



## D2.1 Customer Feedback Methodology Version 13

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## Change Log

Version	Author	Description of Change
V1	Jean-Marc Morel	Initial version
V2	Nick Dingle	Reviewer comments and edits added
V3	Jean-Marc Morel	New version taking Nick's remarks into account.
V4	Jean-Marc Morel	New version taking into account Maria's remarks
V5	Jean-Marc Morel	Add a question about the plan for code modification
V6	Jean-Marc Morel	Spelling error correction
V7	Jean-Marc Morel	New version taking into account Jesus's remarks
V8	Jean-Marc Morel	New version taking into account discussions during the Webex on 21/01/2016
V9	David Loureiro	Update of the methodology and surveys
V10	Jean-Marc Morel	Minor updates (e.g. presentation of the list of questionnaires)
V11	Nick Dingle	Reviewer comments on updated version
V12	Jean-Marc Morel	Update taking Nick's remarks into account
V13	Jean-Marc Morel	Miscellaneous updates



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## Executive Summary

The objective of **WP2 – Customer Advocacy** is to ensure that the project activities are performed to the full satisfaction of the customers by collecting feedback from them, performing the measurement of Customer Satisfaction (KPI), providing findings to the Operational Review meetings, and by organising User Forum Meetings.

This deliverable describes the methodology we will apply to achieve these objectives and includes the questionnaire we will use to collect feedback from POP customers.

### 1. Introduction

Collecting customer feedback is key to ensure the quality and efficiency of the various services the POP Centre of Excellence plans to offer. So all throughout the project, we plan to ask customers who will benefit from such services to fill in satisfaction questionnaires, to meet us for an interview, or to join us in one of the four customer forum meetings we will organize. Then, it is our responsibility to compile and analyse their answers, elicit findings, and present them to the Project Executive Board who should evolve the services accordingly, bearing in mind that the POP CoE should be self-sustainable after the project ends.

In section 2, after recalling the overall process applied and the various types of services the POP Centre of Excellence offers, we will explain the methodology we have designed to collect data regarding customer satisfaction, to process them, and to steer the enhancement of these services.

Then, in section 3, we will describe the various questionnaires to be used.

### 2. Customer Satisfaction Methodology

The customer satisfaction methodology will encompass various ‘post sales’ activities that should enable to measure the quality and efficiency of the POP services. So, these activities will be closely associated with the overall POP process, which in short, consists in:

- 1) Invite potential customers to fill in the simple Request Service Form available on the POP website<sup>1</sup> where the user accepts the terms and conditions of the service<sup>2</sup>.

*This first questionnaire acts as a filter to guarantee that POP can serve to the customer. Nevertheless, more information is required before assigning the service to one of the POP partners/experts.*

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<sup>1</sup> <https://pop-coe.eu/request-service-form>

<sup>2</sup> [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)



- 2) Contact the customer and collect more information by using the Questionnaire on User Needs<sup>3</sup>.
- 3) Assign the partner/expert and tools to be used based on the collected information and the current workload of each partner/expert.
- 4) Perform the Performance Audit service.

*A kind of health check for the code diagnosing the efficiency achieved on different aspects (parallelization, load balance, IPC, data transfer...)*

- 5) Analyse the performance data collected and suggest areas for improvement documenting the results in the Assessment Report.

*The recommendations may suggest some aspects where a deeper study may be beneficial (Performance Plan) and even include suggestions for specific actions or code refactoring (Proof of Concept).*

- 6) If needed, perform the Performance Plan service.

*It is a follow-up of the Performance Audit service targeting a more detailed analysis that identifies the root causes of the issues and qualifies and quantifies approaches to address them. Also, as a result of this second service, the POP CoE will identify potential cases where to apply the Proof of Concept service.*

- 7) If needed, perform the Proof of Concept service.

*This consists of extracting a kernel from the audited code, developing a mini-application, experimenting with different parallelization and optimization approaches, and if needed evaluating on various infrastructures.*

- 8) The customer implements POP experts' recommendations and measures the performance improvement.

