

Dutch Research Council (NWO)

NWO Domain

Applied and Engineering Sciences (AES)

Open Technology Programme 2024

Project Title:

<name project>

|  |
| --- |
| Mandatory input format associated with the Call for proposals 'Open Technology Program (OTP) 2024'.  For specific conditions and explanations of the points, please refer to the OTP 2024 Call for proposals on the OTP funding page.  This is the formal NWO domain AES template; any unauthorized changes to the content and structure of this document will not be accepted.  The total number of pages starting from chapter 2 up to and including chapter 4 must not exceed 13 pages. Please use the Calibri font, size 10, and apply the profiles (standard everywhere 2.5cm). Please do not deviate from this, even if you are using LaTex instead of Microsoft Office Word.   * Comments can be removed from the document after filling out the input format. Please also remove this text frame. * Refresh the 'Table of content' by right-clicking on a gray box of the Table of content. Choose the 'Update Field' option. You now have the choice to refresh the entire table or just the page numbering." |

# Table of Contents

[Table of Contents 2](#_Toc152591868)

[1. Overview 3](#_Toc152591869)

[1.1 Main applicant 3](#_Toc152591870)

[1.2 Co-applicant(s) 3](#_Toc152591871)

[1.3 Public Summary NWO website and online in ISAAC 3](#_Toc152591872)

[1.4 Keywords 3](#_Toc152591873)

[2. Scientific description 4](#_Toc152591874)

[2.1 Scientific summary 4](#_Toc152591875)

[2.2 Problem statement 4](#_Toc152591876)

[2.3 Research contents 4](#_Toc152591877)

[2.4 Positioning of the proposed research 4](#_Toc152591878)

[2.5 Research group 4](#_Toc152591879)

[3. Impact 4](#_Toc152591880)

[3.1 Choice of impact 4](#_Toc152591881)

[3.2 Motivation for the choice of impact 5](#_Toc152591882)

[3.3 Strategy and phased plan to achieve impact 5](#_Toc152591883)

[3.4 Past performance on knowledge transfer and application of results 5](#_Toc152591884)

[3.5 Role of users in achieving impact 5](#_Toc152591885)

[3.6 Intellectual property: freedom to operate 6](#_Toc152591886)

[4. Budget 6](#_Toc152591887)

[4.1 Personnel positions 7](#_Toc152591888)

[4.2 Material costs 7](#_Toc152591889)

[4.3 Investments 7](#_Toc152591890)

[4.4 Knowledge utilisation 7](#_Toc152591891)

[4.5 Internationalisation 7](#_Toc152591892)

[4.6 Money follows cooperation 7](#_Toc152591893)

[4.7 Contribution from users 7](#_Toc152591894)

[4.8 Cost breakdown 8](#_Toc152591895)

[5. Annexes 8](#_Toc152591896)

[5.1 References 8](#_Toc152591897)

[5.2 Abbreviations and acronyms 8](#_Toc152591898)

[5.3 Expected Technology Readiness Level (TRL) 8](#_Toc152591899)

[5.4 Data management section 8](#_Toc152591900)

# Overview

## 1.1 Main applicant

*Provide the name and contact information of the main applicant, along with their title and organization.*

*Note: In case of a tenure track agreement, please upload a separate letter of guarantee in ISAAC.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Title, initials and surname | : |  | | | |
| Research institute | : |  | | | |
| Phone number | : |  | | | |
| Email | : |  | | | |
| Function | : |  | | | |
| Position | : |  | Permanent |  | Tenure Track |
|  |  |  |  |  |  |

## 1.2 Co-applicant(s)

*Provide the name and contact information of the co-applicant(s), along with their title and organization.*

*Note: In case of a tenure track agreement, please upload a separate letter of guarantee in ISAAC.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Co-applicant(s):**  *Title, initials and surname* | **Research institute:**  *University of …* | **Contact details:**  *e-mail* | **Function:**  *Assistant/associate/full prof/ other/ …* | **Position:** |
|  |  |  |  | Permanent  Tenure Track |
|  |  |  |  | Permanent  Tenure Track |
|  |  |  |  | Permanent  Tenure Track |
|  |  |  |  | Permanent  Tenure Track |

