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| **../logo/ORCA_Logo.png****Orchestration and Reconfiguration Control Architecture** |
| **Open Call 3**Third ORCA Competitive Call for Experiments  |
| Full Title of your proposalAcronym of your proposal (optional) |
| Call[[1]](#footnote-1) - Identifier[[2]](#footnote-2) | ORCA-OC3-EXP-category |
| Date of preparation of your proposal: | xx/yy/2019 |
| Version number (optional): |  |
| Your organisation name: | name |
| Name of the coordinating person: | First name Last name |
| Coordinator telephone number: | number |
| Coordinator email:[This is the email address to which the Acknowledgment of receipt will be sent] | Email address |

Note: Grey highlighted areas need to be filled. Word template can be downloaded from ORCA project website (see http://www.orca-project.eu/open-calls)

# Section A Project Summary

*(Maximum 300 words – summary of the proposed work)*

*Remark: The information in this section may be used in public documents and reports by the ORCA consortium.*

*This section needs to be completed in the draft proposal and will be used for the feasibility check (cf. Section D)*

# Section B Detailed description and expected results

*(minimum 4 pages, and maximum 6 pages)*

*This section describes the details on the planned Experiment (what does the proposer hope to obtain?, how?, why is it relevant?). This section should also include all information with respect to the State-of-the-Art, or a comparison to competing commercial wireless solutions in case of Experiments of category ‘Innovation by Industry’ to show the innovative character of the Experiment and the expected scientific or business impact.*

*This section needs to be completed in the draft proposal and will be used for the feasibility check (cf. Section D)*

## Concept and objectives

*Describe the specific objectives of the proposed Experiment, which should be clear, measurable, realistic and achievable within the duration of the Experiment (not through subsequent development). Show how they relate to the topic(s) addressed by the competitive call and how and why ORCA is needed for realizing them.*

*Describe and explain the overall concept that forms the basis for your Experiment. Describe the main ideas, models or assumptions involved.*

## Impact

***For Experiments of category ‘’Scientific Excellence”:*** *Describe how this Experiment fits in your internal research roadmap, and to which extent the broader research community can benefit from the results of the Experiment.*

***For Experiments of category ‘’Innovation by Industry”:*** *Describe how this Experiment fits in your activities, and how this Experiment may strengthen the competitiveness of your business and the growth of your company. Having close contacts with possible end-users during this Experimental phase might be used to illustrate the business impact of the Experiment.*

***For all Experiments:*** *Show that the proposed Experiment has sufficient sustainable benefits for the ORCA project, meaning that there should be an added value for the ORCA project, after the proposer has finished his Experiment.*

## Description of State-of-the-Art

***For Experiments of category ‘’Scientific Excellence”:*** *Describe the advances the proposed Experiment would provide beyond the state-of-the-art, and the extent the Experiment is ambitious. Is this Experiment expected to lead to groundbreaking results or rather incremental results compared to existing work?*

***For Experiments of category ‘’Innovation by Industry”:*** *Describe in detail how the proposed solution compares with existing solutions in the field covered by the Experiment. Are there similar Experiments, products, services, etc. on the market? Is this Experiment incremental to existing work?*

## Methodology and associated work plan

*Provide a work plan. Provide clear goals and verifiable results, and also a clear timing.*

*The work plan involves at least the following phases:*

1. *Design of Experiment*
2. *Executing the Experiment*
3. *Analysis & feedback*
* *Analysis of the results of the Experiment*
* *Feedback on user experience*
* *Recommendations for improvements and/or future extensions of ORCA software platforms and testbeds*
1. *Showcase: Set up of a showcase (demonstration) to be used for the evaluation of the Experiment at the review meeting with the EC, and for further promotion of ORCA*
2. *Dissemination: Regular dissemination actions (journal publications, conferences, workshops, exhibitions, events, advertising of results at ORCA website, etc.)*
3. *Final report, code and documentation*

*NOTE: there is NO need to define work packages or deliverables. All results need to be reported in the final report at the end of the Experiment. Of course, a good communication plan with the Patron is required to exchange progress within different phases.*

# Section C Requested ORCA software platforms, radio hardware platforms and testbeds

*(Target length 1 page)*

*Please check the ORCA SDR hardware platforms, software tools and testbeds**that will be required for your Experiment.*

