

# Report on the Open Market Consultation

(including Annexes)

---

September 2023

---



## Disclaimer and Copyright

---

All rights reserved. No part of this publication may be reproduced, stored in an automated database, or made public, in any form or by any means, electronic, mechanical, photocopying, recording or any other way, without prior written permission. This document and the accompanying annexes are exclusively intended for summarizing the results of the open market consultation preceding the procurement of IMPRESS PCP. Any other use is not permitted, except with the prior written permission of the contracting entity. Rights of third parties may be vested in this document (including the accompanying annexes).

This document (including the accompanying annexes) has been drafted with the utmost care, but no guarantees are given regarding its soundness and/or completeness. Any errors or inaccuracies can be reported via email to [impress-pcp@fz-juelich.de](mailto:impress-pcp@fz-juelich.de).

The IMPRESS-PCP Consortium is not responsible for the correct operation of any URL mentioned in this document, nor for the proper functioning of any used electronic platform (for example the EU survey system). Any problems encountered when using a URL and / or an electronic platform must be reported to the organisation that makes the URL or the electronic platform available. Problems with downloading and uploading (of documents) must also be reported via email to [impress-pcp@fz-juelich.de](mailto:impress-pcp@fz-juelich.de).

The IMPRESS project receives funding under the European Union's Horizon Europe framework program for research and innovation under the grant agreement No 101094299. The EU is however not participating as a contracting authority in the procurement.



## Abbreviations and Acronyms

---

CET	Central European Time
e-CAT cartridge	e-DREAM, Correlative, Adaptable and Transferable cartridge
EU	European Union
IPRs	Intellectual Property Rights
PBG	Public Buyers Group
PCP	Pre-Commercial Procurement
PIN	Prior Information Notice
R&D	Research and Development
RFI	Request For Information
RIs	Research Infrastructures
SMEs	Small and Medium Enterprises
SOTA	State of the Art
TED	Tenders Electronic Daily
TEM	Transmission Electron Microscopy
TRL	Technology Readiness Level

## Key Definitions

---

Consortium	Group of public and/or private entities (including public buyers and supporting organisations) that are part of the IMPRESS PCP project. For more information: <a href="https://e-impress.eu/consortium/">https://e-impress.eu/consortium/</a>
Contractor	A company or entity that has been awarded a contract under the PCP.
Lead Procurer	A Public Buyer who acts as a Procurer in the PCP and purchases the R&D services on behalf of itself and other Public Buyers (in this case, Forschungszentrum Jülich GmbH).
Public Buyer	A public entity who purchases goods or services from the market and is subjected to the public procurement regulation.
Technology vendor	A company or entity who develops and/or sells technology in the market.
Tenderer	A company or entity that submits an offer to participate in the PCP.

## Contents

---

Disclaimer and Copyright	2
Abbreviations and Acronyms	3
Key Definitions	4
Contents	5
1. Introduction	6
2. Overview of the IMPRESS PCP project	7
3. Activities of the OMC	8
4. Results of the EU Survey questionnaire (Request for Information)	9
4.1. Ability to address the challenge	9
4.2. Planning of the PCP and potential risks	9
4.3. State of the art	10
4.4. Open software and open hardware approach	10
4.5. Support expected from IMPRESS	10
4.6. Community of Users	10
4.7. Suggestions and additional comments from the market	11
4.8. Replies from TEM users	11
5. Actions to adapt the future PCP to the market's feedback	11
6. Conclusions	12
ANNEX 1 – AGENDA OF THE OMC EVENT IN DUSSELDORF	14
ANNEX 2 – EU SURVEY QUESTIONNAIRE	15

## 1. Introduction

This document presents an anonymised report of the findings and conclusions of the Open Market Consultation (OMC) for the future Pre-Commercial Procurement of R&D services of an Interoperable electron Microscopy Platform for advanced REsearch and Services (IMPRESS PCP).

The OMC aimed, on one hand, to inform technology vendors regarding the upcoming PCP. On the other hand, it intended to understand their capabilities to satisfy the procurers' needs and to obtain their input on the viability of the procurement plans and conditions as described in the OMC document and annexes.

