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Call for proposals, Next Generation Infrastructures

Responsive Futures: Modelling and Governance for Infrastructures in Transition

Social Sciences And Humanities

Contents

1 Introduction

1.1 Background

Next Generation Infrastructures (NGinfra) is the knowledge institute for Alliander, Port of Rotterdam, ProRail, Rijkswaterstaat, Schiphol Group and Vitens. NGinfra is focussed on adding value to society, in a world where the interdependencies between infrastructures are becoming increasingly evident and demanding. A world in which a transition is taking place from more or less solitary planning and operating infrastructure managers, to a world with a systemic multi-infrastructural approach.

NGinfra partners[1] are dedicated to sharing knowledge and to enrich infrastructure management with their own insights, strengthening each other. They are also committed to developing new knowledge, with a focus on fundamental questions that can be pursued by both short and long term research. For long term research NGinfra has signed a Memorandum of Understanding with the Netherlands Organisation for Scientific Research (NWO). Both parties have set aside € 10 million to be invested in scientific research.
During the first NGinfra call in 2016, € 3 million was invested in six research projects. That call focussed on the way in which infrastructure managers work together in situations of great uncertainty and how data is used during such cooperation. In these research projects, 13 PhD students and postdocs at seven Dutch universities are in pursuit of finding improvements for cooperation and are looking at how these improvements coincide with current governance strategies, or demand new ones.

1.2 Available budget

The budget available for this call is € 3 million; this is provided by NGinfra and the NWO division Social Sciences and Humanities.

1.3 Validity of the call for proposals

This call for proposals is valid until the closing date, 26 January 2021, 14:00:00 CET.

[1] http://www.NGinfra.nl

2 Challenges

Infrastructures serve an important purpose for societies. As societies transition in areas such as data collection and analysis, new forms of energy, developing urbanisation and the need for circularity, challenges are presented to infrastructure managers. Alignment of these transitions will be essential to make infrastructures and the management of them future proof. Responsiveness to the changing demands of the world we live in requires a multi-value view, focussed on efficiency and sustainability, inclusiveness and flexibility. Also, infrastructures require a long term and predominantly technological foundation.

This adds to the challenge of responding to transitions. Therefore, it is not surprising that infrastructure managers are actively looking for ways to deal with these changing societal demands. Within the context of these demands, infrastructure managers are faced with an increasingly dynamic decision-making process involving multiple stakeholders. They are dealing with challenges like overcrowded highway and railway systems, continuing urbanisation and a transition to renewable energy sources.

Several important shifts taking place right now can be identified:
- Transforming from an assets-centred focus towards a perspective on infrastructure as a *service*.
- Transforming from reasoning solely in terms of economic value to also considering social and sustainability *values*.
- Transforming from mono-infra to *multi-infra*: a multitude of infrastructures come together in the same public space leading to increased interdependencies, which lead to specific governance challenges.
- *Change* will become the norm.
- Operating at a different *scale* than the one infrastructures were designed for.
- Focussing on *new functionalities and technologies*, with an adaptive character and a long term focus.

As a consequence of these shifts, the ecosystem of any single infrastructure manager will continue to increase in complexity. As infrastructures are critical for ensuring a smoothly functioning society and failure may have grave consequences, it is crucial to find effective ways to deal with the growing complexity. In the next decade, many infrastructure assets will reach the end of their economic and/or technological lifespan and will need to be replaced. Combined with the evolving societal demands described above, innovating towards a change of functionality seems an evident path to take. However, innovation and a minimal chance of failure do not coincide naturally, nor are they combined easily with responsiveness.

This all may be very true for single infrastructures, but perhaps even more so for any combination of interdependent infrastructures. Planning and programming within a tangled web of infrastructures adds issues of shared governance, such as owning and operating highly complex technical assets; having to make long-term investment decisions in highly uncertain conditions; and unitedly acting on the changing interface between the public and private domain.

