often due to limited experience or technical challenges faced during the assessment.

Would you recommend the POP service to your colleagues or partner?

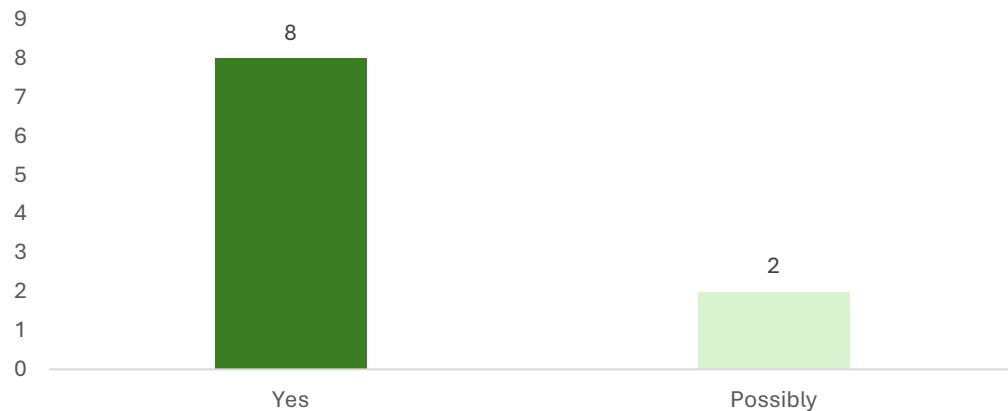


Figure 13: POP Service Recommendation

### Potential Willingness to Invest in Future Performance Assessment Services:

While some users were uncertain, only one user expressed a preliminary readiness to pay for this type of services in the future, typically depending on funding and internal policies. This suggests that our contacts are not the decision-makers, and for researchers, computing hours are typically considered free, as they are usually funded by national and European grants.

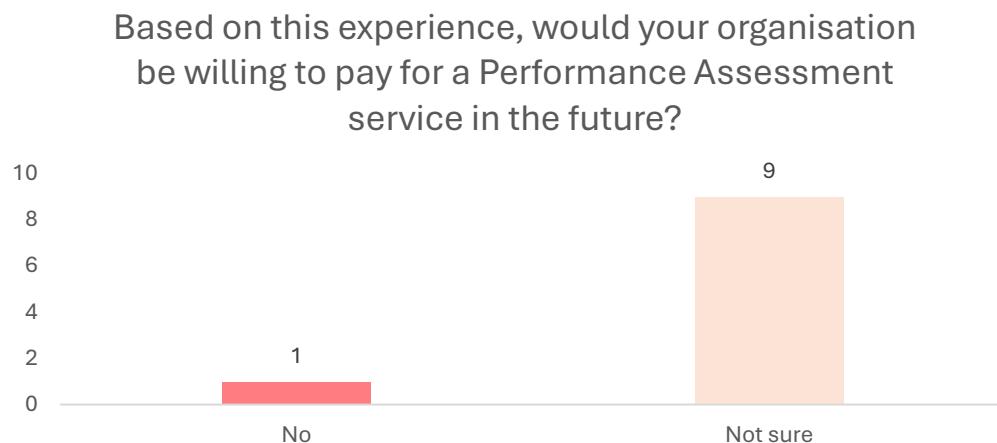


Figure 14: Willingness to pay for such services

### Agreement to Publish Performance Assessment Results:

The willingness to publish results varied. Most respondents were open to publication, particularly under conditions such as prior review. Others preferred to keep their results private, suggesting a mixed response and the importance of offering an opt-in publication policy.

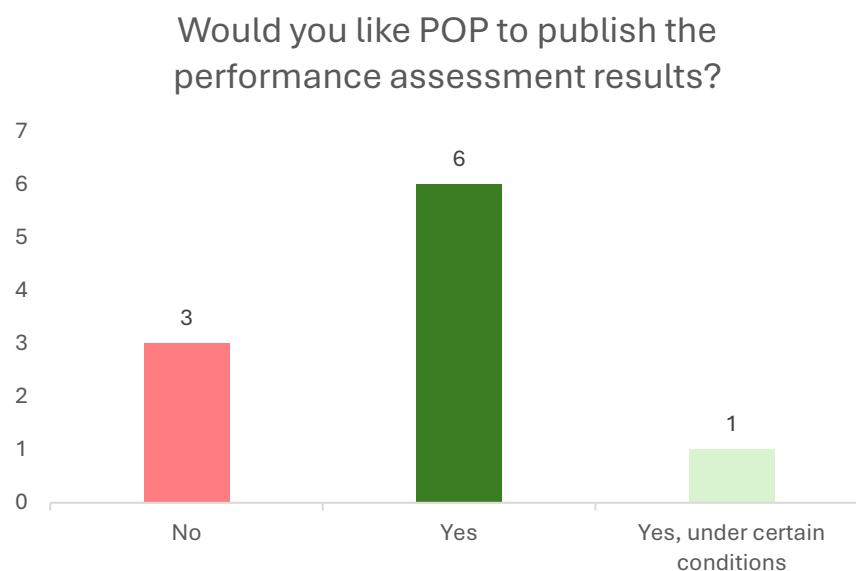


Figure 15: Publication of Performance Assessment Results

## 4. Second Level Service Feedback

POP3's **Second Level Service** provides deeper insights into application behaviour after the initial performance assessment, focusing on:

- **Proof-of-concept:** Testing proposed optimisations in specific application areas.
- **Correctness-check:** Ensuring accuracy of hybrid MPI + OpenMP applications.
- **Energy-efficiency study:** Exploring ways to enhance energy efficiency or reduce consumption.
- **Advisory support:** Ongoing guidance for users implementing optimisations independently.

Only one Second Level Service has been completed so far, and we currently lack sufficient feedback to draw meaningful conclusions or provide a comprehensive representation of its impact. As a result, a detailed study and analysis of user feedback will be conducted at a later stage, once more SLS are completed and additional data becomes available. This will allow us to better evaluate the effectiveness of this type of services and identify areas for improvement.

## 5. Return On Investment Feedback

Approximately one hundred users from POP1 and POP2 were invited to complete the ROI questionnaire and 24 of these invitations were unsuccessful. The people who were involved in these analyses are no longer part of their institution. We only received 7 responses (Annex 2) despite multiple follow-ups. This low response rate can be due to the fact that some of the assessments are several years old.

The ROI survey explores several key areas, including the effort and costs required for code refactoring and the implementation of recommendations, the value and benefits derived from the analysis, and overall satisfaction with the outcomes. Furthermore, it aims to understand how participants perceive the efficiency and value of the implementation of the recommendations, particularly whether the results meet or exceed their expectations.

The ROI survey responses are presented in Annex 2.

### **POP1 and POP2 Recommendations Implementation:**

The survey results show that most respondents implemented only part of the recommended modifications, which can be seen as a positive sign. It suggests that respondents carefully evaluated the suggestions and focused on the most impactful changes, rather than trying to implement everything at once.

Did you implement all the modifications that were recommended by POP experts?