The timetable for the OMC was set as follows:

Date	Event
1 July	Publication of the Prior Information Notice (PIN) on TED.
25 July	Supplier Event: Announcing the Open Market Consultation & providing project information in the Microscopy and Microanalysis (M&M) event in Minneapolis (USA).
1 August	Publication of the OMC documents on the project website ( <a href="http://www.e-impress.eu/">www.e-impress.eu/</a> ) and the EU Survey questionnaire ( <a href="https://ec.europa.eu/eusurvey/runner/IMPRESS-PCP_2023">https://ec.europa.eu/eusurvey/runner/IMPRESS-PCP_2023</a> ). Publication of the recorded launching webinar ( <a href="https://youtu.be/fMPNblXiCY">https://youtu.be/fMPNblXiCY</a> ).
1 September	OMC Event: Hybrid meeting in Düsseldorf (Germany).
17 September	Deadline for the submission of questions via the OMC questionnaire (17:00 CET).
28 September	Publication of the OMC findings, including all questions and answers to the OMC questionnaire.
30 September	Closure of the OMC.

Table 1: OMC Timetable

The OMC was published through a Prior Information Notice (PIN) in the Tenders Electronic Daily (TED) on 5 July 2023. The market consultation was organised in the form of a main event in Düsseldorf, an informative webinar and an online questionnaire. Furthermore, an OMC document was published to present

<sup>1</sup> The PIN can be accessed via this link: <https://ted.europa.eu/udl?uri=TED:NOTICE:405706-2023:TEXT:EN:HTML&src=0>

the project and set up the rules and methodology of the OMC. The document can be downloaded at the IMPRESS PCP website ([www.e-impress.eu/](http://www.e-impress.eu/)).

Market parties were also requested to fill out the questionnaire available at [https://ec.europa.eu/eusurvey/runner/IMPRESS-PCP\\_2023](https://ec.europa.eu/eusurvey/runner/IMPRESS-PCP_2023). The deadline to fill out the questionnaire was 17 September 2023. The intention of the questionnaire was to explore the market 'as-is', therefore there could not be wrong or right answers. The responses to the questionnaire could not contain any confidential information. The information obtained will be used as input for the procurement strategy and conditions.

The OMC was performed under the law of the Lead Procurer - Forschungszentrum Jülich GmbH - which is German law.

After processing the questions and responses of all suppliers, this document has the objective of communicating the results to the market. In this context, all information provided by technology vendors is treated as commercially sensitive and specific details will not be communicated to any supplier. Only the general findings are summarised and communicated in this report. This anonymised report (excluding the confidential information) will be published on September 2023 in TED and in the IMPRESS PCP website ([www.e-impress.eu/](http://www.e-impress.eu/)).

By carrying out the market consultation, the procurers do not commit to subsequently deploying a procurement procedure. Moreover, in case this OMC will be followed by a procurement procedure, the public procurers reserve the right to change any elements that define the desired solution. No rights can be derived from any statements made by the procurers during the OMC. Participation in the OMC is not a precondition for bidding in the future PCP.

## 2. Overview of the IMPRESS PCP project

---

IMPRESS (Interoperable electron Microscopy Platform for advanced REsearch and Services) aims to co-develop and deliver advanced Transmission Electron Microscopy (TEM) instrumentation, methods and tools that will revolutionize the way in which TEMs are used by all new and well-established scientific communities, integrate them with other instrumentation at analytical Research Infrastructures (RIs) and create new business opportunities for small and medium-sized enterprises.

The core of the project is the development of a standardized cartridge-based interoperable platform for TEM that is based on common interfaces and data formats, is flexible and adaptable and allows users to perform advanced and new correlative experiments using different instruments, and to co-develop methodological options that are not yet satisfied by commercially available electron microscopes. The solutions will be delivered at Technology Readiness Level (TRL) 8 through a Pre-Commercial Procurement (PCP).

The interoperable platform will be integrated with other innovations of IMPRESS, in particular the development of (i) new application-driven sample environments that will provide access to material properties and behaviour of interest to end users at the five participating RIs of European dimension (including in situ/operando and correlative studies of batteries, catalysts, biological samples and ultra-fast transformations in materials); and (ii) the software for instrument alignment and control, simulation of experiments, data acquisition and analysis and remote operation based on AI (common user interface for different microscopes).



Figure 1: PERT chart illustrating the work package structure of IMPRESS

An open knowledge and innovation hub for TEM will be created and a training programme will promote the new solution, to initiate RI staff in their use and to provide both materials and life science communities with optimized tools for tackling societal challenges, especially in the energy and health sectors. The project will exploit synergies and collaboration with five RIs of European dimension for the benefit of users from diverse scientific communities and will pave the way towards a new cooperative model for the development and operation of RIs for TEM.

IMPRESS is an initiative of e-DREAM, the European Distributed REsearch infrastructure for Advanced electron Microscopy consortium (<https://e-dream-eu.org/>), which has recently been established to promote cooperation between European-level electron microscopy infrastructure providers, collaborative research and transnational user programmes.

