



Demonstrator: Call for proposals

Empowering new knowledge by demonstration

Applied and Engineering Sciences
Science

2023



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1 Introduction

In this Call for proposals information is provided about the application procedure for the Demonstrator 2023 funding round: Empowering new knowledge by demonstration funding round. This Call for proposals falls under the responsibility of the Dutch Research Council (NWO).

In this Call for proposals you will find information about the aim of this programme (Chapter 2), the conditions for the grant application (Chapter 3) and how your proposal will be assessed (Chapter 4). This is the information you need to submit a grant application. Chapter 5 states the obligations for grant recipients in the event you are awarded funding, Chapter 6 contains the contact details and Chapter 7 the annexes.

1.1 Background

This Call for proposals describes the objectives, conditions and procedures of the Demonstrator programme of the NWO Domain Applied and Engineering Sciences (NWO Domain AES). It sets out the conditions governing applications for the funding of a Demonstrator and associated activities under the Demonstrator programme. For more information, see www.nwo.nl/demonstrator-en.

Before submitting your application electronically via ISAAC, NWO Domain AES recommends that you visit its website (www.nwo.nl/aes) to check that you have the latest version of this brochure, and that you read the guidelines carefully.

Applications are assessed by an assessment committee consisting mainly of entrepreneurs and investors, together with representatives from universities and/or universities of applied sciences. We recommend that you avoid technical jargon as far as possible and draft your proposal in language that all committee members can understand. Your proposal will also be assessed on aspects such as innovation, NOT just on scientific quality.

The knowledge and expertise must be at the right level, which for this Call means Technology Readiness Level 4 (TRL 4: “technology validated in lab”) or Societal Readiness Level 4 (SRL 4: “validated with relevant stakeholders”). If the TRL or SRL is too low, additional research is needed first to reach Level 4 before a Demonstrator application can be approved. If the TRL or SRL is too high, the Demonstrator phase has already been passed and funding is therefore not possible. For an explanation of TRL and SRL see Section 7.2.

In a Demonstrator project, all of the preparatory activities necessary to transfer the underlying Demonstrator knowledge to a third party are carried out. A Demonstrator project consists of two parts. One part concerns the development of a demonstration model clarifying the distinctiveness of the relevant Demonstrator. In parallel, due consideration is given to the process of value creation in order to increase the likelihood of transferring the Demonstrator knowledge to a third party for exploitation, and to the expansion of the role of shareholders.

Intellectual property rights (IP rights) play an important role in the application and transfer of research results. If your application involves IP rights, it is important to clarify prior to the start of a Demonstrator project which (possible) intellectual property rights have been established in relation to the necessary knowledge and whether these rights can be acquired in order to be offered to a commercial party wishing to exploit them. This can be in the form of a licence or a full transfer of ownership. There should be “freedom to operate”, allowing the knowledge and skills to be transferred to a third party. This means that the IP rights should be held by the applicant university, research institute or university of applied sciences. There should be no blocking agreements (licences etc.) that could restrict or prevent the transfer of IP rights to third parties in the future.

1.2 Available budget

The available budget for this Call for proposals is € 1,160,000. Within this Call for proposals it is expected that a maximum of 7 proposals will be awarded funding.

1.3 Submission deadline(s)

The deadline for submitting full proposals is **March 21, 2023**, at 14:00:00 hours CET.

When you submit your application in ISAAC, you will also need to enter some details online. Therefore please start submitting your application at least one day before the deadline of this Call for proposals. Applications that are submitted after the deadline will not be taken into consideration.

2 Aim

This chapter describes the aim of the programme and the societal impact.

2.1 Aim of the programme

The aim of the programme is to take knowledge developed at universities or universities of applied sciences that has reached TRL/SRL 4 but is still unknown to third parties or is not ready for them to pick up for further development, and to advance it to a stage where this can be done.

To this end, a Demonstrator is created at the level of a Minimal Viable Product (MVP). The Demonstrator can later be used to show a third party what the application prospects and development stage of the underlying knowledge and expertise are, and that there is a willingness to transfer the knowledge and expertise ("Show to Transfer"). The purpose of the Demonstrator is to convince (persuade) a third party to take on the further development and eventual use of this knowledge and expertise.

Please note: In the case of Demonstrator, it is **not** intended that the organisations involved will operate the Demonstrator themselves. The Take-off scheme is more suitable for innovative start-ups (see www.nwo.nl/takeoff-en). Nor is it intended that researchers should continue development themselves in the absence of interested parties if the Demonstrator stage has already been reached, or that development should be funded for parties already involved in the research.

2.2 Societal impact

New knowledge and insights from scientific research can make an important contribution to solutions for current and future societal issues. Examples are the energy transition, health and care, or climate change. Knowledge utilisation increases the chances of research having a societal impact and is therefore an important aspect of the NWO strategy for 2019-2022.

2.2.1 Knowledge utilisation

NWO defines knowledge utilisation as an iterative process aimed at achieving societal impact. Through interaction and alignment between researchers and possible users of knowledge, the chances of knowledge utilisation and, accordingly, societal impact increase. Via its knowledge utilisation policy, NWO facilitates the possible contribution of research to societal issues by encouraging productive interactions with societal stakeholders during the development and realisation of the research. NWO does this in a manner appropriate to the aim of the funding instrument.

2.2.2 Customisation in approach knowledge utilisation

Depending on the aim of the funding instrument, NWO will select the approach that has the greatest chance of achieving societal impact. The primary aim of the funding instrument determines the method NWO deploys to facilitate knowledge utilisation in various phases of the project (proposal, realisation, project completion) and the effort required from the applicant(s) and partner(s).

In this programme, the Impact Focus approach is used. With this approach, NWO finances/facilitates projects that make at least one targeted step to realise application of the research results in society. NWO offers an e-learning module to help those interested on their way using the Impact Focus approach. Please visit the NWO website impact.nwo.nl/en for more information.

For more information about the NWO knowledge utilisation policy, see the NWO website: www.nwo.nl/knowledge-utilisation.