Where the first NGinfra call was aimed at studying how infrastructure managers could improve their current practices by focussing on operation and execution, this second call is focussed on *shared multi- infrastructure planning and programming*. At its core is multi-value optimisation and the demand for social and sustainability values and how to organise infrastructures' ability to respond to these ever-evolving values. It looks to choose the right path forward within a network of complex and interdependent infrastructures. These challenges crosscut several levels of governance and institutions (local, provincial, regional, national and international).

At the moment infrastructure managers are under threat of 'getting stuck', because current infrastructure systems exist in parallel silos, despite the fact that these are interlinked somehow. A solution is foreseen in interlinking infrastructures, thus creating a *system of systems*. To do this effectively, modelling and governance will need to take a multi-infra perspective. This should enable different infrastructure managers

to break out of their silos and work together, supported by a broad governance environment. A system of systems perspective aids decision-making through modelling interactions and mapping out interdependencies. With the help of such a model, the most prevailing governing bottlenecks can be located, studied and hopefully resolved. The challenge is to incorporate such a model in an effective governance model, assisting infrastructure managers in planning and governing as if they are part of one single entity. To reach this, a (governance) model that illuminates technical, data and system dependencies and combines several perspectives, networks and levels of scale is necessary. Solutions can be technical, managerial or governance focused, but are preferably integrated solutions that do justice to this high level of complexity.

An approach that would focus on modelling infrastructures, or a network analysis of infrastructures in the Netherlands, in combination with an analysis of the governance context, could create insights at a system level to inform a multi-infrastructure governance structure. Such models could be a first step towards a Dutch system of systems model. Also, mapping out future scenarios can help to clarify how to govern and prepare for that future. It would also be interesting to see how different infrastructural elements can be connected to (the governance of) specific transitions; renewable energy delivered by existing infrastructures, or how they are/can be connected to a physical location like the Port of Rotterdam or Schiphol.

Overlooking these challenges and developments, the aim of this call is to fund interdisciplinary research into solutions that work towards modelling a systemic multi-infrastructure approach. It must include dynamic decision making processes involving multiple stakeholders, crosscutting several levels of governance and institutions to break out of separate silos and work together to create shared governance for planning and programming, in line with the transitions faced by society.

2.1 Approach

With this call, NGinfra and NWO seek to fund interdisciplinary research projects. To effectively manage the multilevel complexities of socio-technical infrastructure challenges, a variety of disciplines in the infrastructure field must be combined. Technological requirements coincide with governance challenges and both are intertwined with human behaviour.

This call has a strong focus on creating close partnerships between researchers and infrastructure managers. Research and sector developments must go hand in hand to reach optimal results. Working together in consortia of (combinations of) large infra-organisations could be highly valuable to both research and the sector in terms of obtaining new data, and making both fundamental and applied science projects possible. Combining both fundamental and applied science in a single project is a challenge, but has the potential to generate highly valuable projects.

To reach optimal and timely results with this programme, it is highly favoured that projects realise, share and implement intermediate results throughout their duration by taking a co-creation approach including researchers and the sector. Making valorisation efforts visible and showcasing the added value of the research projects to the infrastructure managers along the way is of key importance for successful implementation. Researchers could even be (partially) embedded at an infrastructure manager to reach the desired level of co-creation and valorisation.

In this call applicants form a consortium with at least three NGinfra partners. National or international infrastructure managers from outside NGinfra are also welcome to join a consortium. Universities of applied sciences may be added in a consortium as co-applicants.

An interdisciplinary research approach is deemed necessary for the research challenges presented above. The aim of this call is to fund balanced proposals with cohesive subprojects. To ensure the delivery of intermediate results, proposals need to incorporate regular exchange of progress with consortium partners.

All applications must have a high level of scientific quality and relevance to the NGinfra programme. The call provides an opportunity for two types of projects.
- *Type A:* Apart from a high level of scientific quality and relevance to the NGinfra programme, applications for this budget type should have a more broad focus, trying to answer more fundamental questions.
- *Type B:* Apart from a high level of scientific quality and relevance to the NGinfra programme, applications for this budget type should have a more focussed research character and/or focus on (quick) applicability of results.