To ensure that the project activities are performed to the full satisfaction of the customers, the POP project will collect their feedback in various ways, measure key performance indicators (KPI), and last but not least provide findings to the POP Operational Review meetings.

## 2.1 Questionnaires

For this, we have prepared a set of customer satisfaction questionnaires, which is the main component of the customer satisfaction methodology.

Note that, as mentioned in the POP Service Terms and Conditions, POP undertakes that all the data gathered will be anonymised before publication, and that we will not publish any other information concerning the service that we are providing to customers without their explicit permission (we use the POP CRM system to record which customers have given permission, so that we avoid contacting people multiple times).

Regularly, the answers received will be compiled in a pdf document which will be distributed to all POP experts together with a set of recommendations to enhance the services they provide. Moreover, a statistic analysis will enable to give an overview of the feedback.

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<sup>3</sup> <https://pop-coe.eu/form-on-user-needs>



## 2.2 First version of the questionnaires

Initially, the survey was divided into four parts, regarding respectively the performance audit, the performance analysis tools and process, the code modification, and the resulting gains for the customer.

This division in four parts has been done for flexibility: for instance, only the customers having run the performance analysis tools by themselves will be asked to answer the part regarding *performance analysis tools and process*. This division was also meant to enable us to ask the customer to answer each part separately and at the right time, i.e. the part regarding the *performance audit* just after this audit is finished while the part concerning the *resulting gains* can only be filled several weeks or months later when the customer has completed the code modifications and measured the performance gains.

## 2.3 Second version of the questionnaires

Because the first version of the questionnaires, implemented on the POP web site, had some limitations, we decided to revise these questionnaires and choose to implement the second version on SurveyMonkey<sup>4</sup>, a third party solution.

SurveyMonkey is a web-based service allowing the creation of surveys in a pretty efficient way, and providing an interesting administration interface with graphs and exportations capabilities in various formats for external statistics or publication.

Therefore, with SurveyMonkey we have implemented:

- Three questionnaires related to POP services (one for each type of service):
  - Performance Audit: [https://fr.surveymonkey.com/r/F1\\_Report](https://fr.surveymonkey.com/r/F1_Report)
  - Performance Plan: [https://fr.surveymonkey.com/r/F2\\_Plan](https://fr.surveymonkey.com/r/F2_Plan)
  - Proof of Concept: [https://fr.surveymonkey.com/r/F3\\_PoC](https://fr.surveymonkey.com/r/F3_PoC)
- One questionnaire regarding Performance Tools (for users who are using the performance analysis tools by themselves to measure the performance improvement resulting from code modifications)  
[https://fr.surveymonkey.com/r/F4\\_Perf-Tools](https://fr.surveymonkey.com/r/F4_Perf-Tools)
- One regarding the evaluation of the performance improvement and of the resulting gains in order to measure the global return on investment  
[https://fr.surveymonkey.com/r/F5\\_Perf-gains](https://fr.surveymonkey.com/r/F5_Perf-gains)

Both versions of the questionnaires (the first one which was implemented on the POP web site, and the second one actually developed with SurveyMonkey) can be found in section 3.2.

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<sup>4</sup> [https://fr.surveymonkey.net/?ut\\_source=header](https://fr.surveymonkey.net/?ut_source=header)



## 2.4 Customers interviews

Besides this, we also plan to **interview some customers** each time the case looks very specific or when we understand that more detailed information should be collected. Such interview can be realized by phone, video conference, or face-to-face meeting.

As for the questionnaire, a compilation of these interviews, will be distributed to POP experts so that they can adapt and enhance the service accordingly.

## 2.5 Customers Forum Meetings

Last but not least, we intend to organize **four Customers Forum Meetings**:

- June 2016: ISC in Frankfurt (with RWTH & JSC)
- December 2016 : in UK alongside the National HPC Workshop (with NAG)
- June 2017: in Paris alongside the Teratec Forum
- December 2017: in Spain with BSC (to be confirmed)

These meetings will be an opportunity for customers to meet with POP partners and discuss their experience and to better understand what they can get from the POP CoE, while POP members will better understand customers' expectations.