3 Conditions for applicants

This chapter contains the conditions that are applicable to your grant application. Firstly it describes who can apply for funding (section 3.1) and what you can request funding for (section 3.2).

Subsequently, you will find the conditions for preparing and submitting the application (sections 3.3 and 3.4) and the specific funding conditions (section 3.5).

3.1 Who can apply

NWO Domain AES and the Taskforce for Applied Research SIA wish to encourage cooperation between university knowledge institutions and universities of applied sciences. The Demonstrator scheme is therefore explicitly open to alliances between university knowledge institutions and universities of applied sciences.

Professors and lecturers at a Dutch university of applied sciences (UAS)¹ may submit applications.

Full, associate and assistant professors and other researchers with a comparable position* may submit an application if they have a tenured position (and therefore a paid position for an indefinite period) or a tenure track agreement at one of the following organisations:

- universities located in the Kingdom of the Netherlands;
- university medical centres;
- institutes affiliated to the Royal Netherlands Academy of Arts and Sciences (KNAW) or NWO; Netherlands Cancer Institute;
- the Max Planck Institute for Psycholinguistics in Nijmegen;
- Naturalis Biodiversity Center;
- Advanced Research Centre for NanoLithography (ARCNL);
- Princess Máxima Center.

*A comparable position refers to a researcher that has a demonstrable and comparable number of years of experience in carrying out scientific research and supervising other researchers as a full, associate or assistant professor.

Persons with a zero-hour employment agreement or with a contract for a limited period of time (other than a tenure track appointment) may not submit a proposal.

It could be the case that the applicant's tenure track agreement ends before the intended completion date of the project for which funding is applied for, or that before that date, the applicant's tenured contract ends due to the applicant reaching retirement age. In that case, the applicant needs to include a statement from their employer in which the organisation concerned guarantees that the project and all project members for whom funding has been requested will receive adequate supervision for the full duration of the project.

Applicants with a part-time contract should guarantee adequate supervision of the project and all project members for whom funding is requested.

All requirements listed in this section need to be met, if you do not meet these conditions your proposal will be rejected.

¹ **University of Applied Sciences:** a funded institution within the meaning of Article 1.8 of the Higher Education and Scientific Research Act, which is a member of the Netherlands Association of Universities of Applied Sciences and has the mandate of providing higher professional education and carrying out design and development activities or research aimed at professional practice.

3.1.1 Main and co-applicants

The main applicant submits the proposal via the NWO web application ISAAC. During the assessment process, NWO will communicate with the main applicant.

After a proposal has been awarded funding, the main applicant will become the project leader and point of contact for NWO. The (knowledge) institution of the main applicant is the main beneficiary and will become the official secretary.

Co-applicants have an active role in realising the project. The (sub)project leaders and beneficiary/beneficiaries are jointly responsible for realising the entire project.

3.2 What can be applied for

For an application in this Call for proposals, a maximum of € 160,000 can be applied for. The maximum duration of the proposed project is 18 months. The budget modules (including the maximum amount) available for this Call for proposals are listed in the table below. Apply only for funding that is vital to realise the project. A more detailed explanation of the budget modules can be found in the annexe to this Call for proposals (7.1).

Budget module	Maximum amount
Postdoc	No limit, according to UNL or NFU rates ¹
Non-scientific staff (NSS) at universities	No limit, according to UNL or NFU rates ¹
Research leave	5 months, 1 FTE, according to UNL or NFU rates ¹
Personnel universities of applied sciences, educational institutions and other organisations	No limit, in accordance with the applicable rate at the time of awarding the grant as taken from Table 2.2, column 'Hourly rate productive hours, excl. Dutch VAT' from the <i>Handleiding Overheidstarieven</i> [HOT- Manual Dutch Government rates] (https://www.nwo.nl/en/salary-tables).
Material costs	No limit
Knowledge utilisation	No limit
Patent maintenance costs to maintain patent rights during the Demonstrator project if applicable	Maximum of € 15,000

Please note: if you submit one (or multiple) parallel application(s) to acquire NWOgrants, it is not allowed to include costs that are already part of one (or multiple) of the submitted applications. If you decide to include costs that are already part of one (or multiple) of the submitted applications, NWO will not take the new application(s) into consideration.

You can include these costs as soon as the original application(s) is/are rejected.

Examples are costs for small instruments, coaching- or educational programmes, salary for a person that (all applications combined) exceed 1FTE, etc.

3.3 Preparing an application

The steps involved in writing your application are:

- download the application form from the NWO web application ISAAC or from the NWO web page (on the grant page of the funding instrument concerned);
- complete the application form;
- save the application form in ISAAC as a PDF file and upload it with any compulsory annexes;
- fill in the requested information online in ISAAC.

Compulsory annexes: budget

Optional attachment(s) only: a statement from the employer (in case the applicant's tenure track agreement or permanent employment contract ends due to e.g. reaching retirement age before the intended completion date of the project for which funding is requested).

In case NWO has made a template available, the annexe should be drawn up according to the NWO template. Annexes must be uploaded in ISAAC separately from the application. All of the annexes, except for the budget, must be submitted as PDF files (without encryption). The budget must be submitted in ISAAC as an Excel file. Any annexes other than those above-mentioned are not permitted.

You must write your application in English or Dutch.

An application can only be submitted via the web application ISAAC. Applications that are not submitted via ISAAC will not be taken into consideration.

As the main applicant, you are required to submit the application via your own personal ISAAC account.

It is important to start with your application in ISAAC on time:

- if you do not yet have an ISAAC account, then you should create this on time to prevent any possible registration problems;
- any new organisations must also be added to ISAAC by NWO;
- you also need to submit other details online.

Applications submitted after the deadline will not be taken into consideration by NWO, unless caused by malfunctioning of the ISAAC system. The ISAAC helpdesk should be contacted before the deadline to report and register the problem.

For technical questions, please contact the ISAAC helpdesk, see contact (Chapter 6).