The call budget is divided into two separate compartments: € 1 million for type A and € 2 million for type B. The type A budget compartment can thus finance one project with a maximum budget of € 1 million. The type B budget compartment can thus finance four projects with a maximum budget of € 500,000 each. All applications should have a minimum budget of € 100,000.

In the event that the budget within one compartment is depleted while there is a budget remaining the other compartment, NWO has the right to decide to use remaining budget of one compartment to fund proposals from another compartment. A decision of this nature will be published timely in the Staatscourant.

2.2 Matchmaking

To facilitate the development of consortia and research proposals, NGinfra and NWO will organise two matchmaking events for researchers and NGinfra infrastructure managers. To generate the highest level of alignment between requested and proposed research, these parties should come together in the earliest stage of the proposal development process (i.e. co-create).

The first matchmaking event will take place on the 20th of October 2020. The second matchmaking event will take place on the 1st of December 2020. Researchers can register until the 14th of October 2020 to take part in the first matchmaking session. When registering, researchers are asked to add a 100-word description of a research idea and express their NGinfra partners of interest. This information will be used to connect researchers to NGinfra partners during the session.

During the first matchmaking event, both researchers and infrastructure managers will have the opportunity to present themselves and discuss potential project ideas, with the aim to connect based on shared interests and/or goals. Between the first and second event, the connected parties can further explore their potential cooperation(s). During the second event, researchers are given the opportunity to present their elaborated proposals with the purpose of (new) infrastructure managers expressing their commitment to jointly submit a proposal by the deadline of this call.

Please note, taking part in this matchmaking process in not a prerequisite to be allowed to submit a full proposal to this call. However, applicants are strongly advised to make use of the opportunity. Both matchmaking events will be organised with consideration of current measures in light of COVID-19. For all final details, please check the grant page on the NWO website.

3 Guidelines for applicants

3.1 Who can apply

Full, associate and assistant professors and other researchers[2] with a comparable appointment can submit an application on behalf of a consortium if:

- they are employed (i.e. hold a salaried position) at one of the following organisations:
  - Universities established in the Kingdom of the Netherlands;
  - University medical centres;
  - NWO and KNAW institutes;
  - Universities of applied sciences established in the Kingdom of the Netherlands;
  - the Netherlands Cancer Institute;
  - the Max Planck Institute for Psycholinguistics in Nijmegen;
  - the DUBBLE Beamline at the ESRF in Grenoble;
  - NCB Naturalis;
  - Advanced Research Centre for NanoLithography (ARCNL);
  - Princess Máxima Center.
- and also have an appointment period for at least the duration of the application procedure and the entire duration of the research for which the grant is being applied for. Personnel with a zero-hour appointment is excluded from applying.

Additional conditions[3]:

- Each consortium must include at least one knowledge institution and three NGinfra Partners. Additionally, it is allowed to include other infrastructure managers (i.e. who are not partners of NGinfra) as consortium members bringing in their own funding. Other public or private parties (i.e. non- university partners such as SME's and governments) may also be included in the application as consortium members. It is mandatory that public or private partners in a consortium provide a signed letter of commitment with a submitted full proposal and subsequently, in case an application is granted, sign a consortium agreement. Please refer to section 3.5 for further details.
- A researcher may only submit two applications in this round, and may only be the principal applicant in one of these.

3.2 What can be applied for

The budget modules (including the maximum amounts) that are available for this call are stated in the table below. Only costs that are essential for realising the research should be requested. Note that the requested budget will also be assessed.

[2] In this Call for Proposals, "researchers" refers to both women and men.
[3] The word 'applicants' refers to both main applicants and co-applicants.

