



Applied and Engineering Sciences

'Connecting Innovators'

Call for proposals

Open Mind – Technology for Society

Guidelines for funding proposals for research under the Open Mind call

Deadline for submission of applications: 3 September 2019
14:00h CEST (Central European SummerTime)

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Netherlands Organisation for Scientific Research
NWO Domain Applied and Engineering Sciences



Contents

Contents	2
Open your Mind	3
Conditions	3
Who can apply?	3
Funding	4
Start of the project	4
Publication of project results: Open Access and referring to NWO grant	4
IP policy	4
Data Management	5
Reporting.....	5
Selection	5
Selection criteria.....	5
Selection procedure	6
NWO Code of Conduct on Conflicts of Interest	7
Guidelines for the proposal	7
Submitting your proposal via ISAAC.....	7
Appendix 1 Technology Readiness Level (TRL) scale	8
Further information	9
Contact	9
Technical questions about the online application system ISAAC	9
Links	10

Open your Mind

NWO domain AES (Applied and Engineering Sciences; in Dutch Toegepaste en Technische Wetenschappen TTW) invites scientists to submit out-of-the-box research ideas that contribute to sustainable solutions for global societal challenges (along the line with *people, planet, profit*).

At the NWO innovation festival TEKNOLOGY that will be held on November 7th 2019, NWO domain AES provides a platform to scientists to discuss global challenges through creativity, passion, and their knowledge of technology. To support scientists to realise their ambition in solving and/or contributing to these global challenges, NWO domain AES has a total budget of 250,000 euro available. Five Open Mind grants, with a maximum of 50,000 euro (inclusive of Dutch VAT) each and for a duration of one year, will be awarded at the NWO innovation festival TEKNOLOGY 2019 to the best ideas with significant societal impact.

Imagine competing to solve some of the world's most daunting problems. Imagine using technology to combat disease, improve education, create disaster communication systems, empower people with disabilities, or promote environmental sustainability. Open your mind and submit your research idea to NWO domain AES. Ideas will be pitched at the annual NWO innovation festival TEKNOLOGY, competing for one of the Open Mind grants. A short description of the Open Mind ideas that received funding in previous years can be found on the NWO website (in Dutch): <https://www.nwo.nl/openmind>

The deadline for submission of project proposals (2 pages, including a short movie) is September 3rd, 14:00 hours (Central European Summer Time) 2019.

Conditions

Who can apply?

Eligible for submitting a proposal are scientists (scientific personnel, PhD, postdoc, assistant professors, associate professors and full professors) employed at:

- Universities established in the Kingdom of the Netherlands
- University medical centres
- Institutes affiliated to the Academy (Royal Netherlands Academy of Arts and Sciences (Koninklijke Nederlandse Akademie van Wetenschappen (KNAW)) or NWO
- the Netherlands Cancer Institute
- the Max Planck Institute for Psycholinguistics, Nijmegen
- the DUBBLE Beamline at the ESRF, Grenoble
- the Naturalis Biodiversity Centre
- the Advanced Research Centre for NanoLithography (ARCNL)
- the Princess Maxima Centre.

Applicants need to have a (temporary) appointment at one of the organisations mentioned above at the moment of submission of their proposal.

Scientists with a temporary appointment should make sure that the host institution guarantees the employment for the duration of the Open Mind project (December 2019 – November 2020). A written agreement signed by the board of the institute should be received by NWO domain AES no later than November 1st 2019.

Part of the selection procedure is pitching the idea at the [NWO innovation festival TEKNOLOGY](#) and, therefore, applicants should be available and present on November 7th 2019 (at a location to be determined in or near Utrecht) to pitch and discuss their proposal. Funding will be awarded for one year (December 2019 – November 2020). Applicants who are awarded Open Mind funding are requested to present the obtained results on the following annual conference in 2020.

Funding

Article 1.4 of the NWO Grant Rules 2017 is applicable, except as otherwise provided hereafter, to this call for proposals.

Open Mind funds project-specific costs of:

1. Personnel temporarily appointed to the project at the research institute
2. Materials (consumables, small instruments and aids, and domestic travel expenses),
3. Foreign travel.

The research institute is responsible for co-funding from direct government funding and hence for the necessary infrastructure and the supervision of project workers. If an applicant/co-applicant cooperates with other institutes not eligible for NWO domain AES funding, such as TNO or a foreign university, the non-eligible institutes are responsible for their own costs. Private co-funding is not applicable to Open Mind proposals.