*Please visit the ORCA website to get details on the specific:*

* http://www.orca-project.eu/testbeds

*This section needs to be completed in the draft proposal and will be used for the feasibility check (cf. Section D).*

|  |  |
| --- | --- |
| **TESTBEDS**  | **Required (Yes/No)** |
| w.iLab.t (Heterogeneous wireless testbed @ imec, Ghent, Belgium) |  |
| IRIS (Software Defined Radio testbed @ TCD, Dublin, Ireland) |  |
| ORBIT (20 x 20 radio grid testbed @ Rutgers University, New Jersey, US) |  |
| TUD OWL testbed (OWL testbed @ TUD, Desden , Germany |  |
| KU Leuven testbed (KU Leuven @Leuven, Belgium) |  |

|  |  |  |  |  |  |  |
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| **Testbed** | **w-iLab.t  (IMEC)** | **ORBIT (RUTGERS)** | **IRIS (TCD)** | **TUD  Testbed** | **KUL Testbed** | **Portable Testbed** |
| **Nutaq ZeptoSDR** |   | 2 |   |   |   |   |
| **Nutaq picoSDR** |   | 2 |   |   |   |   |
| **PicoZed Xilinx ZYNQ®-7000 SoC** | Upon request |  |  |  |  |  |
| **USRP B200-mini** |  |  |   |  |  | 3 |
| **USRP B205-mini** |  | 5 |  | 4 |  |  |
| **USRP B200** | 4 |   |   |   |  |   |
| **USRP B210** | 4 | 8  |   |   |  |   |
| **USRP N210** | 6 | 25 | 18 |  |  |   |
| **USRP X310** | 2 | 38 | 2 |   |  |   |
| **USRP N310** |  | 2 |  |  |  |  |
| **USRP 2920** |   |   |   | 2 |  |   |
| **USRP 2921** |   |   |   |   | 1 |   |
| **USRP RIO 2942R** |   |   |   | 1  | 34 |   |
| **USRP RIO 2943R** |  |   |   |   | 2 |   |
| **USRP RIO 2944R** |  |  |  | 4 |  |  |
| **USRP RIO 2952R (+ GPS)** |   |   |   |   | 8 |   |
| **USRP RIO 2953R (+ GPS)** |   |   |   | 7 |  |   |
| **USRP RIO 2954R (+GPS)** |  |  |  | 2 |  |  |
| **USRP RIO 2974** |  | 2 |  |  |  |  |
| **WARPv2** | 3 |  |   |   |  |   |
| **Xilinx ZC706 Evaluation Kit - ZYNQ® 7000 SoC + AD FMCOMM radio frontend**  | 3 |   |   |   |  | Upon request |
| **ZedBoard Xilinx ZYNQ®-7000 SoC + AD FMCOMM radio frontend** | 4 |  |   |   |  | Upon request |
| **PXIe 8133** |  |  |  | 2 |  |  |
| **PXIe 8880** |   |   |   | 4 |  |   |
| **Sivers IMA EVK 06002 (60GHz 802.11ad beamforming transceiver evaluation kit)** |  | 2 |  |  |  |  |

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| **ORCA functionalities (categories)** | **Required (Yes/No)** |
| mmWave |  |
| Massive MIMO |  |
| Full Duplex |  |
| PHY& MAC |  |
| Sensing  |  |
| Slicing |  |
| RAT Interworking |  |
| SDR management |  |
| Full stack SDR solutions |  |

*Please provide a short motivation on why specific testbeds, hardware platforms and orca functionalities will be required for the proposed Experiment. (maximum ½ page)**, for more details regarding specific ORCA functionalities, please refer to Table I and Table II in the call document.*

# Section D Feasibility and Relevance check

*(maximum 1 page)*

*This section contains the feedback from the ORCA partner acting as Patron on this Experiment. Each proposing party must contact the ORCA consortium regarding its submission to identify a possible Patron. This Patron can be the ORCA partner responsible for the testbed, hardware or software platform the proposer will use during her/his Experiment. The proposing party must submit its draft proposal via the submission platform by Monday the 25th of August 2019, at 17:00 Brussels local time. The feedback by the Patron is copied into this section of the proposal.*

# Section E Background and qualifications

*(maximum 2 pages)*

*This section describes the proposer and includes an overview of the activities, the proposer’s qualifications, technical expertise and other information to allow the reviewers to judge the proposer’s ability to carry out the Experiment.*