Budget module	Maximum amount
PhD	According to VSNU or NFU rates[1]
Professional Doctorate in engineering (PDEng)	Only in combination with PhDs and/or postdoc(s), according to VSNU or NFU rates[1]
Postdoc	According to VSNU or NFU rates4
Non-scientific staff at (NSS) universities	€ 100,000, according to VSNU or NFU rates[1], in combination with PhDs and/or postdoc(s)
Other scientific staff (OSS) at universities	€ 100,000, in combination with PhDs and/or postdoc(s)
Research leave	5 months, 1 fte, according to VSNU or NFU rates4
Personnel universities of applied sciences and other institutions (such as applied research organisations (TO2) and SMEs)	Rates based on *Handleiding Overheidstarieven 2017* (HOT)
Material costs	€ 15,000 per year per scientific position
Knowledge utilisation	€ 25,000
Internationalisation	€ 25,000
Money follows Cooperation	Less than 50% of the total budget applied for

[1] For personnel outside the Netherlands, the local rates are reimbursed up to a maximum of the VSNU rates.

Explanation of budget modules for personnel

Funding for the salary costs of personnel who make a substantial contribution to the research can be applied for. Funding of these salary costs depends on the type of appointment and the organisation where the personnel are or will be appointed.

- For university appointments, the salary costs are funded in accordance with the VSNU salary tables applicable at the moment the grant is awarded (www.nwo.nl/salary-tables).
- For personnel from universities of applied sciences and other institutions, the salary costs are funded on the basis of the collective labour agreement salary scale of the employee concerned, based on the*Handleiding Overheidstarieven 2017*.

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

The available budget modules are explained below.

PhD (including MD-PhD)

A PhD is appointed for 1.0 fte for a duration of 48 months. The equivalent of 48 full-time months, for example an appointment of 60 months for 0.8 fte is also possible. If a different duration of appointment is considered necessary for the realisation of the proposed research, then as long as this is properly justified, the standard time can be deviated from. However, the duration of appointment must always be at least 48 months.

Professional Doctorate in Engineering (PDEng)

Funding for the appointment of a PDEng can only be applied for if funding for a PhD or postdoc is also applied for. The appointment for a PDEng position is a maximum of 1.0 fte for 24 months. The PDEng trainee is employed by the institution applying for funding and can realise activities within the research at an industrial partner for a specified time. If the research proposal is awarded funding, then an agreement must be concluded with the industrial partner(s) concerned. The underlying "Technological Designer Programme" should be described in the funding proposal.

Postdoc

The size of the appointment of a postdoc is at least 6 full-time months and at most 48 full-time months. The size and duration of the appointment is at the applicant's discretion, but the appointment is always for at least 0.5 fte or for a duration of at least 12 months. The product of fte x duration of appointment should always be a minimum of 6 full-time months. The material budget is available to cover the costs of a more limited appointment of a postdoc.

Non-scientific staff (NSS) at universities

Funding for the appointment of non-scientific personnel necessary for the realisation of the research project can only be applied for if funding for a PhD or postdoc is also applied for. A maximum of € 100,000 can be requested for NSS. This includes personnel such as student assistants, programmers, technical assistants or analysts. Depending on the level of the position, the appropriate salary table for non-scientific staff at MBO, HBO or university level applies.
The size of the appointment is at least 6 full-time months and at most 48 full-time months. The size and duration of the appointment is at the principal applicant's discretion, but the appointment is always for at least 0.5 fte or for a duration of at least 12 months. The product of fte x duration of appointment should always be a minimum of 6 full-time months.
The material budget is available to cover the costs of a more limited appointment of non-scientific personnel.

Other scientific personnel (OSS) at universities

Budget for other scientific personnel such as AIOS (doctor training to be a specialist), ANIOS (doctor not training to be a specialist), scientific programmers or employees with a master's degree can only be applied for if funding for a PhD or postdoc is also applied for. For this category, a maximum of € 100,000 can be applied for. The size of the appointment is at least 6 full-time months and most 48 full-time months. The size and duration of the appointment is at the applicant's discretion, but the appointment is always for at least 0.5 fte or for a duration of at least 12 months. The product of fte x duration of appointment should always be a minimum of 6 full-time months.

Research leave for applicants

With this budget module, funding can be requested for the research leave costs of the principal and/or co- applicant(s). The employer of the applicant concerned 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 five 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/salary-tables).

Personnel universities of applied sciences and other institutions

For the funding of salary costs of personnel employed at a university of applied sciences or other type of institution (such as TO2 or SMEs), the maximum rates (hours/day) are used in accordance with the *Handleiding Overheidstarieven 2017* (HOT), see the *kostendekkend* table.