In total, the requested budget may not exceed €50,000 (inclusive of Dutch VAT). Budget can be requested for a maximum of one year. Costs incurred after the date of the grant decision but before the starting date are not applicable for funding unless the beneficiary has obtained written permission from NWO domain AES before the starting date, prior to incurring those costs. If by the termination date the funding has only been used in part, the remaining funding reverts to NWO domain AES.

For the payment of the Open Mind grant article 3.2.3 of the NWO Grant Rules 2017 is applicable.

Payment of the grant takes place in the following manner:

- An 80 % advancement after meeting awarding conditions;
- The final 20 % will be paid after an end report is filed and approved by NWO domain AES and the Open Mind conditions, as set out in this call, have been met for the project.

Start of the project

The project may commence once the grant award decision has been signed. However, projects may not commence later than four months after signing the grant award decision.

Publication of project results: Open Access and referring to NWO grant

All scientific publications resulting from research that is funded by grants derived from this call for proposals are to be immediately (at the time of publication) freely accessible worldwide (Open Access). There are several ways for researchers to publish Open Access. A detailed explanation regarding Open Access can be found on www.nwo.nl/openscience-en.

The applicant ensures that when publishing project results, the fact that NWO has provided an Open Mind grant will be stated and in case of a scientific publication the NWO project number will be mentioned. If applicable, the NWO logo will be displayed and/or NWO's formal appellation¹ in the language concerned will be used.

IP policy

NWO domain AES encourages that intellectual property rights generated by Open Mind projects are made available to the public for any further development. Therefore, the IP rights to the results will be vested jointly in NWO domain AES and the applicant. The project leader informs NWO domain AES immediately if results are generated which are eligible for protection by a patent and the applicant is considering protecting the IP. NWO domain AES and the applicant will jointly make further detailed written arrangements in this respect.

¹ NWO's formal appellations in other languages are as follows:

- (English): Netherlands Organisation for Scientific Research;
- (French): Organisation Néerlandaise pour la Recherche Scientifique;
- (German): Niederländische Organisation für wissenschaftliche Forschung;
- (Italian): Organizzazione nazionale olandese per la ricerca scientifica;
- (Spanish): Organización neerlandesa de investigaciones científicas.

Data Management

Responsible data management is a fundamental aspect of good scholarly practice. NWO wants research data that emerge from publicly funded research to become freely available, as much as possible, for reuse by other researchers. Furthermore NWO wants to raise awareness among researchers about the importance of good data management. Research proposals should therefore satisfy the data management protocol of NWO. This protocol consists of two steps: 1) a data management section and 2) a data management plan.

The data management section is part of the research proposal. Researchers are requested to answer four questions about the management of their data within their intended research project. If no data is collected this can be indicated here.

After a proposal has been awarded funding the researcher is requested to work out the data management section into a data management plan according to the prescribed template. In the plan the researcher describes whether use will be made of existing data or a new data collection and how the data collection will be made FAIR: Findable, Accessible, Interoperable, Reusable. Further information about the data management protocol of NWO can be found at www.nwo.nl/datamanagement.

Reporting

Applicants who are awarded Open Mind funding are requested to present the obtained results on the following annual conference in 2020. Furthermore, the applicant must submit a short final report after the project ends. For this purpose, NWO will send the beneficiary a form that must be filled out and signed by the beneficiary.

Selection

Selection criteria

The research proposal should be in line with the aim of the Open Mind grant and should contribute to solutions for global societal challenges (people, planet, profit). Applications should be characterized by original and unconventional research approaches or methods as well as their high risk profile.

The proposals will be selected using the four criteria and represented interpretations below, which receive an equal weight in the selection procedure.

Originality

- If the subject is already being researched, are aspects present that make this proposal unique / that set this proposal apart?
- The proposal concerns (combinations of) of technology with a current Technology Readiness Level (TRL) of maximally 5 (individual contributing technologies may be more mature, in multidisciplinary proposals it is the combination that counts. See Appendix 1 for further information on TRL).
- The proposal is no logical continuation of ongoing research funded earlier by STW, NWO domain AES or NWO.
- The proposal is no logical continuation of ongoing research of the applicants or others involved.

Quality project plan

- The proposal can be reasonably finished within one year.
- The proposal can reasonably be executed within the 50.000 Euro budget.
- The subject addressed, the motivation and the solution are all clearly described.
- The written proposal and the video are complementary, but address the main idea of the proposal individually as well.

Urgency

- Would the consequences in one year be severe if this subject isn't addressed immediately?
- The context makes this a good moment to address the subject.
- The societal relevance of the subject is known or recognized in (scientific) literature or policies of governments, non-governmental organisations or companies.
- No simple solution with existing means is yet available or currently known means have significant shortcomings.