# Section F Expected feedback to the ORCA Consortium

*(maximum 1 page)*

*This section contains valuable information for the ORCA consortium and should indicate the expected feedback the ORCA consortium can expect from the use of its software tools, hardware platforms and/or testbeds after carrying out the Experiment. This information is essential in view of the further improving the usability of the ORCA facility.*

# Section G Requested funding

*(maximum 1 page)*

*This section provides an overview of the budgeted costs and the requested funding. A split is made in personnel costs, other direct costs (travel, consumables, etc.) and indirect costs.*

*Besides the table below, extra information can be provided to support the requested funding and which may help to judge the cost to the ORCA project.*

*Please show your figures in euros (not thousands of euros).*

|  |  |  |
| --- | --- | --- |
|  | **Total PM** | **Cost (**€**)** |
| (1) Direct personnel costs |  |  |
| (2) Other direct costs, of which: |  |
|  Travel |  |
|  Equipment |  |
|  Other goods and services |  |
| (3) Indirect costs  |  |
| (4) Total costs (Sum of 1, 2 and 3) |  |

*In row (1), insert your direct personnel costs for the work involved.*

*In row (2), insert any other costs, for example travel or equipment costs. Please allocate sufficient budget for participation at the final review meeting, and visit(s) to ORCA partners, in case this is required in view of advanced support by the Patron.*

*In row (3), calculate the indirect costs (for personnel and other direct costs)*

*In row (4), calculate the sum of your personnel, other direct costs and indirect costs.*

*The maximum funding which is allowed in this call is set at 50 000 € for Experiment.*

*In view of the review of your proposal it is best to list the costs related to the proposed Experiment as would be done for any European Project.*

# Section H Use of proposal information

*In this section the proposing party is asked to include some statements related to sharing information of his proposal within the ORCA consortium.*

*Proposals are treated in a confidential way, meaning that only successful proposals must be disclosed to the ORCA consortium. Open calls previously organized by other projects were very successful and have revealed that many submitted non-granted proposals also contain very interesting and valuable information that could be used for setting up collaborations or to extract ideas for further improving the federated test infrastructures. Therefore the ORCA project would like to have the opportunity to collect more detailed information and further use this information, also if the proposal is not selected for funding. In any case, the ORCA consortium will treat all information of a proposal confidentially.*

*Two types of information usage are envisaged:*

* *Information which is part of the Sections A, C, D and F will be used within the ORCA project as input for tasks related to testbed and software tools optimizations, sustainability studies, etc. The same information can also be used in an anonymous way to create statistics and reports about this third open call. All proposals submitted to this competitive open call are obliged to allow this form of information access and usage.*
* *Other information belonging to this proposal might also be accessed by the EC and the ORCA consortium, if allowed by the corresponding proposer. Any use of such information will be discussed and agreed upon with the proposers. Proposers have the freedom to select if they wish to support this kind of information usage.*

Top of Form

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| I allow that the material provided in Sections A, C, D and F of this proposal may be accessed by the EC and the ORCA consortium, also if the proposal is not selected for funding. In any case, the ORCA consortium will treat all this information confidentially. It will be used within the ORCA project as input for tasks related to testbed and software platform optimizations, sustainability studies, etc. The same information can also be used in an anonymous way to create statistics and reports about this third open call.  | Yes  |
| Furthermore, I allow that the other parts of this proposal may be accessed by the EC and the ORCA consortium, also if the proposal is not selected for funding. In any case, the ORCA consortium will treat all information of this proposal confidentially. Any use of this information will be discussed and agreed upon with the proposers.  | Yes  |  No  |

Bottom of Form

# Annex B: Agreement for the Use of the ORCA Test Facility for Experimentation

**Agreement for the Use of the ORCA Test Facility for Experimentation**

This Agreement for the Use of the ORCA Test Facility for Experimentation (hereinafter referred to as the “Agreement”) is executed by and between:

1. Experimenter:

[FULL NAME + LEGAL FORM], with its registered office situated at [ADRESS] and hereby duly represented by [NAME+TITLE]