Explanation of budget module Material

For each fte scientific position (PhD, postdoc, PDEng) applied for, a maximum of € 15,000 material budget can be applied for per year of the appointment. Material budget for smaller appointments can be applied for on a proportionate basis and will be made available by NWO accordingly[4]. The principal applicant is responsible for distributing the total amount of material budget across the NWO-funded personnel positions. The material budget that can be applied for is specified according to the three categories below:

Project-related goods/services

- consumables (glassware, chemicals, cryogenic fluids, etc.)
- measurement and calculation time (e.g. access to supercomputer, etc.)
- costs for acquiring or using data collections (e.g. from Statistics Netherlands), 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, etc.)
- personnel costs for the appointment of a post-doc and/or non-scientific personnel for a smaller appointment size than those offered in the personnel budget modules

[4] Per 0.2 fte scientific employee at a university of applied sciences (junior, medior and senior level, with a minimum appointment of 0.2 fte for a period of 12 months), a maximum of € 15,000 material budget can be applied for each year of the appointment.

Travel and accommodation costs for the personal positions applied for

- travel and accommodation costs
- conference attendance (maximum of two per year per scientific position applied for)
- fieldwork
- work visit

Implementation costs

- national symposium/conference/workshop organised within the research project
- costs for Open Access publishing (solely in full gold Open Access journals, registered in the "Directory of Open Access Journals" https://doaj.org/)
- data management costs
- 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 € 5,000 per proposal; for projects with a duration of three years or less, a maximum of € 2,500 per proposal applies.

Costs that cannot be applied for are:
- basic facilities within the institution (e.g. laptops, desks, etc.);
- maintenance and insurance costs.

If the maximum amount of € 15,000 per year per full-time scientific position is not sufficient for realising the research, then it may be deviated from if a clear justification is provided in the proposal.

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[5]. The budget applied for may not exceed € 25,000.
Because knowledge utilisationtakes many different forms in different scientific fields, it is up to the applicant to specify the costs required, 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.

Explanation of budget module Internationalisation

The budget for internationalisation is intended to encourage international collaboration. The budget applied for may not exceed € 25,000. The amount requested must be specified. If the maximum amount is not sufficient for realising the research, then it may be deviated from if a clear justification is provided in the proposal.

Funding can be requested for:
- travel and accommodation costs in so far as these concern direct research costs emerging from the international collaboration and additional costs for internationalisation that cannot be covered in another manner, for example from the bench fee;
- travel and accommodation costs for foreign guest researchers;
- costs for organising international workshops/symposia/scientific meetings.

Explanation of the budget module Money follows Cooperation (MfC)
The module Money follows Cooperation provides the possibility of realising a part of the project at a publicly funded knowledge institution outside of the Netherlands.
The applicant must convincingly argue how the researcher from the foreign knowledge institution will contribute specific expertise to the research project that is not available in the Netherlands at the level necessary for the project.
This condition does not apply if NWO has concluded a bilateral agreement concerning Money follows Cooperation with the national research council of the country where the foreign knowledge institution is located.
The budget applied for within this module cannot be more than 50% of the total budget applied for.
A researcher from the foreign institution should satisfy the conditions set for co-applicants in Section 3.1 of this call for proposals, with the exception of the condition that the co-applicant should be employed in the Kingdom of the Netherlands.
The applicant receives the grant and is responsible for transferring the amount to the foreign

[5] In this budget module, the definition for "knowledge transfer" used by the European Commission in the Framework for State Aid for research and development and innovation applies (PbEU, 2014, C198).

knowledge institution and for providing accountability for the MfC part of the grant.
The exchange rate risk lies with the applicant. Therefore, gains or losses due to the exchange rate are not eligible for funding. The applicant is responsible for:
– The financial accountability for all costs in both euros and the local currency, for which the exchange
– rate used must be visible;
– a reasonable determination of the size of the exchange rate. If requested by NWO, the applicant must always be able to provide a description of this reasonable determination.