Potential impact

- Support for the importance of the subject is also present outside the scientific community. If not, the proposal addresses how it expects to generate this support (aspects such as use conditions, context, public acceptance or relevant legislation).
- The envisioned results of the proposal have the potential for a significant contribution to change.
- The results will contribute directly to either change, elimination of bottlenecks or facilitating follow-up (by evoking follow-up projects or involvement of others).
- The envisioned results provide a larger potential impact compared to equal investment in other existing means or solutions.

Selection procedure

NWO domain AES puts together an independent multidisciplinary Assessment Committee consisting of five to eight members. The members are highly educated and/or experienced people with an affinity for technology development and societal needs. Members are drawn from different sectors of society: universities, large research institutes, industry and other societal sectors. By using this approach, the assessment can take into account the societal needs that science and technology can address.

NWO domain AES will determine whether the research proposal is eligible for consideration with regards to the formal demands. If at least four times more proposals are submitted than can be funded, NWO domain AES retains the right to perform a preselection. In this case the Assessment Committee will establish a ranking on the four selection criteria individually and discuss their grades in order to establish a ranking. The criteria (originality, quality, urgency and potential impact) will be evaluated on a scale ranging from 1 (excellent) to 9 (poor), in which the following scores can be obtained: 1. Excellent, 2. Excellent to very good, 3. Very good, 4. Very good to good, 5. Good, 6. Good to moderate, 7. Moderate, 8. Moderate to poor, 9. Poor.

A maximum of fifteen proposals will then be selected to be further evaluated by the Open Mind Assessment Committee at the pitch session during the NWO innovation festival TEKNOLOGY. After the pitch session the Open Mind Assessment committee will establish the final ranking for the ideas invited to the congress. No preselection will take place in case the number of proposals does not exceed four times the number of proposals that can be funded. In that case all projects will be invited to the pitch session during the NWO innovation festival TEKNOLOGY.

The applicants of the proposals that are invited will be provided a platform at the NWO innovation festival TEKNOLOGY 2019 (scheduled 7 November 2019) in order to pitch their idea for the committee (and partially for the public) prior to the closed committee meeting. These applicants may also be invited by NWO domain AES to assist in creating additional media (such as a professional short movie or posters) for public display at the annual conference. In October 2019 candidates will be informed if they are selected to pitch at the conference. Depending on evaluation of the proposals based on the four selection criteria, funding will be awarded at the conference to a maximum of 5 proposals. The Assessment Committee reserves the right to deviate from the highest ranked proposals for policy reasons, like diversity in topics.

Due to the similar time frame of the Open Mind and second round of the NWA Idea generator call this year, when an Open Mind applicant is selected for the pitch session and accepts the invitation, who has also submitted the same or a similar application in the NWA Idea generator call, round 2 2019 (NWA-IDG-2019-2), the application which has been submitted for NWA-IDG-2019-2 will be excluded from the NWA-IDG-2019-2 assessment procedure. In addition, in case an applicant has already obtained a grant for an application in the NWA Idea generator call, round 1 2019, NWO will not take the same or a similar application in consideration for the Open Mind competition and will inform the applicant about this.

NWO Code of Conduct on Conflicts of Interest

To ensure a fair assessment and transparency for applicants, NWO domain AES uses the NWO Code of Conduct on Conflicts of Interest, which is available at: <http://www.nwo.nl/en/about-nwo/organisation/governance>. This code identifies possible forms of conflicts of interest and indicates the steps to be taken to avoid conflicts of interest. Parties subject to the code of conduct are: committee members, members of decision-making bodies and NWO officers.

Guidelines for the proposal

Project proposals (maximum 2 A4 pages) should be written in English according to the format that can be found on the grant page for the Open Mind programme. In addition to the written application a link to a downloadable short movie (maximum of 2 minutes) should be submitted in which the problem and proposed solution are pitched in an inspiring way. Show us what it is about your research that excites you. We want to be impressed by your scientific challenge, unconventional research methods and expected societal impact. We encourage you to consider creative and original ways to present your ideas.

The language spoken in the short movie should be English. Keep in mind a broad audience: your well-educated neighbour should be able to understand your story. If you make use of audio and/or visuals make sure they are royalty free. Please keep in mind that your video could be used as source material for promotional purposes prior to and/or during NWO Innovation Festival TEKNOLOGY. In such a case NWO will ask explicit permission beforehand.