3.4 Conditions for submission

3.4.1 Formal conditions for submission

NWO will assess your application against the conditions listed below. Your application will only be admitted to the assessment procedure if it meets these conditions. After submitting your application, NWO requests you to be available to implement any possible administrative corrections so that you can (still) meet the conditions for submission.

These conditions are:

- the application form is, after a possible request to make additions or changes, complete and filled out according to the instructions; maximum of 15 A4 pages, font Calibri 10, in accordance with the template Application Form Demonstrator 2023;
- the application is submitted via the main applicant's ISAAC account;
- the application is received at or before the deadline set;
- the application is written in English or Dutch, aiming to avoid technical jargon as far as possible;
- the application budget is drawn up in accordance with the conditions for this Call for proposals; furthermore, the compulsory annexe budget form should match the budget presented in the application form;
- the proposed project has a duration of at least 12 months and at most 18 months;
- All of the required annexes are, after a possible request to make additions or changes, complete and filled out according to the instructions;
- The Demonstrator knowledge is not allowed to be simultaneously included in a Take-off application or a (current) Take-off project;
- The proposed Sounding Board Group includes at least two parties representing the end users.

3.5 Conditions on granting

The [NWO Grant Rules 2017](#) and the Agreement on the Payment of Costs for Scientific Research are applicable to all applications.

3.5.1 Data management

The results of scientific research must be replicable, verifiable and falsifiable. In the digital age, this means that, in addition to publications, research data must also be publicly accessible insofar as this is possible. NWO expects that research data resulting from NWO-funded projects will be made publicly available, as much as possible, for reuse by other researchers. “As open as possible, as closed as necessary” is the applicable principle in this respect. Researchers are at least expected to make the data and/or non-numerical results that underlie the conclusions of work published within the project publicly available at the same time as the work’s publication. Any costs incurred for this can be included in the project budget. Researchers should explain how data emerging from the project will be dealt with based on the data management section in the proposal and the data management plan that is drawn up after funding is awarded.

Data management section

The data management section is part of the proposal. Researchers are asked before the start of the research to consider how the data collected will be ordered and categorised so that this can be made publicly available. Measures will often already need to be taken, during the creation of data and analysis of the data, to make its later storage and dissemination possible. If it is not possible to make all data from the project publicly available, for example due to reasons of privacy, ethics or valorisation, then the applicant is obliged to list the reasons for this in the data management section.

The data management section in the proposal is not evaluated and will therefore not be weighed in the decision whether to award funding. However, both the referees and the committee can issue advice with respect to the data management section.

3.5.2 Scientific integrity

In accordance with the NWO Grant Rules 2017, the project that NWO funds must be carried out in accordance with the nationally and internationally accepted standards for scientific conduct as stated in the Netherlands Code of Conduct for Research Integrity (2018). By submitting the proposal, the applicant commits to this code. In the case of a (possible) violation of these standards during a project funded by NWO, the applicant should immediately inform NWO of this and should submit all relevant documents to NWO. More information about the code of conduct and the policy regarding research integrity can be found on the website: www.nwo.nl/en/scientific-integrity. <https://www.nwo.nl/integriteit>

3.5.3 Ethical statement or licence

The applicant is responsible for determining whether an ethical statement or licence is needed for the realisation of the proposed project. The applicant should ensure that this is obtained from the relevant institution or ethics committee on time. If the project is awarded funding, then the grant is issued under the condition that the necessary ethical statement or licence is obtained before the latest start date for the project. The project cannot start until NWO has received a copy of the ethical statement or licence.

3.5.4 Nagoya Protocol

The Nagoya Protocol ensures an honest and reasonable distribution of benefits emerging from the use of genetic resources (Access and Benefit Sharing; ABS). Researchers who make use of genetic sources from the Netherlands or abroad for their research should familiarise themselves with the Nagoya Protocol (www.absfocalpoint.nl). NWO assumes that researchers will take all necessary actions with respect to the Nagoya Protocol. <http://www.absfocalpoint.nl/>

3.5.5 Extra conditions

- The proof-of-concept (and any associated IP) underlying the Demonstrator knowledge emerges from a research project at a university or a university of applied sciences and does not come from third parties. You should demonstrate that the functioning of the Demonstrator has been validated at the laboratory scale (Technology Readiness Level 4) or has been validated with relevant stakeholders (Societal Readiness Level 4); see also Section 7.2 for a description of the TRL/SRL levels.
- Any IP (patents including necessary know-how) underlying the application, if applicable, should be held by the applicant university/institution/university of applied sciences and/or NWO Domain AES. In other words, the IP rights to the Demonstrator knowledge should be available for licensing or transfer to a party wishing to exploit them. The applicant should have freedom to operate with regard to the necessary knowledge and expertise. You should submit documents substantiating this (attach copies of documentary evidence). If the IP is jointly owned by the knowledge institution/university of applied sciences and NWO Domain AES, the rules set out in the “Brochure Guidelines Users’ Committee NWO Domain AES – 2017” apply.
- The Demonstrator application does not involve any third party (company, IP company or start-up) wishing to exploit or already exploiting the Demonstrator knowledge. In addition, the Demonstrator scheme is not intended for applicants who plan to exploit the knowledge themselves, even if the exploitation is done via a company or IP company.
- A rejected proposal may be resubmitted once to NWO Domain AES for assessment in a later round, provided it has been substantially amended.

4 Assessment procedure

This chapter first of all describes the course of the assessment procedure (Section 4.2). It then states the criteria that the assessment committee will use to assess your application (Section 4.3).

The NWO Code for Dealing with Personal Interests applies to all persons and NWO employees involved in the assessment and/or decision-taking process (www.nwo.nl/en/code-dealing-personal-interests). <https://www.nwo.nl/code>

NWO strives to achieve an inclusive culture in which there is no place for conscious or unconscious barriers due to cultural, ethnic or religious background, gender, sexual orientation, health or age (www.nwo.nl/en/diversity-and-inclusion). NWO encourages referees and members of an assessment committee or jury to be actively aware of implicit associations and to try to minimise these. NWO will provide them with information about concrete ways of improving the assessment of an application. <http://www.nwo.nl/diversiteit-en-inclusie>

4.1 The San Francisco Declaration (DORA)

NWO is a signatory to the San Francisco Declaration on Research Assessment (DORA). DORA is a worldwide initiative that aims to improve the way research and researchers are assessed. DORA contains recommendations for research funders, research institutions, scientific journals and other parties.