1. Coordinator:

**Interuniversitair Micro-Electronica Centrum vzw (IMEC),** a non-profit organisation duly organized under the laws of Belgium, Register of Legal Entities Leuven VAT BE 0425.260.668, with its registered office situated at Kapeldreef 75, 3001 Leuven, Belgium and hereby duly represented by Luc Van den hove, President and CEO

relating to the research project under the Horizon 2020 – the Framework Programme for Research and Innovation (2014-2020), Call: H2020-ICT-2016-2017, Topic: ICT-13-2016 for the implementation of the project entitled “Orchestration and Reconfiguration Control Architecture“ (hereinafter referred to as “ORCA” or “the Project)

Hereinafter individually referred to as the “Party” and jointly as the “Parties”

* WHEREAS as from January 1st, 2017, the Coordinator participates in the Projecttogether with The Provost, fellows, Foundation Scholars & The other Members of Board of the College of the Holy & Undivided Trinity of Queen Elizabeth near Dublin (“TCD”), Katholieke Universiteit Leuven (“KUL”), Technische Universitaet Dresden (“TUD”), National Instruments Dresden GmbH (“NI”), Rutgers, The State University of New Jersey (“Rutgers”), Martel GmbH (“MARTEL”) (hereinafter collectively referred to as the “ORCA Partners” or “Beneficiaries”;
* WHEREAS the ORCA Partners have amongst themselves entered into a written agreement detailing their respective rights and obligations under the Project;
* WHEREAS the purpose of ORCA **is** to accelerate flexible end-to-end network experimentation by making open and modular software and hardware architectures available that smartly use novel versatile radio technology, more-specifically real-time Software Defined Radio (SDR) platforms meeting the requirements in terms of runtime latencies, throughput, and fast reconfiguration and reprogramming;
* WHEREAS the ORCA platform consists of individual testbeds and tools put at the disposal by different resource providers;
* WHEREAS the Experimenter through the execution of the submitted proposal (hereinafter referred to as the “Proposal”) under an open call (in accordance with the rules detailed in the open call documents) has applied to use the **Test Facility** to be provided by the ORCA Partner(s) identified in the Proposal;
* WHEREAS on the basis hereof the Experimenter will be entitled to use the Test Facility subject to the terms and conditions described hereunder;

NOW, THEREFORE, the Parties agree as follows:

**Article 1 - Definitions**

When used herein, unless the context requires otherwise, the following words and expressions shall have the meaning as stated hereunder:

* 1. “Experiment(s)” means the experimentation activity(ies) undertaken by the Experimenter, alone or (if applicable) with the patron, for testing new ideas and technologies in the area of computer networking. Details of the Experiment can be found in the Proposal submitted by the Experimenter.
	2. “Experiment Results” means any tangible and intangible outputs of the Experiments that are generated by or on behalf of the Experimenter (e.g. involvement of patron) as well as any rights attached to them.
	3. “Maximum Budget” means the maximum amount of funding to be made available by the Coordinator to the Experimenter by way of financial support as further detailed in Appendix 1 hereto.
	4. “Platform” means the ORCA resources and tools in the ORCA **Facility**. The Platform has been constructed for experiment-driven research activities, where experiment-driven research is defined as any activity that furthers the Experimenters’ knowledge and/or understanding of concepts, algorithms, protocols of wireless solutions, provided that this activity is legal.
	5. “Test Facility” means the specific Platform components that are to be made available to the Experimenter for the performance of Experiment(s) in accordance with the terms and conditions of the Agreement.

**Article 2 – Scope of the Agreement - Responsibilities**

2.1. Subject to the terms and conditions set forth in the Agreement, the Experimenter is hereby granted the non-exclusive, non-sub licensable, non-transferable right to use the Test Facility for the performance of Experiments. Any other use of the Test Facility by the Experimenter than the use expressly described in the Experiments is not permitted.

2.2. Responsibilities of the Experimenter

2.2.1. The Experimenter shall perform its tasks in accordance with the conditions of the Agreement and the Proposal towards the implementation of the Experiment to the best of its ability and in accordance with any guidelines issued by the Coordinator.

2.2.2. The Experimenter shall not, directly or indirectly:

- rent, lease, transfer or sub-license the Test Facility, nor permit any third party to do so;

- use the Test Facility to host commercial activities or in a way that limits the rights of others to use the Test Facility;

- remove, alter, cover or obscure any copyright notices or other proprietary rights notices placed or embedded on or in Test Facility;

- reverse engineer, decompile, disassemble, re-engineer, translate, integrate, adapt, create derivate works or updates of the Test Facility or any part thereof nor permit, allow, or assist any third party to do so.