NWO will not issue any funding to co-applicants in countries that fall under national or international sanction legislation and rules. The EU Sanctions Map (www.sanctionsmap.eu) is guiding in this respect.

3.3 When can applications be submitted

The deadline for registering for the first **matchmaking** is 14th of October 2020 (a registration form and final details will be shared timely via de NWO grant page).

The deadline for submitting a **full proposal** for this call for proposals is 26 January 2021, 14:00:00 CET, via the ISAAC system.

3.4 Preparing an application

– Download the application form from the NWO website (on the grant page for this programme).
– Complete the application form in English.
– Save the application form as a pdf file and upload it in ISAAC.

3.5 Conditions on granting

The NWO Grant Rules 2017 and the Agreement on the Payment of Costs for Scientific Research apply to all applications.

Letters of Commitment and Consortium Agreement

The NGinfra programme is cross-sectoral in nature and is aimed at co-operation between infrastructure organisations and the field of science. To fulfil this criterion, each full application must be supported by at least three participating NGinfra members[6]. Each proposal needs a letter of commitment from each consortium partner, i.e. each private or public partner joining a consortium. The letters must contain an explicit declaration of the contribution agreed upon and on how the research results will be actively disseminated among all consortium partners (e.g. why the project is interesting/important; what results are expected; how the results will be embedded in the organisation; what the organisation will contribute to the research (e.g. office space, data, knowledge, workforce).

In case the proposal is awarded funding, the consortium will be asked to set down further agreements in a Consortium Agreement (on financial contribution, access to data, support, office space, etc.). This agreement covers intellectual property rights (IPR), knowledge transfer and other matters such as payments and confidentiality, which must be arranged in accordance with the NWO policy concerning intellectual property. The NWO Grant Rules prescribe that a project leader and consortium partners agree on the apportioning of IP rights related to their relative financial contribution. Please refer to article 4.2.4 of the NWO Grant Rules 2017 and contact NWO for further guidance on this point if necessary.

Applicants and (potential) consortium partners are urged to consider the conditions of a consortium agreement in this programme at the earliest stage possible and should do so before submitting an application.

Open Access

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.

[6] The NGinfra partners are Alliander, Port of Rotterdam, ProRail, Rijkswaterstaat, Schiphol Group and Vitens (seewww.NGinfra.nl for more information).

Data management

Responsible data management is part of good research. NWO wants research data that emerge from publicly funded research to become freely and sustainably available, as much as possible, for reuse by other researchers. Furthermore NWO wants to raise awareness among researchers about the importance of responsible data management. Proposals should therefore satisfy the data management protocol of NWO. This protocol consists of two steps:

1. **Data management section**
   The data management section is part of the research proposal. Researchers should answer four questions about data management within their intended research project. Therefore before the research starts the researcher will be asked to think about how the data collected must be ordered and categorised so that it can be made freely available. Measures will often need to be taken during the production and analysis of the data to make their later storage and dissemination possible. Researchers can state which research data they consider to be relevant for storage and reuse.
2. **Data management plan**
   After a proposal has been awarded funding the researcher should elaborate the data management section into a data management plan. The data management plan is a concrete elaboration of the data management section. 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. The plan should be submitted to NWO via ISAAC within a maximum of 4 months after the proposal has been awarded funding. NWO will approve 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.

Further information about the data management protocol of NWO can be found at https://www.nwo.nl/en/policies/open+science/data+management.

Research integrity

The research that NWO finances must, in accordance with the NWO Grant Rules, be conducted in accordance with the nationally and internationally accepted standards of scientific conduct as laid down in the Netherlands Code of Conduct for Research Integrity (2018). When submitting the application, the applicant commits himself to this code. In the event of a (possible) violation of the aforementioned standards in research funded by NWO, the applicant must immediately inform NWO of this and must submit all relevant documents to NWO. More information about the code of conduct and policy on scientific integrity can be found on the website: Netherlands code of conduct for research integrity 2018.