## 1.3 Public Summary NWO website and online in ISAAC

*Provide a general English summary for the NWO website (between 50 and 100 words). This will be published online if your application is approved. Enter this version in ISAAC under 'Public summary'. Additionally, in ISAAC, you will be asked to provide a Dutch summary. In this application form, only the English summary needs to be filled in; both are required in ISAAC.*

## 1.4 Keywords

*Provide up to 5 keywords specific to the research and field of study, including terms accessible to a general audience. Enter these keywords online in ISAAC as well.*

*Note: the page count (maximum 13 pages) starts here.*

# Scientific description

*An expert/referee should find sufficient information under Chapter 2 to assess the quality of the research proposal.*

## 2.1 Scientific summary

*Maximum half an A4 page. Please also enter this summary online in ISAAC under 'Abstract'.*

## 2.2 Problem statement

*Describe the problem/challenge that the proposed research addresses, its underlying causes, and the societal and/or economic consequences of the problem.*

## 2.3 Research contents

2.3.1 Design of the project

*Explain the scientific principles and the content of the research question that addresses the described problem. Describe the project's design (objectives, hypotheses, research methods, and scientific feasibility).*

2.3.2 Originality and scientific innovative elements

*Specify how the research proposal is scientifically innovative and original.*

2.3.3 Coherence and planning of the research lines

*Describe the proposed research plan over the years. A schematic representation of the research plan (e.g. as Gantt chart) is mandatory.*

## 2.4 Positioning of the proposed research

2.4.1 Embedding of the proposed research

*Provide further information on how the research proposal aligns with ongoing initiatives of the research group(s) and/or current research programs of the research institution(s).*

2.4.2 Fit within the OTP programme

*Please describe the fit of your research in the OTP program (focused on applied and technical-scientific research).*

## 2.5 Research group

2.5.1 Composition of the research group

*Outline the composition of the research team that will carry out the study, and how responsibilities and tasks are distributed. Describe the (active) roles of both the main applicant and co-applicant(s), such as (co-)supervisor and/or daily supervisor.*

2.5.2 Position in scientific community

*Describe the position of the research group within the scientific community.*

2.5.3 Available infrastructure

*Specify where the research will physically take place and detail the available infrastructure.*

# Impact

## 3.1 Choice of impact

*The applicant has the choice whether to focus in the research proposal on achieving scientific impact, societal impact, or a combination of both.*

* *Scientific impact is the impact of research on the applicant’s own research field, related fields or the broader scientific field.*
* *Societal impact can be broadly defined as any cultural, economic, industrial, environmental and/or social change that is (partly) the result of the knowledge and skills gained through the proposed research.*

*Note: although applicants can choose to focus on societal and/or scientific impact, NWO expects applicants to have thought about how opportunities can be exploited for the form of impact that is not the primary focus. This may mean that the research proposal indicates that the opportunities related to impact will be taken up by others, and describes the applicant’s own role in enabling this.*

**Specify which kind of impact the proposal focuses on:**

**Click to select**

## 3.2 Motivation for the choice of impact

*Provide a brief motivation for the focus on scientific and/or societal impact (max 250 words).*

## 3.3 Strategy and phased plan to achieve impact

*Describe here a detailed strategy and phased plan on how the proposed research can contribute to scientific and/or societal impact. Include how the research team(s) and participating users can contribute to this.*

*Note: If the choice has been made to focus on achieving one form of impact, also indicate whether and to what extent a contribution can be made to the other form of impact.*

## 3.4 Past performance on knowledge transfer and application of results

*Describe here whether and how the research group has achieved successful impact in the past in terms of knowledge dissemination and application of their own research results. Design and engineering disciplines can also include factors such as the strength of their design portfolio, awards, accolades, won competitions, and relevant advisory positions.*

## 3.5 Role of users in achieving impact

3.5.1 Composition of the user committee

*Provide below the contact information of the participating users. The user committee must consist of at least four users, who must be included in the application. The user committee must include at least two non-academic parties. See also section 5.1.7 of the Call for proposals.*