In parallel, the POP project will also provide training about performance analysis tools, parallel programming models, etc. and here too, the participants will be asked to fill in a questionnaire at the end of the course to rank the various aspects of the course. These questionnaires which are partly specific to the type of course will be elaborated with the team responsible for the training and the results compiled in the various customer satisfaction reports (D2.2; D2.3; D2.4).

Finally, although qualitative answers are very useful to assess customer satisfaction, it remains mandatory to get quantitative data to enable reporting about the POP activity (e.g. number of applications audited), to rank the level of fulfilment of the services and to identify the real value of the return on investment. So, for this we choose to collect the data to enable us to measure the following KPIs (Key Performance Indicators):

1. Number of applications audited
2. Number of performance plans realised (completed by POP experts)
3. Percentage of customers 'very satisfied', 'satisfied', 'poorly satisfied', 'not satisfied at all'
4. Number of applications actually modified
5. Effort spent to modify the code of an application
6. Cost of effort to modify the code
7. Performance gain
8. Added Value (in €) of the code improvement (for one year)

Note that the combination of KPIs 6 and 8 enables us to measure the number of years needed to get a positive ROI.

### 2.5.1 First Customers Forum Meeting

A Birds of a Feather (BoF) session was organised by POP during the ISC High Performance 2016 conference held in Frankfurt, on Wednesday, June 22, 2016.

This BoF session was mainly dedicated to:

- Code developers interested in the assessment of detailed actual behaviour of their code and to learn about suggestions of most productive directions to refactor the code.
- HPC code users interested in the assessment of achieved performance in specific production conditions or to learn about possible improvements by modifying their environment setup.
- Infrastructure operators interested in the assessment of achieved performance of codes running in production conditions, training of their support staff, or getting feedback for time computer time allocation processes.
- Vendors interested in benchmarking, customer support and system dimensioning/design.



**Figure 1 Jesus Labarta introducing the POP CoE to the audience during the BoF session at ISC'16**

First, POP coordinator Jesus Labarta introduced the POP CoE to the audience in a [short overview](#). Next, Mike Dewar, work package leader for POP Community Development, reported on [first results](#) from the performance audit, performance plan, and proof-of-concept services provided by POP in the first nine months of the project. The BoF concluded with two presentations by two satisfied POP customers: Giovanni Erbacci from Cineca presented results from the [performance audit of the QuantumEspresso code](#). Finally,





Xavier Vigouroux from Atos reported on the [outcome of the performance audit of the NEMO code](#).

The customers (Cineca and Atos) were very supportive and as it can be seen in their presentations, they were very positive about the POP service they received and invited the audience to also try it.

## 2.5.2 Next Customers Forum Meetings

The next Customers Forum meeting will be organized in the framework of the next European HPC Summit Week to be held in Barcelona, 15-19 May 2017, targeting mainly Spanish customers, while the following one to be organized in the framework of the Teratec Forum in June 2017 will mainly target French customers.

Besides, NAG will explore options to organise a User Forum meeting in the UK, perhaps by co-locating with an existing event, e.g. “Computing Insight UK (CIUK) in Manchester, 14-15 December 2016.

## 3. Customer Satisfaction Forms

This section includes both versions of the surveys: the first one (section 3.1) initially designed to be integrated in the POP web site, and the second one (section 3.2) which was implemented with SurveyMonkey.

### 3.1 First version of the questionnaires

The first version was composed of the four forms mentioned in section 2.2 with a short description justifying their contents and/or structure.