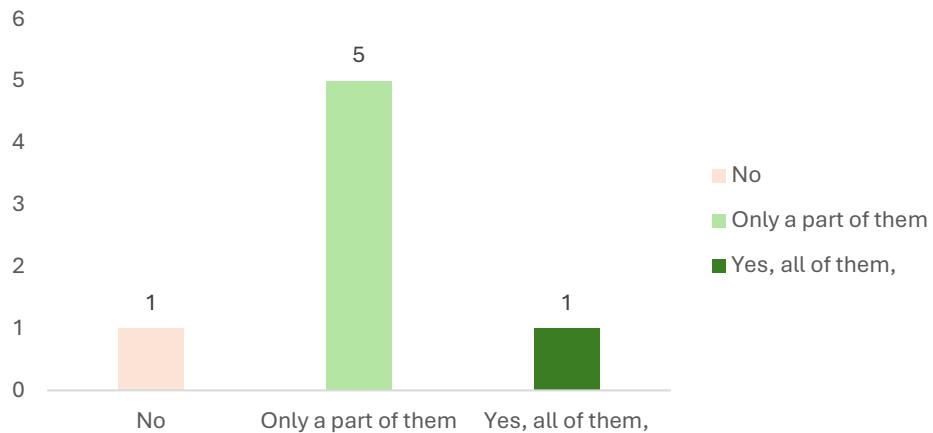


Figure 16: Implementation of Recommended Modifications

#### Refactoring Effort:

The effort required for refactoring varied significantly, ranging from a few days to several months, depending on the complexity of the application.

How much effort was required from you to complete this Performance Assessment?

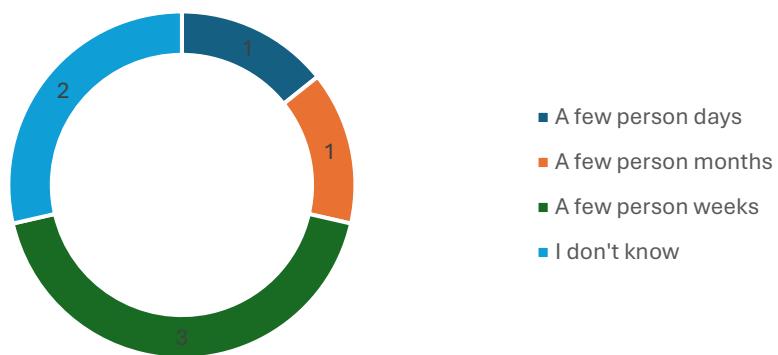


Figure 17: Effort Required for Code Refactoring

#### POP1 and POP2 Benefits:

Respondents saw improvements in scalability, reduced hardware costs, and increased performance profiling awareness, leading to better overall efficiency. The table below outlines the benefits of POP1 and POP2:

POP Benefits
Better scalability
More knowledge and awareness of performance profiling; POP report was used as supplementary material in application for compute resources
Better scalability; Reduced hardware costs; More knowledge and awareness of performance profiling
Better scalability; Ability to run larger problems; Improved workflow by reducing runtime; More knowledge and awareness of performance profiling
Better scalability; More knowledge and awareness of performance profiling; Other
More knowledge and awareness of performance profiling; Other
Ability to run larger problems; Improved workflow by reducing runtime; More knowledge and awareness of performance profiling; POP report was used as supplementary material in application for compute resources; Based on the POP report an allocation on a bigger system (e.g., PRACE) was granted

Table 2: POP 1 – POP 2 Benefits

### Runtime Reduction:

Many respondents reported runtime reductions ranging from 10% to 25%, with one organisation achieving a significant reduction from 20 to 10 minutes.

What reduction in runtime did you obtain from the refactoring of your application?

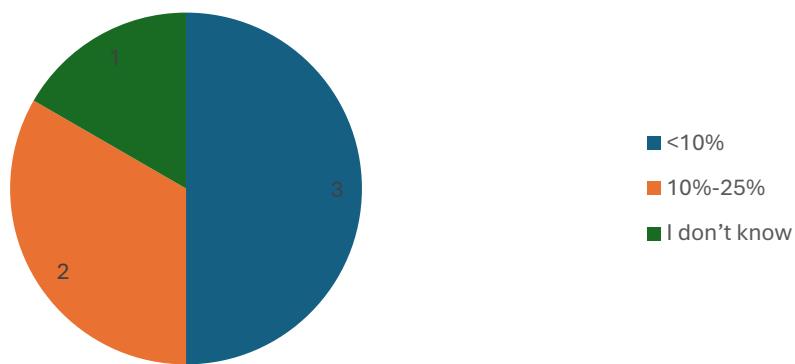


Figure 18: Runtime Reduction Achieved Post-Refactoring

### Benefits for the organisation:

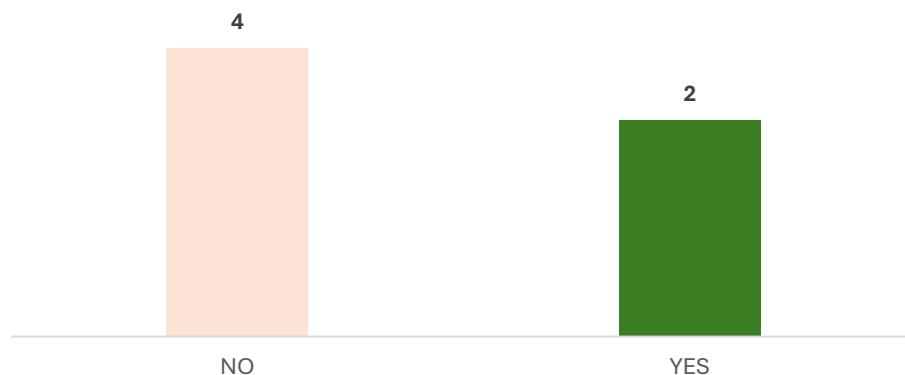
Improved performance, enabling better products, services and operations, as well as the ability to manage more complex tasks and models, were the main benefits highlighted by the users surveyed. The benefits for the organisations when after implementation of the POP analysts recommendations are mainly:

- Use this application for own business (e.g. to develop/enhance products, processes, and/or services)
- Use the application to provide modelling/simulation services to our customers

#### **Energy Optimisation Interest:**

Three out of seven users expressed interest in optimising energy performance, with a few mentioning potential cost savings, but it was not a priority for most of them. Those interested will be contacted and invited to apply for this service.

Are you interested in the analysis and  
optimisation of the energy performance of your  
code?



**Figure 19: Interest in Energy Performance Optimisation**

## 6. Conclusion

The Performance Assessment survey hasn't yet reached its official KPI of a 90% satisfaction rate. Only 70% of respondents are "very satisfied" or "satisfied" with the PA. Three users said they were "partly satisfied". This may be due to disappointed expectations of improvement following the PA or difficulties in using some of the profiling tools.

The second KPI of an 80% response rate (83%) was achieved, reflecting the strong commitment of the participants and the effectiveness of the outreach efforts. These results also highlight the positive reception and high level of interest in the evaluation process.

The report's findings show high levels of satisfaction with the POP performance assessment service, with users valuing the actionable recommendations and support provided. The performance assessment effectively addressed most users' needs.

The second-level service, which aims to offer deeper insights, is still in the early stages, with only one service completed thus far. As a result, additional feedback will be needed to fully assess its impact, and further analysis will be conducted once more projects are completed.