*Note: Only users who contribute concrete in-kind and/or in-cash co-financing can provide a declaration co-financing.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Name of company/institute/*  *organisation* | *Type of user* | *Name contact person for user committee* | *Contact details*  *(Email,*  *Website)* | *Company size (> or < 250 empl.)* | *Declaration Co-funding*  *(Yes or no)* |
|  | Academic  Non-academic |  |  | >250  <250 | Yes  No |
|  | Academic  Non-academic |  |  | >250  <250 | Yes  No |
|  | Academic  Non-academic |  |  | >250  <250 | Yes  No |
|  | Academic  Non-academic |  |  | >250  <250 | Yes  No |

3.5.2 Motivation for users to participate in the proposed research

*Provide a brief description below of the users' motivation to participate in the research.*

3.5.3 Level of involvement of the users

*Provide a brief description below of the level of involvement of the users in achieving scientific and/or societal impact. This can be expressed in terms of co-financing or other means.*

## 3.6 Intellectual property: freedom to operate

*Include all information relevant to the research question regarding the intellectual property. Clarify whether there is sufficient freedom in terms of research and application regarding economic propositions, existing patents, feasibility, and/or societal acceptance. Providing the requested information is mandatory.*

# Budget

*Ensure that the amounts filled in correspond exactly to the amounts in the Budget Excel form. Download the most recent version from the OTP funding page to ensure you are using the latest salary rates.*

*If a budget module does not apply, please leave the subheading and state 'n/a'.*

*Further explanation about budget modules can be found in section 7.1 Explanation of Budget Modules in the Call for proposals.*

## 4.1 Personnel positions

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Position* | *Category1 (PhD, Postdoc, NSP, SP, EngD)* | *FTE* | *Months* | *Tariff (see FP)* | | *Name of organisation* | *Bench fee*  *Yes or no*  *(only for PhD, Postdoc and PDEng)* |
| 1. |  |  |  | € |  |  | Yes  No |
| 2. |  |  |  | € |  |  | Yes  No |
| 3. |  |  |  | € |  |  | Yes  No |
| 4. |  |  |  | € |  |  | Yes  No |
| *1 (N)SP (non)scientific personnel; EngD Engineering Doctorate degree* | | | | | | |  |

## 4.2 Material costs

*In sections 4.2 to 4.6 provide a detailed breakdown of costs, including amounts with VAT.*

4.2.1 Project-related goods/services

4.2.2 Travel and accommodation costs for the requested personnel positions

4.2.3 Implementation costs

4.2.4 Cleanroom costs

## 4.3 Investments

## 4.4 Knowledge utilisation

## 4.5 Internationalisation

## 4.6 Money follows cooperation

4.6.1 Personnel Positions

4.6.2 Material costs

## 4.7 Contribution from users

4.7.1 Co-funding

*If applicable: provide a specification of the financial (cash/ in-kind) contribution from the users mentioned in section 3.5.1.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Organisation** | **In cash**  **(amount in €)** | **In kind**  **(amount in €)** | **Brief specification in-kind activity/task** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

4.7.2 NWO funding towards users

*If a user indirectly receives NWO funding through, for example, the materials budget and/or investment budget, please indicate and specify in detail here.*

## 4.8 Cost breakdown

*Please use the mandatory Excel form Budget OTP2024 and enter the following amounts. The in-cash contribution should be stated exclusive of VAT.*

|  |  |  |
| --- | --- | --- |
| Total project budget incl. co-funding | € |  |
| Total in-cash co-funding excl. VAT | € |  |
| Total in-kind co-funding | € |  |
| Total requested NWO funding | € |  |

*Note: the page count (maximum 13 pages) ends here.*

# Annexes

## 5.1 References

5.1.1 Selection of key output research group

*Provide a selection of up to 10 key outputs in accordance with the DORA protocol.*

5.1.2 List of publications cited

*Highlight publications of the involved main and co-applicants (researchers) by using bold font.*