These forms were to be integrated in the POP web site (<https://pop-coe.eu/>) in the same style as the *Request Service Form* and the *Questionnaire on User Needs* with which it was meant to be consistent (e.g. to avoid redundant questions on customer identity and application description). They were also meant to be related to the *Performance Analysis Report* to enable POP to correlate answers with information registered herein (e.g. to be able to compare the actual performance improvement reported by the customer once the proposed modifications of the code have been done with the estimation of the possible performance enhancement made by the performance analysis team).

#### 3.1.1 Form regarding the Performance Audit

This form has to be filled in by the customer just after the performance audit is completed.

##### Who collected the data?

- The customer itself alone.



- The customer assisted by a POP performance analysis expert
- A POP performance analysis expert

**Have the data been collected for a sufficient variety of representative runs?**

- Yes
- No, because of some constraints, which ones? \_\_\_\_\_  
\_\_\_\_\_
- The code can be executed in different environments but the performance traces could only be collected on a subset of possible execution platforms.
  - The application is used to process large data sets but only a small data set could be used for the performance analysis.
  - Because of confidentiality, only a part of the application which was supposed to be representative of the whole code has been analyzed.
  - Other? \_\_\_\_\_  
\_\_\_\_\_

**Was the performance analysis report clear enough for you?**

- Yes
  - Yes and easy to understand
  - Yes and relatively easy to understand
  - Yes but somewhat difficult to understand
  - Yes but very difficult to understand
- No, because:
  - The recommendations were not sufficiently precise
  - The recommendations were not prioritized
  - There were no clear links between the recommendations and the problems
  - Other? \_\_\_\_\_  
\_\_\_\_\_

**Did you get a Performance Plan?**

- Yes, it was
  - Very useful
  - Useful
  - Somewhat useful
  - Not usefulComment: \_\_\_\_\_  
\_\_\_\_\_
- No

**Did you benefit from a proof-of-concept to experiment with?**

- Yes, it was
  - Very useful
  - Useful



- Somewhat useful
- Not useful
- No

**Did the recommendations you got**

- Just confirm what you knew from a previous analysis or by experience
- Uncover unexpected performance problems and room for improvement
  - Inefficient use of simultaneous threads
  - Lack of (or inefficient) use of vectorization
  - Inefficient use of memory
  - Inefficient communications (MPI, I/O, ...)
  - Others, which ones? \_\_\_\_\_

**How was the responsiveness of the POP team to answer your questions?**

- Always provided clear answers promptly
- Provided clear answers but with some delay
- Answered rapidly but incompletely
- No real good answer

Comment: \_\_\_\_\_

**Has the whole performance analysis process been**

- Smooth and easy to implement
- Difficult to integrate in our workplan, why?
- Too short (e.g. could not take all of our code evolution into account; ...)
- Too long (e.g. code change recommendations came too late; our development work plan has been slowed; ...)

Comment: \_\_\_\_\_

**Would you wish to get some training?**

- No
- Yes, which type of training? \_\_\_\_\_  
\_\_\_\_\_

**Do you have suggestions for other improvements of the performance analysis process / methodology?**

- No
- Yes, which ones? \_\_\_\_\_  
\_\_\_\_\_

**Do you plan to implement the recommended code modifications?**

- Yes



- When do you expect to get them implemented and validated?  
\_\_\_\_\_
- No, because \_\_\_\_\_  
\_\_\_\_\_

**Overall, are you satisfied with the Performance Audit?**

- Very satisfied
- Satisfied
- Partly satisfied
- Not satisfied

**Are you ready to apply for a Performance Audit / Plan for another application?**

- Yes, I have \_\_\_\_ other applications to audit
- No, because \_\_\_\_\_

**In the future, would you be ready to pay for such a service?**

- If so, how much approximately?
  - about 2000€
  - about 5000€
  - about 8000€
- No, I would not be prepared to pay

**3.1.2 Form regarding Performance Analysis Tools and Process**

This questionnaire should be answered only by customers having used performance analysis tools.