Regarding return on investment (ROI), the ongoing survey is assessing the effort required to implement the recommendations, their perceived value, and overall satisfaction with the results. The survey indicates that most respondents have implemented the suggested changes, leading to significant performance improvements.

## Acronyms and Abbreviations

- CoE – Centre of Excellence
- CUDA – Compute Unified Device Architecture
- D – deliverable
- EC – European Commission
- GA – Grant Agreement
- HPC – High Performance Computing
- I/O – Input/Output
- KPI – Key Performance Indicator
- M – Month
- MPI – Message Passing Interface
- NAG – Numerical Algorithms Group
- PA – Performance Assessment
- PM – Person month / Project manager
- PoC – Proof of Concept
- POP – Performance Optimisation and Productivity
- ROI – Return On Investment
- SLS – Second Level Service
- WP – Work Package

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## References

<sup>i</sup> POP3 refers to the third phase of POP, Jan 2024-Dec 2026, Grant agreement 101143931

<sup>ii</sup> POP1 refers to the first phase of POP, Oct 2015-March 2018, Grant agreement 676553

<sup>iii</sup> POP2 refers to the first phase of POP, Dec 2018-Nov 2021, Grant agreement 824080

<sup>iv</sup> POP3 Wiki Page, [https://wiki3.pop-coe.eu/index.php/Main\\_Page](https://wiki3.pop-coe.eu/index.php/Main_Page)

<sup>v</sup> POP Service Terms and Conditions, [https://pop-coe.eu/sites/default/files/public/popw1/POP\\_Terms\\_and\\_Conditions.pdf](https://pop-coe.eu/sites/default/files/public/popw1/POP_Terms_and_Conditions.pdf)

<sup>vi</sup> POP Data Privacy Policy, <https://pop-coe.eu/contact/privacy-policy>



## D2.4 First Customer Feedback Measurement

### Annex 1

### Version 0.5

#### Document Information

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## Change Log

Version	Author	Description of Change
V0.1	Saber Zribi	Initial version
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V0.3	Saber Zribi	Internal review
V0.5	Samir Ben Chaabane	Teratec internal review



## **Annex 1: Results of the POP3 Performance Assessment Survey**

# Important! - Invitation to answer the POP Performance Assessment PA Evaluation (survey)

Fields marked with \* are mandatory.



## About the Survey

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### POP Performance Assessment Evaluation

Fields marked with \* are mandatory.

**Welcome and thank you in advance for answering this survey,  
it will only take out a few minutes of your time to complete this short survey.**

It's very important for the POP team to appreciate the quality of the performance assessment carried out by POP experts to help you optimise your application.

Thank you for your participation!

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# The Survey

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\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_001

\* 2. Application name

Tsunami-HySEA

\* 3. Who collected the performance analysis data?

- Yourselves
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

Which problems were unexpected?

- Inefficient use of simultaneous threads
- Lack of (or inefficient) use of vectorization
- Inefficient use of memory
- Inefficient communications (MPI, I/O, ...)
- Poor scalability
- Load imbalance
- Other (please specify)

Which other problems?

Some CUDA kernels with low load balancing numbers

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 1 person month, 2 person weeks or 4 person days)?

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

- Yes
- No, I have got enough information

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

- Yes
- No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

- Yes
- Not yet

No, we don't plan to modify our code

When approximately, do you expect to have all needed modifications done and validated?

Please enter a date in the following format (DD/MM/YYYY)

The code modifications are finished but the new scaling has not been evaluated yet

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

Yes  
 No

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

Yes  
 Not sure  
 No

Could you say why?

\* 17. Would you recommend the POP service to your colleagues or partner?

Yes  
 Possibly  
 No

**The end**

---

**Thank you very much.**

## Contact

[Contact Form](#)

# Important! - Invitation to answer the POP Performance Assessment PA Evaluation (survey)

Fields marked with \* are mandatory.



## About the Survey

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# The Survey

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\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_002

\* 2. Application name

specfem3d

\* 3. Who collected the performance analysis data?

- Yourselves
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 1 person month, 2 person weeks or 4 person days)?

3 person days

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

- Yes
- No, I have got enough information

Which service would you be interested in?

Note: You can tick several boxes

- Proof-of-concept
- Correctness-check
- Energy-efficiency study
- Advisory study

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

- Yes
- No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

- Yes
- Not yet
- No, we don't plan to modify our code

When approximately, do you expect to have all needed modifications done and validated?

Please enter a date in the following format (DD/MM/YYYY)

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

Yes  
 No

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

Yes  
 Not sure  
 No

Could you say why?

\* 17. Would you recommend the POP service to your colleagues or partner?

Yes  
 Possibly  
 No

**The end**

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# The Survey

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\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_003

\* 2. Application name

Elmer

\* 3. Who collected the performance analysis data?

- Yourselves
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 1 person month, 2 person weeks or 4 person days)?

Our very talented summer trainee was running the experiments. Together with Jose Gracia (HSRL) we then worked over the report. I don't have exact timings, but every action perhaps took a few days in total.

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

- Yes
- No, I have got enough information

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

- Yes
- No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

- Yes
- Not yet
- No, we don't plan to modify our code

When approximately, do you expect to have all needed modifications done and validated?

Please enter a date in the following format (DD/MM/YYYY)

31/12/2025

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

- Yes
- No

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

- Yes
- Not sure
- No

Could you say why?

CSC, being a scientific data centre, does analysis on their own

\* 17. Would you recommend the POP service to your colleagues or partner?

- Yes
- Possibly
- No

**The end**

---

**Thank you very much.**

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# The Survey

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\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_004

\* 2. Application name

FALL3D

\* 3. Who collected the performance analysis data?

- Yourselves
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

Which problems were unexpected?

- Inefficient use of simultaneous threads
- Lack of (or inefficient) use of vectorization
- Inefficient use of memory
- Inefficient communications (MPI, I/O, ...)
- Poor scalability
- Load imbalance
- Other (please specify)

Which other problems?

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 1 person month, 2 person weeks or 4 person days)?

1 person week

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

- Yes
- No, I have got enough information

Which service would you be interested in?

Note: You can tick several boxes

- Proof-of-concept
- Correctness-check
- Energy-efficiency study
- Advisory study

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

- Yes
- No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

- Yes
- Not yet
- No, we don't plan to modify our code

Could you say why?

Work required

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

- Yes
- No

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

- Yes
- Not sure
- No

Could you say why?

\* 17. Would you recommend the POP service to your colleagues or partner?

- Yes
- Possibly
- No

**The end**

---

**Thank you very much.**

**Contact**

[Contact Form](#)

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## About the Survey

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# The Survey

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\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_005

\* 2. Application name

ExaHyPE 2

\* 3. Who collected the performance analysis data?

- Yourselfs
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

Which problems were unexpected?

- Inefficient use of simultaneous threads
- Lack of (or inefficient) use of vectorization
- Inefficient use of memory
- Inefficient communications (MPI, I/O, ...)
- Poor scalability
- Load imbalance
- Other (please specify)

Which other problems?

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months
- I don't know

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

Which kind of training does your team need?

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

- Yes
- No, I have got enough information

Which service would you be interested in?