3.6 Submitting an application

An application can only be submitted to NWO via the online application system ISAAC. Applications not submitted via ISAAC will not be taken into consideration. Applications that are submitted incorrectly or too late cannot be accepted.

A principal applicant must submit her/his application via her/his own ISAAC account. If the principal applicant does not have an ISAAC account yet, then this should be created preferably well before, but surely no later than 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 she/he does not need to create a new account to submit an application.

For technical questions please contact the ISAAC helpdesk, see Section 5.1.2.

4 Assessment procedure

4.1 Procedure

Technical-administrative criteria

Only those proposals that satisfy the technical-administrative criteria stated in Chapter 3 of this call for proposals are admissible and will move forward in the assessment procedure.

The following specific technical-administrative criteria apply to this call:
1. The proposal has been submitted by the deadline stated in this Call for Proposals via ISAAC;
2. The obligatory application form has been used;

3. All sections in the application form have been completed;
4. The maximum allowed word count (if stated) has not been exceeded;
5. The requested budget adheres to the requirements of this Call for Proposals (see section 3.2);
6. The application has been written in English;
7. Letters of commitment from all public and/or private parties in the consortium, including at least three NGinfra partners, have been uploaded as attachments to the proposal;
8. During the period for which funding is requested, the principal applicant and co-applicants must remain effectively involved in the research covered by the application. The knowledge institution must give the applicants the opportunity to carry out adequate research supervision during the course of the application;
9. Each consortium includes at least one knowledge institution and three NGinfra Partners[7].
10. A researcher has submitted a maximum of two applications in this round, and isthe principal applicant in maximum one of these.

Assessment procedure

After applications have been declared admissible to move forward into the assessment procedure, they will be sent to at least two independent international experts for peer-review. Applications will be assessed based on two assessment criteria in this call, namely (1) scientific quality and (2) relevance to the NGinfra programme (see below for further explication of the assessment criteria). Applicants will be given the opportunity to respond to the review reports via a written rebuttal. The applicant will get 5 work days (7 days) to form their rebuttal. After this, the final assessment will be made by an international assessment committee (IAC) based on the application, the review report and the rebuttal. The assessment committee will provide a qualification for each application and a recommendation for funding. The committee's assessment of a research proposal is summarised according to a qualification system so that the applicant knows how good the proposal is. The qualification categories are: excellent, very good, good, unsatisfactory. These qualifications are related to a numerical scale: 1 – 1,4 = excellent, 1,5 – 3,4 = very good, 3,5 – 5,4 = good and 5,5 – 9.0 = unsatisfactory.

In the case of an ex aequo result the international assessment committee can prioritise based on the scientific quality of the proposals (i.e. criterion 1).

The assessment committee will be asked to provide a recommendation for the funding of a combination of projects with different scopes. For this purpose, as mentioned in Section 2.1, the available budget is split into € 1 million for the funding of one type A project and € 2 million for the funding of four type B projects.

Qualification

NWO will award a qualification to all full proposals and will make this known to the researcher with the decision about whether or not the application has been awarded funding.

Only applications that receive the qualification "excellent" and "very good" will be eligible for funding. For more information about the qualifications please see: www.nwo.nl/en/funding/funding+process+explained/nwo+qualification+system.

Code for Dealing with Personal Interests

The NWO Code for Dealing with Personal Interests applies to all persons and NWO staff involved in the assessment and/or decision-making process. See also: https://www.nwo.nl/en/common/subsidies/funding-process-explained/code-for-dealing-with-personal-interests

Data management

The data management section in the application is not evaluated and therefore not included in the decision about whether to award funding. However, both the referees and the committee can issue advice with respect to the data management section. After a proposal has been awarded funding, the applicant should elaborate the data management section into a data management plan. Applicants can use the advice from the referees and the committee when writing the data management plan. A project awarded funding can only start after NWO has approved the consortium agreement.