### 3. Activities of the OMC

The OMC was organised in the form of:

- **The announcement of the OMC** at the Microscopy and Microanalysis (M&M) Event in Minneapolis (USA) on 25 July 2023 where information about the project was provided.
- **A recorded launching webinar** in English published on 1 August 2023 (<https://youtu.be/fMPNblXICY>).
- **A hybrid event** in Düsseldorf (Germany) on 1 September 2023. This event was carried out in English and broadcasted online (<https://www.youtube.com/watch?v=z1dvt26WcNk>).
- **A questionnaire in EU Survey (Request for Information).**



A total of 82 people registered to the main OMC event in Düsseldorf and 77 people joined the session (20 were present on-site and 57 attended the online event). Furthermore, the video of the event was uploaded to YouTube and received 44 additional views.

On the other hand, the recorded launching webinar has generated significant interest with a total of 135 views on YouTube.

## **4. Results of the EU Survey questionnaire (Request for Information)**

---

This section compiles the feedback received from the EU Survey questionnaire consisting of 26 questions (included as Annex II). The results are presented in an anonymized manner as prescribed in the OMC document. The information covers the envisaged planning of the PCP, the existence of patents and standards, the testing strategy, the open software and hardware approach, and other relevant aspects concerning the development of the interoperable platform.

Given the relevant role of TEM end-users, the questionnaire was divided into two parts: (i) questions for suppliers, and (ii) questions for users. This approach contributed to obtaining an overall picture of the state of the art and the envisaged requirements.

We have received a total of 3 replies. The low number of answers to the questionnaire may be the combination of several factors, i.e. the complexity of the challenge, the desire of technology vendors to receive detailed information about the functional and technical requirements, and the specific nature of the TEM market, which is dominated by few technology vendors. In order to tackle these issues and ensure a fair level of competition, several measures will be implemented in the future PCP, as described in section 5 of this document.

### **4.1. Ability to address the challenge**

---

The respondents confirmed that their ability to address the challenge on their own is limited, in particular concerning the testing of the prototypes to be conducted in Phase 2. Therefore, participation in the future PCP will be subjected to building a consortium in collaboration with other partners that can bring complementary expertise.

Moreover, they are interested in receiving further information about the specific functionalities and basic requirements of the solution. All the relevant information will be further described in the tender documents and related use cases to ensure transparency and fair competition among all the participants. Any other aspects that are not detailed in those documents need to be proposed by the technology vendors as part of their solutions to address the PCP challenge.

### **4.2. Planning of the PCP and potential risks**

---

The main concern of the respondents regarding the planning of the PCP is the timeline. In their opinion, it seems to be very ambitious, in particular when it comes to the testing strategy to be deployed in Phase 2 and the demonstration in Phase 3 (6 months each). Furthermore, it was pointed out that compliance with the deadlines as a result of this timeline will depend on the time schedule for the manufacture and production of parts, especially if several iterations are required.

To address this concern, the IMPRESS PCP Consortium is considering an extension of the PCP duration.

In addition, the challenge of the future PCP is certainly perceived as ambitious and very challenging also from the financial perspective, but at the same time its innovative nature is fully acknowledged and recognised as a priority to foster innovation in the TEM market. The proposed cooperation between the IMPRESS PCP Consortium, technology vendors and research institutions could pose, in view of the respondents, the risk of leakage of technical details to potential competitors before the publication of the tender documents and/or the publication of relevant information in the FAIRcube. This matter will be taken into account when defining the FAIRcube terms of reference.

Regarding the mitigation of those risks, it was suggested to keep the idea of interoperability and an open platform but with limited requirements. This would also lower the R&D risk significantly, resulting in fewer iterations needed for the fully functional solution. To facilitate the participation of companies without sacrificing any functionality, the Consortium decided that the standardised interface must cover at least 2 functionalities by the beginning of Phase 2 and 6 functionalities by the end of Phase 2.

### **4.3. State of the art**

---

There is consensus among the respondents that there is room for innovation and development in the field of TEM and interoperable cartridges. An example of the innovation possibilities is the development of the specimen control, which is currently between TRL 3-4. As indicated above, IMPRESS PCP aims to achieve a TRL 8 by the end of the project.

### **4.4. Open software and open hardware approach**

---

The respondents support the initiative of the IMPRESS PCP Consortium to promote open software and open hardware in TEM solutions.

However, one technology vendor stated that, in any case, the intellectual property rights of the design of the cartridge should be kept by the original inventors.