**Did you get familiar enough with the performance analysis tools to run it yourself?**

- No, why? \_\_\_\_\_  
\_\_\_\_\_
- Yes

**Did you use performance analysis tools at some stage of your work to assess the acceleration of your code?**

- No
- Yes,  
\_\_\_\_ times, with the assistance of experts to exploit the results,  
\_\_\_\_ times, without assistance of experts

**Which features did you like?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Which features did you dislike?**

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**Which features were you missing?**

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**Do you feel able to interpret the results of the performance analysis tools and to deduce what code change is needed?**

- No
- Yes, however we still need the assistance of experts to help or confirm our understanding
- Yes, we have got enough experience

Comment: \_\_\_\_\_

**Overall, are you satisfied with the Performance Analysis Tools and Process?**

- Very satisfied
- Satisfied
- Partly satisfied
- Not satisfied

### 3.1.3 Form regarding the Code Modification

This form has to be filled in by the customer when the code modifications are completed.

**Who did the modifications of the code?**

- The developer of the application (who knows its code very well)
- Another developer who was not familiar with the code

**How much effort was necessary to achieve the recommended modifications?**

- \_\_\_ person x days
- \_\_\_ person x months

**Is this effort in line with the work plan you did to implement the recommended modifications of the code?**

- Yes
- Less than planned, how much? \_\_\_\_\_
- More than planned, how much? \_\_\_\_\_



**Was this effort dedicated only to implement the recommended modifications?**

- Yes
- No, it entailed other changes to:
  - Adapt the code to a new architecture
  - Evolve or change some features
  - Clean some parts of the code

Comment: \_\_\_\_\_  
\_\_\_\_\_

**3.1.4 Form regarding the resulting gains for the customer**

This form has to be filled in by the customer when the measure of the performance of the modified application is completed.

**What is the observed performance gain?**

- \_\_\_% < performance gain < \_\_\_%
- \_\_\_ minutes x cpu per run
- \_\_\_ hours x cpu per run

**How many times per day, on average, is this application run in your organisation?**

- \_\_\_\_\_

**Are you able to measure the value earned, thanks to:**

- Diminution of energy consumption
- Faster Time-to-Solution (e.g. car crash simulation in 2 hours instead of overnight)
- Giving way to other applications running on the same platform
- Enabling to better explore the parameter space and test all possible variants
- Other? \_\_\_\_\_

Comment: \_\_\_\_\_

**What was the main result?**

- Only performance gain
- Better scalability
- Possibility to run on a slower platform (handling the same problem size)
- Possibility to treat larger problems
- Possibility to better exploit new architectures (mixing multi- and many-core servers)

**Would you be able to measure the ratio: Value gained per year / Cost of effort to modify?**

- Yes
- No

**Do you know if other organisations use this application and will benefit from the enhancements you did?**

- No
- Yes



- How many, using it the same way as you, are supposed to obtain benefits similar to yours? \_\_\_\_\_
- How many, using it differently, are nevertheless expected to get some benefits? \_\_\_\_\_

**Overall, are you satisfied with the overall results of the Performance Audit?**

- Very satisfied
- Satisfied
- Partly satisfied
- Not satisfied

**Would you like to become a member of the POP community?**

- Yes
- No



## 3.2 Second version of the questionnaires

As stated in section 2.3 the initial questionnaires have been restructured and enhanced as a result of internal discussions and to fit into the SurveyMonkey framework.

### 3.2.1 Form regarding the Performance Audit

This form has to be filled in by the customer just after the performance audit is completed.

\* 1. Report Reference Number (POP\_AR\_<nn>) - Indicated on the front page of the Performance Analysis Report

---

2. Customer name (optional)

---

3. Application name (optional)

---

\* 4. Who collected the data?

- Ourselves
- Ourselves with the help of a POP performance analysis expert
- A POP performance analysis expert

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

- Clear and easy to understand
- Somewhat difficult to understand
- Not at all clear

Comments?

---

\* 6. Did these recommendations just confirm what you knew from a previous analysis or by experience?