Note: You can tick several boxes

- Proof-of-concept
- Correctness-check
- Energy-efficiency study
- Advisory study

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

- Yes
- No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

- Yes
- Not yet
- No, we don't plan to modify our code

When approximately, do you expect to have all needed modifications done and validated?

Please enter a date in the following format (DD/MM/YYYY)

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

- Yes
- No

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

- Yes
- Not sure
- No

Could you say why?

I don't know the guidelines of my organisation in that matter

\* 17. Would you recommend the POP service to your colleagues or partner?

- Yes
- Possibly
- No

**The end**

---

**Thank you very much.**

**Contact**

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## About the Survey

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# The Survey

---

\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_006

\* 2. Application name

SeisSol

\* 3. Who collected the performance analysis data?

- Yourselves
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

Could you say why?

Problems with the tracing tool (Extrae); several of our configurations causing internal bugs and thus required debugging of Extrae itself—and that was what I spent most of the time on. (problems were: statically-linked CUDA was not recognized correctly; also the OpenMP+CUDA variant does not support pthread (it will segfault then), but will not warn you if you use them anyways)  
Furthermore, there was a lack of features. (CUDA graphs; the version MPI+pthread+CUDA had to be added to the build scripts manually)  
One further bug that could not be identified (it could be from Extrae; maybe not) prevented us from running on production-size meshes. Thus, the analysis was mostly carried out on smaller test mesh results.

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 1 person month, 2 person weeks or 4 person days)?

2 person months

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

Could you say why?

The tracing tool was only working on smaller meshes in the end—thus we unfortunately could not gather data representative of production runs of our software.

Do you have any suggestions on how to improve the performance assessment process?

Let the tracing be done by POP perf. analysis experts, if we don't make it immediately.

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

Could you say why?

Reasons stated above; problems with the tracing tool.

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

Yes  
 No, I have got enough information

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

Yes  
 No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

Yes  
 Not yet  
 No, we don't plan to modify our code

Could you say why?

One of the identified problems (too fine-grained CUDA kernels) were known to us before already; and are partially mitigated by using CUDA graphs—i.e. they were already handled at the time of the tracing, but the tracing software could not handle them.

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

Yes  
 No

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

Yes  
 Not sure  
 No

Could you say why?

Above-mentioned experiences. However: since SeisSol is becoming a bit more popular, contact to vendors (NVIDIA, AMD) has been built up—and those also sometimes complete smaller performance analyses from their side.

\* 17. Would you recommend the POP service to your colleagues or partner?

Yes  
 Possibly  
 No

Could you say why?

Too little experience with POP to give a more conclusive statement. (but too little positive experience to say "yes")

The end

---

Thank you very much.

## Contact

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# The Survey

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\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_008

\* 2. Application name

xshells

\* 3. Who collected the performance analysis data?

- Yourselfs
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

Which problems were unexpected?

- Inefficient use of simultaneous threads
- Lack of (or inefficient) use of vectorization
- Inefficient use of memory
- Inefficient communications (MPI, I/O, ...)
- Poor scalability
- Load imbalance
- Other (please specify)

Which other problems?

some kernel execution times are delaying dependent communications; I did not expect this at all.

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 1 person month, 2 person weeks or 4 person days)?

2 person days

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

- Yes
- No, I have got enough information

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

- Yes
- No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

- Yes
- Not yet

No, we don't plan to modify our code

When approximately, do you expect to have all needed modifications done and validated?

Please enter a date in the following format (DD/MM/YYYY)

01/04/2025

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

Yes  
 No

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

Yes  
 Not sure  
 No

Could you say why?

Depends on funding we have. We can also spend this kind of effort in-house (would take some time though)

\* 17. Would you recommend the POP service to your colleagues or partner?

Yes  
 Possibly  
 No

**The end**

---

**Thank you very much.**

**Contact**

[Contact Form](#)

# Important! - Invitation to answer the POP Performance Assessment PA Evaluation (survey)

Fields marked with \* are mandatory.



## About the Survey

---

### POP Performance Assessment Evaluation

Fields marked with \* are mandatory.

**Welcome and thank you in advance for answering this survey,**

it will only take out a few minutes of your time to complete this short survey.

It's very important for the POP team to appreciate the quality of the performance assessment carried out by POP experts to help you optimise your application.

Thank you for your participation!

As stated in the '[Terms and Conditions](#)', if you become a POP user you agree to give us feedback on the quality of the service you obtain from POP, and grant us permission to publish statistical information on the percentage of potential performance improvement, the potential savings and other equivalent metrics that measure the results and impact of the POP service. Your response is completely confidential, so don't hesitate to answer honestly; POP undertakes that all such data will be anonymized before publication, and that we will not publish any other information concerning the service that we provided to you without your explicit permission. For more details, please see our full '[Data Privacy Policy](#)'.

**Your feedback is very important** to us as it directly contributes to the improvement of the quality and efficiency of the POP services that we provide.

# The Survey

---

\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_009

\* 2. Application name

tandem

\* 3. Who collected the performance analysis data?

- Yourselves
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

Which problems were unexpected?

- Inefficient use of simultaneous threads
- Lack of (or inefficient) use of vectorization
- Inefficient use of memory
- Inefficient communications (MPI, I/O, ...)
- Poor scalability
- Load imbalance
- Other (please specify)

Which other problems?

one specific rank sends and receives much more data than others and takes more than twice compute time

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 1 person month, 2 person weeks or 4 person days)?

2 person weeks

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

Do you have any suggestions on how to improve the performance assessment process?

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

Could you say why?

the analysis is too coarse grain, and would require a follow up work to better identify the cause of the load imbalances

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

Which kind of training does your team need?

to learn how to get to plots like compute time and byte transfer distribution

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

- Yes
- No, I have got enough information

Which service would you be interested in?

Note: You can tick several boxes

- Proof-of-concept
- Correctness-check
- Energy-efficiency study
- Advisory study

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

- Yes
- No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

- Yes
- Not yet
- No, we don't plan to modify our code

When approximately, do you expect to have all needed modifications done and validated?

Please enter a date in the following format (DD/MM/YYYY)

30/08/2025

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

- Yes
- No

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

- Yes
- Not sure
- No

Could you say why?

\* 17. Would you recommend the POP service to your colleagues or partner?

- Yes
- Possibly
- No

Could you say why?

The end

---

**Thank you very much.**

**Contact**

[Contact Form](#)

# Important! - Invitation to answer the POP Performance Assessment PA Evaluation (survey)

Fields marked with \* are mandatory.



## About the Survey

---

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**Your feedback is very important** to us as it directly contributes to the improvement of the quality and efficiency of the POP services that we provide.

# The Survey

---

\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_010

\* 2. Application name

iPic3D

\* 3. Who collected the performance analysis data?

- Yourselfs
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

Which problems were unexpected?

- Inefficient use of simultaneous threads
- Lack of (or inefficient) use of vectorization
- Inefficient use of memory
- Inefficient communications (MPI, I/O, ...)
- Poor scalability
- Load imbalance
- Other (please specify)

Which other problems?

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 1 person month, 2 person weeks or 4 person days)?

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

Which kind of training does your team need?