### **4.5. Support expected from IMPRESS**

---

The respondents indicated their desire to receive support from IMPRESS in the following aspects:

- a) Installing and testing the solution.
- b) The operation of the instruments in which the solution will be inserted.
- c) Connecting with other companies to build a consortium.

### **4.6. Community of Users**

---

One of the mandatory requirements of the future PCP is to set up, maintain and support a structural Community of Users (CoU) intended to discuss user's experience, lessons learnt and forthcoming research needs and to discuss and agree on the technology vendor's product and service roadmap for the coming 3-10 years.

Having been asked about their experience in creating a CoU, the respondents stated that they have no experience.

## 4.7. Suggestions and additional comments from the market

Along with the suggestion to rethink the timeline of the PCP (in particular concerning phases 2 and 3) and limit the mandatory requirements of the solution, the respondents pointed out their willingness to build a consortium with other companies to design and execute the solution. For this, they expected IMPRESS to support them in finding partners.

Additionally, they declared their excitement to participate in the future PCP and look forward to seeing what the IMPRESS initiative brings to the TEM community.

## 4.8. Replies from TEM users

As indicated above, the second part of the questionnaire was addressed to TEM users with the objective of gathering more information about developments in the field and their potential contribution to the project.

The respondents indicated that there are no further developments to be taken into account from the perspective of TEM users.

Concerning their potential contribution to the project, they confirmed their capacity and willingness to support in developing instrumentation, suggesting further developments, and providing knowledge.

## 5. Actions to adapt the future PCP to the market's feedback

This responses from the market to the Request for Information indicated the need to rethink certain aspects concerning the setup of the future PCP. In order to facilitate the participation of technology vendors – in particular start-ups and SMEs – and ensure a fair level of competition, IMPRESS has decided to adopt the following measures for the future PCP:

### 1) Modification of the number of contractors per phase

IMPRESS intends to award a maximum of 5 contracts in phase 1, a maximum of 3 contracts in phase 2, and a maximum of 2 contracts in phase 3. This implies that the initial budget distribution per contractor, as stated on page 24 of the OMC documents, needs to be recalculated.

The table below shows the new maximum budget per contractor and phase, based on the maximum number of contracts to be awarded per phase:

PCP phase	Number of contractors	Estimated budget per contractor	Total budget per phase
Phase 1 – Solution design	Max. 5	60,000 €	300,000 €
Phase 2 – Prototype development	Max. 3	400,000 €	1,200,000 €
Phase 3 – Operational validation	Max. 2	250,000 €	500,000 €

The number of contractors for phases 2 and 3 can be modified depending on the parties who are eligible to submit a proposal. The remaining budget of Phase 1 will be transferred to Phase 2 and/or Phase 3 (to be decided by the PBG). The remaining budget of Phase 2 will be transferred to Phase 3.

## 2) Flexibility to participate in one or more consortia

Technology vendors can submit a proposal to the future PCP on their own or as part of a consortium.

A technology vendor can participate in more than one consortium, provided that it has the capacity to perform the work and avoid any conflicts of interest (for instance, as a minimum, having in place Chinese walls between different departments, assigning different people to the different contracts, different reporting lines, and delivering a declaration of honour). In addition, the role of the technology vendor should be different in each consortium; for example, it can participate as main contractor in one consortium and as a subcontractor in another.

In any case, if a company participates in another consortium with a different role as described above, at least 50% of the partners should be different.

## 3) Change of contractors and/or subcontractors during the contract execution

It is not possible to change or replace a contractor or a main partner in the consortium during the execution of the contract.

Subcontractors can be replaced in duly justified and unforeseen situations (e.g. bankruptcy, lack of capacity to perform the work, lack of qualified personnel due to people leaving the company or sick leave, takeover of the company provided that they can ensure the contract performance through a parental guarantee, etc.). These situations will be evaluated on a case-by-case basis.

## 6. Conclusions

---

The Open Market Consultation conducted within the framework of IMPRESS PCP was an exceptional opportunity to interact with the market and receive their feedback about the challenge and other procedural aspects. The participation of technology vendors in the main OMC event in Düsseldorf and the informative events, both face-to-face and online, shows the interest of the market in this project.

As a result of this interaction, the IMPRESS Consortium became aware of the main concerns of the market and decided to adopt a set of actions to address them, as stated in section 5. The main challenge is to find suitable partners to build a consortium and submit a proposal that can successfully address the challenge. In order to facilitate this process, a matchmaking tool is at the disposal of the interested parties in the project's website ([www.e-impress.eu](http://www.e-impress.eu)) and a flexible approach will be followed in the future PCP to maximise the number of bidders while ensuring a fair level of competition.