- Yes
- No

7. If no, on which aspects?

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





8. Do you have suggestions for improvement of the Performance Analysis Report?

---

\* 9. Overall, how responsive have the POP experts been to your questions or concerns about the analysis and the report?

- Extremely responsive
- Very responsive
- Moderately responsive
- Slightly responsive
- Not at all responsive

Which improvements would you suggest?

---

\* 10. What was the quality of their answers?

- Excellent
- Good
- Not so good
- Bad

11. Would you wish to get some training?

- Yes
- No

If yes, which kind of training does your team need?

---

\* 12. Are you going to proceed with a next step (ask for a Performance Plan and/or a Proof-of-Concept)? (*A Performance Plan is a set of recommendations for code changes intended to improve the performance of your application*)

- Yes, a Performance Plan
- Yes, a Proof-of-Concept
- No, I have got enough information

Comments?

---

### 3.2.2 Form regarding the Performance Plan

This form has to be filled in by the customer just after the performance plan is completed.



\* 1. Report Reference Number (POP\_PP\_<nn>) - Indicated on the front page of the report

---

2. Customer Name (optional)

---

3. Application name (optional)

---

\* 4. Was the Performance Plan (i.e. the Recommendations) sufficiently precise?

- Yes
- No

Comments?

---

\* 5. Were the links between the recommendations and the problems sufficiently clear?

- Yes
- No

Comments?

---

\* 6. Overall, how did you find this Performance Plan?

- Very useful
- Useful
- Somewhat useful
- Not useful

Why?

---

\* 7. Overall, how responsive have the POP experts been to your questions or concerns about the Performance Plan?

- Extremely responsive
- Very responsive
- Moderately responsive
- Slightly responsive
- Not at all responsive

Comments?

---



8. What was the quality of their answers?

- Excellent
- Good
- Not so good
- Bad

Why?

---

\* 9. Would you wish to get some training?

- Yes
- No

If yes, which kind of training?

---

10. Do you have suggestions for improvement of the performance analysis process / methodology?

---

\* 11. Do you plan to implement the recommended code modifications?

- Yes
- No

If yes, when do you expect to have your code optimized?

---

\* 12. Overall, are you satisfied with the Performance Audit?

- Very satisfied
- Satisfied
- Partly satisfied
- Not satisfied

\* 13. Are you ready to apply for a Performance Audit / Plan for another application?

- Yes
- No
- Perhaps

Can you give more details?

---



\* 14. In the future, would you be ready to pay for such a service?

- Yes
- No
- Possibly

15. If yes, how much approximately?

- 1500€ per audit
- 2000€ per audit
- 3000€ per audit
- An annual fee of 5000€ for up to 5 audits per year

### 3.2.3 Form regarding the Proof of Concept

This form has to be filled in by the customer just after the Proof of Concept is completed.

\* 1. Report Reference Number (POP\_PoCR\_<nn>) - Indicated on the front page of the report

---

2. Customer Name (optional)

---

3. Application name (optional)

---

\* 4. How did you find this Proof-of-Concept?

- Very useful
- Useful
- Somewhat useful
- Not useful

Why?

---

5. How was the responsiveness of the POP team to answer your questions?

- Excellent
- Good
- Not so good
- Bad

Comments?

---



6. How did you find their answers?

- Very useful
- Useful
- Not so useful
- Not at all useful

Why?

---

\* 7. Would you wish to get some training?

- Yes
- No

If yes, which kind of training?

---

8. Do you have suggestions for improvement of the Proof-of-Concept?

---

\* 9. Do you plan to implement the recommended code modifications?

- Yes
- No

If yes, when do you expect to have your code optimized?

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\* 10. Overall, are you satisfied with the pack of POP services (Performance audit + Plan + PoC) for this application?

- Very satisfied
- Satisfied
- Partly satisfied
- Not satisfied

\* 11. In the future, would you be ready to pay for such a pack of POP services?