DORA aims to reduce the uncritical use of bibliometric indicators and obviate unconscious bias in the assessment of research and researchers. DORA's overarching philosophy is that research should be evaluated on its own merits rather than on the basis of surrogate measures, such as the journal in which the research is published.

When assessing the scientific track record of applicants, NWO makes use of a broad definition of scientific output.

NWO requests committee members and referees not to rely on indicators such as the Journal Impact Factor or the h-index when assessing applications. Applicants are not allowed to mention these in their applications. You are, however, allowed to list other scientific products besides publications, such as datasets, patents, software and code, et cetera.

For more information on how NWO is implementing the principles of DORA, see www.nwo.nl/en/dora. <http://www.nwo.nl/dora>

4.2 Procedure

The application procedure consists of the following steps:

- Submission of the proposal
- Consideration of the proposal
- Interview
- Assessment committee meeting
- Decision-making

Due to the expertise present in the assessment committee and the small size of the grant, NWO has decided for the assessment of the applications to make use of the possibility given in Article 2.2.4, paragraph 2, of the NWO Grant Rules 2017, to realise the assessment procedure without involving referees.

4.2.1 Submission of a proposal

For the submission of the proposal, a standard form is available on the funding page of this Call for proposals on the NWO website. When you write your proposal, you must adhere to the questions stated on this form and the procedure given in the explanatory notes. You must also adhere to the conditions for the maximum number of words and pages.

Your complete application form must have been received before the deadline via ISAAC (see paragraph 1.3). After this deadline, you can no longer submit a proposal. After submitting the proposal, the main applicant will receive a confirmation of receipt.

4.2.2 Consideration of the proposal

As soon as possible after you have submitted your proposal, you will hear from NWO whether or not your proposal will be taken into consideration. NWO will determine this based on several administrative-technical criteria (see the formal conditions for submission, Section 3.4). NWO can only take your proposal into consideration if it meets these conditions; especially the conditions described in Section 3.1 'Who can apply'. If you do not meet the conditions of 3.1 your proposal will be rejected. Please bear in mind that within two weeks after the submission deadline, NWO may approach you with any possible administrative corrections that need to be made so that your proposal can (still) meet the conditions for submission. You will be given one opportunity to make the corrections, and you will be given five working days to do this.

4.2.3 Interview

The proposals will be submitted to the assessment committee, which consists mainly of entrepreneurs and investors. The assessment committee will make its own assessment. Subsequently, the applicants with the highest ranked proposals will be invited for an interview.

During the interview, the assessment committee has the opportunity to pose questions, including new questions that the referees have not yet asked. During the interview, the applicant can respond to these in the discussion with the committee. In this manner, the principle of hearing and rebuttal is applied. The interview is an important part of the assessment and can lead to an adjustment of the assessment and the score of the proposal.

4.2.4 Meeting of the assessment committee

The pre-advice and the interviews are the starting point for the plenary discussion of the proposals by the assessment committee.

Following the discussion, the committee draws up a written recommendation addressed to the AES Board about the quality and ranking of the proposals. This recommendation is based on the assessment criteria. The proposal must receive an overall qualification of at least "very good" to be eligible for the funding. The proposal must also receive at least the qualification "very good" for each of the separate assessment criteria.

For more information about the qualifications, see www.nwo.nl/en/apply-funding-how-does-it-work.

This qualification means that a maximum score of 3.9 (very good) is permitted on each of the assessment criteria "Basis and innovation", "Societal impact" and "Project approach and project team"; the average of these three scores must not exceed 3.4 (very good). Proposals are ranked on the basis of the average score according to these three criteria. An assessment scale from 1 (excellent) to 9 (substandard) is used.

If, after the discussion of the proposals, it transpires that two or more of the proposals based on their weighted total score cannot be distinguished from each other, then there is an *ex aequo* situation (see the paragraph about *ex aequo*).

4.2.5 Ex aequo

NWO understands ex aequo to be a situation in which two or more proposals based on their weighted score cannot be distinguished from each other. An ex aequo situation is relevant with respect to the boundary of the available budget or the selection boundary. The existence of an ex aequo situation is determined as follows. The starting point is the ranking drawn up by the assessment committee, with the final scores rounded down to two decimal points. The reference score is the score of the lowest-ranked proposal within the boundary of the available budget or the selection boundary. All proposals with a score that is within 0.05 or less of the reference score will be considered. In this way, the proposals that are equal within a score of 0.1 will be selected. If an ex aequo situation occurs at the boundary of available budget or the selection boundary, then the proposal from a female applicant will end as the highest. If the ex aequo situation is not resolved with this, then the proposal with the highest score for the criterion “Project approach and project team” will end highest. If the proposals subsequently in a tie, the assessment committee, with the help of an (anonymous) majority vote, will determine the ranking (in accordance with Article 2.2.7, third paragraph, sub a, part iv of the NWO Grant Rules 2017). If this vote provides no resolution either, or is not desirable to vote, the ex aequo situation will be sent on to the decision-making body.

4.2.6 Decision-taking

Finally, the AES Board will assess the procedure followed and the advice from the assessment committee. It will subsequently determine the final qualifications and take a decision about awarding or rejecting the proposals.

4.2.7 Timetable

Below, you will find the timetable for this Call for proposals. During the current procedure, NWO might find it necessary to make further changes to the timetable for this Call for proposals. You will, of course, be informed about this in time.