2.2.3. The Experimenter acknowledges and agrees that besides the terms and conditions detailed in the Agreement, specific regulations of the party providing the Test Facility (the “Provider”) may apply. It is the Experimenter’s responsibility to remain aware of all applicable regulations and of any changes made to them.

If there is evidence that the actions of the Experimenter are adversely impacting the quality offered by the Platform, the Coordinator is empowered to take reasonable measures to terminate or reprioritize usage in order to protect the overall operation of the Platform.

2.2.4. The Experimenter is responsible and liable for any and all actions performed by using the Test Facility. The Experimenter undertake that it shall:

- comply with all instructions and regulations relating to the use of the Test Facility;

- not use the Test Facility in a manner which is or is likely to adversely affect the Test Facility or which may disturb the working of, interfere or damage the Test Facility or any other system. In case of misuse, the Experimenter is responsible for restoring all damages to the Test Facility and is responsible for any loss and damages incurred;

- not interfere with others’ work or attempt to invade their privacy;

- not use the Test Facility in a manner that may damage the ORCA Partner’(s) t’s good name and reputation or may infringe the intellectual or industrial property rights of a Party or any other third party. Copyright, other intellectual property right and data protection legislation must be observed by the Experimenter.

2.2.5. The Experimenter shall, in a timely manner, provide all information reasonably required by the Coordinator such as but not limited to the information required for the Coordinator to comply with its obligations under the Agreement, the Grant Agreement with the European Commission and the Consortium Agreement.

2.2.6. The Experimenter shall ensure that neither the Experimenter nor anyone of its behalf or with its consent causes any damage to the Test Facility.

2.2.7. The use of the Test Facility is at Experimenter’s own risk and responsibility. The Coordinator does not assume any liability in regard to interruption, corruption, loss or disclosure of services, processes and data hosted on the Platform. The Experimenter acknowledges and agrees that the uninterrupted availability and use of the Test Facility cannot be ensured (“reasonable efforts”).

The Experimenter shall take appropriate measures to protect its credentials and prevent their use by third parties. The information the Experimenter provides when requesting an account should be correct. The Experimenter is responsible for all and any loss or damages incurred by the Coordinator, the Provider and/or the Beneficiaries as a result of any unauthorized transfer by them of their password.

2.3. The Test Facility will be put at the disposal of the Experimenter free of charge for the Experiments detailed in the Proposal and on a reasonable effort basis.

2.4. The Coordinator shall give the Financial Support for the Experiment in accordance with the conditions detailed in article 3 of the Agreement.

**Article 3 – Financial support**

3.1. For the performance of the Experiment in accordance with the terms and conditions of the Agreement, the Coordinator agrees to provide within the Maximum Budget financial support to the Experimenter. Details can be found in Appendix 1.

3.2. Invoicing of the financial support will be effectuated by the Coordinator for the Experimenter as detailed in the Open Call document. Payment is subject to receipt of the funding from the European Commission, acceptance by the Beneficiaries of the reports and the attendance of the meetings as detailed in the Open Call documents.

3.3. The Experimenter hereby agrees to be bound by the obligations as set forth in the articles 22, 23, 35, 36, 38 and 46 of the Grant Agreement. These articles can be found http://ec.europa.eu/research/participants/data/ref/h2020/grants\_manual/amga/h2020-amga\_en.pdf

**Article 4 – Intellectual property – Consent to use data**

The Results achieved by the Experimenter using the Test Facility will be owned by the Experimenter.

The Experimenter will deliver a final report describing the Results of the Experiment and the experience gained in using the Test Facility. This final report can be made public to the European Commission and all Beneficiaries including their Affiliated Entities.

Publications and demonstrations made based on the Results of the Experiment should clearly mention the usage of the Test Facility and the provider and refer to the Project even if the publication or demonstration takes place after the end of the Experiment.

The Experimenter agrees the Coordinator and the other relevant ORCA Partner(s) may monitor the Test Facility and traffic for vulnerabilities and conformance to authorized use and may collect and use data and information, including but not limited to the information about Experimenter’s use of the Test Facility. This information, provided it is anonymized, can be used by to improve the Test Facility.