## 5.2 Abbreviations and acronyms

*Please indicate the abbreviations and acronyms used in the application form.*

## 5.3 Expected Technology Readiness Level (TRL)

*Indicate the current TRL and the expected TRL after completion of the research. For more information see:* [*https://en.wikipedia.org/wiki/Technology\_readiness\_level*](https://en.wikipedia.org/wiki/Technology_readiness_level) *Check one box for ‘’current’’ and one for ‘’after’’.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Technology Readiness Level (TRL)** | Current | After | **Discovery phase**  1. Basic principles observed  2. Technology concept formulated  3. Experimental proof of concept  **Development phase**  4. Technology validated in lab  5. Technology validated in relevant environment  6. Technology demonstrated in relevant environment  **Demonstration phase**  7. System prototype demonstration in operational environment  8. System complete and qualified  **Deployment phase**  9. Actual system proven in operational environment |

## 5.4 Data management section

🡨 Expand for Explanatory Notes

|  |
| --- |
| Notes on data management section |
| Responsible data management is part of good research. To promote effective and efficient data management, data sharing and data reuse, NWO expects researchers to carefully manage data resulting from NWO-funded research and prospectively plan for which data will be preserved and shared.  With the data management section, NWO mainly wants to raise awareness about the importance of responsible data management. The section is therefore not included in a committee's decision about whether or not a proposal should be awarded funding. NWO does, however, submit this section to the committee and referees for advice.  **It is recommended that you seek advice from a data steward or research support office at your home institution** **to complete this section.** They will be able to recommend suitable storage facilities and repositories for your data, and to advise on data management costs.  After a proposal has been awarded funding, grantees are required to elaborate the data management section into a detailed data management plan explaining how research data and other results emerging from the NWO-funded research will be stored and made findable, accessible, interoperable and reusable (FAIR).  **What does NWO understand as research data?**  Research data are the evidence that underpin the answer to research questions, and can be used to validate findings. Data can be quantitative information or qualitative statements collected by researchers in the course of their work by experimentation, observation, modelling, interview or other methods, or information derived from existing evidence.  For the purpose of NWO’s data management policy, the definition of research data does not include physical objects such as scientific and archaeological collections, physical arts works or biobanks; however, digital information extracted from such objects are to be regarded as research data.  Software is also not included in the definition of research data. NWO recognizes that software (algorithms, scripts and code developed by researchers in the course of their work) may be necessary to access and interpret data. In such cases, the data management plan will be expected to address how information about such items will be made available.  **What data does NWO expects you share and preserve?**  Research results should be stored in such a way that they can be retrieved and reused in the long term, also by researchers in disciplines and organisations other than those in which the research took place. The operating principle is that all stored data are, in principle, freely accessible and that access is only limited if needed for reasons such as privacy, public security, ethical restrictions, property rights and commercial interests.  NWO expects researchers to preserve the data resulting from their projects for at least ten years, unless legal provisions or discipline-specific guidelines dictate otherwise. As much as possible, research data should be made publicly available for reuse, unless there are valid reasons not to do so. As a minimum, NWO requires that the data underpinning research papers should be made available at the time of the article’s publication. Any tools or software (algorithms, scripts and code developed by researchers in the course of their work) necessary to access and interpret data should be made available alongside the data.  **The costs of data management are eligible for funding and should be included in the project budget.**  Important factors that determine the costs are:   * the type of data; * the capacity needed for storage and backup; * the amount of work needed to allocate metadata and the compilation of other documentation such as codebooks and the queries used in the statistical package; * the extent to which the data needs to be protected; * the hiring in of external data management expertise or other expertise. |

### Questions Data management section

1. Will this project involve re-using existing research data?

Yes: From my own or a collaborator’s prior research.

Yes: Publicly available data.

No: Have you considered re-using existing data but discarded the possibility? Why?

If no, please briefly explain why; if yes, state any constraints on re-use of existing data if there are any.

1. Will data be collected or generated that are suitable for reuse?

Yes: Please answer questions 3 and 4.

No: Please explain why the research will not result in reusable data or in data that cannot be stored or data that for other reasons are not relevant for reuse.

1. After the project has been completed, how will the data be stored for the long-term and made available for the use by third parties? Are there possible restrictions to data sharing or embargo reasons? Please state these here.

4. Will any costs (financial and time) related to data management and sharing/preservation be incurred?

Yes: Then please be sure to specify the associated expenses in the budget table of this proposal (under 4.2.3 Implementation Costs).

No: All the necessary resources (financial and time) to store and prepare data for sharing/preservation are or will be available at no extra cost.