Proposals	
21 March 2023, 14:00:00 CET.	Deadline proposals
June- beginning of July 2023	Interviews
beginning of July 2023	Assessment committee meeting
August 2023	Decision by the board

4.3 Criteria

4.3.1 Substantive assessment criteria

The applications submitted within this Call for proposals will be substantially assessed on the basis of the following criteria:

- 1. Basis and innovation (33%):** *The innovative Demonstrator offers a solution to a realistic problem and is founded on a sound scientific and technological basis.*

1.1 The problem and the solution

- The problem, based on clear assumptions, is credible;
- The Demonstrator offers a (partial) solution to the problem described.

1.2 Scientific and technological basis

- The scientific basis for the Demonstrator is convincing;
- The knowledge and expertise are at the right level, which for this Call means Technology Readiness Level 4 (TRL 4: “technology validated in lab”) or Societal Readiness Level 4 (SRL 4: “validated with relevant stakeholders”). If the TRL or SRL is too low, additional research is needed first to reach Level 4 before a Demonstrator

application can be approved. If the TRL or SRL is too high, the Demonstrator phase has already been passed and no funding can therefore be awarded.

- No new fundamental research is needed to achieve the Minimal Viable Product.

1.3 Innovation

- The Demonstrator contains innovative aspects.

2. Societal impact (33%): *The Demonstrator contributes to positive cultural, economic, industrial, ecological or social changes.*

2.1 Vision of success

- The vision of success (intended change), based on clear assumptions, is credible;
- The intended change is relevant, urgent and ethically responsible;
- Solving the problem contributes to the intended change.

2.2 Value creation

- The value proposition (distinctiveness, unique selling points, disruption potential, potential users) of the Demonstrator is convincing;
- There are demonstrable users (market/need) for the solution offered by the Demonstrator;
- The process of value creation and implementation of ideas (if applicable: business model, revenue model, market analysis, reaching the target group etc.) is well founded.

2.3 Transfer activities

- Outreach activities are planned, and these plans to engage with potentially relevant third parties (operators) and the connection strategy are convincing;
- Where possible, there is already a clear picture of potentially relevant third parties, who should therefore be cited together with the reason for potential interest. PLEASE NOTE: no third party is involved that wishes to exploit or is already exploiting the Demonstrator knowledge.

3. Project approach and project team (33%): *The action plan and the corresponding budget are realistic, and the team has the right expertise to make the project a success.*

3.1 Project approach

- The objectives are SMART (Specific, Measurable, Acceptable, Realistic and Time-bound);
- The Minimal Viable Product is delivered within 12 months;
- The proposed approach/methodology is appropriate to achieve the objectives;
- The activities, milestones and deliverables have a realistic time frame and are clearly visualised in a Gantt chart.

3.2 Project team

- The team has the right expertise (in terms of technical content and business development) or describes how missing expertise will be added to the team;
- Roles and responsibilities are clear and logical;
- The team has access to the necessary resources;
- The Sounding Board Group (see Section 5.2.4) suits the project, has the broadest possible composition and includes all relevant stakeholders (excluding the intended operators).

3.3 Risks

- The relevant risks have been identified and their size has been estimated as realistically as possible (large/medium/small);
- Credible mitigating actions have been formulated for each risk.

3.4 Budget

- The proposed items are in proportion to each other and suit the proposed activities in the Gantt chart.

3.5 Patent position (if applicable)

- Existing patents are described (if applicable);
- The necessary patent is held by the knowledge institution (there is freedom to operate).

5 Obligations for grant recipients

This chapter details the various obligations that - in addition to the conditions stated in Section 3.5 - apply after funds have been awarded.

5.1.1 Data management

After a proposal has been awarded funding, the researcher should elaborate the data management section into a data management plan. For this, applicants can make use of the advice from the referees and committee. The applicant describes in the plan whether use will be made of existing data, whether new data will be collected or generated, and how the data will be made FAIR: Findable, Accessible, Interoperable, Reusable. Before submission, the data management plan should be checked by a data steward or similar officer of the organisation where the project will be realised. The plan should be submitted to NWO via ISAAC within 4 months after the proposal has been awarded funding. NWO will check the plan as quickly as possible. Approval of the data management plan by NWO is a condition for disbursement of the funding. The plan can be adjusted during the research.

More information about the data management protocol of NWO can be found at:

www.nwo.nl/en/research-data-management.

5.1.2 Intellectual property

With respect to intellectual property (IP), the NWO IP policy applies. This can be found in Chapter 4 of the NWO Grant Rules 2017.

Applicants must carry out a project funded by NWO during the time that they work for the knowledge institution. If an applicant or a researcher funded by NWO is appointed by more than one employer, then the other employer should relinquish any possible IP rights that emerge from the project of the applicant.

5.1.3 Socially responsible licensing

The knowledge that emerges from the project could be suitable for use in society. When agreements about licensing and/or the transfer of research results developed under this Call for proposals are made, due consideration should be given to the ten principles for socially responsible licensing, as stated in the NFU factsheet "Socially Responsible Licensing Toolkit for knowledge institutions" (www.nfu.nl/sites/default/files/2020-09/200902-NFU%20Factsheet%20Toolkit%20SRL.pdf).

<https://www.rijksoverheid.nl/documenten/rapporten/2019/05/29/tien-principes-voor-maatschappelijk-verantwoord-licentieren>
<https://www.rijksoverheid.nl/documenten/rapporten/2019/05/29/tien-principes-voor-maatschappelijk-verantwoord-licentieren>

5.1.4 Sounding Board Group

It is the intention that potential end users, especially those outside the immediate circle and outside the research field of the researchers submitting the application, should be involved in the Demonstrator project throughout its entire duration.

To promote the building of the right Demonstrator, NWO Domain AES sets up a Sounding Board Group for each Demonstrator project in consultation with the project leader, based on the end users proposed in the project plan. The Sounding Board Group should treat the shared information confidentially. Each member of the Sounding Board Group is admitted by signing a letter issued by NWO Domain AES governing matters such as this confidentiality.