The IMPRESS PCP is expected to be published in TED in November 2023. The tender documents will be available to be downloaded on the project's website.

# Annexes



## ANNEX 1 – AGENDA OF THE OMC EVENT IN DÜSSELDORF

### *Hybrid Event*

September 1 | 9:00 to 12:00 am Central European Summer Time (CEST)

Location: Lindner Hotel Airport, Unterrather Straße 108, 40468 Düsseldorf, DE

<b>FRIDAY, SEPTEMBER 1</b>	
<b>9:00 am Start of the meeting</b>	
<b>25 min. The IMPRESS project at a glance</b>	<b>Regina Ciancio</b> <i>IMPRESS project coordinator</i>
<b>15 min. Pre-Commercial Procurement (PCP) in the EU: a unique tendering process</b>	<b>Stephan Corvers &amp; Beatriz Gómez Fariñas</b> <i>Senior procurement experts</i>
<b>25 min. IMPRESS PCP: technical insight</b>	<b>Amir Tavabi</b> <i>IMPRESS technical coordinator</i>
<b>5 min. IMPRESS PCP tendering procedure</b>	<b>Martina Börger</b> <i>FZJ purchase department</i>
<b>10 min. Initial user/bidder feedback</b>	<b>Rafal Dunin-Borkowski</b> <i>IMPRESS scientific coordinator</i>
<b>5 min. Break</b>	
<b>60 min. Questions and Answers</b>	<b>Panellists:</b> <b>IMPRESS Procurement Technical Committee</b>

## ANNEX 2 – EU SURVEY QUESTIONNAIRE

QUESTIONS FOR SUPPLIERS	
<b>Requirements of IMPRESS PCP and planning</b>	
1.	Do you have questions about the requirements of IMPRESS-PCP? If yes, please explain.
2.	Can you tackle all requirements of IMPRESS? Please explain.
3.	Are you missing requirements or specific information from IMPRESS? If yes, please explain.
4.	Do you see any risks, related to the IMPRESS requirements/specifications, budget and planning? Please explain.
5.	Taking into account that the budget cannot be modified, how can we mitigate these risks? E.g. by minimizing the required functionalities/requirements.
6.	Based on the use cases, what are preconditions (what needs to be fulfilled) for delivering the Interoperable Platform? Please explain.
<b>State-of-the Art (SOTA) Analysis and TRL</b>	
7.	Do you think there is room for development beyond the state of the art? In which specific area?
8.	What developments would you propose?
9.	Do you know the TRL of those solutions/developments?
10.	Do you know any certifications and/or standards that are relevant to the IMPRESS-PCP project? If yes, please explain.
<b>Testing strategy</b>	
11.	In your opinion, are the timelines on installation and testing for phases 2 and 3 feasible?
<b>Open software and hardware approach</b>	
12.	Do you have any remarks regarding the intention to use an open software approach?
13.	Do you have any remarks regarding the intention to use an open hardware approach?
14.	Do you have any remarks on the use of Creative Commons licenses for software and hardware to be developed?
<b>Miscellaneous</b>	
15.	What information do you still need in order to make a good plan of action?

16.	What support do you expect from IMPRESS?
17.	What are the risks associated to the proposed cooperation between IMPRESS, technology vendors and research institutions?
18.	Do you have any experience in creating a community of users?
19.	Are there any omissions in these questions? Please explain.
20.	Do you have any suggestions?
21.	<p>You may provide suggestions applicable to any of the use cases:</p> <ul style="list-style-type: none"> <li>• <b>Use Case 1:</b> Functional requirements for the interoperable platform</li> <li>• <b>Use Case 2:</b> Corrective maintenance</li> <li>• <b>Use Case 3:</b> Community of Users</li> <li>• <b>Use Case 4:</b> Safety</li> <li>• <b>Use Case 5:</b> Adaptation</li> </ul>

#### QUESTIONS FOR USERS

22.	Do you have specific requirements on the functionalities that IMPRESS-PCP should take into account? If yes, which ones?
23.	Can you indicate any use cases that you will be interested in which are not indicated by IMPRESS? If yes, which ones?
24.	Do you know any developments that IMPRESS needs to take into account? If yes, which ones?
25.	<p>How could you contribute to IMPRESS?</p> <ul style="list-style-type: none"> <li>a) Developing instrumentation</li> <li>b) Share in-house developments</li> <li>c) Suggestions for further developments</li> <li>d) Knowledge</li> <li>e) Other</li> </ul>
26.	Do you have any suggestions?