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

- Yes
- No, I have got enough information

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

- Yes
- No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

- Yes
- Not yet
- No, we don't plan to modify our code

When approximately, do you expect to have all needed modifications done and validated?

Please enter a date in the following format (DD/MM/YYYY)

01/04/2025

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

- Yes
- No

How many and when do you plan to get them assessed?

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

- Yes
- Not sure
- No

Could you say why?

Whilst I would be willing to do it in the future, I can't speak for the organisation.

\* 17. Would you recommend the POP service to your colleagues or partner?

- Yes
- Possibly
- No

**The end**

---

**Thank you very much.**

**Contact**

[Contact Form](#)

# Important! - Invitation to answer the POP Performance Assessment PA Evaluation (survey)

Fields marked with \* are mandatory.



## About the Survey

---

### POP Performance Assessment Evaluation

Fields marked with \* are mandatory.

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**Your feedback is very important** to us as it directly contributes to the improvement of the quality and efficiency of the POP services that we provide.

# The Survey

---

\* 1. Report Reference Identifier

POP3\_AR\_nnn (Indicated on the front page of the Performance Assessment Report)

POP3\_AR\_012

\* 2. Application name

OpenPDAC

\* 3. Who collected the performance analysis data?

- Yourselves
- You did it with the help of a POP performance analysis expert
- A POP performance analysis expert

\* 4. How has this performance assessment been carried out?

- Very efficiently
- Fairly efficient (no major problems)
- Rather difficult (e.g. undue delay, unexpected constraints, ...)
- Poorly managed

Could you say why?

Issues with the profiling of our application

\* 5. How did you find the Performance Assessment Report?

- Easy to understand and clear
- Somewhat difficult to understand
- Not clear at all

\* Could you say why?

Not easy to interpret at first

\* 6. Did the recommendations simply confirm what you already knew from a previous analysis or from your own experience?

- Yes
- No, because I didn't suspect some of the problems revealed by this assessment
- No, because I was unaware of possible problems

\* 7. How much effort was required from you to complete this Performance Assessment? (rough estimate of person days/months)

- A few person days
- A few person weeks
- A few person months

I don't know

Could you specify the effort you spent more precisely (e.g. 1 person month, 2 person weeks or 4 person days)?

\* 8. Did this performance analysis meet your expectations?

- Entirely
- Partly
- Not enough
- Not at all

Do you have any suggestions on how to improve the performance assessment process?

\* 9. Overall, are you satisfied with this assessment?

- Very satisfied
- Satisfied
- Partly satisfied
- Not Satisfied

Could you say why?

technical difficulties prevented profiling our applications on many cores

\* 10. Would you like POP to publish the performance assessment results?

Note: You will be able to review any article before it is published.

- Yes
- Yes, under certain conditions
- No

Under which conditions (in addition to the review of the article before publication)?

\* 11. Would you be interested in receiving any training on performance assessment?

- Yes
- No

Which kind of training does your team need?

profiling

\* 12. Are you interested in a Second Level service? (To get a better understanding of how your application can be refactored to address some of the issues that were found in the Performance Assessment)

Yes  
 No, I have got enough information

\* 13. Are you interested in an analysis and potential improvement of the energy-efficiency of your application?

Yes  
 No, not at this stage

\* 14. Do you have a plan to modify your code (considering the proposed recommendations)?

Yes  
 Not yet  
 No, we don't plan to modify our code

Could you say why?

\* 15. Do you have any other applications for which it would be useful to have a performance assessment?

Yes  
 No

\* 16. Based on this experience, would your organisation be willing to pay for a Performance Assessment service in the future? (After the end of the European Commission funded POP project.)

Yes  
 Not sure  
 No

Could you say why?

\* 17. Would you recommend the POP service to your colleagues or partner?

Yes  
 Possibly  
 No

**The end**

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**Thank you very much.**

## Contact

[Contact Form](#)



## D2.4 First Customer Feedback Measurement

### Annex 2

### Version 0.5

#### Document Information

Contract Number	101143931
Project Website	<a href="http://www.pop-coe.eu">www.pop-coe.eu</a>
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## Change Log

Version	Author	Description of Change
V0.1	Saber Zribi	Initial version
V0.2	Saber Zribi	Internal review
V0.3	Saber Zribi	Internal review
V0.5	Samir Ben Chaabane	Teratec internal review



## **Annex 2: Results of the POP1 and POP2 Return-on-Investment Survey**

# Important! - Invitation to answer the POP Performance Improvement ROI Evaluation (survey)



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## POP Performance Improvement ROI Evaluation

Fields marked with \* are mandatory.

**Welcome and thank you in advance for answering this survey,**

**it will only take out a few minutes of your time to complete this short survey.**

It's very important for the POP project to strive and improve the return on your investment, which has been carried out for you by the POP, to give an awesome profitability prospect to our customers.

In this regard, this survey is intended to collect data enabling us to evaluate:

1. The **total cost of effort** spent to assess the performance of your application; to identify how the code could be improved; and to implement the recommended modifications.
2. The **total gain** resulting from this refactoring.

We can then measure the **Return on Investment** (total gain / total cost of effort).

As stated in the '[Terms and Conditions](#)', if you become a POP user you agree to give us feedback on the quality of the service you obtain from POP, and grant us permission to publish statistical information on the percentage of potential performance improvement, the potential savings and other equivalent metrics that measure the results and impact of the POP service. Your response is completely confidential, so don't hesitate to answer honestly; POP undertakes that all such data will be anonymized before publication, and that we will not publish any other information concerning the service that we are providing to you without your explicit permission. For more details please see our full [Data Privacy Policy](#).

**Your feedback is extremely valuable** for us to understand your needs and how we can improve the quality and efficiency of the POP services.

---

1. Report Reference Identifier POP1

(or 2)\_AR\_nnn (Indicated on the front page of the Performance Assessment Report, please specify the project number POP1 or POP2)

POP2\_AR\_110

2. Application name

BDDCML

3. Did you implement all the modifications that were recommended by POP experts?

- Yes, all of them
- Only a part of them

Could you say why?

Some recommendations would require a larger code refactoring.

4. Did you also add new features or evolve some of the algorithms while refactoring the code of your application?

- Yes
- No

**If yes, please do your best, while answering the following questions to report only code refactoring costs and associated gains from the POP recommendations.**

It forced us to exploit the potential ways of overlapping communication and computation in the algorithm by using non-blocking collective MPI communication functions. Although it did not have a significant impact on the performance, the code is better prepared for other architectures and larger clusters.

5. How much effort was necessary to refactor your application? (i.e. implement the modifications that were recommended by POP experts)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 3 person days)?

2 person days

Could you specify the effort you spent more precisely (e.g. 2 person weeks)?

?

Could you specify the effort you spent more precisely (e.g. 1 person month)?

?

6. What is approximately the total cost of this effort (in K€)?

3

7. What improvements have you benefited from due to POP?

You can tick several boxes

- Better scalability
- Ability to add more complexity or extra features
- Ability to run larger problems
- Improved workflow by reducing runtime
- Reduced hardware costs
- More knowledge and awareness of performance profiling
- POP report was used as supplementary material in application for compute resources
- Based on the POP report an allocation on a bigger system (e.g., PRACE) was granted
- Other

If other, please specify

Software readiness for other architectures.