End users are defined as natural persons or legal persons (national or international) who are able and willing to apply the Demonstrator as soon as it has been developed into a product by a third party. These end users are NOT the intended operators of the Demonstrator; they may be, for example, the group of end users who will purchase the Demonstrator from the intended operator. Another key principle is that the composition of the Sounding Board Group maximises the chances of transfer and that the exchange of ideas, including confidential information, remains possible. The Sounding Board Group advises the project leader on the direction the project should take in order to promote the creation of the Demonstrator and the transfer of results. The project leader holds ultimate responsibility for implementation of the project in accordance with the approved project plan.

The Sounding Board Group must include at least two parties representing the end users. In addition, parties that can contribute to the development of the Demonstrator may participate in the Sounding Board Group. The members of the Sounding Board Group should NOT be the intended operators of the Demonstrator, to whom the Demonstrator will be offered at the end of the project.

5.1.5 Open Access

As a signatory to the Berlin Declaration (2003) and a member of cOAlition S (2018), NWO is committed to making the results of the research it funds openly accessible via the internet (Open Access). By doing this, NWO gives substance to the ambitions of the Dutch government to make all publicly funded research available in Open Access form. Scientific publications arising from projects awarded on the basis of this Call for proposals must therefore be made available in Open Access form in accordance with the Open Access Policy.

PLEASE NOTE: publication of results in scientific journals or similar is not necessary in the case of Demonstrator and should not conflict with IP or patent protection of the knowledge and expertise acquired. In addition, publication in other media, such as professional journals, is more suitable for valorisation purposes.

Scientific articles

Scientific articles must be made available in Open Access form immediately at the time of publication (without embargo) via one of the following routes:

- publication in a fully Open Access journal or platform registered in the DOAJ;
- publication in a subscription journal and the immediate deposition of at least the author accepted manuscript of the article in an Open Access repository registered in Open DOAR;
- publication in a journal for which a transformative Open Access agreement exists between UNL and a publisher. For further information, see www.openaccess.nl/en.

Books

Different requirements apply to scholarly books, book chapters and edited collections. See the Open Access Policy Framework at www.nwo.nl/en/open-science.

CC BY licence

To ensure the widest possible dissemination of publications, at least a Creative Commons (CC BY) licence must be applied. Alternatively – in case of substantial interest – the author may request to publish under a CC BY-ND licence. For books, book chapters and collected volumes, all CC BY licence options are allowed.

Costs

Costs for publication in fully Open Access journals can be budgeted in the application using the budget module for “material costs”. Costs for publications in hybrid journals are not eligible for reimbursement by NWO. For Open Access books, a separate NWO Open Access Books Fund is available.

For more detailed information about NWO’s Open Access policy, see www.nwo.nl/en/open-science.

6 Contact and other information

6.1 Contact

6.1.1 Specific questions

For specific questions about this Call for proposals, please contact the contact persons as listed on our website or contact us by e-mail: demonstrator@nwo.nl.

6.1.2 Technical questions about the web application ISAAC

For technical questions about the use of ISAAC, please contact the ISAAC helpdesk. Please read the manual first before consulting the helpdesk. The ISAAC helpdesk can be contacted from Monday to Friday between 10:00 and 17:00 hours on +31 70 34 40 600. However, you can also submit your question by email to isaac.helpdesk@nwo.nl. You will then receive an answer within two working days.

6.2 Other information

NWO processes data from applicants received in the context of this call in accordance with the NWO Privacy Statement, www.nwo.nl/en/privacyverklaring. <https://www.nwo.nl/privacyverklaring>

NWO might approach applicants for an evaluation of the procedure and/or research programme.

6.2.1 Set-up of a Demonstrator project

A Demonstrator project has a maximum duration of 18 months and consists of the following two parallel parts:

1. **SHOW:** creating a Demonstrator (MVP) at TRL/SRL 5.
No more than 12 months after the start of the project, a Minimal Viable Product (MVP) is delivered based on the research already done. The emphasis in a Demonstrator project is therefore on developing the knowledge and expertise gained, and NOT on continuing the research that has been conducted.
To clarify the target group and the function to be shown for the MVP, the input from the parallel TRANSFER part is required first.
2. **TRANSFER:** validating the Demonstrator knowledge in the market.
In this part, activities aimed at transferring the Demonstrator knowledge are carried out. This starts with defining the intended aim of the proposed Demonstrator and the way in which it should then be built. This increases the chances of the Demonstrator knowledge being transferred to a commercial third party.

Once the MVP has been created (after 9–12 months), it will be consciously used to facilitate the future transfer of the Demonstrator knowledge (by means of demonstrations in various formats and on different occasions).

6.2.2 Sounding Board Group meetings

The kick-off meeting

The kick-off meeting with the Sounding Board Group aims to clarify what the Demonstrator (the MVP) should ultimately look like, including:

- Identifying the functions the Demonstrator should be able to perform according to the end users represented in the Sounding Board Group, in order to convince these persons of the functioning and feasibility of the Demonstrator.
- Determining the current status of the underlying knowledge and the remaining distance to the desired Demonstrator as outlined above. The project plan is the basis for this discussion.
- Choosing ideally a single functionality to be developed further, due to the limited time and resources in a Demonstrator project.

- Adopting a plan for the following period, desired communication and any interim meetings etc.

The mid-term review

This review takes place once the MVP has been created, i.e. after 9–12 months (calculated from the start of the project). NWO Domain AES asks the Sounding Board Group to give their reasoned opinion on the results achieved and the future progress of the project.

The mid-term review aims to evaluate the progress of the project. It assesses:

- feasibility of the project objectives;
- necessity of the remaining funding for the successful completion of the project in accordance with the project plan.

In the event of a negative opinion, the project leader will be informed that a number of improvements need to be made to the project.

The necessary mid-term review documentation consists of a continuation report (AES template) containing the following parts:

- The current progress report of the Demonstrator project (construction status of the demonstration model, status of preparatory transfer activities (presentations, commercial leads), milestones achieved etc.);
- Update on the Intellectual Property position;
- Updated action plan – Transfer of the Demonstrator knowledge;
- Financial overview (planned versus realised).