Submitting your proposal via ISAAC

An application can only be submitted to NWO via the online application system ISAAC. Applications not submitted via ISAAC will not be considered. A principal applicant must submit his/her application via his/her own ISAAC account. If the principal applicant does not have an ISAAC account yet, then this should be created at least one day before the application is submitted to ensure that any registration problems can be resolved on time. If the principal applicant already has an NWO-account, then he/she does not need to create a new account to submit an application.

Submitting an application consists of two steps:

1. Entering several additional details online in ISAAC.
Make sure you allow enough time for this.
2. Submitting the application form
 - 2.1 Download the application form from the electronic application system ISAAC or from NWO domain AES's website (on the grant page for this programme).
 - 2.2 Complete the application form.
 - 2.3 Save the application form as a pdf file and upload it in ISAAC.

For technical questions about the use of ISAAC please contact the ISAAC helpdesk. The ISAAC helpdesk can be contacted from Monday to Friday between 10:00 and 17:00 hours CET on +31 (0)20-3467179. However, you can also submit your question by e-mail to isaac.helpdesk@nwo.nl. You will then receive an answer within two working days.

Appendix 1 Technology Readiness Level (TRL) scale

The **TRL** scale is a metric for describing the maturity of a technology. The acronym stands for **T**echnology **R**eadiness **L**evel. The scale consists of 9 levels. Each level characterises the progress in the development of a technology, from the idea (level 1) to the full deployment of the product in the marketplace (level 9).

This scale was developed by NASA in the 70s to assess the maturity of a technology prior to integrating this technology into a system. It contained 7 levels at that time. Nowadays, 9 levels compose the scale. These levels are detailed below.

Level 1 - Basic Research: basic principles are observed and reported

Lowest level of technology readiness. Scientific research begins to be translated into applied research and development. Examples might include fundamental investigations and paper studies.

Level 2 – Applied Research: technology concept and/or application formulated

Once basic principles are observed, practical applications can be formulated. Examples are limited to analytic studies and experimentation.

Level 3 – Critical function, proof of concept established

Active research and development is initiated. Laboratory studies aim to validate analytical predictions of separate components of the technology. Examples include components that are not yet integrated or representative.

Level 4 – Laboratory testing of prototype component or process

Design, development and lab testing of technological components are performed. Here, basic technological components are integrated to establish that they will work together. This is a relatively “low fidelity” prototype in comparison with the eventual system.

Level 5 – Laboratory testing of integrated system

The basic technological components are integrated together with realistic supporting elements to be tested in a simulated environment. This is a “high fidelity” prototype compared to the eventual system.

Level 6 – Prototype system verified

The prototype, which is well beyond that of level 5, is tested in a relevant environment. The system or process demonstration is carried out in an operational environment.

Level 7 – Integrated pilot system demonstrated

Prototype is near, or at, planned operational system level. The final design is virtually complete. The goal of this stage is to remove engineering and manufacturing risk.

Level 8 – System incorporated in commercial design

Technology has been proven to work in its final form under the expected conditions. In most of the cases, this level represents the end of true system development.

Level 9 – System ready for full scale deployment

Here, the technology in its final form is ready for commercial deployment.

Level beyond 9 - Market introduction

The product, process or service is launched commercially, marketed to and adopted by a group of customers (including public authorities).

Further information

Contact

General information is available from

Netherlands Organisation for Scientific Research NWO Domain Applied and Engineering Sciences

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Technical questions about the online application system ISAAC

For technical questions about the use of ISAAC please contact the ISAAC helpdesk. Please read the manual (tab 'Help') first before consulting the helpdesk. The ISAAC helpdesk can be contacted from Monday to Friday between 10:00 and 17:00 hours CET on +31 (0)20 3467179. You can also submit your question by e-mail to isaac.helpdesk@nwo.nl. You will then receive an answer within two working days.

Links

- The Open Mind website:
<https://www.nwo.nl/openmind>
- NWO grant rules of 2017:
<https://www.nwo.nl/en/funding/funding+process+explained/nwo+grant+rules+2017>
- Data management protocol (containing data management section and –plan):
www.nwo.nl/en/policies/open+science/data+management
- Code of Conduct on Conflicts of Interest:
<http://www.nwo.nl/en/documents/nwo/legal/nwo-code-of-conduct-on-conflicts-of-interest>
- Nagoya Protocol
<https://www.cbd.int>
- ISAAC:
<https://www.isaac.nwo.nl>
- How ISAAC works:
An ISAAC manual can be found in ISAAC (tab 'Help')
- ISAAC helpdesk:
isaac.helpdesk@nwo.nl
- Netherlands Organisation for Scientific Research (NWO):
<http://www.nwo.nl/>