**Article 5 - Liability – Warranty**

5.1. The Experimenter shall fully and exclusively bear the risks in connection with the Experiment, including without limitation to any risk arising from the use of the Test Facility. The Experimenter shall hold harmless and indemnify the Coordinator and/or the ORCA Partners harmless against all losses, repayments, liabilities, claims or damages which the ORCA Partners and/or the Coordinator as a result thereof would incur or suffer or have to pay to the European Commission or any third parties. In addition, should the European Commission have a right of recovery against the Coordinator or any other Beneficiary regarding any or all of the Financial Support granted under the Agreement, the Experimenter shall repay the sums in question in the terms and on the dates stipulated by the Coordinator.

5.2. No warranty whatsoever is given with respect to the Test Facility, support and all information provided hereunder including, but not limited to, any express or implied warranty for use, availability, reliability, quality, fitness for a particular purpose or non-infringement of third party intellectual property rights. They are provided “AS IS”.

5.3. To the extent authorized under mandatory law, in no event shall the Coordinator or any of the other Beneficiaries be liable to the Experimenter or any person or entity connection with any of them for costs of procurement of substitute goods, property damage, personal injury, profit loss, business interruption, or for any other special, indirect, consequential or incidental damages, however caused, whether for breach of warranty, contract, tort or negligence, strict liability or otherwise.

 The Coordinator’s liability in aggregate, arising out of or in connection with the Experiment and/or the Agreement, however caused, whether for breach of warranty, contract, tort or negligence, strict liability or otherwise, shall not exceed the Maximum Grant.

5.4. The Coordinator is not liable for any failure due to the direct or indirect use, loss of use, or delay in delivery of the Test Facility or the services provided herein, unless the Experimenter can show wilful misconduct, fraud or deceit by the Coordinator.

**Article 6 – Term and termination of the Agreement**

The Agreement enters into force on the date detailed in Appendix 1 for the period provided in Appendix 1, unless sooner terminated in accordance with article 6. The Experimenter acknowledges and agrees that its authorized use of the Test Facility is only effective during the term of the Agreement.

The Experimenter’s right to use the Test Facility and the Agreement are automatically and without notice from the Coordinator terminated if the Experimenter fails to comply with any of the obligations detailed in the Agreement.

Upon termination of the Agreement, the Experimenter shall immediately discontinue all use of the Test Facility.

**Article 7 - Applicable law**

The Agreement is governed by the laws of Belgium without reference to its conflict of law principles. Any dispute arising out of the Agreement shall be settled by the competent courts located in Brussels (Belgium).

**Article 8 - Miscellaneous**

8.1. The Experimenter represent and warrant that the Test Facility shall not be evaluated or employed for the purpose of use in the design, development, production, stockpiling or use of weapons of mass destruction, such as nuclear, chemical or biological weapons or in any manner for a military end use or with a military end-user. The Experimenter shall comply with applicable laws and regulations controlling the export of technical data, computer software and all other export controlled commodities and ensures that it will not include the participation of persons on any restricted party listing in accordance with applicable national and international regulations. The Experimenter agree to indemnify, defend and hold harmless the Coordinator and the other ORCA Partners from any and all claims, damages and other liabilities resulting from the Experimenter’s violation of any applicable export regulations.

8.2. The Parties may sign and deliver this Agreement by electronic transmission. Each Party agrees that the delivery of this Agreement by electronic transmission shall have the same force and effect as delivery of original signatures and that each Party may use such electronic or facsimile signatures as evidence of the execution and delivery of this Agreement by the Parties to the same extent that an original signature could be used.

AS WITNESS, the Parties have caused the Agreement to be duly signed by the undersigned authorised representatives in separate signature pages.

For Experimenter,

Name:

Title:

Date:

For IMEC,

Ludo Deferm
Executive Vice-President

Date:

**Appendix 1:**

**Experiment – financial information**

Title of the experiment:

Duration of the Experiment:

 Start date: xxx

 End date: xxx

Maximum Budget: xxx k€

Payment conditions (subject to payment conditions detailed in article 3.3): (timing of the payment, unless this is included in the open call document)

1. This call: ORCA-OC3 [↑](#footnote-ref-1)
2. ’Experiments (EXP)’

 ‘Scientific Excellence (EXC)’ or ‘Innovation by Industry (IND)’ [↑](#footnote-ref-2)