The closing meeting

This meeting aims to show the results of the Demonstrator project to the Sounding Board Group.

This concerns the Demonstrator itself, if it deviates from the version as shown during the mid-term review, as well as an overview and status of the transfer activities carried out.

In addition, it should be possible to discuss the documents listed in Section 5.2.4 so that they can be delivered at the end of the project.

6.2.3 Project results

The following results should be achieved by the end of the Demonstrator project:

1. A demonstration model of the Demonstrator knowledge which is at least TRL/SRL 5;
2. At least one targeted party interested in developing the Demonstrator knowledge further;
3. A concise Action Plan describing the intended cooperation between the parties and the transfer of the Demonstrator knowledge;
4. Reporting on PR and transfer activities carried out, for example:
 - giving presentations of the Demonstrator knowledge to relevant companies/organisations;
 - identifying one or more leads (= third parties wishing to develop the Demonstrator further);
 - where possible, agreements on licensing and transfer of knowledge and expertise etc.).

7 Annexe(s):

7.1 Explanation of budget modules

It is possible to apply for the funding of the salary costs of personnel who make a substantial contribution to the research. Funding of these salary costs depends on the type of appointment and the organisation where the personnel are/ will be appointed.

- For university appointments, the salary costs are funded in accordance with the UNL salary tables applicable at the moment the grant is awarded (www.nwo.nl/en/salary-tables).<http://www.nwo.nl/salaristabellen>
- For university medical centres, the salary costs are funded in accordance with the NFU salary tables applicable at the moment the grant is awarded (www.nwo.nl/en/salary-tables).<http://www.nwo.nl/salaristabellen>
- For personnel from universities of applied sciences, educational institutions and other organisations, salary costs will be funded based on the collective labour agreement pay scale of the employee concerned in accordance with the applicable rate at the time of awarding the grant as taken from Table 2.2, column 'Hourly rate productive hours, excl. Dutch VAT' from the *Handleiding Overheidstarieven* [HOT- Manual Dutch Government Rates] (<https://www.nwo.nl/en/salary-tables>).
- For the Caribbean Netherlands, the Dutch government employs civil servants on Bonaire, Sint Eustatius and Saba under different conditions than in the European part of the Netherlands www.rijksdienstcn.com/werken-bij-rijksdienst-caribisch-nederland/arbeidsvoorwaarden.

NWO will apply a mandatory one-off indexing of the salary costs with respect to:

- UNL rates: for proposals submitted before 1 July and that are awarded funding after 1 July;
- NFU rates: for proposals submitted before 1 August that are awarded funding after 1 August;
- HOT rates: for proposals submitted before 1 January that are awarded funding after 1 January.

The mandatory one-off indexing has no influence on the level of the grant ceiling or on the maximum amount of the grant awarded per proposal. The level of the grant ceiling and the maximum amount of the grant awarded will remain unchanged during the assessment procedure. The mandatory one-off indexing will be applied after the decision-taking about awarding or rejecting proposals has been completed.

If co-funding is required or permitted then the one-off mandatory indexing will have no consequences for the co-funding requirement or the IP rights that can emerge from the co-funding.

The rates for all budget modules are incorporated in the budget template that accompanies the application form. For the budget module "Postdoc", a one-off individual bench fee of €5,000 is added on top of the salary costs to encourage the scientific career of the project employee funded by NWO. Remunerations for PhD scholarship students ('bursalen') at a Dutch university are not eligible for funding from NWO.

The available budget modules are explained below.

Non-scientific staff (NSS) at universities

This includes personnel such as student assistants, programmers, technical assistants or analysts. Depending on the level of the position, the appropriate salary table for NSS at MBO, HBO or university level applies.

Research leave for applicants

With this budget module, funding can be requested for the costs of the research leave of the main and/or co-applicant(s). The employer of the applicant(s) can use this to cover the costs of relinquishing him or her from educational, supervisory, administrative or management tasks (not research tasks). The time that is released through the research leave grant can only be used by the applicant(s) for activities in the context of the project. The proposal must describe which activities in the context of the project the applicant(s) will carry out in the time relinquished.

The maximum amount of research leave that can be applied for is the equivalent of 5 full-time months. NWO funds the research leave in accordance with the salary tables for a senior scientific employee (scale 11) at the time the grant is awarded (www.nwo.nl/en/salary-tables). <http://www.nwo.nl/salaristabellen>

Personnel universities of applied sciences, educational institutions and other organisations

With the exception of personnel that fall under UNL or NFU rates, costs for the funding of personnel employed at a university of applied sciences, educational institution or at other organisations will be remunerated in accordance with Table 2.2, column 'Hourly rate productive hours, excl. Dutch VAT' from the *Handleiding Overheidstarieven* [HOT- Manual Dutch Government Rates] (www.nwo.nl/en/salary-tables). Within a Demonstrator project the scales 7, 10, 11, 12 and 13 are allowed.

For the calculation you should use the number of productive hours stated in the valid volume of the *Handleiding Overheidstarieven*.

Explanation of budget module Material

The material budget that can be applied for is specified according to the three categories below:

Project-related goods/services

- consumables (e.g. glassware, chemicals, cryogenic fluids, etc.)
- small instruments and tools
- measurement and calculation time (e.g. access to supercomputer, etc.)
- costs for acquiring or using data collections (e.g. from Statistics Netherlands [CBS]), for which the total amount may not be more than €25,000 per proposal
- access to large national and international facilities (e.g. cleanroom, synchrotron, etc.)
- work by third parties (e.g. laboratory analyses, data collection, citizen science, etc.)

Travel and accommodation costs for the personnel positions applied for

- travel and accommodation costs
- fieldwork
- work visit

Implementation costs

- national symposium/conference/workshop organised by the project researchers
- costs for Open Access publishing (solely in full gold Open Access journals, registered in the "Directory of Open Access Journals" <https://doaj.org/>) <https://doaj.org/>
- costs data management
- costs involved in applying for licences (e.g. for animal experiments)
- audit costs (only for institutions that are not subject to the education accountants protocol of the Ministry of Education, Culture and Science), maximum €2,500 per proposal

Costs that cannot be applied for are:

- basic facilities within the institution (e.g. laptops, office furniture, etc.)