Could you specify other improvements POP brought to your organisation

8. What reduction in runtime did you obtain from the refactoring of your application?

- <10%
- 10%-25%
- 25%-50%
- >50%
- I don't know

Could you please specify an indicative runtime before and after the refactoring

9. Do you know the cost of the computing power your application uses and who pays for it?

- Yes I know the cost and our department pays for it.
- Yes I know the cost and it is included in our computing center costs.
- No, I don't know
- Other

If other, please specify

10. How does your organisation benefit from the performance improvement of your application?

You can tick several boxes

- We use this application for our own business (e.g. to develop/enhance our products, our processes, and/or services)
- We use this application to provide modelling/simulation services to our customers
- We, as a software vendor, sell application software licenses

Could you give an estimate of the financial gain obtained by your organisation per budget line-item? (by using your improved application for your own business)

	Financial gain over one year (in K€)
Money saved using less energy (computing power), reduced cost of cloud services, etc.	
Benefits from faster time-to-solution (e.g. enhanced productivity)	
Benefits from exploiting the improved application (e.g. able to deal with more detailed, more complex, or larger models) to develop better products that generate higher earnings.	
Other benefits	

Could you give an estimate of the financial gain obtained by your organisation per budget line-item? (by selling your improved application as a software vendor)

	Financial gains over one year (in K€)
Benefits from selling a better solution (selling your improved software license at a higher price and/or extending your market)	
Other benefits	

**Thank you very much.**

---

## **Contact**

saber.zribi@teratec.eu

# Important! - Invitation to answer the POP Performance Improvement ROI Evaluation (survey)



---

## POP Performance Improvement ROI Evaluation

Fields marked with \* are mandatory.

**Welcome and thank you in advance for answering this survey,**

**it will only take out a few minutes of your time to complete this short survey.**

It's very important for the POP project to strive and improve the return on your investment, which has been carried out for you by the POP, to give an awesome profitability prospect to our customers.

In this regard, this survey is intended to collect data enabling us to evaluate:

1. The **total cost of effort** spent to assess the performance of your application; to identify how the code could be improved; and to implement the recommended modifications.
2. The **total gain** resulting from this refactoring.

We can then measure the **Return on Investment** (total gain / total cost of effort).

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**Your feedback is extremely valuable** for us to understand your needs and how we can improve the quality and efficiency of the POP services.

---

1. Report Reference Identifier POP1

(or 2)\_AR\_nnn (Indicated on the front page of the Performance Assessment Report, please specify the project number POP1 or POP2)

POP2\_AR\_140

2. Application name

HEMLAB

3. Did you implement all the modifications that were recommended by POP experts?

- Yes, all of them
- Only a part of them

Could you say why?

The problem turned out to be mainly related to hardware issue

4. Did you also add new features or evolve some of the algorithms while refactoring the code of your application?

- Yes
- No

**If yes, please do your best, while answering the following questions to report only code refactoring costs and associated gains from the POP recommendations.**

I had a better idea for the code performance limitations and why?

5. How much effort was necessary to refactor your application? (i.e. implement the modifications that were recommended by POP experts)

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 3 person days)?

I have moved from explicit approach to a fully implicit one.

Could you specify the effort you spent more precisely (e.g. 2 person weeks)?

Could you specify the effort you spent more precisely (e.g. 1 person month)?

6. What is approximately the total cost of this effort (in K€)?

No idea

7. What improvements have you benefited from due to POP?

You can tick several boxes

- Better scalability
- Ability to add more complexity or extra features
- Ability to run larger problems
- Improved workflow by reducing runtime
- Reduced hardware costs
- More knowledge and awareness of performance profiling
- POP report was used as supplementary material in application for compute resources
- Based on the POP report an allocation on a bigger system (e.g., PRACE) was granted
- Other

If other, please specify

Could you specify other improvements POP brought to your organisation

Become aware of better performance analysis tool

8. What reduction in runtime did you obtain from the refactoring of your application?

- <10%
- 10%-25%
- 25%-50%
- >50%
- I don't know

Could you please specify an indicative runtime before and after the refactoring

Since the problem turns out to be hardware issues, not much is done.

9. Do you know the cost of the computing power your application uses and who pays for it?

- Yes I know the cost and our department pays for it.
- Yes I know the cost and it is included in our computing center costs.
- No, I don't know
- Other

If other, please specify

The cost is paid from our projects.

10. How does your organisation benefit from the performance improvement of your application?

You can tick several boxes

- We use this application for our own business (e.g. to develop/enhance our products, our processes, and/or services)
- We use this application to provide modelling/simulation services to our customers
- We, as a software vendor, sell application software licenses

Could you give an estimate of the financial gain obtained by your organisation per budget line-item? (by using your improved application for your own business)

	Financial gain over one year (in K€)
Money saved using less energy (computing power), reduced cost of cloud services, etc.	We are mainly developer. No production runs.
Benefits from faster time-to-solution (e.g. enhanced productivity)	We know that our code scales up to 2000 cores.
Benefits from exploiting the improved application (e.g. able to deal with more detailed, more complex, or larger models) to develop better products that generate higher earnings.	Although the faster calculations are possible, there is no industry interest
Other benefits	

Could you give an estimate of the financial gain obtained by your organisation per budget line-item? (by selling your improved application as a software vendor)

	Financial gains over one year (in K€)
Benefits from selling a better solution (selling your improved software license at a higher price and/or extending your market)	No.
Other benefits	

**Thank you very much.**

---

## **Contact**

saber.zribi@teratec.eu

# Important! - Invitation to answer the POP Performance Improvement ROI Evaluation (survey)

Fields marked with \* are mandatory.



## About the Survey

### POP Performance Improvement ROI Evaluation

Fields marked with \* are mandatory.

**Welcome and thank you in advance for answering this survey,**

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It's very important for POP team and for the EC to have an idea about the impact of the services delivered for you by POP1 or POP2 projects and on the quantified and not quantified benefits (all types of benefits) realised by your team after implementing POP expert's recommendations.

This survey aims to explore the benefits of performance analysis in optimising resource utilisation, enhancing application scalability, and maximising return on investment in parallel computing. Your input is crucial for understanding the real-world impact and guiding future investments in parallel computing methodologies. Thank you for your participation!

In this context, this survey aims to gather data for assessing:

- The overall effort expended in evaluating application performance, identifying areas for improvement, and implementing recommended changes.
- The resultant overall improvement achieved from these optimisations.

The impact of these improvements can then be measured.

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**Your comments are extremely important to us in assessing the performance of your investment and helping us to continue to serve you.**

## The Survey

---

**\* 1. Report Reference Identifier**

POP1(or 2)\_AR\_nnn (Indicated on the front page of the Performance Assessment Report, please specify the project number POP1 or POP2)

BSC\_AR\_1

**\* 2. Application name**

XDEM

**\* 3. Did you implement all the modifications that were recommended by POP experts?**

- Yes, all of them,
- Only a part of them
- No

If "Partly" or "No", could you say why?