[7] www.NGinfra.nl

Timeline (tentative)

20 October 2020	Matchmaking session 1
1 December 2020	Matchmaking session 2
26 January 2021	Submission deadline full proposals
February 2021	Eligibility checks
February-March 2021	External review phase
April 2021	Deadline rebuttal
May 2021	Assessment by international assessment committee
June 2021	Funding decision; applicants informed on funding decision

4.2 Criteria

Applications will be assessed on the following, equally weighted criteria:

1. *Scientific quality of the proposal (50%)*
   - Are the research questions and objectives clearly defined and argued?
   - Does the proposal have a clear and well-argued theoretical framework?
   - Are the academic approach and methods suitable for the proposed research questions and objectives?
   - Is the research proposal academically relevant?
   - Can it be considered state-of-the-art or beyond?
   - What is the level of interdisciplinarity and is this considered sufficient to reach the proposed objectives of the project?
   - Is the (academic) applicants' past performance relevant and is their expertise fitting to reach the proposed objectives and research questions?
   - What is the quality of the consortium? Is this combination of consortium partners expected to reach the proposed objectives and research answer the proposed research questions?
   - Is the proposed management and implementation of the project realistically planned and feasible? This includes the foreseen availability of resources and data.
   - Is the foreseen budget appropriate and sufficiently justified?
2. *Relevance for the NGinfra Programme (50%)*
   - To what extent does the proposal contribute to the objectives of the programme?
     - Is the research proposal interdisciplinary?
     - Is the research proposal technical, managerial or governance focused?
     - Is the research proposal focussed on shared infrastructure planning and governance?
     - Does the research proposal have a multi-infra approach?
     - Does the research proposal cross-cut governance levels and institutions?
     - Does the research proposal look at current en future transitions faced by society?
   - What is the quality of the plan for knowledge utilisation?
     - Does the knowledge utilisation plan incorporate co-creation with NGinfra partners?
     - Is the knowledge dissemination embedded in practice? To what extent is knowledge implemented together with and in the daily practice of consortium partners?
     - Are the goals of the knowledge utilisation plan achievable within the proposed work plan and its timeline?

Since 2009, NWO has pursued a concrete policy that aims to stimulate the transfer of knowledge generated with the help of funding from NWO. This transfer can take place to other scientific disciplines as well as to users outside of science (industry/society). The knowledge utilisation policy is mainly targeted at increasing researchers' awareness of knowledge utilisation. NWO therefore requests all researchers applying for funding to provide an explanation regarding the possible knowledge utilisation of their project by means of answering several questions (for example: how will knowledge utilisation be implemented and how does the researcher intend to facilitate knowledge utilisation?). This explanation is part of the assessment criteria.

NWO realises that the possibilities for knowledge utilisation differ per discipline and that some research projects have few if any opportunities for (direct) knowledge utilisation. In this case, an applicant should explain why no knowledge utilisation can be expected for his or her project. The selection committee members will still be asked to assess this explanation: if they are convinced that the research project indeed has no knowledge utilisation possibilities and that the applicant has explained this satisfactorily, then this should not negatively influence the overall assessment score.

Examples of knowledge utilisation can be found here.

5 Contact details and other information

5.1 Contact

5.1.1 Specific questions

For specific questions about Next Generation Infrastructures and this call for proposals please contact:

Anthony Gadsdon NGinfra@nwo.nl
+31703494276

Wijnand Veeneman wijnand.veeneman@NGinfra.nl
+31651333540

Please note, contact details for specific NGinfra partners can be found on the NWO grant page.

5.1.2 Technical questions about the electronic application system 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 CE(S)T on +31 (0)20 346 71 79. 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.

5.1.3 Privacy and personal data

NWO has the responsibility to share progress reports of granted projects, including personal information in those reports of all persons mentioned named in such reports, with NGinfra. This will be done in accordance with the EU General Data Protection Regulation (GDPR) and the NWO Privacy Statement. The following documents and or information may be shared with NGinfra: progress reports, intermediate results and or products, overviews of contact information of all consortium members involved in NGinfra research projects. More information can be found on https://www.nwo.nl/en/privacy+statement.

6 Annexe(s)

The annexes can be found at the bottom of the NWO grant page.
- Annex 1: application form
- Annex 2: budget form
- Annex 3: letter of commitment template
- Annex 4: contact information NGinfra partners