- Yes
- No
- Possibly

12. If yes, how much approximately?

- 1500€
- 2000€
- 3000€
- An annual fee of 5000€ for up to 5 packs (Audit+Plan+PoC) per year



### 3.2.4 Form regarding the Performance Analysis Tools

The form has to be filled in by the customer regarding the performance analysis tools used by the POP services.

\* 1. Report Reference Number (POP\_AR\_<nn>) - Indicated on the front page of the report

---

2. Customer name (optional)

---

3. Application name (optional)

---

\* 4. Which toolset did you use?

- Extrae
- Paraver
- Dimemas
- Scalasca
- Cube
- Extra-P
- TAU
- Vampir
- SimGrid
- Other. Which ones?

---

\* 5. How easy the tools were to use?

- Very easy
- Easy
- Somewhat difficult
- Difficult

Comments?

---

6. Which features did you like?

---

7. Which features did you dislike?

---



8. Which features were you missing?

---

9. Do you feel able to interpret the results of the performance analysis tools and to deduce what code change is needed?

- Yes, we have got enough experience
- Yes, however we still need the assistance of experts to help us understand it completely
- No

Comments?

---

\* 10. Overall, are you satisfied with the Performance Analysis Tools you used?

- Very satisfied
- Satisfied
- Somewhat satisfied
- Not satisfied

Comments?

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### 3.2.5 Form regarding the Code Refactoring and Resulting Gains

The form has to be filled in by the customer regarding the improvement that the POP services allowed them to achieve after the implementation of the propositions in their codes and the resulting gains.

\* 1. Report Reference Number (POP\_AR\_<nn>) - Indicated on the front page of the Performance Analysis Report

---

2. Customer name (optional)

---

3. Application name (optional)

---

\* 4. How familiar with the code was the developer who did the modifications?

- Quite familiar
- Familiar
- Not so familiar
- Not at all familiar



More details?

---

\* 5. How much effort was necessary to achieve the recommended modifications?

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

If possible give the effort spent more precisely (e.g. 3 Person x Months)

---

\* 6. Is this effort in line with the work plan you did to implement the recommended modifications of the code?

- Yes
- Less than planned
- More than planned

More details?

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\* 7. Was this effort dedicated only to implement the recommended modifications?

- Yes
- No

If no, which other changes did you make (new algorithm? development of new features? ...) ?

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\* 8. Did you use Performance Analysis Tools to analyse the performance of your new code version(s)?

- Yes
- No

Comments?

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\* 9. What is the observed performance gain?  
(  $100 * \text{Execution time reduction} / \text{Initial total execution time}$  )

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\* 10. How many times per day, on average, is this application run in your organisation?

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\* 11. What is (are) the main result(s)? You can tick several items

- Only performance gain
- Better scalability
- Possibility to run on a slower platform (handling the same problem size)





- Possibility to treat larger problems
  - Possibility to better exploit new architectures (mixing multi- and many-core servers)
  - Other (please specify)
- 

\* 12. What are the most important sources of earned value? You can tick several items

- Diminution of energy consumption
  - Faster Time-to-Solution (e.g. car crash simulation in 2 hours instead of overnight)
  - Giving way to other applications running on the same platform
  - Enabling to better explore the parameter space and test all possible variants
  - Other (please specify)
- 

13. Value gained per year  
What is approximately the ratio: -----  
Cost of effort to modify

Note: The value gained can, for example, come from:  
- the reduction of rented cpu time,  
- the productivity increase (more simulations run)  
- the increase of quality (pushing up sales prices)

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\* 14. Do you know if other organisations use this application and will benefit from the enhancements you did?

- Yes
- No

If yes, how many are supposed to obtain benefits similar to yours?

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\* 15. Overall, are you satisfied with the overall results of the Performance Audit?

- Very satisfied
- Satisfied
- Somewhat satisfied
- Not satisfied

Comments?

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\* 16. Would you like to stay a POP User Community member in the second project phase?

(based on an annual fee entitling to use the POP services up to a certain number of times)

- Yes



- No
- Possibly

Comments?

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