Difficulty and lack of time

**\* 4. Did you also add new features or evolve some of the algorithms while refactoring the code of your application?**

- Yes
- No

**If "Yes", please do your best, while answering the following questions to report only code refactoring costs and associated gains from the POP recommendations.**

**5. How much effort was necessary to refactor your application? (i.e. implement the modifications that were recommended by POP experts)**

- A few person days
- A few person weeks
- A few person months
- I don't know

6. What is approximately the total cost of this effort (in K€)?

\* 7. What improvements have you benefited from due to POP?

You can tick several boxes

- Better scalability
- Ability to add more complexity or extra features
- Ability to run larger problems
- Improved workflow by reducing runtime
- Reduced hardware costs
- More knowledge and awareness of performance profiling
- POP report was used as supplementary material in application for compute resources
- Based on the POP report an allocation on a bigger system (e.g., PRACE) was granted
- Other

Could you specify other improvements POP brought to your organization?

\* 8. What reduction in runtime did you obtain from the refactoring of your application?

- <10%
- 10%-25%
- 25%-50%
- >50%
- I don't know

\* 9. Do you know the cost of the computing power your application uses and who pays for it?

- Yes I know the cost and our department pays for it.
- Yes I know the cost and it is included in our computing center costs.
- No, I don't know.
- Other

\* 10. How does your organization benefit from the performance improvement of your application?

You can tick several boxes

- We use this application for our own business (e.g. to develop/enhance our products, our processes, and/or services)
- We use this application to provide modelling/simulation services to our customers
- We, as a software vendor, sell application software licenses
- Other

\* 11. Do you have other applications you would like to submit to the POP experts?

- Yes
- No

\* 12. Are you interested in the analysis and optimisation of the energy performance of your code?

Yes

No

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by using your improved application for your own business)

	Financial gain over one year (in K€)
Money saved using less energy (computing power), reduced cost of cloud services, etc.	
Benefits from faster time-to-solution (e.g. enhanced productivity)	
Benefits from exploiting the improved application (e.g. able to deal with more detailed, more complex, or larger models) to develop better products that generate higher earnings.	
Other benefits	

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by selling your improved application as a software vendor)

	Financial gains over one year (in K€)
Benefits from selling a better solution (selling your improved software license at a higher price and/or extending your market)	
Other benefits	

The end

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Thank you very much.

## Contact

[Contact Form](#)

# Important! - Invitation to answer the POP Performance Improvement ROI Evaluation (survey)

Fields marked with \* are mandatory.



## About the Survey

### POP Performance Improvement ROI Evaluation

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**Welcome and thank you in advance for answering this survey,**

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- The resultant overall improvement achieved from these optimisations.

The impact of these improvements can then be measured.

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measure the results and impact of the POP service. Your response is completely confidential, so don't hesitate to answer honestly; POP undertakes that all such data will be anonymized before publication, and that we will not publish any other information concerning the service that we are providing to you without your explicit permission. For more details please see our full [Data Privacy Policy](#).

**Your comments are extremely important to us in assessing the performance of your investment and helping us to continue to serve you.**

## The Survey

---

**\* 1. Report Reference Identifier**

POP1(or 2)\_AR\_nnn (Indicated on the front page of the Performance Assessment Report, please specify the project number POP1 or POP2)

POP\_AR\_19

**\* 2. Application name**

BPMF

**\* 3. Did you implement all the modifications that were recommended by POP experts?**

- Yes, all of them,
- Only a part of them
- No

If "Partly" or "No", could you say why?

Many optimizations were implemented, some of them by the POP team at HLRS, some of them by us

**\* 4. Did you also add new features or evolve some of the algorithms while refactoring the code of your application?**

- Yes
- No

**If "Yes", please do your best, while answering the following questions to report only code refactoring costs and associated gains from the POP recommendations.**

**5. How much effort was necessary to refactor your application? (i.e. implement the modifications that were recommended by POP experts)**

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 2 person weeks)?

6. What is approximately the total cost of this effort (in K€)?

10

\* 7. What improvements have you benefited from due to POP?

You can tick several boxes

- Better scalability
- Ability to add more complexity or extra features
- Ability to run larger problems
- Improved workflow by reducing runtime
- Reduced hardware costs
- More knowledge and awareness of performance profiling
- POP report was used as supplementary material in application for compute resources
- Based on the POP report an allocation on a bigger system (e.g., PRACE) was granted
- Other

Could you specify other improvements POP brought to your organization?

\* 8. What reduction in runtime did you obtain from the refactoring of your application?

- <10%
- 10%-25%
- 25%-50%
- >50%
- I don't know

Could you please specify an indicative runtime before and after the refactoring?

\* 9. Do you know the cost of the computing power your application uses and who pays for it?

- Yes I know the cost and our department pays for it.
- Yes I know the cost and it is included in our computing center costs.
- No, I don't know.
- Other

\* 10. How does your organization benefit from the performance improvement of your application?

You can tick several boxes

- We use this application for our own business (e.g. to develop/enhance our products, our processes, and/or services)
- We use this application to provide modelling/simulation services to our customers

- We, as a software vendor, sell application software licenses
- Other

\* 11. Do you have other applications you would like to submit to the POP experts?

- Yes
- No

\* 12. Are you interested in the analysis and optimisation of the energy performance of your code?

- Yes
- No

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by using your improved application for your own business)

	Financial gain over one year (in K€)
Money saved using less energy (computing power), reduced cost of cloud services, etc.	
Benefits from faster time-to-solution (e.g. enhanced productivity)	
Benefits from exploiting the improved application (e.g. able to deal with more detailed, more complex, or larger models) to develop better products that generate higher earnings.	
Other benefits	

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by selling your improved application as a software vendor)

	Financial gains over one year (in K€)
Benefits from selling a better solution (selling your improved software license at a higher price and/or extending your market)	
Other benefits	

The end

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Thank you very much.

## Contact

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## About the Survey

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## The Survey

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**\* 1. Report Reference Identifier**

POP1(or 2)\_AR\_nnn (Indicated on the front page of the Performance Assessment Report, please specify the project number POP1 or POP2)

POP2\_AR\_035

**\* 2. Application name**

IFS and FVM

**\* 3. Did you implement all the modifications that were recommended by POP experts?**

- Yes, all of them,
- Only a part of them
- No

If "Partly" or "No", could you say why?

application specific needs and changing requirements

**\* 4. Did you also add new features or evolve some of the algorithms while refactoring the code of your application?**

- Yes
- No

**5. How much effort was necessary to refactor your application? (i.e. implement the modifications that were recommended by POP experts)**

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 2 person weeks)?

2 months

**6. What is approximately the total cost of this effort (in K€)?**

10000 Euros

\* 7. What improvements have you benefited from due to POP?

You can tick several boxes

- Better scalability
- Ability to add more complexity or extra features
- Ability to run larger problems
- Improved workflow by reducing runtime
- Reduced hardware costs
- More knowledge and awareness of performance profiling
- POP report was used as supplementary material in application for compute resources
- Based on the POP report an allocation on a bigger system (e.g., PRACE) was granted
- Other

If "Other", please specify

inspired development and added focus on certain developments

Could you specify other improvements POP brought to your organization?

positive exchange with expert knowledge computer analysts

\* 8. What reduction in runtime did you obtain from the refactoring of your application?