- maintenance and insurance costs
- reimbursement of Sounding Board members

Citizen science

Involving citizens (citizen science) can contribute to the quality of the research. With the help of citizens, data and insights can be acquired that would not otherwise be available for research. NWO also funds citizen science. Applicants can use the budget module “material, project-related goods/services, work by third parties” to request a remuneration for the involvement of citizens in projects. The budget module offers a possibility and is not a requirement. Applicants are free to decide whether it is worthwhile involving citizens in the project and what exactly they use this budget for (for example, reimbursement of expenses of citizens, skills training for citizens or technical devices for the participating citizen). In this budget module up to €15,000 per scientific FTE per year can be applied for (<https://www.nwo.nl/en/citizen-science>).

Explanation of budget module Knowledge utilisation

The aim of this budget module is to facilitate the use of the knowledge that emerges from the research.²

As knowledge utilisation takes many different forms in different scientific fields, the applicant needs to specify the required costs, e.g. costs of producing a teaching package, conducting a feasibility study into potential applications, or filing a patent application.

The budget applied for should be adequately specified in the proposal.

² In this budget module, the definition for “knowledge transfer” as used by the European Commission in the Framework for State aid for research and development and innovation (PbEU, 2014, C198) applies.

7.2 Explanation of Technology Readiness Levels and Societal Readiness Levels (TRL / SRL)

Demonstrator uses the terms Technology Readiness Level (TRL) and Societal Readiness Level (SRL). The different levels, as defined by the European Commission, are explained below.

7.2.1 Technology Readiness Levels

Technology Readiness Levels (TRL) are a type of measurement system used to assess the maturity level of a particular technology. Each technology project is evaluated against the parameters for each technology level and is then assigned a TRL rating based on the projects progress. There are nine technology readiness levels. TRL 1 is the lowest and TRL 9 is the highest.³

Technology Readiness Level	Description
TRL 1	Basic principles observed: Lowest level of technology readiness. Scientific research begins to be translated into applied research and development (R&D). Examples might include paper studies of a technology's basic properties.
TRL 2	Technology concept formulated: Once basic physical principles are observed, then at the next level of maturation, practical applications of those characteristics can be invented or identified. At this level, the application is still speculative- there is not experimental proof or detailed analysis to support the conjecture. Examples are limited to analytic studies.
TRL 3	Experimental proof of concept: At this step in the maturation process, active research and development (R&D) is initiated. This must include both analytical studies to set the technology into an appropriate context and laboratory-based studies to physically validate that the analytical predictions are correct. These studies and experiments should constitute proof-of-concept validation of the applications/concepts formulated at TRL 2.
TRL 4	Technology validated in lab: At this level the design, development and lab testing of technological components are performed. Following successful proof-of-concept work, basic technological elements must be integrated to establish that the pieces will work together. The validation must be devised to support the concept that was formulated earlier, and should also be consistent with the requirements of potential system applications. It is "low-fidelity" validation compared to the eventual system.
TRL 5	Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies): The basic technological components are integrated with reasonably realistic supporting elements so they can be tested in a simulated environment. Examples include "high-fidelity" laboratory integration of components.

³ In accordance with the definitions used by the European Commission

TRL 6	Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies): Representative model or prototype system, which is well beyond that of TRL 5, is tested in a relevant environment. Represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in a simulated operational environment.
TRL 7	System prototype demonstration in operational environment: TRL 7 is a significant step beyond TRL 6, requiring an actual system prototype demonstration in a real relevant environment. The prototype should be near or at the scale of the planned operational system and the demonstration must take place in real environment. The goal of this stage is to remove engineering and manufacturing risk.
TRL 8	System complete and qualified: Technology has been proven to work in its final form under the expected conditions. Examples include developmental test and evaluation of the system in its intended system to determine if it meets design specifications. In almost all cases, this level is the end of true system development.
TRL 9	Actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies): Actual application of the technology in its final form and under target conditions, such as those encountered in operational test and evaluation. At this point, the technology is ready for commercial deployment.

7.2.2 Societal Readiness Levels

SRL 1 Identifying problem and identifying societal readiness

SRL 2 Formulation of problem, proposed solution(s) and potential impact, expected societal readiness; identifying relevant stakeholders for the project

SRL 3 Initial testing of proposed solution(s) together with relevant stakeholders

Stages SRL 1-3 reflect the early work in a research project, including suggesting and testing on a preliminary basis a technical and/or social solution to a technical or a societal problem. Here reflections about the general societal readiness towards the idea and its proposed solution(s) are required, including identifying relevant stakeholders and how to include them (such as end users, the right communities, etc.)

SRL 4 Problem validated through pilot testing in relevant environment to substantiate proposed impact and societal readiness

SRL 5 Proposed solution(s) validated, now by relevant stakeholders in the area

SRL 6 Solution(s) demonstrated in relevant environment and in cooperation with relevant stakeholders to gain initial feedback on potential impact

Stages SRL 4-6 represent the actual solution(s), the research hypothesis, and testing it/them in the relevant context in cooperation with relevant stakeholders, while keeping a focus on impact and society's readiness for the product. In these stages expectations on the societal adaptation must be described in specific terms and, to the extent possible, be part of the test phase.

SRL 7 Refinement of project and/or solution and, if needed, retesting in relevant environment with relevant stakeholders

SRL 8 Proposed solution(s) as well as a plan for societal adaptation complete and qualified

SRL 9 Actual project solution(s) proven in relevant environment

Stages SRL 7-9 include the end stages of the research project, including refining the solution(s), implementation and dissemination of results and/or solution(s). Here the plan for addressing the societal readiness on a practical level to gain impact, creating awareness, disseminating results, etc., will be carried out.

7.3 Qualifications

The relation between qualification and scores used are listed below.

Score	Qualification
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 substandard
9	Substandard

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