- <10%
- 10%-25%
- 25%-50%
- >50%
- I don't know

Could you please specify an indicative runtime before and after the refactoring?

difficult to measure independently as part of continuous refactoring process

\* 9. Do you know the cost of the computing power your application uses and who pays for it?

- Yes I know the cost and our department pays for it.
- Yes I know the cost and it is included in our computing center costs.
- No, I don't know.
- Other

\* 10. How does your organization benefit from the performance improvement of your application?

You can tick several boxes

- We use this application for our own business (e.g. to develop/enhance our products, our processes, and/or services)
- We use this application to provide modelling/simulation services to our customers
- We, as a software vendor, sell application software licenses

Other

\* 11. Do you have other applications you would like to submit to the POP experts?

- Yes
- No

\* 12. Are you interested in the analysis and optimisation of the energy performance of your code?

- Yes
- No

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by using your improved application for your own business)

	Financial gain over one year (in K€)
Money saved using less energy (computing power), reduced cost of cloud services, etc.	0
Benefits from faster time-to-solution (e.g. enhanced productivity)	2
Benefits from exploiting the improved application (e.g. able to deal with more detailed, more complex, or larger models) to develop better products that generate higher earnings.	2
Other benefits	4 (training and refocus)

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by selling your improved application as a software vendor)

	Financial gains over one year (in K€)
Benefits from selling a better solution (selling your improved software license at a higher price and/or extending your market)	
Other benefits	

The end

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## The Survey

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**\* 1. Report Reference Identifier**

POP1(or 2)\_AR\_nnn (Indicated on the front page of the Performance Assessment Report, please specify the project number POP1 or POP2)

POP2\_AR\_066

**\* 2. Application name**

ParMmg

**\* 3. Did you implement all the modifications that were recommended by POP experts?**

- Yes, all of them,
- Only a part of them
- No

**\* 4. Did you also add new features or evolve some of the algorithms while refactoring the code of your application?**

- Yes
- No

**If "Yes", please do your best, while answering the following questions to report only code refactoring costs and associated gains from the POP recommendations.**

**5. How much effort was necessary to refactor your application? (i.e. implement the modifications that were recommended by POP experts)**

- A few person days
- A few person weeks
- A few person months
- I don't know

Could you specify the effort you spent more precisely (e.g. 2 person weeks)?

3 person weeks

6. What is approximately the total cost of this effort (in K€)?

I don't know

\* 7. What improvements have you benefited from due to POP?

You can tick several boxes

- Better scalability
- Ability to add more complexity or extra features
- Ability to run larger problems
- Improved workflow by reducing runtime
- Reduced hardware costs
- More knowledge and awareness of performance profiling
- POP report was used as supplementary material in application for compute resources
- Based on the POP report an allocation on a bigger system (e.g., PRACE) was granted
- Other

Could you specify other improvements POP brought to your organization?

\* 8. What reduction in runtime did you obtain from the refactoring of your application?

- <10%
- 10%-25%
- 25%-50%
- >50%
- I don't know

Could you please specify an indicative runtime before and after the refactoring?

\* 9. Do you know the cost of the computing power your application uses and who pays for it?

- Yes I know the cost and our department pays for it.
- Yes I know the cost and it is included in our computing center costs.
- No, I don't know.
- Other

If "Other", please specify

I don't know the cost but my institute pays for it

\* 10. How does your organization benefit from the performance improvement of your application?

You can tick several boxes

- We use this application for our own business (e.g. to develop/enhance our products, our processes, and/or services)
- We use this application to provide modelling/simulation services to our customers

We, as a software vendor, sell application software licenses  
 Other

If "Other", please specify

We continue researches inside the software (used as library by other researchers)

\* 11. Do you have other applications you would like to submit to the POP experts?

Yes  
 No

\* 12. Are you interested in the analysis and optimisation of the energy performance of your code?

Yes  
 No

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by using your improved application for your own business)

	Financial gain over one year (in K€)
Money saved using less energy (computing power), reduced cost of cloud services, etc.	
Benefits from faster time-to-solution (e.g. enhanced productivity)	
Benefits from exploiting the improved application (e.g. able to deal with more detailed, more complex, or larger models) to develop better products that generate higher earnings.	
Other benefits	

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by selling your improved application as a software vendor)

	Financial gains over one year (in K€)
Benefits from selling a better solution (selling your improved software license at a higher price and/or extending your market)	
Other benefits	

The end

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## The Survey

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**\* 1. Report Reference Identifier**

POP1(or 2)\_AR\_nnn (Indicated on the front page of the Performance Assessment Report, please specify the project number POP1 or POP2)

POP2\_POCR\_027

**\* 2. Application name**

Paleochrono

**\* 3. Did you implement all the modifications that were recommended by POP experts?**

- Yes, all of them,
- Only a part of them
- No

If "Partly" or "No", could you say why?

**\* 4. Did you also add new features or evolve some of the algorithms while refactoring the code of your application?**

- Yes
- No

**5. How much effort was necessary to refactor your application? (i.e. implement the modifications that were recommended by POP experts)**

- A few person days
- A few person weeks
- A few person months
- I don't know

**6. What is approximately the total cost of this effort (in K€)?**

0

\* 7. What improvements have you benefited from due to POP?

You can tick several boxes

- Better scalability
- Ability to add more complexity or extra features
- Ability to run larger problems
- Improved workflow by reducing runtime
- Reduced hardware costs
- More knowledge and awareness of performance profiling
- POP report was used as supplementary material in application for compute resources
- Based on the POP report an allocation on a bigger system (e.g., PRACE) was granted
- Other

Could you specify other improvements POP brought to your organization?

The recommendations done by POP were not super interesting so I did not implement them.  
But I refactored the code myself and found a good gain (factor 5-10).

\* 8. What reduction in runtime did you obtain from the refactoring of your application?

- <10%
- 10%-25%
- 25%-50%
- >50%
- I don't know

Could you please specify an indicative runtime before and after the refactoring?

10 mn vs 20 mn

\* 9. Do you know the cost of the computing power your application uses and who pays for it?

- Yes I know the cost and our department pays for it.
- Yes I know the cost and it is included in our computing center costs.
- No, I don't know.
- Other

\* 10. How does your organization benefit from the performance improvement of your application?

You can tick several boxes

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- We use this application to provide modelling/simulation services to our customers
- We, as a software vendor, sell application software licenses
- Other

If "Other", please specify

This is a free software application that we distribute to other scientists.

\* 11. Do you have other applications you would like to submit to the POP experts?

- Yes
- No

\* 12. Are you interested in the analysis and optimisation of the energy performance of your code?

- Yes
- No

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by using your improved application for your own business)

	Financial gain over one year (in K€)
Money saved using less energy (computing power), reduced cost of cloud services, etc.	
Benefits from faster time-to-solution (e.g. enhanced productivity)	
Benefits from exploiting the improved application (e.g. able to deal with more detailed, more complex, or larger models) to develop better products that generate higher earnings.	
Other benefits	

Could you give an estimate of the financial gain obtained by your organization per budget line-item? (by selling your improved application as a software vendor)

	Financial gains over one year (in K€)
Benefits from selling a better solution (selling your improved software license at a higher price and/or extending your market)	
Other benefits	

The end

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Thank you very much.

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